

## Senior Project Program

The Senior Project Program is designed to be the culminating experience of the 12th grade year for Bay School students and is required for graduation. The program offers a meaningful opportunity for every senior to pursue his or her personal and academic interests inside and outside of the classroom with the close guidance of an experienced mentor. Field work outside of the classroom may take many different forms such as internships, career experiences, or close work with mentors, who provide expertise and resources to facilitate an outcome that the student would like to accomplish or create. A senior project must involve a minimum of 65 hours of field work. Students earn academic credit for a two-trimester elective course.

In addition to the field-based experience, students learn how to research an area of personal interest and write a project proposal. They learn how to make contacts with individuals and organizations that can help them pursue the study of their interest, produce a deliverable from their work, and make a formal presentation. Each project concludes with the writing of a paper that describes and reflects the student’s thoughts, experiences, and accomplishments.

The Senior Project is a unique personal journey for each student. The program offers the long-term benefit of helping students to focus on possible areas of study in college, future careers, and community involvement. Examples of senior projects during recent years have included: biotechnology research, operatic performance, psychology, marketing and advertising, computer programming, video and music production, marine mammal research, the law, personal submarine design and construction, worldwide nutrition and health issues, diversity in education, ecology, and the design and construction of an electric car.

# The Academic Program

## The Bay School Curriculum

### Trimester Rotating Block Schedule

A core tenet of Bay’s philosophy is that we seek to help students become careful stewards of time. This sense of the value of time and sustained attention are reflected in the design of our academic schedule, which asks students to take fewer classes each term, with more minutes spent in each class. The school year at Bay is divided into trimesters, each 12 weeks in length, and students take four classes per term. Each class meets four times per week, 80 minutes per meeting. Over the course of a year, each student completes twelve trimester-long courses.

The long-block trimester schedule affords a number of distinct advantages over a more traditional 50-minute period, seven periods per day, two semesters per year model. Over two trimesters (the length of a typical math class, for example), an academic course at Bay will meet more than 90 times, in 80-minute blocks, surpassing the total instruction time available in year-long courses in most semester-based curricula. Longer blocks allow for easy incorporation of in-depth lessons and activities such as science labs, field trips, student-initiated projects, in-class writing and research, and extended discussions. Fewer classes mean less time lost in transition between one class and the next. Teachers work with fewer students per day thus enabling them to work in depth with students on an individual basis. Students are able to better concentrate their intellec-

tual efforts on fewer subjects at a time, affording greater depth of thought in each course. The block schedule also incorporates time dedicated for conferences between students and their advisors, club meetings, book group, monitored study hall, free social time, and tutorials with individual teachers.

### BAY SCHOOL WEEKLY SCHEDULE

MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
8:05 Attendance		8:05 Attendance		8:05 Attendance		8:05 Attendance		8:05 Attendance	
8:10–8:30 Morning Mtg		8:10–8:30 Morning Mtg		8:10–8:30 Morning Mtg/ Advisory <sup>1</sup>		8:10–8:30 Morning Mtg		8:10–8:30 Morning Mtg	
8:35–9:55 A Block		8:35–9:55 E Block		8:35–9:55 D Block		8:35–9:55 C Block		8:35–9:55 B Block	
9:55–10:05 Break		9:55–10:05 Break		9:55–10:05 Break		9:55–10:05 Break		9:55–10:05 Break	
10:05–11:25 B Block		10:05–11:25 A Block		10:05–11:25 E Block		10:05–11:25 D Block		10:05–11:25 C Block	
11:25–12:05 Lunch	11:30–12:00 Book Group	11:30–12:10 Lunch	11:30–12:10 B Block	11:30–12:10 Lunch	11:30–12:10 A Block	11:30–12:10 Lunch	11:30–12:10 E Block	11:25–12:05 Lunch	11:30–12:00 Mtgs/ Clubs
12:05–12:35 Book Group	12:00–12:40 Lunch	12:10–1:30 B Block	12:10–12:50 Lunch	12:10–1:30 A Block	12:10–12:50 Lunch	12:10–1:30 E Block	12:10–12:50 Lunch	12:05–12:35 Mtgs/ Clubs	12:00–12:40 Lunch
12:40–2:00 C Block		1:35–2:55 C Block 2:55–3:00 Clean up		1:35–2:55 B Block 2:55–3:00 Clean up		1:35–2:55 A Block 2:55–3:00 Clean up		12:40–2:00 D Block	
2:05–3:25 D Block 3:25–3:30 Clean up		3:00–3:30 Tutorial		3:00–3:30 Tutorial		3:00–3:30 Tutorial		2:05–3:25 E Block 3:25–3:30 Clean up	
3:40–5:00 Physical Activities		3:40–5:00 Physical Activities		3:40–5:00 Faculty Meeting		3:40–5:00 Physical Activities			

**Notes:**

1. Wednesday’s morning meeting and advisory period will alternate weeks, each scheduled every other week in this time slot.
2. Gathering, linked with advisory time, will alternate weeks.

### Tutorial and Flex Blocks

The Bay School schedule includes three 30-minute mini-blocks—Tutorials—each week, designated as time for students to meet with their teachers individually or in small groups to receive academic support and guidance. This is also a time when students can meet with their advisors, work quietly in the library, or schedule meetings with the director of learning services. Because no other school activities are scheduled during the Tutorial period, it is an important, guaranteed time each week for students to focus on the content and organization of their academic workload.

Additionally, 9th and 10th graders are assigned to a “Flex” period, or monitored study hall, that meets for 80 minutes approximately three times per week. The first 55 minutes of Flex Period provide students with a structured, uninterrupted block of time with minimal distractions for completing a portion of their homework during the school day. Students may use the final 25 minutes of their Flex block to socialize quietly.

### Homework Policy

The Bay School believes that the rigor of our academic program is defined by the depth and sophistication of the thinking we ask students to do and the ways in which we ask them to express that thinking. Rigor is not defined by the numbers of hours of homework assigned; indeed, the body of evidence identifying the deleterious effects of too much work (sleep deprivation, depressed immune response, reduced retention levels, strained family relations, avoidance behaviors, etc.) far outweighs any evidence that more homework leads to more effective learning. The Bay School is mindful of published research in establishing a homework policy that promotes genuine learning while also preserving a student’s time to exercise, spend time with family and friends, read for pleasure, and pursue interests outside of school.

A typical 9th grader is assigned two hours of homework per class per week, and a typical 10th grader is assigned three hours per class per week. This work is not distributed evenly across all evenings; a given subject area is designated for a specific night of the week when a longer, more in-depth piece of work is assigned, and only smaller pieces of work are assigned on other nights. This ensures that teachers will assign meaningful, substantive work worthy of an hour’s sustained attention, and students are able to focus their efforts on one major task at a time. In addition, 9th and 10th graders participate in Flex blocks, which allow them to get a good start on their homework during the school day.

College-preparatory courses, electives taken by 11th and 12th graders, are considerably more reading-intensive and more demanding of sustained time investment. Upperclassmen can expect approximately four hours of homework per class per week.

### Assessing Student Learning

The purpose of evaluation at Bay is to promote genuine learning, reflection and growth. Because we value critical and independent thinking as well as the thoughtful and thorough exploration of content, our assessment tools are varied and comprehensive. While formal essays and pen-and-paper tests are integral to some of our courses, multimedia projects, public speaking, independent research, journal-writing, dramatic presentations, and internships are also a part of each student’s comprehensive portfolio of work. This range of forms helps to ensure that every student has an opportunity to demonstrate his or her mastery of coursework in a way that best suits them.

