

COMMONWEALTH
SCHOOL

ACADEMIC CATALOG



“Commonwealth has made me think more deeply about what I’ve been learning and therefore about the world in general.... It is not about finding an answer but reaching a greater understanding.”

Contents

The Ninth Grade Experience /	2
Sample Schedule /	3
Graduation Requirements /	4
English /	5
History /	8
Humanities and Social Sciences /	12
Languages /	17
Computer Science /	23
Mathematics /	25
Science /	30
Arts /	34
Grade-Specific Courses /	38

EXPERIENCE ACADEMIC ELECTRICITY

Have you ever walked out of a classroom with a buzzing in your brain? A thrill running down your spine? A sense that you've been changed—forever and in the most fantastic way—by what you've just learned? If you have, you've probably searched for that feeling at school every day since. If you haven't, you will at Commonwealth School.

Whether you're learning about the notoriously unsolved P vs. NP computer science problem, the role of resurrection in the poetry of Eudora Welty, the atomic origins of color, the history of *commedia dell'arte* theater, or the mathematical underpinnings of infinity, you'll find an invigorating intellectual atmosphere at Commonwealth, forged by curious, intelligent students working with outstanding teachers. Together they revel in shared academic enthusiasm and embrace the complexity and nuance inherent in deep studies, as students read, write, and reason at the college level. Yes, the academic demands are high, but teachers and advisors keep careful watch over student progress and spend much of their time working one-on-one with them to offer support and enrichment.

If you, too, yearn to wrestle with big ideas and look closer at small details, all alongside students who share your zest for learning, keep reading to get a sense of what Commonwealth classes entail. Please note that not all courses are offered every year. We encourage you to reach out to us at admissions@commschool.org with any questions you might have.



THE NINTH-GRADE EXPERIENCE

“I think the biggest thing about Commonwealth academics is that you learn to go out of your comfort zone. Now I can’t wait to learn about a new line of poetry in English or something in the past from ancient history or cell biology. All of those are things that I would have never wanted to go to as much as math in my middle school.”

Entering a rigorous high school is exciting and fun. But like any new venture, it also requires adjusting to new classes, new teachers, and a new culture. At Commonwealth, we have designed a first year aimed at helping you settle in, make friends, and learn how to do your best work as soon as possible.

Advisor and Student Buddy

Even before you set foot inside the school as a new student, you are assigned an advisor and a student buddy. Both will get in touch with you during the summer, and once school starts, you will meet regularly with your advisor one on one. They will answer your questions, offer support, or simply take time to chat. After the first semester, when you have gotten to know all your teachers, you have the opportunity to indicate your preferences for a permanent advisor.

Study Hall

During your first semester here, you will spend your free periods in study hall. This arrangement provides structure and encourages you to focus and use your time productively. It also gives you easy access to teachers if you become snarled in a homework assignment.

Pass-Fail Grading

We want you—and your families—to understand that if you learn to welcome academic challenge, feel free to join in lively class discussions, seek out your teachers when you feel the need, and carefully read their comments on your written work—in short, if you engage fully with your studies, your grades will take care of themselves. To this end, though teachers give grades (and write you lengthy comments) to help you assess your progress, at the end of ninth-grade year, your final letter grades convert to a P (pass) or an E (fail) on your transcript.

Ninth-Grade Seminar

All ninth graders take a special year-long seminar designed to prepare them to succeed throughout their time at Commonwealth, including how to:

- Communicate effectively and respectfully, particularly in a digital world
- Navigate Boston comfortably and conscientiously (our “City of Boston” unit, replete with field trips around the city and challenging questions)
- Study and plan their time effectively
- Safeguard their health and wellness by examining crucial questions about “growing up” and all that it entails (our “Health and Community” unit)

Also see “Grade-Specific Courses” at the end of this PDF.

SAMPLE NINTH-GRADE SCHEDULE

Our building opens at 7:30 a.m., and our day begins at 8:30 a.m. We can stay until 5:00 p.m. or leave earlier once our activities are done.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
FRENCH 2	Study Hall	BIOLOGY 1	ANCIENT HISTORY	COMPUTER SCIENCE 1
ANCIENT HISTORY	FRENCH 2		Assembly	BIOLOGY 1
Recess	Recess	Recess	Recess	Recess
Study Hall	Class Meeting	Advisor Meeting	9TH GRADE SEMINAR	FRENCH 2
GEOMETRY ADVANCED	BEGINNING PHOTOGRAPHY	ENGLISH 9	BIOLOGY 1	ANCIENT HISTORY
BIOLOGY 1	ENGLISH 9	ANCIENT HISTORY	Study Hall	Lunch Setup / Study Hall
Lunch + Model UN	Lunch	Lunch + Math Team	Lunch	Lunch
ENGLISH 9	9TH GRADE SEMINAR	COMPUTER SCIENCE LAB	BEGINNING PHOTOGRAPHY	GEOMETRY ADVANCED
COMPUTER SCIENCE 1 2:45 p.m.		GEOMETRY ADVANCED 2:45 p.m.	FRENCH 2	ENGLISH 9 2:45 p.m.
Soccer Practice 3:00 – 5:00 p.m.	GEOMETRY ADVANCED 3:25 p.m.	Soccer Practice 3:00 – 5:00 p.m.	Study Hall 3:45 p.m.	Soccer Game 3:00 – 5:00 p.m.
	Play Rehearsal 3:30 – 6:00 p.m.		Play Rehearsal 4:00 – 6:30 p.m.	

GRADUATION REQUIREMENTS

By the time you graduate from Commonwealth, you will feel amply prepared for whatever comes next. The standard course load is five academic credits and one or two half-credit art courses per year. All classes run for the entire year. You must take a minimum of four academic credits and one half-credit art course each year to remain in good standing. Our minimum graduation requirement is eighteen credits.

Progress Through the Curriculum

Because new students come to Commonwealth from many different types of schools, their training and levels of preparation for our courses vary. We use placement tests and conversations with the Assistant Head of School and teachers to develop a first-year schedule suited specifically to your needs and interests. In subsequent years, your advisor (in consultation with the faculty) will help you shape your course load.

Capstone Projects for Seniors

If you have a passionate interest in a particular subject, have proven yourself engaged and self-motivated, and are reliable with deadlines, you will have the opportunity to apply for a year of independent study under the guidance of a faculty mentor through Commonwealth's Senior Capstone program.

Finished projects will vary, of course, according to each year's chosen topics, but by spring, all Capstone scholars produce a substantial piece of writing or art and have the exciting chance to present their year's labor and discoveries to the entire school. Applications to the Capstone Program are due in spring of junior year during course registration; accepted candidates will begin research and correspond with mentors during the summer.

	GRADE 9	GRADE 10	GRADE 11	GRADE 12
English	English 9	English 10	English 11	English 12 or Reasons for Writing
History	Ancient History	Medieval World History	U.S. History	Modern European History or Other History Elective
Language *	Language Level 1	Language Level 2	Language Level 3	Language Level 4 or Higher
Math **	Geometry or Geometry Advanced	Algebra 2/Precalculus or Algebra 2/Precalculus Adv.	Calculus 1 or Statistics	Theoretical Calculus or Other Math Elective
Science	Biology 1	Chemistry 1 or Chemistry 1 Advanced	Physics 1 or Physics 1 Advanced	Advanced Science Elective(s)
Arts †	One or More Arts Courses	One or More Arts Courses	One or More Arts Courses	One or More Arts Courses
Grade-Specific Courses † †	Ninth-Grade Seminar	Not Applicable	Not Applicable	Head of School Seminar
Athletic Requirements	Two Seasons of Sports	Two Seasons of Sports	Two Seasons of Sports	Two Seasons of Sports
Other Requirements	Project Week, Community Service ^	Project Week, Community Service ^	Project Week	Senior Project

* **LANGUAGES:** French, Latin, Mandarin, or Spanish

** **MATH:** Representative example; students can progress through math curriculum according to their interest and ability, including upper-level courses such as Theoretical Calculus and Axiomatic Set Theory.

† **ARTS COURSES:** Acting, The Art and Science of Materials, Chorus, Chorale, Chamber Music, Jazz Ensemble, Orchestra, Ceramics, Drawing and Painting, Life Drawing, Photography, Printmaking, Sculpture

† † **GRADE-SPECIFIC COURSES:** Ninth-grade seminar teaches students how to communicate effectively, how to navigate Boston comfortably and conscientiously, and how to safeguard their health and wellness; Head of School Seminar challenges seniors to explore the role of purpose of education in the United States and more broadly.

^ **COMMUNITY SERVICE:** Progress Toward 20 Hours



“I used to read books in black and white, but three years of Commonwealth English classes have taught me to see all the colors.”

ENGLISH

Close reading and critical thinking undergird every English class at Commonwealth. The sequence of full-year English courses in ninth through eleventh grades presents readers with a wide range of texts in carefully ordered juxtaposition. A changing roster of half-credit electives (mostly for eleventh and twelfth graders) addresses your more specific literary interests (Shakespeare, for example, or Modernism). As each year progresses, you encounter increasingly challenging works and pursue great and elusive questions. You come to understand that questions, not answers, are the reward that literature offers.

As a senior, you have a choice of English courses: the more traditional English 12 or Reasons for Writing, where you will use your critical reading and writing skills in a variety of modes that are not strictly literary—for example, the personal essay, science writing, argumentation.

Our English courses challenge students to think critically about who gets to tell their story. In critiquing their own and each other’s writing, students engage openly and imaginatively with others’ points of view and experiences. Authors such as James Baldwin, Chief Seattle, Kyoko Mori, Jhumpa Lahiri, Jamaica Kincaid, Karen Joy Fowler, Joe Brainard, and Sei Shonagon feature across the English curriculum. Texts include *The Woman Warrior* by Maxine Hong Kingston, *Their Eyes Were Watching God* by Zora Neale Hurston, and *Omeros* by Derek Walcott.

English 9

Reading, thinking, talking, listening. This class provides the foundation for your four years of Commonwealth English classes: you learn how to read with sustained attention—to listen carefully to the particular language of a text, to notice an array of details and perceive their impact, and to express what you have discovered in focused, well-constructed paragraphs and essays. In class discussion, you work with your classmates on trying out and refining your ideas about a reading. You get plenty of practice writing—and plenty of feedback, too—with frequent analytical essays; sometimes you will have the opportunity to imitate or parody distinctive styles of writing. Texts have included *The Iliad*; *The Odyssey*; *Sir Gawain and the Green Knight*; Shakespeare, *Much Ado About Nothing*, *Romeo and Juliet*; Brontë, *Jane Eyre*; Kingston, *The Woman Warrior*; Dillard, *An American Childhood*; Tsitsi Dangarembga, *Nervous Conditions*; and a smorgasbord of folktales, short poems, and stories.

English 10

The plot thickens! As a tenth grader, you will refine your skills as a close reader. You work with a variety of texts in which you encounter narrators who cannot be trusted, plays in which no character is “right,” and heroes who are not necessarily sincere (or even particularly “heroic”). You learn to piece together an argument based on increasingly

complicated textual evidence; close reading will help you to find your way and draw conclusions about complex matters even in the absence of a trustworthy narrator's strong helping hand. And in more regular and longer essays, you'll focus on how to describe clearly the perceptions you uncover. Texts have included Shakespeare, *Macbeth* or *Richard II*; Shelley, *Frankenstein*; Dickens, *Great Expectations*; short stories by Ernest Hemingway, Langston Hughes, James Baldwin, Jhumpa Lahiri, and others; essays by Orwell; dramatic monologues; and Hurston, *Their Eyes Were Watching God*, or Kincaid, *Annie John*.

English 11

This year is devoted to listening to the enormous expressive range of the human voice as rendered in written words. We pay increasingly close attention to diction, tone, patterns of speech, the arc of an argument—to the way so much hinges on exactly how things are said by poets, characters, and narrators. Take Shakespeare's Hamlet, whose intense urge to speak the truth drives him to express himself in a multitude of voices. We study literary works in a non-chronological order designed to allow particular voices to resonate with and build on each other. And we read at a leisurely pace, often aloud and together. We spend most of the first quarter on lyric poems to sharpen your listening skills; then we move on to longer works. Writing focused critical essays analyzing passages helps you uncover nuance and confront ambiguity. Authors have included Gwendolyn Brooks, Gerard Manley Hopkins, Elizabeth Bishop, John Donne, Harryette Mullen, Emily Dickinson, William Blake, William Carlos Williams, F. Scott Fitzgerald, Nella Larsen, Terrance Hayes, Anita Desai, Lucia Berlin, James Joyce, Kiese Laymon, Shakespeare, and Derek Walcott.