Bay School teachers strive to make assessments as authentic as possible; one way to do so is to ensure that there is a public audience of adults for the final work. Students frequently give presentations to the greater school community (including parents, the faculty, and other interested adults), write letters to editorial boards or civic leaders, post projects online, install art exhibits in the hallways, participate in class-related community service projects, and perform at local schools or health centers. The culmination of this public-service orientation is the senior projects program (see p.12).

Bay provides formal feedback (including traditional A-to-F letter grades) to families through a variety of means, including personalized narrative comments written by each teacher (at midterm of each trimester), detailed formal checklists of knowledge and skills development (at the end of

each trimester), and scheduled parent conferences (once per year). In addition to regular weekly check-ins between a student and his or her faculty advisor, students and advisors meet more formally at the end of each grading period to read each grade report carefully, identify themes and patterns, and establish goals for the subsequent term. The advisor works to help the student address any recurring problems, communicate regularly with the family, and respond promptly to any academic concerns that arise.

### Academic Philosophy

Teaching and learning at the Bay School grow naturally out of our mission and philosophy; our commitment to the stewardship of time, for example, suggests a bias towards depth rather than breadth. Accurate and elegant communication in more than one medium requires skill, training, and a great deal of practice. Scientific and cultural literacy result from engagement with and reflection on the difficult issues that challenge our global community.

The curriculum grows from a largely skills-based, integrated approach in the freshman and sophomore years to an increasing interplay between the requirements for college admission and the talents and enthusiasms of the students in grades eleven and twelve. Ethical and religious studies, integrated at the beginning into the Humanities program, grow into courses ranging from traditional philosophy to those investigating the moral implications of such things as globalization and the communications revolution. Advanced foreign language classes may also qualify as courses in literature or history. Faculty members constantly challenge students to relate their learning to other disciplines and to the world in which they live.

### Bay School Graduation Requirements

1 Credit = 2 Trimester Courses (the equivalent of one year-long course)

<b>Science</b>	4 Credits
<b>Mathematics</b>	3 Credits (4 Credits recommended)
<b>Technology</b>	0.5 Credits
<b>English</b>	4 Credits
<b>History</b>	3 Credits
<b>World Religions and Philosophy</b>	0.5 Credits
<b>Language</b>	(1 language) 3 Credits or (2 languages 2 credits each) 4 Credits
<b>Visual or Performing Arts</b>	1 Credit
<b>Electives</b>	3 Credits
<b>Senior Project</b>	1 Credit

**Note:** Students are required to fulfill a physical activities requirement each term by either playing on a school sports team or by participating in a noncompetitive physical activity.

Completing the Bay School graduation requirements enables students to meet or exceed the admission requirements of the University of California and California State University systems, and virtually all other colleges and universities they might consider.

## Academic Program Overview

Our curriculum for the freshman and sophomore years seeks to build a broad foundation of basic skills, structured in an integrated approach that emphasizes the interrelationships between traditional academic disciplines. As students advance to their junior and senior years, the program is increasingly driven by their individual interests and talents. Curricular focus on the interrelationship between science, technology, ethics, and world religions prepares our students to meet the challenges of their future in the 21st-century world.

Students, engaged and mentored by dedicated teachers, are encouraged in their mastery of the important skills of critical thinking, interpretation, and communication across many mediums. Specific course offerings each year at the Bay School ultimately reflect the expertise and interests of our distinguished faculty. Therefore, this document is meant to serve as an overview of the curriculum. A sample course progression outlining all four years of study is included at the end of the brochure.

## The Curriculum

### SCIENCE

The primary goal of the Bay School science program is the achievement of scientific literacy in our students. The magnitude of scientific and technological advancement in the 20th century invites a new approach to the structure of high school science programs—emphasizing the connections among traditional areas of scientific study. The conceptualization and understanding of modern, molecular-based biology is dependent on a working knowledge of chemistry, which is in turn built upon concepts of atomic structure, mass, and energy. These fundamental principles of science, which we consider the natural laws of the universe, are found in physics.

Therefore, the study of science at the Bay School begins with the study of Conceptual Physics, followed by Chemistry, and culminating in a sophisticated, in-depth study of Biology. Students are required to take a science course during each trimester of the freshman and sophomore years, thereby completing their study of Conceptual Physics, Chemistry, and Biology at the end of the sophomore year. Juniors and seniors choose from wide-ranging elective courses in the sciences, and are encouraged to take advanced courses in preparation for their senior projects.

### CORE SCIENCE COURSES

**Conceptual Physics.** After a brief introduction to the basic principles of measurement and modeling, students in Conceptual Physics immediately explore historical and modern methods of time-keeping, culminating in each student's construction of a functional water clock. These water clocks are then used in student-designed investigations to explore and verify Newton's Laws of Motion. Taught primarily to students in 9th grade, Bay's course in conceptual physics seeks to build a strong foundation of scientific principles and skills that will be reinforced and enriched in succeeding courses. Students are introduced to the concepts of mechanics, matter, thermodynamics, electricity, and magnetism, with particular emphasis on historical and ethical perspectives on the scientific endeavor. In the context of in-depth lab and field investigations, students develop skills in accurate measurement, isolation of variables, formal scientific writing, and the effective use of computers in processing and presenting data.

**Chemistry.** The first half of introductory Chemistry focuses on fundamental principles of matter—the structure of atoms and molecules, chemical bonding, the Periodic Table, and basic principles of reaction chemistry. The emphasis is largely historical but also includes extensive lab investigations. In the second term, students apply basic chemical principles to a variety of contemporary world problems, including water quality assessment and purification, energy generation, basic biological chemistry, toxics and hazardous waste management, and materials science. While the course is designed as a stand-alone course, it is taught with a recognition that the students have just completed Physics and are anticipating taking Biology.

**Biology.** Biology represents the culminating course in the Bay School's six-term introduction to the core scientific disciplines. The course builds on the scientific foundations of Conceptual Physics and Chemistry and applies those concepts and investigative skills to living systems, with particular emphasis on three major questions: (1) What cellular or molecular mechanisms underlie the biological phenomena we observe? (2) What experimental or observational evidence supports our current models of how living systems behave, and how is evidence transformed into conceptual models? And (3) How do we create connections between formal scientific understanding and our own communities and daily choices? The Biology course employs a variety of investigative techniques including open-ended laboratory experiments, critical reading of published scientific and popular literature, manipulation of computer models, individual and group research projects, debates and discussions to help students build a solid understanding of the core concepts of biology. Major topics include animal and plant physiology, genetics, molecular biology, biochemistry, ecology, and evolution.

### ELECTIVE COURSES

**Astrophysics I and II.** Stellar Evolution and the Solar System and Cosmology and Life in the Universe are one-trimester courses designed to integrate physics, chemistry, biology, and mathematics into the study of our solar system and other stars. By utilizing a strong foundation of laboratory work, students learn to apply fundamental principles of laboratory and field research to investigate the interdisciplinary nature of astrophysics, astrochemistry, and astrobiology. Building on a two-year minimum of mathematics classes, the courses examine the development of mathematics in tracing the history of the Greek and Islamic empires' quest for scientific knowledge. By performing authentic experiments that put them in the laboratories and observatories of Galileo, Eddington, Newton, Einstein, Hubble, and Drake, students combine technology and science unique to astrophysics in the 21st century to uncover the nature of our solar system and beyond.

*These two one-trimester courses in Astrophysics may be taken independently, or they may be taken together as a year-long science course. The year-long Astrophysics course (I and II) has been approved as an honors laboratory science class by the University of California.*

**Bioethics.** Is the cloning of a human being morally acceptable? What are the pros and cons of genetically engineered salmon? Should insurance companies be given access to the results of a person's genetic tests? The Bioethics course identifies and examines contemporary issues involving values, morals, and ethics—considering situations in which scientific understanding can, and cannot, inform social and personal decision-making.