English 12

You are ready to consider the ways literary works relate to one another. You might, for instance, read a number of texts to see how the Romantic era in literature developed into our own. Or you might consider a theme (e.g., the search for an imagined paradise), a theoretical question (e.g., what comic or tragic possibilities are realized when things—societies, language—fall apart), or a genre or an idea. Each section will have its own list of readings and its own subject to pursue. Courses change from year to year according to teacher and student interests. Texts have included poetry by Marianne Moore, Walt Whitman, Gertrude Stein, Langston Hughes, Claudia Rankine, W.B. Yeats; Shakespeare plays; Melville, *Moby-Dick*; Morrison, *Beloved*; Joyce, *Portrait of the Artist as a Young Man*; Forster, *A Passage to India*; Toomer, *Cane*; Woolf, *To the Lighthouse*; Faulkner, *As I Lay Dying*; and Roy, *The God of Small Things*; Lydia Davis, *Collected Stories*.

English 12: Reasons for Writing

This class offers you the chance to read and then to write in a variety of forms beyond literary analysis: memoirs, journalism, and polemics, including a dive into writing about climate change. In the spring, you and your classmates will produce a *New Yorker*-like class magazine that is usually distributed to the whole school. Possible readings: a compilation of autobiographical, journalistic, persuasive, and science writing by authors including John Milton, Abraham Lincoln, Frederick Douglass, James Baldwin, David Sedaris, Elizabeth Kolbert, and Steven Pinker; Shakespeare, *Othello*, or Milton, *Paradise Lost*; Austen, *Pride and Prejudice*, or Wharton, *The Age of Innocence*; stories by Tolstoy and O'Connor; Stoppard, *The Real Thing*; and Williams, *Style: Toward Clarity and Grace*.

Caribbean Literature

This course will serve as an exploration of noteworthy novels, poems, short fiction, and essays from the Caribbean islands and the broader Gulf World. Often conceived of as the

“After reading essays that were informative, elegant, shocking, and beautiful, it was my turn. In writing my personal essay for Reasons for Writing, I found my voice.”

meeting point between Europe, America, and Africa (and with a sizeable Asian population as well), the Caribbean has historically fascinated scholars due to the diversity of its people, with cross-cultural contact producing new identities and forms of artistic expression. Special emphasis will be placed on the emergence of a shared Caribbean identity, as well as the individual cultural identities of specific islands and nations. We will consider questions such as the following: How is it useful to think about the Caribbean as a single cultural or geographic region? What are the problems that arise from this kind of thinking? How does Caribbean literature express the shifting and unstable ways in which people from the Caribbean think of themselves in relation to the region's history of slavery and colonial violence? The class employs close reading, supplementing it with a focus on historicism and cultural perspectives, adopting an intersectional approach to discussions of race, class, nationalism, gender, and ethnicity. In addition to class readings, students will be encouraged to explore on their own, discovering and writing about texts that align with their interests.

Creative Writing

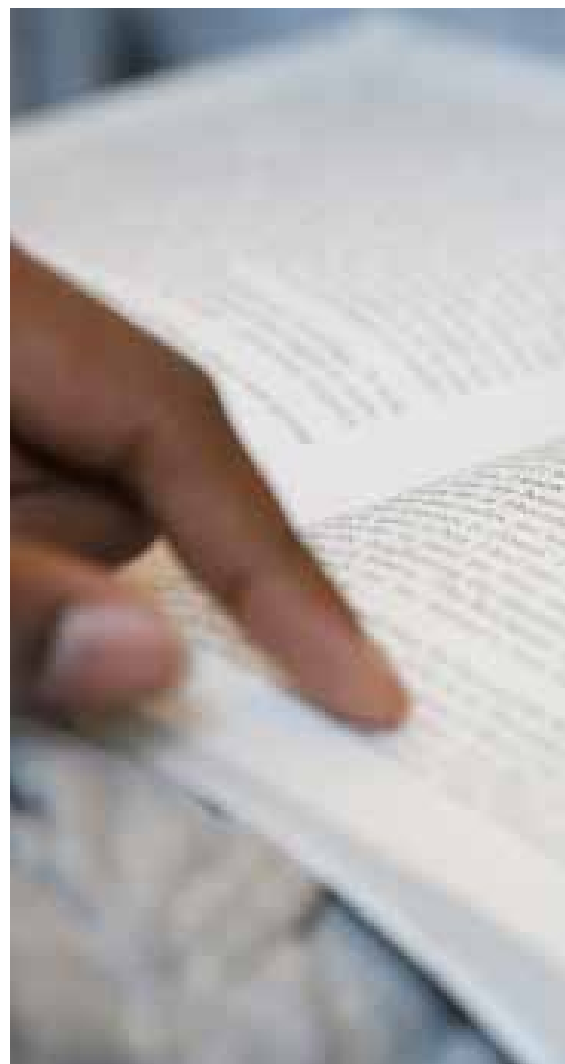
Students spend the first half of the year generating a great deal of writing in a wide variety of forms (poetry, short story, creative nonfiction). Coursework includes weekly one-page writing prompts, three- to five-page submissions for workshops, and thoughtful discussion of one another's work. Toward the end of the year, each student defines and completes an individual project to be handed in at the last class. In the past, student projects have included collections of poems, linked short stories, longer stories, and screenplays.

Advanced Creative Writing

In the first three quarters of the year, this course will focus on the study of poetry, short story, and personal essay. Through readings and class discussions, students will define important features of each genre, while experimenting with it in weekly writing prompts. Students will prepare longer submissions for workshops and will read and respond thoughtfully to one another's work. The fourth quarter will be devoted to a project of the student's choosing, to be clearly defined in one-on-one meetings with the teacher. This could be a collection of poems, a story or personal essay, or a combination of genres. Students will end the year with a polished manuscript, which they will submit and present to the class. They will also be strongly encouraged to submit work to the literary magazine and to read from final projects at the writing assembly. Open to students who have not taken a creative writing class at Commonwealth with permission of the instructor.

Shakespeare: Language and the Self

Students will explore the relationship between Shakespeare's language and the variety of "selves" he puts on display. Do comic characters speak differently from tragic ones? Can we see glimpses of a coherent personality in disparate sonnets—and if so, how? What do characters gain from speaking to the audience in soliloquy? Why is it that at moments of great emotional intensity, the language of Shakespeare's characters often gets more rhetorically complex instead of becoming simpler or less articulate? Do various characters see themselves as separate from the rest of the world, or as part of it? We will address these and other questions by reading a selection of Shakespeare's sonnets and several plays (*Richard II*, *As You Like It*, *Twelfth Night*), as well as focusing our attention—as painlessly as possible!—on some of the particular features of both Early Modern English and the early modern theater that Shakespeare was able to use to great effect. We will also consider modern performances where possible. Open to 10s, 11s, and 12s.





“Our history curriculum, centered on the close reading of primary sources, made it easy for me to imagine the sorrow of a Greek poet’s lament in ancient history or a layperson’s yearning for nirvana in the Buddhist colophons we read in Medieval History.”

HISTORY

Throughout the Commonwealth history curriculum, our aim is to inspire your historical imagination. As you begin to think critically and creatively about how we know what we know about the past, you’ll come to understand the breadth of sources that underpin today’s ideas and institutions. Different civilizations in different eras believe in different “self-evident” truths. In our studies of Western and non-Western societies (including China, Africa, and the Islamic world), we examine both the universal and the particular ways culture and religion have constantly affected politics and daily life.

Throughout the history curriculum, students work with and learn to describe and analyze primary sources in their historical context. By junior year, students are writing essays that not only evaluate primary sources and events but also incorporate modern historians’ interpretations of them. A series of progressively more challenging research papers in our required courses teaches students how to use the many primary and secondary sources available in our collections of books and digital subscriptions, the nearby Boston Public Library, and university stacks. Students emerge as fully independent historical writers, skilled at constructing rigorous and clear historical arguments.

Ancient History

A camel driver’s complaint; Persian kingship inscriptions; Athenian court cases—how can historians tell us anything about the past from such insufficient sources? By making you distrust the certainty with which textbooks lay out “facts,” Ancient History provides an excellent introduction to the study of history. In this course, you will use primary sources to explore the history of the ancient world, concentrating on Mesopotamia, the Mediterranean basin, northern India, and China. Throughout the year, we will seek to understand how kings and emperors projected their power across vast distances and how people in each society made sense of their own lives and the world around them. Contact across cultural boundaries will be a major focus of our work, as we examine how different peoples perceived each other and what factors led them towards cooperation or conflict.

Medieval World History

Medieval World History covers the Islamic World, China, Europe, and African kingdoms between 500 and 1500, and introduces students to the breadth of the world’s cultures. The medieval world was an interconnected one: Chinese emperors prized ostrich eggs from Africa; African and European kings wore silks from the East. In Medieval World History, we look at how ideas (and diseases) traveled freely on the Silk Road that tied East to West in a time of rich and diverse cultures when East, rather than West, ruled the world. Primary sources allow us to look at the ways the cultures of China, the Muslim world (including Africa), and Europe viewed one another; how religions developed in response to other religions as well as political necessity; and how evolving technology and econom-

ic systems changed cultures. Though we have a textbook, created specifically for this course by a Commonwealth teacher, our main focus remains close reading and in-depth discussion of primary sources, including such classic works as Lao Tzu, *Tao Te Ching*; Dante, *Inferno*; Boccaccio, *Decameron*; the Malian epic *Sundiata*; and *The Incoherence of the Incoherence* by the Muslim philosopher Ibn Rushd.

United States History

U.S. History focuses heavily on questions of what it means to be free and to have rights—and on what role government and the economic system should play in securing those rights in a multicultural, multiracial democracy. In this version of the course, students will trace the changing understanding of what it means to be “free” (and what role government might play in limiting or securing that freedom) from the founding of the colonies in the 17th century to the Reagan Revolution in the 1980s. This version is best for students looking for a grounding of our current world in the debates at the founding Republic, with the fall semester focusing on the intellectual history of the 18th and 19th century, including the debates over slavery and how those shaped lingering attitudes long after the 13th Amendment. Students complete an independent research paper on a topic of their choosing in the spring. Summer Reading: William Cronon’s *Changes in the Land*.

United States History Since 1865

This version of United States History is based on the second half of the standard US class, going deeper into each topic and ending in the 1990s. We give special attention to the changing role of government in the face of three major changes: the end of slavery with the 13th Amendment, the growing capitalist economy, and the Cold War. The smaller scope of the course allows students to look at events in greater detail, using more scholarly articles and more forms of media, including films, cartoons, advertisements, and music in addition to written primary sources. Is best for students who like to go deeper into issues of race, class, gender, and the tensions between democracy and capitalism. As with the standard version of the course, the course features a research paper in the spring and—with some additional work—should prepare students for the AP. Summer reading assignment: Jill Lepore’s *These Truths*.

Modern European History

This class covers major themes and events in European history from the eighteenth century through the 1990s, and then jumps forward to the present to examine the war in Ukraine. Our central questions include: What has defined “legitimate” political authority at different points in European history? How have economic and technological developments shaped the lives of ordinary Europeans? What accounts for the rise and fall of nationalism, imperialism, fascism, and communism? When and why have European states fought each other, subjugated non-European peoples, or persecuted groups of their own citizens? Primary sources provide the basis for class discussion and for most writing assignments. For instance, we use contemporary reactions to the Lisbon Earthquake of 1755 to see how Enlightenment thinkers understood human suffering, and we draw on sources ranging from dissidents’ writings to secret police reports to analyze the revolutions of 1989. Our readings also include a college-level textbook and a variety of scholarly articles. After this class, you will enter college prepared for advanced electives in modern European history. Students wishing to take the AP Exam in European History will need to do some additional preparation. Course intended for 12s.

Bible-as-History/Bible-as-Bible

Back in the era of the great empires of the Iron Age, an Egyptian bureaucrat complained to his supervisor about bandits—*habiru*—who lived outside of the imperial system in the foothills of Canaan. Millennia later, historians have begun wondering whether those *habiru*

“Instead of accepting the facts as presented in secondary sources, I could see for myself what really went on. Reading primary sources in history was a way to cut through the dry tone of a textbook and focus on how people actually felt and what they saw.”

might have been the Hebrews of the Bible—and what that identification might mean to the religion they developed. This course asks students to use their skills as a reader of primary documents to uncover the competing social and religious concerns revealed by a complex text whose date of completion is in question. Students will also use their skills as a responder to language to consider the changing conceptions of God and the problem of suffering, especially as the Israelites were influenced by the Babylonian exile and the Greek ideas of the Hellenistic period. The last third of the course will examine the Jesus movement and its Jewish and Greek roots, focusing not only on the Christian Bible but also on the Gnostic texts that were excluded from the canon in the second century. Most of the writing of the course is in the form of biweekly response papers, but the major final project will be an examination—or creation!—of some literary, musical, or artistic interpretation of a Biblical story. Open to 10s, 11s, and 12s, with preference given to 10s.