The class begins with an introduction to a variety of ethical frameworks that can be applied to difficult decision-making. Thereafter, students delve into a number of current scientific topics including stem cell research, human and animal cloning, genetic engineering, pesticide safety, genetic screening, vivisection (use of lab animals in research), biodiversity and ecosystem stability, natural resource depletion, and the use of placebos in medical research. The course is available to juniors and seniors who have successfully completed the introductory Physics/Chemistry/Biology sequence; no additional knowledge of biological topics is assumed. Students are advised that this is a writing-intensive course.

**Biology II.** Biology II is an advanced-level laboratory course designed for students who have an interest in pursuing biology at the college level and who have already completed the Bay School's required courses in Conceptual Physics, Chemistry, and introductory Biology. *The course has been approved by the University of California as an honors laboratory science class.* While the course is not specifically designed to prepare students for the AP Biology exam, an equivalent level of intellectual rigor is expected.

The purpose in the design of the course is to capture most (but not all) of the breadth of a typical AP Biology course while allowing for greater opportunity to explore a few topics of special interest in greater depth. These topics are selected on the basis of (a) their suitability in providing appropriate review and extension of topics and lab skills taught in Biology I, (b) the anticipated needs and interests of juniors and seniors focused on science majors and science careers, and (c) the opportunities to create explicit links to social and ethical issues, as prioritized in the Bay School's mission statement.

**Brain and Mind.** Throughout the course of a day in your life, you wake up, see a world, move around, satisfy appetites for food and drink; you think, you feel, remember, imagine, and more. All of these beautiful qualities of our lives are made possible by the human brain, the most complex, sophisticated, nuanced, and amazing object in the known universe. How does the brain work? How does your brain create your mind? We will explore these questions by examining the operation of the brain with an introductory survey of neurophysiology, neurology, brain imaging, neural recording, and developmental neuroscience. We will study how the brain creates perception, thought, emotions, action, and consciousness. We will learn how to exercise the brain (like a muscle!) to improve our ability to process information. Finally, we'll discuss how the revolutionary discoveries in brain science can be best used to improve our lives and the success of human societies.

**Brain and Society.** This course explores social psychology through three different lenses: the relationship between the mind and consciousness; the brain/body connection; and the social/cultural context in which we live. For the mind/consciousness component, we will read various perspectives on consciousness from scientific research to spiritual teachings, in order to become more aware of both the individual and collective consciousness and how this connection creates the need for social interaction. For the brain/body component, we will learn how the nervous, endocrine, and immune systems work together and influence our social behavior. From the psychological standpoint, we will look at how various social and cultural processes influence our perspectives and subsequently direct our behaviors in relationships. We will study the differences between the baby, child, adolescent and adult brains, and how these neurological differences influence social behavior within these life stages. Additionally, we will look at brain diversities—such as ADD, dyslexia, and depression—and how these conditions manifest in social settings. And, we will learn how the presence of other people, such as social support networks or strong school communities, have the power to influence brain development and function. This course will be reading- and writing-intensive.

**Chemistry II.** Chemistry II is an advanced-level laboratory course designed for students who have an interest in pursuing chemistry at the college level and who have already completed the Bay School's required courses in Conceptual Physics, introductory Chemistry, and Biology. *Chemistry II has been approved by the University of California as an honors laboratory science class.* While the course is not specifically designed to prepare students for the AP Chemistry exam, an equivalent level of intellectual rigor is expected.

The purpose in the design of the course is to capture most (but not all) of the breadth of a typical AP Chemistry course while allowing for greater opportunity to explore a few topics of special interest in greater depth. These topics were selected on the basis of (a) their suitability in providing appropriate review and extension of topics and lab skills taught in introductory Chemistry, (b) the anticipated needs and interests of juniors and seniors focused on science majors and science careers, and (c) the opportunities to create explicit links to social and ethical issues, as prioritized in the Bay School's mission statement.

**Environmental Chemistry.** The study of chemistry is useful in exploring mechanistic causes of environmental problems as well as offering a powerful set of analytical tools with which we can address these problems. A course in Environmental Chemistry offers students an opportunity to deepen their understanding of chemistry by applying basic chemical principles to the study of the environment. The course will emphasize atmospheric chemistry, biogeochemistry, and aquatic chemistry, and will culminate in an independent research project on an environmental problem. The course assumes familiarity with basic chemistry but concepts studied in general chemistry will be reviewed and reinforced.

**Field Biology.** Field Biology is a one-trimester science elective structured around hands-on and skills-based investigations into the biology of the Presidio and its ecosystems. The class spends as much time as possible outside in the field studying birds, plants, aquatic and marine organisms, terrestrial animals, soil and soil organisms, environmental history, hydrology, local ecosystems, and restoration ecology. Skill development emphasizes ecological census techniques, operation of computer-based probes and sensors, use of dichotomous keys for organism identification, development of effective monitoring protocols, mapping and orienteering, evaluation of satellite images, data management, and experimental design. The course is directly linked to the physical and social communities of the Presidio and the broader Bay Area, and culminates in a presentation of student research findings to members of the Presidio Trust.

**Genetics and Biotechnology.** The DNA molecule performs two distinct functions—as a mechanism of biological inheritance and as a set of instructions for all development and life functions. Scientific understanding of this genetic inheritance and instructions for life is advancing rapidly and creating tremendous insight. We will consider the pivotal role of DNA and genes in contemporary understanding of human life. Our study will focus on issues most relevant to human nature and human society; topics include pharmaceutical development, DNA fingerprinting, individualized medicine, cloning, gene therapy, genetically modified crops, and made-to-order glow-in-the-dark fish. We will survey a wide range of technologies and discuss their potential, possible pitfalls, and the significant ethical issues that arise from their use.

**Geology of the Western United States.** Why does the California coast look so different from the coast in Massachusetts or Virginia? Why was there a gold rush in California and not in Pennsylvania? Where were the Western Great Lakes and what happened to them? Why do the Sierras exist? This one-trimester course is designed to help students look at our natural environment through a particular lens, namely: what is going on underground, how does it show at the surface, and how can we make sense of it? We will explore techniques in geology and geophysics such as tectonics, seismology, paleontology, and others and we will apply them to the landscape of the Western US. The course includes several field trips to local areas of geological interest.

**Hydrology.** Since the establishment of industrial agriculture in California, water has come to be perceived as a valuable commodity and a scarce resource. Where does our water come from? What is an underground reservoir and how does it evolve over time? What are the risks of flooding in the Bay Area and how does one alleviate them? What is the impact of farming in the Central Valley from the standpoint of water? How has water management in the Western U.S. changed over time? These are some of the questions we will investigate in this one-trimester class. We work to understand the interactions between the rivers, their floodplains, their deltas, and the underground water tables to better understand river dynamics and potential hazards. We look at water management both from the perspective of water apportionment and flood prevention. Finally, we look at the history of water management in the U.S. over the last century.

**Organic Chemistry.** This one-trimester course is designed for students who are interested in studying chemistry from a more in-depth perspective. Organic Chemistry focuses less on math, and more on the study of how reactions occur and the different pathways atoms take as they break apart and combine to form new molecules. The major topics covered are the naming, identification, and characteristics of functional groups, molecular shapes and stereochemistry, basic substitution and elimination reaction pathways, and primary methods of characterization, including infrared and nuclear magnetic resonance spectroscopy. While laboratory activities may be incorporated throughout the trimester, this course is not designed as a lab-intensive class.

**Physics II.** Physics II is a year-long course introducing students to calculus-based physics. This course focuses on the development of physics specifically related to the use of differential and integral calculus. Enrollment in the class requires a three-year prerequisite in mathematics. The course utilizes the development of mathematics through algebra, geometry, trigonometry, and calculus to trace the modern interconnection of mathematics and science. Utilizing their strong foundation in laboratory work, students apply fundamental principles of laboratory and field research to investigate the physical dynamics of mechanics and electromagnetism. Performing authentic experiments that put them in the laboratories of Galileo, Faraday, and Hooke, students combine technology and science unique to physics in the 21st century to uncover the fundamental nature of mechanical and electromagnetic forces.