Empires & Nationalism

The twentieth-century world emerged from the ruins of empires. In this course, we will explore the ways in which imperial rule and its usually violent end have shaped nationalism and national conflict. We will examine the end of the Ottoman Empire and the Armenian genocide of 1915–1916, Yugoslavia from the state's formation through the post-Yugoslav wars, the end of the British Raj and the trauma of Partition in India, and Iraq's experience from the Ottomans through the present. The course will challenge students not only to understand the uniqueness of each country's history but also to think conceptually and comparatively across cases. In most weeks, students will write a response paragraph on an assigned question. The class has no tests or longer writing assignments. Open to 11s and 12s.

Mesoamerica

Hieroglyphs carved in stone or traced in bark-paper books; pyramids aligned with the stars; an intricate calendar of intermeshing cycles; human sacrifice, royal bloodletting, a ballgame symbolizing the struggle between light and dark, life and death. These hallmarks of Maya civilization were in fact practiced throughout Pre-Columbian Mesoamerica, a region stretching from central Mexico to Honduras. They will loom large as we examine the development of Olmec, Maya, and Aztec cities (among others), from the second millennium BCE to the conquest of Mexico in 1521, with a focus on the dazzling city-states of the lowland Maya during the Classic Period (c. 250-925 CE). We will necessarily engage with a variety of evidence, including material remains, works of art, and inscriptions—class time is largely devoted to viewing and analyzing slides of these monuments. We will also rely heavily on the K'iche' epic *Popol Vuh* to reconstruct Maya religion. You will therefore use all the skills you have honed in your history and English classes (plus a little math), and learn about some of the techniques archeologists and anthropologists use to reconstruct the past, such as ceramic analysis and the ethnology of indigenous peoples. While there will be periodic quizzes on factual information, most written work will involve the analysis of specific buildings, artifacts, or texts. Open to 10s, 11s, and 12s.

South of the Border: The History and Culture of the Other Americas

This course will attempt to account for the dazzling multiplicity of American peoples, cultures, and stories, from the colonial era to the present. We will discuss the devastating impact of colonization on the indigenous peoples, the ideas that informed the urban planning and the administration of the new colonies, the struggles of the oppressed and the enslaved, the emergence of nation-states in the wake of the Independence movement, and the societies created by the clash of cultures and traditions. We will

“History, I’ve concluded, is at its core the celebration of the Human Condition: the small man will hurry through his brief, uneventful (or all-too-eventful) time in the world in a few decades, but two thousand years later, a six-year-old boy may marvel at a plaster copy of his remains. (Full disclosure: that boy was me—that day I fell in love with history.) Personally, I find it hard to conceive of anything more beautiful than this connection through time.”

explore concepts like transculturation, hybridity, and syncretism and will read some of the texts that decisively influenced the new republics' nation-building, such as *Our America* by José Martí, *The Cosmic Race* by José Vasconcelos, and *Discourse on Colonialism* by Aimé Césaire. We will explore culture as a site of agency and resistance for communities that have been traditionally marginalized or excluded from the national project. Last but not least, we will pay special attention to the complex history of the region's interactions with the United States from the nineteenth century onwards. Open to 11s and 12s.

The World Since 1945

In this class, students will achieve a deeper understanding of the present by examining the forces and events that have shaped the world since 1945. We will alternate between broad coverage of major trends (such as decolonization and climate change) and closer examination of specific topics (such as the division of the Korean peninsula, the rise of Al Qaeda, and the current conflicts in Gaza and Ukraine). While all areas of the world will receive some attention, Europe and the Middle East will be most prominent. In most weeks, students will write a response paragraph on an assigned question. The class has no tests or longer writing assignments. Open to 11s and 12s.

“Studying recent history became relevant not only because it helped me make sense of the present, but also because it made me ask who had written what I was reading and how we can come to know what is true and what is not.”





HUMANITIES & SOCIAL SCIENCES

Have you ever wondered how movies “work” to manipulate the audience or exactly what music does to “grab” the listener? Did a trip to the MFA when you were in grade school inspire you with a lifelong love of impressionist painting? Have discussions about the rise of cryptocurrencies like Bitcoin made you want to know more about how economies work? Or maybe you’d like to learn more about how to think through upcoming arguments in the Supreme Court.

To help satisfy your curiosity, we offer a broad and changing selection of electives in the humanities and social sciences. Often, we will add new courses to the curriculum in response to students’ and teachers’ lively interest.

Methods in Urban Planning

This course will begin with a brief overview of city planning before American colonization in order to understand the formation of the modern city, and then we will focus on the United States. We will use cities as source material to evaluate each significant trend in addition to writings by the major urban planners of the times. We will examine demographics, housing numbers, and engineering solutions to current problems. There will be multimedia planning projects including work designing in 3D with computer software. Open to 11s and 12s.

Economics

Why aren’t rent controls efficient? What exactly is bad about monopolies? Is the free market truly the best economic system? What does the Federal Reserve Bank do? In Economics, you examine these questions and many others. In the first semester, we will study the law of supply and demand, market structures such as perfect competition and monopoly, and both the extraordinary efficiencies and the inefficiencies of the free market. In the second semester, we will turn to the economy as a whole. What is GDP? How do we ensure economic growth, low unemployment, and low inflation? Can we actually do this? We will study fiscal policy, such as stimulus spending and tax policy, and monetary policy, those mysterious actions by the Federal Reserve. This course will prepare you for both the Microeconomics and Macroeconomics Advanced Placement tests. Open to 12s, and 11s with permission.

Greek Tragedy & Its Legacy

Are there absolute ethical standards, or do moral principles only promote the interests of those who formulate them? How is it that discourse can so effectively conceal—or distort, or invent—truth? Will human nature respond to reason, or is the psyche moved only by the seduction of its own passions—and the flattery of clever speakers? Is a society founded on persuasion, i.e. democracy, especially prone to self-deception and destruction? These are some of the questions we will encounter in the works of Aeschylus, Sophocles, and Euripides, the great tragic poets of the 5th century B.C.E., who transformed Greek myths into concise articulations of the insoluble contradictions of human existence. As we read closely a number of their plays, we will consider how the genre of tragedy as such responded to the cultural dislocations caused by the 5th-century intellectual revolution and the unprecedented horrors of the Peloponnesian War (431-404

“This course changed the way I examine society. We analyzed sociology, history, political science, mythology, and philosophy in our discoveries—deep in the smooth and delightful subtleties of Greek literature. Some of the texts we read still haunt me (in a good way!).”

B.C.E.). Then we'll observe the influence of tragedy on Thucydides, reading his history of this disastrous conflict precisely as the tragedy of Athens' willful and self-destructive folly. Finally, we'll explore the philosopher Plato's literary and intellectual debt to tragedy, taking as our cue his decision to present his ideas in the form of fictional dialogues set, significantly, during the Peloponnesian War. That is, we'll trace how the anxieties of one particular culture, now so remote and alien, gave rise to so many of the conscious and unconscious assumptions of western thought. Open to 11s and 12s.

U.S. Politics and Policy in the 21st Century

This full-credit course is designed to fill the social-science space left by Economics in 2025-2026 by examining how we got to this political moment. We will be looking at debates over the proper size of government in the face of the changes in the global and U.S. economy since the 1970s, with a focus on not only economic but also cultural factors that have intensified those disagreements. Some of the topics we will cover: polarization, including whether we the people are as divided as our politics suggest; a growing retreat from a rights-based "Liberal Democracy" seen in the U.S. and elsewhere in the world; the role conversations about gender and gender roles have played in our culture and politics; how environmental policy became associated with one party; and the economic benefits and costs of the concentration of wealth. Throughout the course, we will develop and articulate our understandings of what we individually think government should—and can!—do. The course will be experimental in form, as it will emphasize reading and organizing large amounts of information rather than working on writing. There will be no writing assignments outside of class time (except the midyear), but readings will run 25-30 pages a night. Open to 12s.

Introduction to Psychology

Psychological concepts and terms permeate our world. Yet, thinking and talking directly about this subject matter is often fraught, confusing, and/or controversial. How do we think about something as complex and shifting as identity? What do these terms we throw around all the time, such as anxiety or narcissism, actually refer to beyond some sort of "toxic" emotional experience or trait? This course attempts to begin to address some of these questions by examining broadly the development of "a self." Besides reading psychological literature, we will also use the "clinical material" of film as a means to flesh out themes such as identity, relatedness, and development. Open to 11s and 12s.

Exploring Identity: Self and Other

Students in this course should become comfortable exploring and sharing their own personal experiences as we discuss challenging topics such as race, gender, and social status. We will read psychological, sociological, and other theory-based works as well as literary texts addressing the creation of identity. We hope to gain a better understanding of how our society construes and sometimes imposes these concepts. We will also discuss current events that are related to these topics such as Black Lives Matter, immigration policy, terrorist organizations, etc. Readings will include: Mahzarin R. Banaji, *Blind Spot*; David R. Roediger, *Working Toward Whiteness: How America's Immigrants Became White: The Strange Journey from Ellis Island to the Suburbs*; Danzy Senna, *Caucasia: A Novel*; Michelle Alexander, *The New Jim Crow*; Mohsin Hamid, *The Reluctant Fundamentalist*. Open to 11s and 12s, and 10s with permission.

Comparative Literature: The Nature of Epic

This course examines traditional epics from Africa, Asia, Europe, and the (pre-Columbian) Americas. After a brief study of the oral formulaic nature of heroic poetry, we'll read a number of (shorter) epics, both as literary art and ethnographic artifacts cataloging each culture's peculiar norms and values. Some epics we'll read, such as the Central Asian

"We learned concepts that explain how decisions are made and prices are set. Money makes the world go 'round, and studying economics helped me understand why and how."

Manas cycle, have been transcribed directly from improvised oral performances; others, such as the West African *Sundiata*, are composite texts; still others, such as the medieval Irish *Táin Bó Cúailnge*, are prose works that recast earlier hero stories. While each tradition is a world unto itself, one question that will run through all our studies is, “what is the nature of epic?” We’ll also consider how traditional epic differs from literary epic (e.g., Milton’s *Paradise Lost*). In the spring, students will explore these questions independently by presenting on a traditional epic not covered in class. Some exposure to Homer over the summer is recommended but by no means necessary. Open to 10s, 11s, and 12s.

Outside In: Exploring Impressions and Expressions of Landscape and Sense of Place

I only went out for a walk, and finally concluded to stay out till sundown, for going out, I found, was really going in.

—John Muir, *John of the Mountains: The Unpublished Journals of John Muir*

It is not irritating to be where one is. It is only irritating to think one would like to be somewhere else.

—John Cage, *Lectures on Nothing*

Did you know that there is an annual prize, the Ondaatje Prize, awarded to the “book of the highest literary merit—fiction, nonfiction, poetry—evoking the spirit of a place”? What, exactly, do you think inspires such works? What do they have in common, and how do they differ? How, and why, does a sense of place inspire art? When you are in a particular place or landscape, what do you notice, and how do you respond? In this interdisciplinary humanities course, such questions will underlie our consideration of a wide variety of responses to place: the written word (fiction, non-fiction, poetry), visual art (paintings, photography, film), and likely some music—offering you the opportunity to read, look, and listen carefully as you reflect on how landscapes and other places can stir us: inspiring emotions, reflections, questions, insights, and creative expression. Whether we are reading an account of a flâneuse wandering the streets of Paris, or immersed in a poem about Irish peat bogs, or watching a documentary film about monks who spend their days in silence in the Chartreuse Mountains of France, we will ask ourselves the question posed by scholar-mountaineer Robert Macfarlane: “What do I know when I am in this place that I can know nowhere else?”

Art History

Every class begins with an image of a work of art, projected on a screen. Major ideas emerge from the details—not from lectures or general surveys, but rather from what you observe and how you respond, and from lively exchanges with your classmates. Similarly, you will write most of your essays in class, basing them on your own first-hand experience of works of art you’ve often never seen before. In looking closely at details, such as a painting’s colors, composition, and brushwork, you will begin to build a coherent interpretation. Your confidence in your eye and critical judgment will grow. Examining several works by a particular artist, you will make imaginative connections. In this way, you’ll be able to work toward a larger understanding of an artist’s whole career and his or her contribution to the development of art in his or her own period and beyond. What is happening in the artists’ imaginations and in the world that accounts for the specific art they made? You will look for answers to this question in the works of art, themselves, and the artists’ own words in their letters and journals. You will also get to know Boston’s great art collections and write about some of the works of art in them. Open to 11s and 12s.



Film Analysis: American Film

Cultural interests, fears, and desires; historical events; worldviews, realities, and mythologies—a country's films arise from these, and propagate them, and respond to them. With this in mind, we'll spend the year experiencing American history and the country's "psyche" through the lens of its films, from some of our country's earliest movies up to fairly recent films. The films we'll watch fall into a variety of genres. The plan (subject to some variation depending on what we decide as a group) is to spend the first part of the year watching early and/or seminal examples of distinctively American genres (the Gangster Film, the Western, the Musical Film, the Screwball Comedy, Film Noir, etc.) and discussing particular themes and preoccupations. Depending on interest and time, we may also view more recent films that may be seen as responses to their forerunners—there are countless examples of homages, critiques, and revisions to enjoy. Time permitting, the final part of the year may be devoted to independent projects on a film, style, genre, or director of your choosing. As in English class, we will "read" closely, and our discussions will "quote" liberally from our text. Here, though, our texts will be the films. We'll use our growing knowledge and vocabulary to discuss how each film is put together: we will, of course, discuss plot and theme, but we will also think about how the art and craft behind each film affects our response. Open to 11s and 12s, and 10s with permission of the instructor.

Russian Literature in Translation

In this course, we will explore how Russian letters in the 19th century responded to trends in Russian society, especially Russia's rapid westernization and the simultaneous development of its identity as a separate civilization, one appointed with a historical mission to save Europe from itself. We will explore how intellectuals responded to the repressive, imperialistic regime that emerged from this tension, paying particular attention to the ways writers navigated state censorship and other forms of social control, whether they chose to resist the "system" or promote it. (We won't be shy about observing the through lines between tsarist, communist, and contemporary Russia.) Though we will begin with an exploration of works by Pushkin, Gogol, and Karolina Pavlova, the latter stages of the course will focus on Dostoyevsky and Tolstoy, both as social critics and penetrating psychologists. In Tolstoy we will also find a defender of ethnic and religious minorities, reading, among other works, his late novella *Hadji Murat*, a sympathetic depiction of a Dagestani Muslim rebel. In addition, we will give ear to some non-Russian voices within the Russian empire, such as Taras Shevchenko and Adam Mickiewicz, the "national" poets of Ukraine and Poland, respectively. Open to 11s and 12s.

Jazz Theory 1

Jazz music can be deeply instinctive or intensely cerebral—sometimes both at once. When listening to the shifting chord changes of Duke Ellington's "Caravan" or the abstract ensemble improvisations of late-era Coltrane, have you ever wondered how it all hangs together? Beginning with Jazz Theory 1, you can find out. We combine close listening to jazz performances with learning basic music theory: notation, ear-training, harmony, and music theory allow you to grasp concepts of improvisation. You will become a literate musician. As you come to understand more fully what you hear, you also gain a historical overview of jazz and how great jazz performers work. This gives you the opportunity to define your own role in a jazz group—which is helpful, since every student in Jazz Theory must take Jazz Ensemble as well. Most work is done in class, including exploring concepts on your instrument.

"I came to realize that painting is not just an exercise in color and texture. Ultimately, these works of art reflect on our very own existence, our very lives."

Jazz Theory 2

As you advance your understanding of jazz theory (you can take this class for up to four years), you will become increasingly knowledgeable and adept at listening, playing, analyzing, and composing. We do intense ear-training and study harmony, nomenclature, and writing jazz notation. More advanced classes include jazz arranging and jazz composition. All the way through, we emphasize playing what you learn and incorporating your skills into performance situations—such as Jazz Ensemble!

Music Theory 1 and 2

We study notation, music history, rhythm, pitch, and intervals. You'll do formal analysis and four-part writing, including secondary dominants and modulation. Heavy emphasis on ear training and solfège teaches you to listen. Music, like any language, is a system; understanding how it's put together helps you comprehend—analytically and therefore more pleasurably—any kind of music and notice correspondences between different styles of music. In the second year, we deepen our structural and formal analysis of music and do more sophisticated ear training and composition exercises. Often students are ready to take the Music Theory AP by the conclusion of this course. All members of both classes must also join either Orchestra or Chorus.

Conducting and Advanced Music Theory/Composition

This course is for students who have completed the school's music-theory sequence and have scored a minimum of 4 on the Music Theory AP exam. We study basic and complex beat patterns and independence of hand gestures as we continue with advanced ear training and score analysis. You will discover ways to use physical gestures to mold individual phrases and to weave them into a unified whole. The goal is for you to learn the skills that will enable you to conduct the chorus or the orchestra during a rehearsal or performance in the spring.

“If you're interested in theory, the level of your musical background doesn't matter. The program here can take people at any level and bring their theory to an AP level in just two years.”





“After four years of working with words that once sounded clunky, when I read Spanish literature now, I think in the language. The same transformation can occur in every discipline. You can learn to think in the language of science or the language of history. When this happens, you see things fit together in a beautiful harmony, and the field belongs to you.”

LANGUAGES

Our language program offers students the option of studying French, Latin, Mandarin, or Spanish. Our modern language classes teach students to understand French, Mandarin, and Spanish speakers around the world both in their native tongues and historical contexts. The same classroom discussions that hone their speaking skills introduce students to such issues as the impact of communism in Cuba, French imperialism in North Africa, socio-economics and religion in Peru, and how Latin American culture is portrayed in popular culture.

Students discover that the language they choose to study, whether spoken or classical, spills far beyond the classroom. Through school-organized exchanges and trips to Spain, France, China, Peru, and Italy, they have the opportunity to explore the country whose culture, literature, and history are becoming second nature.

French 1 and 2

French 1 and 2 are all about learning through doing! We not only read and listen, but write and speak in French every day. Like any complex skill, from sports to instruments, learning French is a long game. From day one, you'll be greeting each other with a few words. By the time you've completed French 2, through persistent practice, you will know thousands of words and be able to write and talk about various subjects, ranging from your daily routine to urban landscapes to personal and cultural values. Reflecting on these topics through cultural documents and conversations with native speakers, and with each other, you will also get to know about French and Francophone cultures while turning a critical eye on your own, all *en français!*

French 3

French 3 is a fully immersive experience. Students take what they learned in French 1 and 2 and start honing their four key communication skills in French (reading, listening, writing, and speaking), as they consider various topics pertaining to French and Francophone cultures. We begin with the textbook *Encore*, but soon wean ourselves off of it as we read folktales from France and the Francophone world and watch movies inspired by them. In the second semester, we read three plays: *L'île des esclaves*, *Rhinocéros*, and "Art." Students read the plays out loud, perform scenes, and learn about the social and historical contexts in which the plays were written and first performed. While many students feel more confident taking the AP exam in their fourth year, motivated students may take the AP in the spring of French 3 with a little independent work. Prerequisites: French 2 or equivalent.

French 4 Conversation

With a focus on modern (twentieth-century) and contemporary (twenty-first-century) French and Francophone cultures, the half-credit French 4 Conversation course grounds its class discussion in a wide variety of media such as plays, songs, poems, fiction, online videos, and film. In the past, we have explored topics such as the evolution of music, gastronomic culture in France and the Francophone world, and the question of what is "art,"

among other things! You will engage in conversation in class, and will practice spoken expression in recordings, in presentations, and in conversations with native French speakers. Students who did not take the French AP exam after French 3 will be well prepared to do so after this class. Prerequisites: French 3 or equivalent.

French 4 Literature

Our immersive literature section of French 4 will analyze a host of literary genres ranging from essays (Montaigne, Rousseau) to novellas (Claire Duras, Mme de Lafayette) social satire (La Bruyère, Voltaire), a play (Molière's *Le Misanthrope*), short stories (Maupassant), poetry (Baudelaire), and experimental fiction (Queneau, Delerm), among others. Taking the textbook *Taches d'Encre* as a guide, students will also refine their own written expression following the close observations we make of literary works. While students will be expected to participate consistently in classroom discussions, other tasks will include presentations, creative writing, close readings, short reaction papers, and longer-form essays. Prerequisites: French 3 or equivalent.

Latin 1 and 2

Why study Latin? To build your vocabulary? Improve your grasp of grammar? Yes, of course! But more exciting than these practical benefits is the joy that comes from delving into the art and literature of people who lived thousands of years ago, and seeing how their civilization has influenced our own. The journey begins in Latin 1, where you'll learn the building blocks of Latin grammar. In mastering a new kind of syntax, you will also become an expert in English grammar. As you become immersed in Latin vocabulary, you'll analyze how Latin words are formed and how they come into English, either directly or through the French speakers who invaded England in 1066. You'll also read short Latin texts that tell mythological stories or episodes from Roman history in Latin 1; while in Latin 2, you'll read texts adapted from medieval and Renaissance works. At the end of Latin 2, when your study of Latin grammar is complete, you'll dive into your first unmodified text from the 1st century B.C.E.!

Latin 3

Latin might be a dead language, but in Latin 3 we begin to read real, live Latin texts! Beginning with prose, we'll sample passages of some early historians (Cato the Elder and Quadrigarius), first-century political players (Cicero and Sallust), and the more stylized prose of the early empire (Tacitus and Suetonius). As we study these prose authors, we will also review Latin grammar systematically, with an eye to subtleties glossed over in the first two years of Latin. In the winter, we transition to poetry: first Catullus, the racy Roman poet who chronicled his loves and hates in shockingly sordid (and often untranslatable) terms. We'll revel in all his hilariously puerile antics, but always with an eye toward the profound artistic vision underlying his trifling "play." Then we'll investigate how Ovid, two generations later, incorporates into his epic *Metamorphoses* Catullus' poetics of the intricately wrought poem as well as his obsession with the beauty and terror of human desire. Prerequisites: Latin 2 or equivalent.

Latin 4

Gallia est omnis divisa in partes tres. ("Gaul is all divided into sections—three, in fact.") Caesar's authoritative opening to his Gallic War might be the most famous Latin sentence ever written, but it's curious that the record of his military campaigns should begin with some rather deceptive historical geography, implying that Gaul is not a nation, but merely a word that arbitrarily bundles a few unrelated "sections," each more barbarous than the next. Is he subtly justifying Roman imperialism—not to mention his own boundless ambition? Fast forward one generation to Vergil's *Aeneid*, part homage to Augustus, Rome's first emperor, part lamentation on the human cost of empire. Shall we, like Saint

"We read a lot; we analyze a lot; we talk a lot; we write a lot. One day in the middle of the year, I suddenly realized that I wasn't even thinking about the fact that I was doing all this in French."



Augustine before us, grieve the death of Queen Dido for love of pitiless Aeneas? Or pity Aeneas, the man of grief destined to found the race that will vanquish all nations? Whether the tragedy of star-crossed lovers or Rome's grim history, the same war in heaven is the cause. This is what we'll discover as we relish the heartbreaking beauty of Rome's national epic. Prerequisites: Latin 3 or equivalent.

Advanced Latin

Guided by student interest, we will read a variety of prose and poetry works. We can also pursue other topics, such as textual editing, literary translation, literary criticism, prose and verse composition, etc. Prerequisite: Latin 4

Mandarin 1

Learning Mandarin is an exciting journey, and in our classes, we focus on building all four essential language skills: listening, speaking, reading, and writing. If you're new to the language, Mandarin 1 is the perfect place to start! We'll begin with Pinyin—the phonetic system of Mandarin Chinese—so you can start pronouncing words with confidence. You'll also dive into the fascinating world of Chinese characters, uncovering their history, structure, and meaning. By the end of the course, you'll be able to recognize the 20 most common radicals and around 200 characters that form about 400 words. More importantly, you'll be able to hold simple conversations on everyday topics—greeting people, talking about your hobbies, describing your schoolwork, and chatting about shopping!

Mandarin 2

In Mandarin 2, we continue to build on the four essential language skills, helping you grow in confidence and fluency. Using *Integrated Chinese*—a widely used college-level textbook—you'll expand your vocabulary and master more sophisticated sentence structures. Through multimedia homework assignments and interactive group projects, you'll have plenty of opportunities to put your skills into practice. By the end of Mandarin 2, you'll be able to discuss a variety of topics with greater depth, from celebrating birthdays and dining out to visiting the doctor and planning a trip. Prerequisites: Mandarin 1 or equivalent.

Mandarin 3

In this intermediate course, you'll continue to build on your Mandarin skills—listening, speaking, reading, and writing—while diving deeper into the language and culture. You'll start reading short stories in Mandarin using *Tales and Traditions 1 & 2*, textbooks designed specifically for Mandarin learners. These books transform Chengyu stories (Chengyu—traditional Chinese idiomatic expressions, typically consisting of four characters) into engaging, level-appropriate narratives, allowing you to apply what you've learned over the past two years in a fun and meaningful way. It's a great continuation of the curriculum that deepens both language skills and cultural understanding. After completing this course, you will have the exciting opportunity to join a group trip to China! You'll immerse yourself in the language and culture and put your Mandarin skills to the test in real-life situations. Prerequisites: Mandarin 2 or equivalent.

Mandarin 4

This high-intermediate course is dynamic, student-driven, and designed around your personal interests and goals. If you love to read, you will explore an engaging chapter book in Mandarin. In previous years, we have read *Dou Dou by the Window*, a heart-felt memoir widely read by Chinese native speakers and one of my personal favorites. Through these readings, you will expand your vocabulary, enhance your reading comprehension, and strengthen your literary analysis and writing skills. If you prioritize speaking skills, you will engage in lively presentations, discussions, debates, and cre-

“To understand a text critically, to formulate my own thoughts, and to express them clearly through writing or speaking up in the classroom, that was my goal. Taking risks with my own opinion about a passage in Latin became an exciting daily challenge.”

ative activities such as recordings, podcasts, vlogs, and in-class improv plays. These fun, interactive assignments will help you build fluency and confidence in spoken Mandarin. Prerequisites: Mandarin 3 or equivalent.