**SF Bay I.** In the San Francisco Bay I upper-level course, students investigate the waters of the San Francisco Bay and surrounding region from the standpoint of the physical sciences. This trimester-long course is offered to students who have completed the freshman/sophomore introductory Physics, Chemistry, and Biology sequence and builds upon many of the principles learned in these courses.

The course content focuses on the formation of the San Francisco Bay basin and investigates the atmospheric, geologic, and oceanographic forces that influence the Bay. During the final third of the trimester, students focus on the capstone experience: a 5-day, 4-night research trip aboard the sailing research vessel Seaward in the San Francisco Bay and waters outside the Golden Gate Bridge. In preparation for the trip, students propose experiments they wish to conduct while aboard the vessel. During the voyage, they will gather samples and run experiments. Upon their return to shore, students analyze their data. As a final course project, students will prepare formal presentations of their research, presenting their work to their peers, instructor, and members of the crew of the ship.

**SF Bay II.** In The San Francisco Bay II course, students investigate the waters of the San Francisco Bay and surrounding region from a biological standpoint. Students may elect to take the course following successful completion of the San Francisco Bay I course, or by petition. The course begins with a review of the principal abiotic factors of the San Francisco Bay, and leads to open-ended questions about how these factors influence life in the area. These questions then serve as the cornerstones of the students' investigations for the remainder of the trimester. Several student-directed labs will be ongoing throughout the trimester; additionally, students will participate in the Rocky Intertidal Monitoring Project for the Gulf of the Farallones National Marine Sanctuary. At the end of the trimester students are asked to research and make a presentation about a current topic that has biological implications for the San Francisco Bay.

## MATHEMATICS

The core mathematics courses take students through a four-year, integrated program that replaces traditional courses in Algebra 1, Geometry, Algebra 2, and Precalculus. These courses are based on a program developed by the Core-Plus Mathematics Project and contain three major content strands: Algebra and Functions, Geometry and Trigonometry, and Statistics and Data Analysis—culminating with a capstone project. Upon completion of Analysis of Functions, students will be prepared for Calculus. Juniors or seniors may choose, however, to take other math electives in addition to, or instead of, Calculus.

### CORE MATHEMATICS COURSES

**Math I.** This course explores topics including: organizing and interpreting data, data distribution, measures of variation, coordinate graphs, algebraic formulas, linear and nonlinear functions, linear equations, properties, modeling data, algorithmic problem-solving, critical path analysis, properties of space shapes, geometric theorems, exponential functions and modeling, and simulation models.

**Math II.** This course explores topics including: matrix models and operations, coordinate planes, designing and programming algorithms, solving systems of equations, isometric transformations, correlation, linear least squares models, variability, direct and inverse power variation, fractional powers, radical expressions, vertex-edge graph models, optimization, geometric form and function (triangular linkages; sine, cosine, and tangent ratios; linear velocity, periodic change; radian measure), and probability distributions and their graphs.

**Math III.** This course explores topics including: Law of Sines and Cosines, solution of systems of equations and inequalities, linear programming, formalization of the function concept, nonlinear models (polynomial, exponential, and rational), field properties of real numbers and their application to re-expressing algebraic expressions and solving equations and inequalities symbolically, algebraic proof, deductive and inductive reasoning, proof by counterexample, theorems involving angle measure, proving similarity and congruence of triangles, arithmetic and geometric sequences and series, finite differences, linear and nonlinear recurrence relations, and function iteration.

### ELECTIVE COURSES

**Analysis of Functions.** Analysis of Functions is designed to serve as the bridge between the Bay School's core courses and a college-level calculus course. As such, Analysis of Functions focuses on deepening students' understanding of advanced functional characteristics (including location and multiplicity of zeros, end behavior, and continuity), algebraic manipulation of complex expressions and equations, basic function families and transformations thereof, the behavior and usage of trigonometric functions, and proof by algebraic identity. Students also study functional inverses and logarithms, including the number  $e$ , the natural logarithm, and the use of logarithms in solving exponential equations. The course introduces complex numbers, the complex plane, and properties of this number system. Graphing calculators are used extensively throughout the course.

**Analytic Geometry.** Analytic Geometry is a course in which algebra and geometry blend together in powerful and interesting ways. We will explore geometric ideas visually and intuitively using, among other things, a geometric drawing and visualization application on our laptops. We'll then use algebra to create rigorous formal proofs of theories derived from our observations. Proofs will be written in both traditional Euclidean style and in analytic style. Particular emphasis is placed on conic sections and their equations.

**Calculus.** This is a course in single-variable calculus. It covers differentiation and integration and their applications, including differential equations. Key units include: the derivative, differentiation formulas and techniques, applications of differentiation, the definite integral, constructing anti-derivatives, techniques of symbolic integration, applications of integration, building Riemann sums, and modeling with differential equations.

**Game Theory.** This course is designed as an advanced mathematics elective, to be taken after students have finished at least the first two of their core sequence mathematics courses. Students in this course examine the theoretical aspects of Game Theory, and then, through case studies and a project, examine the ways in which Game Theory can be applied to areas such as biology, foreign affairs, military strategy, anthropology, and other situations that involve competition for resources.

**History of Mathematics.** Following the stories of number theory, calculus, and geometry, this one-trimester course asks students to draw parallels between the arts, philosophy, and mathematics. Students study number systems from different civilizations; the philosophy of mathematics; the structure of numbers; the concept of the infinite; and the geometry of the plane, the earth, and beyond. While this course asks students to practice rigorous mathematical thinking, emphasis is placed on conceptualization and communication over computation.

**Seminar in Independent Mathematical Study.** This course differs significantly from other Bay School math courses in that students will not work collaboratively with their peers on a regular basis. Instead, they will pursue individual study of a topic using materials available in print or online. Each student in this one-trimester course will spend the term studying a mathematical topic of his or her choosing. Students will present their work to the class periodically throughout the term, keep a written "work diary" of their progress, have regular one-on-one meetings with the teacher as progress checks, write and solve problem sets related to their topic of study, and produce a final paper and presentation for the class at the end of the term. Most students who enroll in the Seminar will have completed either Analysis of Functions or Calculus, but any student who is academically and intellectually independent, self-motivated, persistent, and flexible is encouraged to apply.

**Statistics.** This course models the research skills necessary for many college majors. Students learn how to design experiments, organize data into tables and graphs, model sampling distributions, and test hypotheses. Students are asked to apply their skills in a multitude of contexts that draw from existing data and data generated from student experiments and surveys. For example, students investigate sports statistics, medical data, and social phenomenon. In doing so, they learn to evaluate evidence, to debate, and to critique studies. The course goal is for students to understand the many connections between mathematics and their own lives, and ultimately to become informed citizens and consumers. The statistical methods taught in this course are ideal for students interested in pursuing studies in the social sciences, sciences, business, and communication fields.

## TECHNOLOGY

The Bay School takes a broad view of technology, defining it not only in terms of computer and information technology, but also in terms of the design and creation of tools to meet human needs. If technology is defined as the application of scientific knowledge to facilitate change, it is important to consider the appropriate uses of technology and the impact of its application. Media literacy is a core component of technology instruction, and use of technology is integrated throughout the curriculum.