Mandarin 5+

The advanced Mandarin courses are designed for dedicated learners who are eager to take their Mandarin skills to the next level and have specific goals for their learning journey. Examples of what we've done in these courses include AP preparation, reading workshops, and writing workshops. We've read translated versions of books like *Wonder*, *The House on Mango Street*, and the *Harry Potter* series. In our writing workshops, you'll explore different genres of writing in Mandarin, including poetry, short stories, expository writing, and argumentative essays. If you have specific ideas about what you'd like to do in this course, it's likely that we'll make it happen! Each course is offered as a full-credit or a half-credit course depending on student interest.

Mandarin Literature 2

This Mandarin Literature course is designed for passionate readers eager to dive deep into the fascinating world of Chinese literature. From ancient poetry to modern masterpieces, you'll immerse yourself in a rich array of texts that span centuries of literary history. In previous years, we've delved into timeless classics like *Shijing* (The Book of Songs) from the Western Zhou period (1046–771 BCE) and explored the poetic genius of Li Bai from the Tang dynasty (618–907 CE). You'll also engage with powerful modern works such as *Ren Sheng* (*Life*) by Lu Yao, *Bian Cheng* (*Border Town*) by Shen Congwen, and *Luotuo Xiangzi* (*Rickshaw*) by Lao She. These texts offer rich insights into Chinese culture, history, and society. Through in-depth reading and analysis, you'll sharpen your critical thinking and writing skills while gaining a deeper understanding of and appreciation for the beauty and depth of Chinese literature. This course is offered as a full-credit or a half-credit course depending on student interest. Prerequisite: Mandarin 5 or permission of the instructor.

Spanish 1

This course provides an introduction to the Spanish language, focusing on developing basic skills in speaking, listening, reading, and writing. Through a variety of activities that include interactive role play, games, and the discussion of authentic Spanish materials, students will learn essential vocabulary, grammatical structures, and pronunciation, while engaging in practical communication tasks. In addition to language instruction, the course explores aspects of Spanish-speaking cultures, allowing students to acquire a well-rounded understanding of the language and the diverse cultures where it is spoken. Spanish is spoken by more than 600 million people across the world, so it is well worth the time and the effort you put into learning it and becoming fluent. No prior knowledge of Spanish is required.

Spanish 2

We continue expanding our Spanish vocabulary and mastering new grammatical structures, using the *Descubre 2* textbook. Students actively engage in both individual and group oral presentations, helping them to build both confidence and fluency. They also develop their creative writing skills through storytelling and deepen their critical thinking by crafting analytical essays on a variety of topics. Classes are taught exclusively in Spanish, as we strive to create a full cultural immersion. Students watch short films, listen to podcasts, and explore music and articles that bring the Spanish-speaking world to life. Spanish 2 students are encouraged to participate in our exchange program with our partner school in Granada, Spain. Prerequisite: Spanish 1 or equivalent.

“Our discussion topics have included immigration, the Cuban revolution, dictatorships (Dominican Republic, Chile Argentina, Cuba), sexuality and society, music—to sum it up, just about anything you can fruitfully talk and argue about.”

Spanish 3

In this course, literature and history serve as catalysts for engaging discussions, allowing students to refine and expand their fluency and pronunciation. Focusing on Peru's rich culture and literature, students will explore the works of authors like José María Arguedas and César Vallejo, among others. Throughout the course, students will read newspaper articles and essays on Peruvian art, culture, and politics, connecting language skills with real-world contexts. In addition to oral presentations, students will conduct independent research into contemporary aspects of Peru's culture. Students are encouraged to participate in our biannual trip to Peru. This trip includes exploring the capital of the Incan Empire, Cusco, and visiting Machu Picchu, Lake Titicaca in Puno, Arequipa, and the bustling capital, Lima. This experience shows students firsthand the culture they have studied, bringing it to life in a way that texts and films alone cannot. Prerequisite: Spanish 2 or equivalent.

Spanish 4 Language and Conversation: Current Events and Cultural Trends

This class will use newspaper articles, podcasts, blogs, newsreels, and short documentaries to initiate conversation about current events and cultural trends in the Spanish-speaking world and beyond. With a special emphasis on reading comprehension, oral expression, and socio-cultural competence, we will use different formats (presentations, dialogues, interviews, group activities, roleplay, etc.) to practice multiple modes of communication in Spanish, from the informal to the official, in a variety of settings.

Spanish 4 Language and Conversation: Dictatorships in Latin America

In this class we explore the rise and fall of dictatorships in countries like Argentina, Chile, the Dominican Republic, and Cuba. We will engage with literature, journalism, film, and music to foster class discussions that will expand your understanding of Latin American history and culture while strengthening your Spanish speaking and writing skills. We will have a variety of communication settings, from casual conversation to formal discourse, and discussion formats, from parliamentary-type debates to talk shows and trials. This will allow you to consider different perspectives, fostering critical discussions that connect the political troubles of the past with the complex realities of the present. By the end of the course, you will have a deeper grasp of Latin American history and politics, and the skills to articulate insights with clarity and confidence in Spanish.

Spanish 4 Literature: Latin-American and Spanish Theatre in Context

This advanced Spanish course explores Latin-American and Spanish theatre, its history, evolution, and cultural significance. Students will engage with a variety of playwrights, from the classics of Golden Age Spanish theatre to the groundbreaking works of modern Latin-American dramatists. We will read excerpts of the entirety of plays by Calderón de la Barca, Sor Juana Inés de la Cruz, Tirso de Molina, Virgilio Piñera, Roberto Arlt, Elena Garro, and Federico García Lorca, among others. We will also discuss theatrical reviews, articles, and essays, and will write short samples of all those genres about the plays we read. Through this critical literature we will gain insights into the historical forces that shaped the authors and their work. Students will rehearse and perform scenes from many of the plays to increase their language proficiency while deepening their appreciation for theatre as both a mirror of society and a catalyst for social change.

“Our teacher told us once, ‘If I could airdrop my students into China, I would want them to be able to survive.’ I think if she did that now, we could!”

Spanish 4 Literature: Magical Realism

This course introduces students to Latin American authors who explore two genres: magical realism and fantastic literature. Students will read and analyze various stories and short novels, as well as write critical essays. Our principal goal is to strengthen students' command over the Spanish language, in both oral and written use, and also to use literary criticism to deepen students' understanding of a text. Some of the authors we will study in class are: Gabriel García Márquez (Colombia), Jorge Luis Borges (Argentina), Bioy Casares (Argentina), Felisberto Hernández (Uruguay), Leopoldo Lugones (Argentina), Mario Benedetti (Uruguay), and Carlos Fuentes (México).





COMPUTER SCIENCE

A foundation in the fundamentals future-proofs our computer science curriculum and prepares students for this fast-evolving field.

Computer science is all about problem solving; writing code is a lot like working out a puzzle. It's a discipline that changes the way you think. It can turn everything you do into a step-by-step challenge. You'll find that the methodical thinking programming asks of you has an impact in many parts of your life, far beyond just your computer science homework.

Students who endeavor to study computer science at Commonwealth will find themselves not only able to apply it in the "real world," but to explore its philosophical implications. What is computation? What can and cannot be computed? We aim to provide students with the training to find both beauty and elegance in this discipline.

"I have now implemented most major data structures. I know exactly how they work. The CS3 class is literally just students working together to write data structures. It's the definition of engagement and cooperation."

Computer Programming Essentials (CS 1)

This course provides a first look at the ideas of computer science and programming, and it is designed for students with no prior coding experience. Using a variety of languages, students will learn the basic tools used by programmers throughout a variety of disciplines, including data visualization, music generation, game design, and mathematical problem-solving. The course will be entirely project-based and inquiry-driven, with time divided equally between in class discussions/lectures and labs. We will cover foundational topics such as variables, conditionals, loops, and functions, with previews of further topics such as recursion and data types.

Designing Programs (CS 2)

Computer Science is a vast and exciting field, and this class provides a thorough and mind-stretching introduction to its most fundamental tool: programming. The course uses the pedagogically-driven student languages provided by DrRacket to allow for focus on program design. By learning the essential habits of systematic problem solving, students will be able to create complex programs such as video games, text editors, and document analyzers. Topics include data design and structure, recursion, abstraction, higher-order functions, and event-driven programming. No prior experience is necessary and the course is open to all grades. Access to a Mac OS, Linux, or Windows computer at home is strongly recommended.

Designing with Classes (CS 3)

Building upon the foundation provided by Designing Programs, this course looks at programming from the perspective of classes. Shifting to Java, an object-oriented language, students will be exposed to industry-standard tools such as loops and streams, as well as grapple with the benefits and stringencies of a statically-typed language. Now, instead of solely functions consuming and returning data, methods will have access to "this" object's data, and then use it for the majority of the computation. Topics such as structured, union, and recursive data-types, abstraction, and higher-order programming are reassessed through this outlook. The course also introduces crucial concepts such as state, mutation, and memory and runtime analysis; it will culminate in the building of a full chess game and artificial intelligence. Prerequisite: Designing Programs and permission of the department.

Computer Science Theory (CS4)

After two years of intensive programming, students in this course will gain an appreciation for and experience with the mathematical underpinnings of computation. To enable the study, the course begins with a study of discrete mathematics, including an introduction to combinatorics and set theory, as well as various proof techniques. From there, students will analyze increasingly complex models of computation, going all the way from finite state machines to Turing machines. Armed with the Church-Turing thesis, the class will be able to prove what problems are not computable. The runtime analysis that began in Designing with Classes will then be greatly expanded upon in the study of complexity theory, which covers the infamous, unsolved P vs. NP problem. The course ends with a study of algorithms, and techniques such as divide-and-conquer, greedy algorithms, and dynamic programming will be covered. The course offers a healthy mix of pencil-and-paper and programming assignments. Prerequisite: Designing with Classes.

Programming Languages (CS 5)

Having used programming languages extensively for three years, we will now study their design of languages. From both a theoretical and practical perspective, students will formally define and then implement programming languages that gradually increase in complexity both syntactically and semantically. These languages will be built in variants of Typed Racket, and will build upon concepts studied in all prior computer science courses. Prerequisite: Computer Science Theory.





MATHEMATICS

Do the angles of all triangles add to 180° ? How do we know? Has someone actually measured the angles of every possible triangle? The area of a circle is πr^2 . How can an area be a decimal number that goes on forever? Can anyone measure an area that accurately? If not, how do we know this formula is correct?

In studying math at Commonwealth, you will learn the answers to these problems and many others. You will learn to translate real-life situations into mathematical equations and how to construct logical proofs, starting from basic assumptions and arriving at expected and surprising results.

You will learn how to picture equations with graphs and tables of values and develop intuition about their behaviors. You can study calculus and learn about limits, instantaneous velocity, and precise areas—vital to the study of physics and other sciences. You can also study statistics, which has real-world applications in the sciences, the social sciences, political discourse—and everyday life. Regardless of the path you take through our math program, you will learn to think logically, to calculate accurately, and to solve challenging problems. Commonwealth math classes nurture a love of problem solving and take our most passionate mathematicians as far as they want to go.

Intermediate Algebra

In Intermediate Algebra you will start by reviewing Algebra 1, with a focus on manipulating variables with confidence and modeling word problems with solvable equations. The course then turns to the start of Algebra 2 with a full study of quadratics, rational expressions, and conic sections. You will not just learn how to do algebra; you will also understand why it works as you develop your mathematical intuition.

Geometry and Geometry Advanced

More than two thousand years ago, Euclid wrote down the foundations of modern geometry in what is probably the most famous math book ever written, *Elements*. What did he get right? What did he get wrong? In Geometry you will study a modern form of Euclid's assumptions and see for yourself what can be proven. This course not only teaches you what is true in geometry but also why it is true. The main course focuses on geometric facts and learning to write clear proofs. If you take Geometry Advanced, you will delve into more philosophical aspects of modern mathematics. What does it even mean in mathematics for something to be "true"? Studying hyperbolic geometry will challenge your preconceptions of how the world works and bring you closer to the beauty and mystery of theoretical mathematics.

Algebra 2/Precalculus and Algebra 2/Precalculus Advanced

Functions do all the heavy lifting in mathematics. In this course, you will learn to manipulate functions and represent them in different ways, from equations and tables of values to graphs. You will also study the basic panoply of common functions, from the steadfast polynomial to the transcendentals: exponential, logarithmic, and trigonometric functions. You will learn about these building blocks and how to transform and combine them into

“My freshman year Geometry class was inspiring. Suddenly homework became a ‘choose your own adventure story’—each student doing work in different ways. I learned how to plan an attack on a problem, and also how to restart and try again when I had gone down the wrong path.”

new and wonderful combinations. With these analytic tools in hand, you will also study conic sections, systems of equations, and (time permitting) matrices and probability.

Calculus 1

Algebra is the study of functions; Calculus is the study of how functions change. In Calculus you will learn about derivatives, what mathematicians call instantaneous rates of change: how fast an object is falling at any given time or how fast a radioactive substance is decaying (what is a half-life?). You will also study going in the other direction: if you know exactly what velocity you've been traveling at any given moment, how do you figure out how far you've gone? Calculus 1 focuses on the theory behind calculus and real-world applications.

Calculus 1 Accelerated

Algebra is the study of functions; Calculus is the study of how functions change. In Calculus you will learn about derivatives, what mathematicians call instantaneous rates of change: how fast an object is falling at any given time or how fast a radioactive substance is decaying (what is a half-life?). You will also study going in the other direction: if you know exactly what velocity you've been traveling at any given moment, how do you figure out how far you've gone? Calculus 1 Accelerated focuses on the theory behind calculus and real-world applications. It will prepare you for the Advanced Placement Calculus AB exam.

Calculus 1 Advanced

Algebra is the study of functions; Calculus is the study of how functions change. In Calculus you will learn about derivatives, what mathematicians call instantaneous rates of change: how fast an object is falling at any given time or how fast a radioactive substance is decaying (what is a half-life?). You will also study going in the other direction: if you know exactly what velocity you've been traveling at any given moment, how do you figure out how far you've gone? This course will prepare you for the Advanced Placement Calculus BC exam.

Abstract Algebra: Groups, Rings, Fields

In this challenging, college-level elective, you will study the most fundamental of mathematical objects: groups, rings, and fields. Are there other "number" systems that mimic certain properties of the real numbers? In what ways are they the same, and in what ways do they differ? In this course, you will discover the solutions to some long-time geometric puzzles: Can one construct a cube of volume two or trisect a given angle using a compass and straightedge? You will hone your abstract mathematical skills and your ability to write clear and effective proofs.

Axiomatic Set Theory

Axiomatic set theory provides a formal system in which all of mathematics can be constructed from a surprisingly simple set of axiomatic assertions, expressible in a beautifully concise formal language, about a collection of pairwise distinguishable objects known as "sets." This course is devoted to a study of ZF, the axiomatic framework due to Zermelo and Fraenkel in which this program is most often undertaken. ZF and just one additional assertion, the axiom of choice, allow us to build a hierarchy of set objects rich enough to capture all of the mathematics that anyone but a small group of logicians would ever need to do. Each model of ZFC contains a set of "natural number" objects that behave as expected; surprisingly, the axioms of set theory allow us to extend these to the classes of ordinal and cardinal numbers—both too large to be sets. Transfinite induction and recursion, generalizations of techniques of the same name on the set of natural numbers, illuminate the workings of ordinal and cardinal arithmetic, transporting us quite literally to infinity and beyond. As time permits, we will begin exploring famous assertions such as the continuum hypothesis that mark the boundaries of what can be definitively known in a model of set theory.

“When I came to Commonwealth, I was not a math person. After four years of intensive math training and application in other classes, though, I have come to have a rich and abiding love for math and all of its applications.”

Calculus 2

Here's your chance to take what you learned in Calculus, master all the details, and then extend those results to such applications as calculating arc length and the surface area of a solid of rotation and to calculate for parametric and polar functions. You'll learn to anti-differentiate more complicated functions and then study infinite sums. The terms get smaller, yet there get to be more and more of them. How can you tell whether an infinite sum will stay bounded or explode? This course will prepare you for the Advanced Placement Calculus BC exam.

Category Theory

This course introduces students to categories, functors, natural transformations, and duality. The study of categories is a relatively new pursuit in mathematics, established in the 1940s. Its basic premise is that by treating functions from one set to another as "arrows" from one "object" to another and viewing composition of functions abstractly as a binary operation on the collection of arrows, one arrives at deep insights that apply in a wide variety of situations and are based entirely on the arrows themselves and the way in which the composition operation relates them. Besides offering a language of discourse for much of pure mathematics, category theory has applications to computer science as well.

Differential Equations

For students interested in science and engineering, a solid understanding of differential equations is crucial as they underlie nearly all of our mathematical models for mechanical systems. In this course we will solve differential equations with an eye toward their applications, such as computing the current in a circuit to understand resonance, damping, oscillations, and gain; or examining a system's response to a sudden impulse input through use of delta functions. Early in the course we will see some exciting applications of complex numbers and Taylor series, which students examined in Calculus 2, before moving on to new techniques, including matrix manipulation.

Differential Geometry

The goal of this course is to lay a formal foundation for the study of continuous, differentiable, and integrable functions on higher-dimensional Euclidean spaces, allowing a rigorous development of the content of multivariable calculus as is done in Theoretical Calculus for the calculus of functions of a single variable. We begin by studying the topology that arises on n -dimensional Euclidean space from its structure as a normed linear space, then introduce the derivative as a linear transformation from one higher-dimensional space to another. After establishing properties of differentiation and proving the implicit function theorem, we introduce integrability of functions on higher-dimensional spaces and define integration on chains and manifolds with a view toward improving the classical theorems of multivariable calculus: Green's theorem, the divergence theorem, and Stokes's theorem.

Linear Algebra

By the time you are ready to take this course, you will already have learned what vectors and matrices are and how to manipulate them. We follow an axiomatic approach to arrive at a deeper understanding of how and why they work. What is the determinant, and how is it characterized? What does a "change of basis" mean (what is a "basis," anyway?), and why would you want to change one? This class is for budding mathematicians and those curious to know what the world of theoretical math is all about.

Mathematical Logic

What is truth? How do we formalize the notions of truth and provability as objects within a formal mathematical system, and what conditions on a mathematical assertion guarantee

"I'm good at math, and it's always fun, though before Commonwealth I'd always felt that I was essentially learning it on my own, with my textbook and homework. But being in this classroom added more than I could possibly have learned working by myself."



the existence of a proof of that assertion within the system? These are just some of the questions to be addressed in this course, a rigorous introduction to mathematical logic. We will begin with a discussion of propositional logic, including truth assignments, induction on formulas, and unique readability. We will then move on to first-order languages and predicate logic, introducing models as interpretations of languages and establishing connections between the syntactic (proof-theoretic) and semantic (model-theoretic) approaches to truth. Questions of cardinality, or size, will occupy our attention throughout the course. For instance, which theories are finitely axiomatizable? And under what conditions does a theory have models of all infinite cardinalities? As time permits, we will examine other areas of pure mathematics, such as group theory, number theory, axiomatic set theory, and analysis, through a model-theoretic lens. Important theorems to be studied include the compactness theorem and the Lowenheim-Skolem theorem.

Medieval Islamic Math

This course will focus on the accomplishments of Muslim mathematicians in the 600-year period between the destruction of the Library at Alexandria and the Crusades. The Muslims made mathematical contributions of great theoretical and practical significance, from pioneering new solution strategies for the great problems of geometry that had been left unsolved by Euclid and other Ancient Greek thinkers to developing powerful computational methods for decimal arithmetic and extraction of roots and compiling tables of trigonometric ratios. Their work in spherical trigonometry was particularly impressive, allowing them to solve such intricate problems in navigation and astronomy as determining the rising times of stars and estimating the distances and bearings between cities. The mathematical ideas to be explored in the course are striking by virtue of both their beauty and their accessibility to those with only modest mathematical preparation. As the Muslims' choice of topics of study seems to have been governed somewhat by religious and cultural factors, questions of a historical nature about Islam are bound to arise, and we will endeavor to address these questions from a historical perspective in addition to doing the mathematics itself. Prerequisite: Geometry.

Multivariable Calculus

In Calculus 2, you'll learn to distinguish those that come to a limit from those that "diverge" to infinity. In the second semester, you will encounter multivariable calculus. Instead of derivatives, you'll learn about partial derivatives. From the single-variable integral, you'll turn to vector functions, line integrals, and double (and even triple!) integrals. You'll learn about the mysteries of Lagrange Multipliers and Green's and Stokes' Theorems. This course also prepares you for the Advanced Placement Calculus BC exam.

Statistics

How can you tell that a phenomenon is random, and what does that mean? When the newspaper reports a poll with $\pm 3\%$ after it, what exactly does that $\pm 3\%$ signify? When drug companies claim that a drug will help you, how do they know, and why do scientists often change their minds later? Statistics is the study of random phenomena. In this class, you will learn how to design a study that will give you good data, how to describe the data accurately, and how to use inference to derive appropriate conclusions.

Statistics and Applied Mathematics for Social Choice

As members of communities and participants in democracy, we often feel strongly about the equitability (or lack thereof) that we see in systems of decision making. Sometimes, though, our intuition and feeling are not enough, and concrete mathematical metrics are needed to quantify and qualify just how fair or unfair mechanisms may be. This course will explore these ideas in the realms of voting, gerrymandering, apportionment, and alloca-

“What a surprise it was—and what fun—when I began to understand that math is about so much more than a bunch of calculations and equations!”

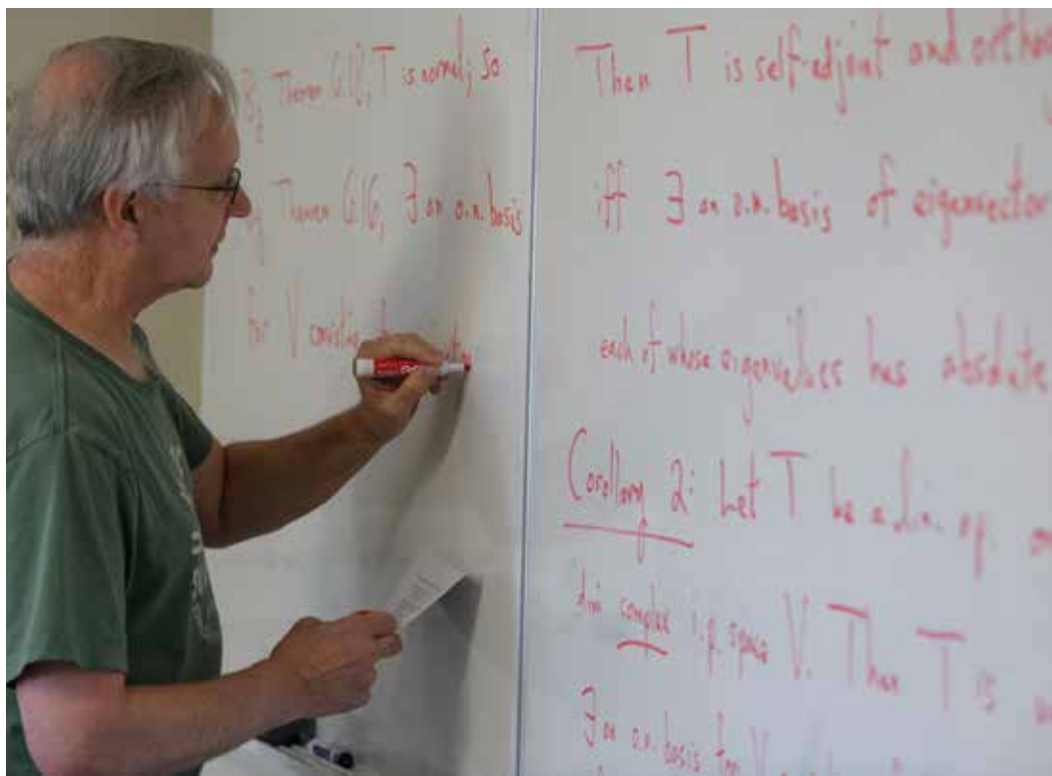
tion: we'll quantify the power of committee members with probability, measure the fairness of districting maps with ideas from geometry, and seek out fair divisions of shared goods with algebra, all with a focus on hands-on applications to real world systems.

Theoretical Calculus

Knowing how calculus works isn't enough! What do the real numbers have that the rational numbers don't? Theoretical Calculus develops all the theorems of calculus from the axioms of the real numbers, including the elusive Completeness Axiom. Enter the world of suprema and infima, follow the partition definition of definite integrals, and revisit old friends such as the Fundamental Theorem of Calculus. When you're done with the basics, you'll use these same methods to investigate infinite sequences and series of numbers and infinite polynomials. You'll end with an introduction to the beautiful theory of complex power series, including a quick proof of the famous Euler equation, $e^{i\pi} + 1 = 0$. Theoretical Calculus is equivalent to an Introduction to Real Analysis course in college. Some of the easier material will prepare you for the Advanced Placement Calculus BC exam.

Topology

The aim of general topology is to axiomatize the notion of "closeness" that underlies such important constructs as limits and continuity. We begin this course by presenting a very simple set of conditions under which a collection of subsets of a set will generate a topological structure on that set. After framing continuity as a property of mappings between spaces that in some sense "respects" the topologies of those spaces, we look at a number of well-known examples: order topology, subspace and product topologies, and metric topologies. We then turn our attention to connectedness and compactness, two properties of spaces that have interesting characterizations in certain settings and are preserved under appropriate conditions (such as mapping by continuous functions or finite products). Finally, we consider additional conditions, the countability and separation axioms, combinations of which are strong enough to ensure metrizability of a space.