**Laptop Essentials.** All students begin 9th grade with a trimester course that meets twice per week, providing an introduction to fundamental computer hardware, (laptops, desktops, and peripherals, using both Windows XP and Mac OS X), and software, (Microsoft, Macromedia, and Adobe suites), e-commerce, multimedia, and the Internet, (e-mail, basic Web design). This class also includes two mini-courses in study skills and information literacy that are taught by our director of learning services and our librarian, respectively.

This initial foundation of core computer concepts assures that each Bay School student possesses knowledge of, and familiarity with, the current tools necessary to communicate effectively in our digital society.

The successful completion of this class is required of all students serving as a general prerequisite for all advanced digital media courses.

### ELECTIVE COURSES

**Computer Science I.** This is an elective designed for students of diverse backgrounds who want a deeper understanding of how real-world problems are solved using digital computers. No prior programming experience is assumed. Students create a variety of programs that run on laptop computers and the Web including: a poetry generator, a Mondrian simulator, a Sudoku puzzle solver, a maze game, and an artificial intelligence engine to identify animal species. Along with learning to program, students will consider the "ontological" issues of computing. What can't a computer do that your brain can? Can a computer "think"?

**Computer Science II.** Programming skills have become necessary in virtually all sciences and a great many humanities research efforts, and the core problems in many disciplines are now explored using digital models. Computer Science II is an elective geared toward students who will use programming in college or in a future career. The class teaches students how to apply program analysis, design, and implementation to any domain. Students will study and create their own basic algorithms in such disciplines as: DNA sequencing, finite element analysis, 3D rendering, and efficient frontier analysis. Students will learn core object-oriented programming concepts such as encapsulation, polymorphism, and inheritance. Students will also consider philosophical issues of computing. What is gained and what is lost by the abstraction process inherent in computational modeling?

## HUMANITIES I & II

Humanities I & II, taken in 9th and 10th grades, is an interdisciplinary program that integrates the study of literature, history, world religions and belief systems, ethics, and the arts. The two-year course examines the human condition in a historical context asking essential questions aimed at understanding our core experiences as human beings. For example, how do different peoples and cultures perceive their worlds? Where do they find importance and place value? How do differing world views affect their behavior?

**Humanities I.** Students examine the variables of nature and nurture as they relate to the development of societies. Particular emphasis is given to the roles of geography and human nature and the manner in which they shape both people's world views and cultures' belief systems. Students focus on early civilizations, examining their origins and what these civilizations look like in today's society. Through learning about the geography, history, literature, politics, religion, and cultural norms of a range of global regions, students also understand and broaden their own views.

**Humanities II.** Humanities II is an exploration of the religious, cultural, and philosophical values that have shaped the world's civilizations as depicted in art, literature, philosophy, and historical documents. During the first trimester, students investigate the history and cultures of the Middle East and the belief systems underlying contemporary conflicts. During the second trimester, students engage in a comparative study of political and social systems in early modern Europe and East Asia. In the third trimester, students focus on the upheavals of the 20th century, beginning with the Russian Revolution and ending with the Chinese Cultural Revolution.

**Some of the texts to be read and discussed include:** *Siddhartha*, *Antigone*, *Lord of the Flies*, *Things Fall Apart*, *Bhagavad-Gita*, *Richard III*, *Animal Farm*, *Galileo*, *All Quiet on the Western Front*, and *Guns, Germs, and Steel*, as well as selected short pieces of fiction and nonfiction, and a customized historical reader produced by the Humanities faculty.

## WRITING & RESEARCH

**Writing Workshop** is a required one-trimester course for all freshmen. The objective of the course is to develop and to hone the basic skills of effective writing: annotation/note-taking, organization, composition, and revision. Frequent exercises in descriptive, narrative, persuasive, scientific, and expository writing help students respond confidently to a variety of writing challenges. An important feature of the course is an individually directed vocabulary program designed both to increase active vocabulary and to sharpen basic sentence skills.

**Research and the Community** is a required one-trimester course for all sophomores. The course builds a foundation of research skills while opening students' eyes to the needs and issues of their community. Students learn and apply basic research principles, strive to better understand the issues facing their neighborhoods today, and work with local agencies and companies, many of them located in the Presidio, to produce work that will serve community needs. The trimester concludes with a presentation of student projects to the school community.

## ENGLISH

### ENGLISH

The English curriculum is a literature-based program, serving as the foundation for intensive reading, writing, speaking, listening, and critical thinking. Students read from a wide range of fiction and nonfiction, including works of literary integrity that reflect historical dimensions as well as diverse cultures. Continuing emphasis is placed on the student's ability to express himself or herself in a variety of presentation forms.

### REQUIRED COURSE

**American Literature.** This course focuses on the roots and evolution of American literature in conjunction with the thematic units taught in U.S. History. Students explore what it means to be an American in relation to the following questions: How did we get here? Who has power? How do we identify/define ourselves? How do others identify us? Students read works of literature that respond to and illuminate these questions, examining varying literary responses over the course of U.S. history and analyzing the literary trends and movements that accompany these responses.

### ELECTIVE COURSES

**Advanced Composition.** This course focuses on deep examination of the craft of writing within three broad genres: memoir, literary criticism, and fiction. In this course students read numerous samples of writing from authors who specialize in these genres, understand the various approaches authors take when working within these genres, and compose pieces of their own using these generic traits.

**Drama of Math and Science.** In this course, students study dilemmas and problems that arise when people do math and science. Through an in-depth study of plays including *Faust* (Marlowe), *Proof*, *Copenhagen* and *Breaking the Code*, the class explores the nature of the genre of dramatic literature. The course involves thought-provoking reading, lively discussion, acting out sections of the plays, and regular writing.

**Dramatic Literature: Conversations Between Plays.** In this course, students study several plays in pairs. Among the plays we study are: *Antigone* by Sophocles and *The Island* by Athold Fugard; *The Importance of Being Earnest* by Oscar Wilde and *Arcadia* by Tom Stoppard; *The Taming of the Shrew* by Shakespeare, and *Hedda Gabler* by Henrik Ibsen. Through wide-ranging reading, students will explore the nature of the genre of dramatic literature. Students engage in lively discussion, acting out sections of plays, and regular writing.

**Historical Fiction.** This course is an examination of epic novels based upon 19th- and 20th-century historical events. Students closely examine the larger historical forces that shape the fictional characters within each work, and carefully analyze each text using a range of literary elements. Students write both short and long interpretations of literature and history, and complete a final project that involves composing a piece of short historical fiction. The class will read literature about Africa, Latin America, East Asia, the Middle East, and the United States.

**Home and Exile.** The course title comes from a collection of essays written by Nigerian author, Chinua Achebe. The ideas it represents have a long history: What does "home" mean? Where is it exactly? What is it like to be exiled and away from home? What inspires or motivates people to find a new home? If you want to return home, can you really? If so, what does that require? If not, why not? Through short and long fiction from many different parts of the world, this course explores authors' answers to many of these questions.

**Literature of Forgiveness.** This course focuses on fundamental aspects of forgiveness. Through both writing and reading, students develop an understanding of how and why people forgive themselves and one another. They will read fiction, non-fiction, and drama to explore questions such as: What is forgiveness? How does it compare to mercy or reconciliation? What is the difference, if any, between forgiving oneself and forgiving another? Does forgiveness require forgetting or understanding or both? The literature presents characters who must wrestle with these same questions.

**Mao to Now: Modern Chinese Literature.** Through literature and film, this course will survey the political, social, economic, and intellectual trends in China from the end of the Maoist era to present. Students will analyze characteristics of Chinese literature, understand elements of Chinese cinema that make it unique to the culture, and generate responses that communicate an understanding of the topics addressed in the course. Potential themes/topics include: Maoist/post-Maoist China's influences on literature/film, the role of censorship in Chinese literature and film, family and state, hierarchy and paternalism, gender roles and relations in Chinese society, the divide between urban and rural China as represented in literature and film, nationalism and cultural pride, popular culture and genres in contemporary China, the relationship between the center and the periphery, and Han majority vs. minority culture. This course is cross-listed as both a Mandarin course and a literature course. Students wishing to earn Foreign Language credit for this course should have completed Mandarin IV. Any junior or senior may choose this course as a literature course.

**Money and Love.** This course offers perspectives from *King Lear* by Shakespeare, *Washington Square* by Henry James, *Their Eyes Were Watching God* by Zora Neale Hurston, stories by F. Scott Fitzgerald, and a play by Moliere. Is it true that “all you need is love”? Does “money make the world go ‘round’”? Students examine the complex intersection between money and love in the lives of characters from a variety of cultures and backgrounds. The course involves thought-provoking reading, lively discussion, and regular writing.

**Native American Fiction.** This course focuses on fundamental features of Native American literature. Through both writing and reading, students will develop an understanding of how written tribal stories (short and long fiction) have various relationships to oral stories. Students will read fiction from a variety of 20th-century tribal perspectives. The fiction will include characters who show courage and creativity in facing ethical dilemmas caused from inside and outside their tribal worlds.

**Poetry: The Holy Trinity of Sound, Image and Metaphor.** This course introduces and reinforces fundamental features of lyric poetry. Through both writing and reading poetry, students will gain a sense of how poetry differs from prose. They will read poems from a variety of forms, cultures, and time periods. The cultures represented include China, Japan, Europe, British Isles, North America, and Latin America.

**Shakespeare and His World.** This course focuses on close, textual analysis of 3 plays (a comedy, a history, a tragedy) and selected sonnets by William Shakespeare. There will be additional readings to illuminate Shakespeare's life and times and the Elizabethan world view. With the plays, students spend considerable time on questions involving characterization, themes and motifs, dramatic techniques, and the use of language. With the sonnets, students focus not only on explicating the text itself but also on understanding and appreciating the formal demands of the English sonnet.

**Short Fiction.** Short stories are small miracles. Meant to be read at one sitting, they invite readers to live with a character or a dilemma for the brief time it takes to complete the story, yet often these characters and dilemmas haunt us long afterward. In this class, we will read stories from different eras and different cultures. We will also explore a few works of short fiction, including Kafka's *The Metamorphosis*. Expect lively, student-centered discussion and writing.

**Testing the Boundaries.** In this course, focusing on the genre of fiction, we will examine what happens when individuals cannot or choose not to live within conventional limitations. Expect thought-provoking reading, lively discussion, and regular writing as we focus on transgression in the novels *Crime and Punishment* by Fyodor Dostoevsky and *Invisible Man* by Ralph Ellison, short stories by Nathaniel Hawthorne, and the films *Raise the Red Lantern* by Zhang Yimou, and *House of Games* by David Mamet.

## HISTORY AND SOCIAL SCIENCE

The History curriculum focuses on providing students with the necessary skills to understand our cultural and historical roots. Courses build student understanding and appreciation of the wide divergence of social, cultural, religious, and intellectual experiences that make up the global, interconnected world of the 21st century.

### REQUIRED COURSE

**U.S. History and Government.** Students explore the following eight key themes in United States history: the immigrant experience, political participation, gender relations, race relations, religion and secularism, foreign policy, the economy, and the American Dream. Analysis of a wide variety of primary and secondary sources is central to this work. Students use newly gained historical knowledge to revisit and better understand examples of the themes in our world today. Consistent with the Bay School's mission, the following curricular emphases are interwoven throughout the course: diversity and community, ethics and spirituality, and science and technology.

### ELECTIVE COURSES

**Comparative Government and Politics.** The primary goals of this course are to familiarize students with various types of political systems and cultures; to help them think, read, and write critically, and to prepare them for successful university study and responsible citizenship. The course begins with a foundational unit in American democracy and democratic traditions, followed by comparative country studies (Mexico, France, China, and Iran). Students are asked to conduct their own country studies independently and to present their findings during the last two weeks of the course.

**Introduction to Political Economy.** The first part of this course grounds students in the fundamental principles of micro- and macro-economics. Thereafter, the course explores the relationship between politics and economics and how that relationship has changed over time. The course includes a historical focus, tracing the evolution of economic systems (mercantilism, capitalism, Marxism, socialism), followed by an examination of the modern world economy in the 19th and 20th centuries. Students gain a critical understanding of globalization, economic interdependence, and problems of resource allocation.

**Latin American Studies.** In this course, students will learn about Latin America in the 20th century, exploring the relationship between cultural expression and the politics, economy, and history of the region. The course will begin with a brief overview of major historical forces—pre-Columbian societies, conquest, colonization and slavery, independence, and civil strife. Emphasis will be placed on four key themes in the 20th century—neo-colonialism, nationalism, revolution, and reaction. Students will investigate these themes in the Caribbean, Mexico, Central America, Brazil, and Argentina. A variety of sources—film, novels, poetry, short stories, songs, and historical documents—will be examined.

**Modern Genocide. From Mass Violence to Reconciliation and Repair.** The phrase *never again* was born in response to the Holocaust of WWII. While world leaders have repeated the phrase time and again, genocide and mass violence continue to be features of the 20th and 21st centuries. In this course, students examine the roots of genocide and mass violence during the last century through in-depth case studies of Weimar Germany, South Africa, Rwanda, and Colombia/Guatemala. Students investigate questions such as: How do identity and membership influence behavior? What roles do conformity, obedience, resistance and propaganda play? What should happen to people who allow or commit these crimes? The course also considers how societies repair and rebuild themselves and ultimately grapple with the question, “What is justice?”

**U.S. Foreign Policy.** This course is an introduction to the basic concepts, themes, and issues in U.S. foreign policy. This course familiarizes students with trends in U.S. foreign policy from the Cold War to the present and introduces them to the patterns of post-WWII international relations and U.S. overseas interventions. Employing a case study approach, students look at the short- and long-term effects of U.S. policy on different regions, debate America's role in world affairs, and assess the costs and consequences of this role at home and abroad. Specifically, this course examines several key aspects of United States foreign policy towards East Asia, Latin America, Africa, and the Middle East.

**Western Civilization.** Western Civilization is a two-trimester, interdisciplinary survey course that critically examines the ideas, values, and trends of Western culture from the Greco-Roman period to the mid-20th century. Adopting a chronological framework, the course explores some of the most influential writings, works of art, and ideas that have shaped the intellectual and cultural heritage of the Western world. Students acquire a broad knowledge of the Western historical and cultural heritage through analyzing and evaluating primary and secondary sources. Students also develop an ability to accurately and critically read, weigh evidence, make judgments, draw conclusions, and interpret historical writings in their political, social, religious, and cultural contexts. This course may be taken as a year-long (two-trimester) course, or either half may be taken as a one-trimester elective.

## PHILOSOPHY & WORLD RELIGIONS

The focus of the Philosophy & World Religions curriculum is on major world religions and cultures. The program includes study of cultural thought and belief systems, historical events, and philosophical movements. Through the Philosophy & World Religions curriculum, students explore principles of decision-making, inquire into the spiritual dimensions of life, and examine a variety of religious traditions. Students build an individual understanding of the meaning of interconnections—with self, with others, with their own spirituality, and with the universe. The study of world religions is integrated into the Humanities I and II courses in the 9th and 10th grades.

### ELECTIVE COURSES

**African American Spirituality and Philosophy.** With the premise that environment, perception, and behavior are inextricably linked, the African American Spirituality and Philosophy course examines the African American experience with a particular emphasis upon the following: African Americans' perceptions of the world around them from their arrival in America as slaves to the modern day; the development of African Americans' spiritual and philosophical traditions as they have sought to make meaning of their world. The course will begin with a brief overview of African traditions prior to the advent of the slave trade. Students will spend the term examining African American interpretations of Christianity, Islam, Judaism, as well as the development of Rastafarianism.