SCIENCE

Our science curriculum provides a broad, rigorous introduction to the three main branches of science: biology, chemistry and physics. We highlight their interdisciplinary nature, as well as the methodological and historical aspects of each, so that graduating students, conversant in each subject, appreciate the unifying structural framework of science. As students become proficient in both understanding causal relationships and calculating technical details, they can apply these skills to interpret the physical world. We offer a wide variety of challenging electives, including upper-level courses in biology, chemistry, and physics, and a set of rotating electives for students to pursue their scientific interests further.

Through the close study of texts, problem solving, and classroom discussion, students develop the ability to understand and formulate their own scientific arguments. They learn to ask meaningful questions, and then use the scientific method to design, conduct, analyze, and interpret experiments to answer those questions. The curriculum emphasizes that the laboratory complements and informs theory, which in turn motivates and guides experiment. Our program graduates critical thinkers who can engage with the broader community and extend the boundaries of scientific knowledge.

“We learn to look at the patterns, the ‘why.’

Maybe we’ll forget everything we learned in class—all the facts, all the formulas, all the little details—but we’ll always have that spirit of inquiry.”

Biology 1

Have you ever wondered how the organisms we encounter in our day-to-day lives evolved from a single cell? Maybe you are curious about the molecular world and how proteins are able to perform the vast array of functions necessary to sustain life? Indeed, what constitutes a “living thing” and how does it stay alive? In this course, we will answer these questions and more. In Biology 1, we study the fundamental principles of biology and their real-world applications. Topics will include a study of the cell and its organization, matter and energy, biochemistry, DNA structure and function, the cell cycle and replication, genetics and patterns of inheritance, evolution, and ecology. Laboratory activities are included throughout the course to reinforce understanding and provide plenty of engaging, hands-on experience following the process of scientific inquiry. For example, during our study of genetics, we use common molecular biology techniques to isolate and analyze your DNA, determining whether you have the taster or non-taster alleles for the chemical PTC.

Biology 2 Advanced

Our goal in Biology 2 is to use the knowledge you gained in Chemistry to develop a deeper understanding of biological systems. Each unit will be centered around key publications in the scientific literature, both classic and current. We will work together to dissect complex data and gain familiarity with experimental design and modern research techniques. We start the year with two fundamental principles: evolution and the central

dogma. We will then delve deeper into the intricate mechanisms that regulate gene expression and the cell cycle during tissue regeneration. Other topics will review macromolecular structure, metabolic pathways, genetics, cell signaling, and ecology. A weekly lab will allow students to pose their own questions and develop experiments to reveal fundamental principles in biology. Prerequisites: Biology I and Chemistry I or permission of the instructor.

Chemistry 1 and Chemistry 1 Advanced

In this course, we take a physical approach to exploring the fundamental concepts in chemistry. Rather than merely focusing on the chemical “facts” like “water is H₂O,” the emphasis is also on the lines of experimental evidence that led to the development of atomic theory in the first place. Thus the content of the course mirrors to some extent the historical developments in chemistry, starting with the behavior of gases before diving deeper into atomic structure. The early model of atoms as indivisible particles is replaced by a quantum mechanical view of the atom. As the year proceeds, students investigate chemical reactions and explore concepts of solubility, acid-base chemistry, and reduction-oxidation reactions, they also develop a quantitative understanding of chemical reactions. If, for example, a hydrocarbon compound burns in air, how many grams of carbon dioxide and water are produced? How much heat? What volume will the carbon dioxide occupy? We also work to explain the physical properties of matter. Why is it, for example, that hydrocarbons are not miscible with water and that carbon dioxide is a gas at room temperature while water is a liquid? If you need more background in math you may opt to take Chemistry I, which offers a similar curriculum to that of Chemistry I Advanced, but our pace is somewhat slower and we take more class time to work on solving problems.

Chemistry 2 Advanced

Building on knowledge and skills from Chemistry I Advanced, we develop a more nuanced and detailed picture of the chemical world around us. Our study of kinetics allows us to connect our macroscopic observations about the rates of reactions to the underlying chemical mechanisms for the reactions. We begin to see both quantitatively and qualitatively the dynamic chemical equilibria at play in all biological and chemical systems (particularly acid-base and solubility equilibria), how they can be shifted, and how this balance connects to the fundamental thermodynamic relationships between reactants and products. We study how the enthalpic and entropic components of a reaction determine the spontaneity of a reaction. As we explore these fundamental concepts, we simultaneously develop our knowledge of electrochemical reactions, the chemistry of the main-group elements, transition-metal chemistry, and organic chemistry. Laboratory work constitutes an integral component of the course and focuses on quantitative analysis using micro- and macroscale techniques. Prerequisite: Chemistry I Advanced or permission of the instructor.

Physics 1

We begin our study of physics with a dive into mechanics; everything from the beginning ideas of displacement and acceleration to momentum and orbits. From these fundamentals of classical mechanics, we expand into topics central for understanding the everyday functioning of the world around us, including electrical circuits, the imaging capabilities of lenses and the counterintuitive world of fluid mechanics. As we arrive at each topic we think about how physicists arrived at these discoveries, tackle problems both individually and in a group setting, and expand our understanding of the world. This is an algebra-based introductory course that will give you a launching pad for future physics study.

“Biology is really a very humbling science. Never again will I be able to see a living thing without thinking about its inner workings.”

“The Commonwealth class that’s had the greatest impact on my perception of the world might be Chemistry. I now think of vapor pressure when I see towels drying on a clothesline. Admiring stained glass makes me think about absorption spectra. I notice when the temperature of my wood stove is in a state of equilibrium.”

Physics 1 Accelerated

This is an algebra-based course that introduces two main branches of physics: classical mechanics and electromagnetism. In the first semester, we will trace the historical development of Newton's laws of motion in order to study the trajectories of objects under the influence of forces. We will encounter the concepts behind energy, momentum, and angular momentum, using them to explain everyday phenomena. In the second semester, we explore the broad utility of these concepts as applied to fluid mechanics, circuits, electric and magnetic fields, and optics. Students will have the option of taking the AP Physics 1 exam.

Physics 1 Advanced

In this calculus-based course, we will formulate the laws of classical mechanics as Newton did in the seventeenth century. Eventually displaced by Einstein's relativity, Newton's laws hold to remarkable precision and serve as an excellent introduction to the study of motion. Topics include the description of motion, forces and dynamics (Newton's laws), momentum, work and energy, rotational dynamics, gravitation and orbits, and vibrational motion. Students are well prepared for the AP Physics C: Mechanics exam.

Physics 2 Advanced

Nineteenth-century investigations into electricity and magnetism culminated in the unified theory of "Electromagnetism", described by Maxwell's four equations. We will study Maxwell's equations in detail using vector calculus, covering topics such as electrostatics, magnetism, electromagnetic induction, electromagnetic waves, AC and DC circuits. Our reward will be to see that Maxwell's equations are fundamentally incompatible with Newton's Laws. The year culminates with Einstein's special theory of relativity, which in 1905, "fixed" classical physics, ushering in the era of modern physics. All necessary multivariable calculus will be taught in class. Students can take the Physics C: E & M AP exam.

Advanced Topics in Neuroscience

What is a brain? What is consciousness? How is personality encoded in the genome and wired in the brain? These are questions that we touch upon in Biology 1, but there is so much more to explore. In this course, we will review the cellular structure of the nervous system before diving deeply into the molecular pathways involved in nervous system communication. A molecular background will prepare us to read scientific publications investigating the neuroscience of topics including motivation, emotion, sleep, and learning. Prerequisites: Biology 1 and Chemistry 1, or permission of the instructor.

Anatomy and Physiology

Anatomy is the study of the structures present in the human body, while physiology is the study of how those structures work. This half-credit course is designed to be an introduction to each of the major body systems. We will explore how cellular structures interact to perform integral functions and form each major organ. We will engage in weekly laboratory exercises that support an integrated understanding of class content and will allow you to apply your knowledge as you perform dissections and investigate novel clinical scenarios. This intensive course includes a commitment to notetaking, online homework assignments, quizzes, tests, and two clinical presentations in which we will explore common pathologies. Prerequisites: Biology 1 and Chemistry 1, or permission of the department.

Astronomy

Astronomy tackles some of the most fundamental questions ever asked: how old is the universe? Is there life elsewhere? What exactly is a black hole? This course aims to provide students with the tools to understand modern research on these, and related,

"The measured and analytical approach appeals to me. Given four formulas in physics (my current science and hence my current favorite) and a creative bent, one can derive tens more and solve many types of problems. Facing a problem for which, through experimentation and creative implementations of formulas I've derived, an answer can be reached—no matter the difficulty—excites me."

questions. Beginning with an extensive historical introduction, we will subsequently tour our own Solar system, explore planets around other stars, understand black holes, examine galaxies, and eventually reach the origin of the universe itself. Emphasis will be placed upon conceptual understanding and empirical techniques. Students will explore their own independent projects, allowing them to dive deeper into topics of particular interest. Prerequisites: Algebra 2/Precalculus and Chemistry 1.

The Science and Art of Materials

What gives rise to color at an atomic scale? How do the form and finish of an object alter our perception of it? What happens to clay when it goes into the kiln? What is clay? What is happening when we make a photograph? How does the atomic-level structure and reactivity of an adhesive give rise to its properties? Art and science may be related, but there are fundamental differences about how information is gathered and presented—Pablo Picasso once said, “We all know that Art is not truth. Art is a lie that makes us realize truth, at least the truth that is given us to understand. The artist must know the manner whereby to convince others of the truthfulness of his lies.” In contrast, Richard Feynman asserts, “The principle of science, the definition, almost, is the following: The test of all knowledge is experiment. Experiment is the sole judge of scientific ‘truth.’” This interdisciplinary class will explore how closely related the artistic and scientific processes are, and the power they have to catalyze one another. Themes such as color, perception, and empiricism will guide our study of materials and methods throughout the year. Each unit will focus on a particular set of materials and techniques, which could include clay, glaze, plaster, polymers, cement, pigments, electroplating, and crystal growing. We will apply the scientific method rigorously to develop, refine, and optimize artistic techniques, and we will create art. This class will push your aesthetic sense and challenge your analytical thinking.

Organic Chemistry

Historically used to describe the chemistry of living things, the term organic chemistry now refers more generally to the chemistry of carbon. Carbon forms an impressively varied set of compounds with hydrogen, oxygen, and nitrogen (and others). These molecules and the reactions they undergo affect our world in so many ways: from the biochemistry that occurs in our own bodies, to the therapeutic drugs developed by the pharmaceutical industry (often inspired by natural products of plants), to the fuels that run our cars. We will learn about the basic classes of organic reactions. Our focus will be on understanding and predicting the movements of electrons: i.e., the mechanisms that underlie reactions. Once we have developed a toolbox of reactions, we will learn how these can be carried out sequentially to synthesize more complex organic molecules. During lab, we will learn about techniques used for performing organic reactions; for isolating, purifying, and characterizing products of these reactions; and for isolating important natural products. Chemical analysis is a critical part of the process—how do we know that we have made what we think we’ve made? As all chemists do, we face the challenge of establishing a connection between the macroscopic and molecular worlds. The tools scientists have developed (infra-red spectroscopy, nuclear magnetic resonance spectroscopy, mass spectrometry) allow us to “see” different parts of chemical structures and, with careful analysis, to uncover the structure of a molecule. Pre- or co-requisite: Chemistry 2 and permission of the instructor.





“All of us had already spent time in previous classes studying the smaller musical forms—their minutiae. Now we could move on to consider them in a larger context: how all those tiny details can add up to a glorious whole, like a delicate Mozart symphony or a grand Bach chorale.”

ARTS

Our arts program teaches students proficiency in techniques, an appreciation of the medium and its mechanics, and an empathy with art, artists, and the creative process. The program also expects students to understand a little about the history of the medium, to be able to identify with known and unknown practitioners in the field, and to involve themselves in the creative process.

The diversity of performing and visual arts courses enables all students to take classes about which they are enthusiastic, and they bring to them the same focus, discipline, commitment, and creativity that they bring to the academic program. Many students take two or even three arts classes. Art teachers also helps students applying to arts programs to create portfolios or to have significant performance experiences.

Beginning Acting

This foundational course is both for students with performing experience and for students who would like to become more comfortable speaking and presenting in front of others. We will learn the basics of actor training and focus on playing together as the foundation of all theater. Classes will include vocal work, theater games, improvisation, exercises in body awareness, and monologue and scene work. Over the course of the year, students will gain an awareness of themselves and how an audience perceives them—asking basic questions such as, “How do I stand and walk?” “Where do I hold tension in my body?” “What are my habits?” “What stories am I telling with my posture?” The year culminates in a group project or scenework. Students are expected to attend the Commonwealth productions and encouraged to participate in theater events throughout the year.