**The Bible and Popular Culture.** This course reads and studies the Bible as a piece of literature—an enormously influential work that has shaped and informed Western culture for thousands of years—considering its meaning and implications in depth. The class will investigate the myriad ways in which the Bible appears in and shapes Western popular culture today. Along the way, close reading, hypotheses, exploration of texts, and discussion will be emphasized. Works studied will include: *The New Oxford Annotated Bible, Who Wrote the Bible?* (Friedman), *Religion and its Monsters* (Beal), and examples from music, literature, and film.

**Comparative Philosophy.** This course grounds students in the study of philosophy and explores central philosophical questions within a comparative framework. Students read a wide range of responses to shared concerns, largely centering on the following three core questions: What is the good life? (What does it mean to be human? Why be good? What is happiness?) What is the role of the individual in society? (What is his/her responsibility? What does society owe the individual? How should we relate to others?) What is justice and the role of judgment within it? (What constitutes freedom, liberty, and justice? What is the just state?) To address these questions, students read classical and contemporary philosophers from the East and West and draw upon film and literary selections as supplemental texts. Students pursue a separate inquiry of their own central question as a final project.

**Faith and Religion in America.** This course is an examination of religion in the United States, studying the major faiths of Christianity, Judaism, and Islam as well as investigating religious subcultures from Mormonism to Wicca, Scientology, and beyond. Students consider the role that religion has played in our development as a nation, the ways in which religion informs our political system, and the ways in which unique faith traditions allow and/or impede Americans from co-existing harmoniously as a people. Texts include *A Religious History of America* by Edwin Gaustad, *American Fascists* by Chris Hedges, *What Really Matters, Searching for Wisdom in America*, by Tony Schwartz, *Cults: Faith, Healing, and Coercion* by Marc Galanter, and excerpts from: *Under the Banner of Heaven* by Jon Krakauer; films, and music.

**Hinduism.** This course is a thorough grounding on the religions of India based on the Vedas and the Dravidian religions that preceded them. The course will focus more on textual and mythical analysis and worship rather than on Hindu philosophy and spirituality. The course will also examine some of the ways Hinduism has been represented and misrepresented to outsiders. Over the course of the term, students will: differentiate between the various strands of Hindu devotion (Saivism, Vaishnavism, and Goddess-worship); write a historical analysis of Hinduism's history and its contact with outsiders; engage in close readings of primary sources; write an in-depth research paper on a topic of their choice and present their findings to the class. Students will also visit a Hindu temple in the Bay Area.

**Homer and Aristotle: Applied Ethics in Popular Culture.** This course introduces the branch of philosophy known as Ethics, and examines the many ways in which basic ethical conflicts animate both drama and humor in modern life as seen in popular culture. The course concentrates on *The Simpsons* because this series is familiar to students and is one of the most intelligent and allusive comedies on television. The primary text used in the course is *The Simpsons and Philosophy*, a collection of 18 essays that connect the characters and conflicts with the thinking of Socrates, Marx, Camus, Sartre, Heidegger, Kant and other key philosophers. Students write short papers exploring ethical issues, and as a final project they write a longer paper that describes and defends (or attacks) the ethics portrayed in an artifact of popular culture such as a TV show, movie, magazine, music video, or album.

**The Problem of Evil.** What constitutes evil and why does it exist? This course focuses on these important questions through studying the liabilities of freedom. The path takes us through literature, philosophy, and theology, as students examine how people try to explain the existence of evil in the world. Works studied will include: *The Problem of Evil: Oxford Readings in Philosophy*, *The Doors of the Sea: Where was God in the Tsunami?* (Bentley), *All My Sons* (Miller), *Dark Nature: A Natural History of Evil* (Watson), and excerpts from articles, journals, music, literature, and film.

**Utopia/Dystopia.** During this one-term course, we will explore utopias—ideal societies, real or imagined, meant to be seen as better than the society in which readers live—and dystopias or negative utopias—societies that were meant to be seen as worse than the society in which readers live. As we read and discuss, we will discover that philosophers, literary authors, and authors of political documents like constitutions, among others, all grapple with notions of what would make the most ideal society or, by contrast, the least ideal society. We will also discover that fashions in utopias have changed over the millennia, centuries, even decades. Principal texts include *The Utopia Reader* (containing excerpts from many works) and several novels, including *1984* by George Orwell, *The Handmaid's Tale* by Margaret Atwood, and *Ecotopia* by Ernest Callenbach.

## LANGUAGES

Recognizing the Bay School's commitment to the global community, we believe that the study of another language, and its associated culture, is essential. The overall objectives of the program include the development of language skills, both oral and written, and a cultural objective, i.e., an acquaintance with and appreciation of a different people, their history, civilization, and customs.

Spanish and Mandarin Chinese are the two core foreign languages taught at the Bay School. Students who have previously studied French are given entrance placement tests to confirm their readiness to continue study of French on the high school level.

### MANDARIN CHINESE

**Mandarin I.** This is an introductory language course in Modern Standard Chinese (*Putonghua*), with an emphasis on developing speaking, listening, reading, and writing skills. In the first year, students learn the tonal system, pronunciation, basic grammar, and the fundamentals of the Chinese writing system. Students develop the ability to carry out simple conversations in Chinese on a limited range of topics. Additionally, in view of the intimate relationship between language and culture, we dedicate significant class time to learning about Chinese culture, recent history, and geography.

**Mandarin II.** Mandarin II students review and continue working with the materials introduced in Mandarin I with the expectation that they will master new vocabulary and increasingly complex sentence patterns. There is further focus on the Chinese tonal system and character acquisition. The course employs a variety of approaches so that the students increase their ability to acquire pertinent information through listening, to express themselves with more confidence, and to read and write characters with greater fluency and ease. The ultimate goal of Mandarin II is to equip students with the tools necessary to communicate effectively with native speakers in the target language.

**Mandarin III.** The goal of this course is to further develop students' communicative abilities in listening, speaking, reading and writing modern Chinese. Students focus on strengthening their listening and reading comprehension skills through increased exposure to authentic material. Upon completion of this course, students are able to handle most daily conversation with relative fluency and are comfortable speaking and interacting in the target language.

**Mandarin IV.** The goal of this course is to enhance students' abilities to communicate fluently, precisely and elegantly in modern Chinese. This course will incorporate Chinese literature and history, and explore current events and youth culture in greater China. We focus on reading and understanding primary documents, although an advanced-level textbook is used as a supplement. As is true for all levels of Bay's language courses, emphasis is placed on broadening students' understanding of vocabulary, grammar, idiomatic expressions and cultural knowledge. Students will learn to master complex sentence patterns for the purpose of sustaining longer, in-depth conversations. Finally, students will be encouraged to express their opinions and creativity through various modes.

**Mao to Now: Modern Chinese Literature.** Through literature and film, this course will survey the political, social, economic, and intellectual trends in China from the end of the Maoist era to present. Students will analyze characteristics of Chinese literature, understand elements of Chinese cinema that make it unique to the culture, and generate responses that communicate an understanding of the topics addressed in the course. Potential themes/topics include: Maoist/post-Maoist China's influences on literature/film, the role of censorship in Chinese literature and film, family and state, hierarchy and paternalism, gender roles and relations in Chinese society, the divide between urban and rural China as represented in literature and film, nationalism and cultural pride, popular culture and genres in contemporary China, the relationship between the center and the periphery, and Han majority vs. minority culture. This course is cross-listed as both a Mandarin course and a Literature course. Students wishing to earn Foreign Language credit for this course should have completed Mandarin IV. Any junior or senior may choose this course as a Literature course.