Advancing Acting

In this class we will investigate acting styles as they relate to different dramatic material. How do vocal and acting techniques adjust to this material? Using Shakespeare, Chekhov, and other classic and contemporary texts students will explore rhythm, timing, and body tension as tools of the actor. Students will also learn the foundations of improvisation. Some of the cycles of work in any given year may include: commedia dell’arte, combat, tragedy, clown, original scenes, dream-work and story theater. Acting students are expected to attend the Commonwealth productions and strongly encouraged to participate in theater events throughout the year. Within classes and performances, advanced students are encouraged to work independently, learn to constructively critique others and themselves, and take leadership roles in warmups and actor training.

Chorus

This large choir welcomes all students and teachers. Our eclectic repertoire ranges from Bach to gospel. Although the ability to read music is not necessary to join, you must love music and be open to taking risks and putting in your full effort. You learn vocal technique and musicianship skills: how to breathe, to listen critically, to manipulate different languages, to sing phrases—not just notes—and how to work responsibly as part of a larger whole. We have many opportunities for performance: in our fall and spring concerts

we perform with the orchestra, student soloists, and the occasional guest professional musician. No prerequisites and no prior singing experience necessary.

Chorale

A smaller, auditioned group. We focus on expressive and precise performances primarily of *a cappella* works from the Renaissance to the present day, including cantatas, motets, madrigals, and jazz. These different styles require an exacting sense of pitch as well as vocal prowess, a keen ear, and advanced musical maturity. The ensemble comes to sing and breathe as one, while you each develop the poise and independence necessary to perform collectively before an audience. Students must also be enrolled in Chorus.

Orchestra

A small chamber orchestra whose overarching goal for players of varying experience and ability is to create a cohesive and musically expressive ensemble. You study classical music from the baroque to the contemporary era. In the fall, we prepare a major piece, such as the Vivaldi Gloria or a Bach cantata, to perform in collaboration with the Chorus. In the spring we undertake a broader range of works. Our orchestra has premiered five student compositions over the last nine years. With teamwork, intensive rehearsing, and dedicated individual preparation, you will grow individually as a musician and be an integral part of a larger experience that is uniquely rewarding for performers and audience alike. The school does not provide private teachers for instrumentalists. Private study outside of school on the student's instrument is highly recommended. The group meets before school on Fridays starting at 7:45 a.m.

Chamber Music

A Haydn string quartet, a Rachmaninoff sonata for cello and piano, a wind quintet—music making doesn't get more intense and intimate than it does in these forms. In a chamber group, you will be responsible not only for your own demanding part but also to the tightly knit ensemble. Matched with other students at your level, and based on your interests, you work toward performing a piece that pushes you to grow as a musician. Class members must also take either Chorus or Orchestra.

Jazz Ensemble

Open to all instruments, vocalists, and levels of skill. Learning and practicing leads us to a spirited concert in the spring. We play material drawn from all decades of jazz, including compositions by Duke Ellington, Herbie Hancock, Miles Davis, John Coltrane, Wes Montgomery, and John Scofield, to name a few. We also, of course, choose material based on how many of us there are in any given year and what instruments we play. Jazz ensemble members should be able to read music, although pieces are also taught by ear. Participation in the jazz theory classes is recommended but not required. Jazz Ensemble meets after school on Tuesdays.

Beginning Photography

This course is a hands-on introduction to the art of photography, covering aesthetic principles as well as technical skills. The curriculum spans historical and modern photography, with a focus on analog processes. Students begin by learning the basic operations of a 35mm manual camera, then progress to film development and darkroom practices. These foundational skills support thematic projects assigned throughout the first semester. Lectures will introduce students to a diverse array of artists, enhancing their understanding and inspiring their creative work. Students will also explore alternative photographic processes, such as Cyanotype printing, to broaden their artistic repertoire. The course culminates in an introduction to digital techniques, using Photoshop to edit scans of film negatives, bridging traditional and contemporary photographic practices in

“It astonished me to see how many uses people can find for the materials in the studio. One of my friends modeled a circuit in clay to explain a physics problem he was thinking about. Another hand-built an elephant. Other kids in the class made pots, pitchers, teapots, and ramen bowls. Someone made a bathtub!”

“In that sunny fourth-floor studio, I learned to draw, I learned to talk, and I learned to think about art.”

preparation for more digital work in Advancing Photography.

Advancing Photography

This project-based course provides the platform for returning students who have completed Beginning Photography to deepen their photographic practice and refine their artistic vision. Starting with advanced digital techniques, students work on enhancing their work through weekly assignments. The curriculum promotes a more thorough investigation of themes and concepts central to photography. Students will also revisit alternative processes with more sophistication, working with advanced techniques such as printing their own digital negatives. The course empowers students returning to photography to pursue their independent projects and receive constructive feedback from peers and faculty in a collaborative studio environment.

Beginning Printmaking

From the outset, this class combines observation and hands-on work. You study both traditional and contemporary printmaking methods, examining a wide selection of master prints created through the centuries. At the same time, you familiarize yourself with the requisite tools as you make monoprints, linoleum cuts (both monochromatic and color), and intaglio prints. You get to try out and discover your favorites among a number of techniques: line etching, aquatint, soft ground, spit biting and open biting, hand coloring, and collograph. While you work and experiment, you concentrate on refining your drawing and composition skills. You'll soon find yourself developing your own visual vocabulary.

Advancing Printmaking

After you've learned your way comfortably around the print studio, you're ready to explore in greater depth the techniques that intrigue you the most. We also now begin to see what happens when you combine techniques. We try mixing traditional and modern (or unconventional) approaches and incorporating innovative elements into the prints we create. You learn as well to manipulate computer imaging software, scanners, printers, and photo etching techniques. The unexpected is always welcome in the print room!

Drawing and Painting 1

As an observer and a draftsman in this class, you learn to articulate your goals as a picture maker. How do you go about achieving them? You develop technical skills, of course, and learn to use a variety of media effectively and expressively. Many of you will start the year with still-life arrangements, using pencil and dry media. Soon you will be choosing your own subjects and deciding on the length of your projects. By late fall or winter, most of you will be working with paint, studying color mixing and color relationships. Through both close looking and discussion of your compositions, you'll become aware of the different ways you, personally, respond to visual stimuli. You work hard; your confidence builds; your artistic vision broadens; you tackle work of increasing complexity. You develop your own style.

Advanced Drawing and Painting

Having established a strong base of skills—both technical and observational—you are ready to take artistic risks and enter untested ground. In drawing, that might mean a life-size self portrait rendered in pastel on toned paper—a work where color relationship is as important to you as the features of the face. In painting, you might undertake a vision of a magical landscape described in detail in a book you love. Those are just two random examples. There are no limits. If an idea is worth exploring, you will get the time, materials, and support you need to see it through.

Life Drawing 1

A strong case can be made that everyone should learn to draw the human figure! For

“I am concentrating purely on the physical part of what the difference is between what I see with my eyes and what I see on the paper. I think I should try less to copy but more to ‘describe’ the image that my eye sees. I want my drawing to be a suggestion of an actual object and to look at it as only tones, values, and colors. Then I’ll fill in the rest by drawing it the way I think it should be.”

the eager draftsman, regardless of experience, there is no more compelling subject. You draw from a nude model for a double period each week, choosing from among a wide variety of dry media (pencil, charcoal, chalk, Conté crayon, and more). Throughout the year, as you learn to pay meticulous attention to anatomical relationships, proportion, gesture, and light, you will come to develop your own style. This class has no prerequisite other than a lively interest in drawing, hard-to-satisfy curiosity, and the willingness to work hard.

Advanced Life Drawing

With a year or more of experience behind you, you have free choice in your rendering of the figure. Do you prefer dry media or paint? Black and white or color? Vibrant hues? Somber or muted ones? Charcoal? Fingers? Brush? Palette knife? What about the size of your work? It's up to you. In addition, since by now you know most of our models and their strengths, you can work with them in designing particular poses. You will deepen your study of the human figure as a central design element in art.

Ceramics

Do you want to examine and experiment with the properties of clay and glaze? Whether you are interested in sculpture, the pursuit of the perfect ice-cream bowl, a replica of a Ming Dynasty blue and white vase, or creating a canvas for your illustrations, clay is one of the most versatile materials to make art with and will help you achieve all of your goals. Throughout the year, demonstrations will reveal the potential of the material and the tools we have. The studio is equipped with eight wheels, an extruder, ample table space, and a kiln to fire all of your creations.

Sculpture

Students in this class will have the opportunity to work conceptually, technically, and functionally in three-dimensions to realize their artistic dreams. Throughout the year, students will have the chance to create using various materials, including wood, plaster, metal, and clay. In the first half of the year, students will take a sculptural approach to designing objects, and introduce new and exciting techniques for creating in 3D. In the second half of the year, students will be working primarily on the wheel and on the design of functional objects.

The Science and Art of Materials

What gives rise to color at an atomic scale? How do the form and finish of an object alter our perception of it? What happens to clay when it goes into the kiln? What is clay? What is happening when we make a photograph? How does the atomic-level structure and reactivity of an adhesive give rise to its properties? Art and science may be related, but there are fundamental differences about how information is gathered and presented—Pablo Picasso once said, “We all know that Art is not truth. Art is a lie that makes us realize truth, at least the truth that is given us to understand. The artist must know the manner whereby to convince others of the truthfulness of his lies.” In contrast, Richard Feynman asserts, “The principle of science, the definition, almost, is the following: The test of all knowledge is experiment. Experiment is the sole judge of scientific ‘truth.’” This interdisciplinary class will explore how closely related the artistic and scientific processes are, and the power they have to catalyze one another. Themes such as color, perception, and empiricism will guide our study of materials and methods throughout the year. Each unit will focus on a particular set of materials and techniques, which could include clay, glaze, plaster, polymers, cement, pigments, electroplating, and crystal growing. We will apply the scientific method rigorously to develop, refine, and optimize artistic techniques, and we will create art. This class will push your aesthetic sense and challenge your analytical thinking. Prerequisites: Biology I and Chemistry I or permission of the instructor.





GRADE-SPECIFIC COURSES

City of Boston Module

Part of our required Ninth-Grade Seminar, this course is designed to make you comfortable with the city of Boston while at the same time examining the uncomfortable questions cities raise. As we eat our way through Boston (cannoli, banh mi, ice cream, pizza!) we will examine how Boston's neighborhoods differ from one another and how they have changed over time. Classroom discussions focus on the effects of segregation and economic development and questions of opportunity and environmental justice. Throughout we will be asking two linked questions: Who decides how cities change? And who should decide? In a way, this class is a mini-course in the question of what it means to have a multi-ethnic, multicultural democracy—a question our country has been debating since its inception.

Health and Community Module

Smart and information-savvy as your generation is, it might surprise you to discover how many people mistakenly believe you can get a sexually transmitted disease from a toilet seat or similar myths. Part of our Ninth-Grade Seminar, Health and Community provides a comfortable place (or as comfortable as possible) to examine crucial questions about “growing up” and all that it entails. We learn about different drugs, what leads some people to abuse them, and their effects on brain chemistry and behavior. We explore the biology of sex, and learn about sexually transmitted infections and how to prevent them. The school's psychologist joins us for a number of discussion sessions dealing with mental health and wellness and ways to manage stress. By the end, you will have learned to think and talk with clarity and maturity—and without embarrassment—about complicated matters, many of which, at one time or another, in one way or another, will affect every one of us during our lives. And you will have the information you need to make healthy, informed choices.

The Purposes of Education

By senior year, most of you have spent about one-third of your lives in school. To what ends? In this course, we will delve into the purposes of education. Is its primary purpose to develop individuals and, if so, in what ways? Is education primarily a state function designed to grow the economy and/or prepare citizens? Is the purpose of education to transform society or to preserve the status quo? In this required senior seminar, we'll visit and revisit these weighty questions. We'll examine a host of educational practices—testing, graduation requirements, curriculum—as well as our own experiences as learners. For the first half of the year, we'll use *The Smartest Kids in the World* as our core text. The book follows three teens who each spend a year of high school abroad (in Poland, Finland, and South Korea) and whose experiences shed light on American educational values and practices. In the second half of the year, we'll delve into topics of interest generated by the class. Options include the debates about charter schools, diversity issues in independent schools, gender debates in education, school funding, achievement gaps, and curriculum issues (what should or should not be taught). The course will require weekly reading, an independent research project with a class presentation, and two papers.

“Ninth-Grade Seminar was that class you look forward to during a busy week while I was acclimating to my first year at Commonwealth. I was especially touched by City of Boston. We learned about the political rise of the city and how that affects different groups of people within it; Ms. Haber's thorough expertise allowed me to see the subtleties of the city, she made it feel like a second home to me.”