## SPANISH

**Spanish I.** This introductory course provides students with the opportunity to learn the fundamental grammar and vocabulary necessary for basic communication in Spanish. Students will develop partial capability in the four major communication skills—listening, speaking, reading, and writing. By the end of this course, students will be able to express themselves at a rudimentary level in both the present and past tenses. Focus will be placed on gaining the confidence necessary to speak fluently. In addition, students will develop an appreciation for the various cultures associated with the Spanish language.

**Spanish II.** Students in Spanish II will have mastered the present, past, and future tenses and will have been introduced to a variety of other tenses. They will increase their facility in the four major communication skills (listening, speaking, reading, and writing) with an emphasis on clear and elegant communication. Culturally, Spanish II seeks to develop a greater appreciation for how Spanish-speaking communities and cultures continue to reshape and redefine the modern world.

**Spanish III.** Spanish III is an intermediate-level language course focused on five major goals: (a) to review all of the basic skills and vocabulary learned during the first two years of study; (b) to increase students' core vocabulary base and to expand their understanding and working knowledge of more complex grammatical points; (c) to connect their language skills with other disciplines such as Humanities, Arts, Science and Technology; (d) to increase students' level of fluency, both written and oral, so that they can communicate effectively and elegantly in Spanish; and (e) to make students aware of the richness of diversity in the Spanish-speaking communities both in and outside of the United States.

**Spanish IV.** Spanish IV is an advanced-intermediate course that integrates language and culture while using topics that reflect global issues of interest and concern to today's youth. The course discusses geography, art, music, and literature from the Spanish-speaking world to synthesize the development of all aspects of language skills and cultural awareness—with particular emphasis on Spain. Although preparation for the Advanced Placement exam in Spanish is not a principal focus of the course, Spanish IV does include bi-weekly workshops designed to help prepare students who wish to sit for the exam.

**Spanish V: Cine y la Condición Humana.** Spanish V is an advanced interactive course that explores social issues within the framework of a selection of Spanish-speaking films and literature excerpts in the target language. Students' knowledge of themes presented in class is further enriched by classroom exploration of Spanish and Latin cultures through research in Spanish, oral presentations, essay writings, and the study of drama in its cultural and historical contexts.

## FRENCH

**French III.** French III uses a variety of topics to review and to solidify the first two years of French grammar and vocabulary, to expand their vocabulary and to put into active use the structures that have been learned as well as the new points which will be taught, to teach students to think and to react in French and to broaden their knowledge about global issues facing the francophone world.

**French IV: Littérature et Histoire.** French IV is a comprehensive course that will give students an in-depth view of France, its history, culture, and civilization by using a systematic approach to introduce French history and literature. At the same time, this course will continue to review and expand upon the grammar and vocabulary that has been learned in previous years so that students can continue to strengthen their language skills.

**French V: France et La Provence.** Experience the foods, fragrances, and folklore of La Provence. This class will introduce the geography, history, and culture of La Provence through the use of live footage, novels, movies, music, art, and food. We will use the novels of Marcel Pagnol, *Le Chateau de Ma Mere*, and *La Gloire de Mon Pere*, and Alphonse Daudet's *Lettres de Mon Moulin* as the basis of our study. Students will learn the specialized vocabulary from this area of France, which includes life in the countryside, flowers and perfume, farming, regional dishes, soaps, and herbs.

**French V: Personal Journey through Film: A French Experience.** This class focuses on meaningful universal themes as presented in thought-provoking French cinema. Twelve films organized in six clusters (two films each) are accompanied by texts (film scripts, literary texts), and exercises (film comprehension questions, journal writing, creative writing, grammatical structures) chosen for their thematic unity. Themes include childhood and adolescence, family, society, memory, creativity, and self-discovery; and these are enriched through creative writing and critical thinking exercises. For a final, students produce a portfolio highlighting the variety of their work.

## THE ARTS

Bay offers a rich range of arts classes including drawing, painting, sculpture, music, drama, dance, and digital arts. Introductory and advanced courses in each field challenge students to value the aesthetic nature of all art forms and to become life-long learners of the skills unique to creating art. Through the process of understanding and appreciating a wide range of historical and contemporary works of art, students expand their own creative repertoire and gain confidence in their ability to express themselves beyond the studio or stage. Students are required to take a minimum of two terms of the same art sequence as a requirement for graduation.

## VISUAL ARTS

**3-Dimensional Foundations 1A and 1B.** This two-trimester course sequence is designed to give students the chance to explore art in three dimensions. Students will experiment with and create sculptures in different media including wire, clay, plaster, and found objects. We will learn fundamental techniques associated with both additive and subtractive forms of sculpture, study the roles of line and space as they relate to the 3-dimensional forms that we create in class, and explore the work of artistic masters of the past and present. The second term is a continuation of first, emphasizing larger and more time-intensive pieces.

**Drawing 1A and 1B.** Bay's drawing courses are designed to build observational skills and to experiment with different drawing and sketching techniques. Drawing 1A provides a basic understanding of the elements and principles of art as emphasized through the production of art, the study of art history, the principles of design, aesthetics, and art criticism. Journal entries, critiques, and observation are key components of the course. Students in Drawing 1B expand upon their fundamental drawing skills to produce classical and conceptual drawings that integrate form and composition. Students choose their subject matter, whether real or abstract, to compose work that expands their artistic abilities. All assignments will emphasize the development of craftsmanship, technique, creativity, composition, and proportion.

**Painting 1A and 1B.** Studio and landscape painting is open to all students with an interest in learning how to develop a sense of composition by building multiple layers of paint that interconnect the natural world to the human mind. Painting 1A students begin by developing fundamental skills with acrylic paint, understanding and illustrating effective composition, and creating relationships in size, scale, proportion, and value. Students will then advance into thinking in color and will learn how to mix color using the primary colors, white and black. From still-lives, students move into nature and compose life studies from the lush landscape of the Presidio. Advanced painting students will be able to choose their subject matter, whether real or abstract, to compose work that expands their artistic abilities. Developing a sense of composition, rhythm, and texture is essential for this course so that students can study and learn from the works of classical and modern artists.

**Digital Imaging 1A and 1B.** Through a series of demonstrations and student-centered projects, Digital Imaging 1A teaches students how to operate the Nikon P50 digital camera, manipulate images in Photoshop CS3 using a variety of techniques, and organize and display their images using a variety of outputs. Assignments will incorporate a variety of technical approaches and artistic themes including documentary, portraiture, studio photography, landscape panorama, and time-lapse. The 1B course extends the skills developed in 1A with an emphasis on digital SLR photography and Adobe Camera Raw digital darkroom processing. A fundamental introduction to composition using the Elements & Principles of Design will help students create photo-based images that appear harmonious and unified. The course culminates in the production of a digital portfolio.

**Publication Arts: Yearbook.** This course takes place during the spring trimester, and its main objective is to produce the Bay School yearbook. Students focus on desktop publishing and 2D design fundamentals, aesthetics and typography. They learn to work skillfully with Adobe InDesign and Photoshop, the companion programs that are commonly used by the printing industry today.

**Video Production 1A and 1B.** This series of courses is designed as an introduction to all phases of video production. The course teaches the skills necessary to accomplish the basic pre-production, production and post-production processes. Students will engage in mini-production planning, shooting, and editing both group and individual projects. Each student will be a valued member of a crew and will cycle through a variety of responsibilities throughout the course, including director, camera operator, lighting, sound, and production assistant. Advanced students engage in more extensive and lengthy projects for presentation to the school community.

## PERFORMING ARTS

**Drama 1A and 1B.** This course sequence introduces the forms and elements of drama and addresses two principal questions: How does theater represent an effective expression of culture and history? And how can I communicate authentically through this medium? Students in Drama 1A will begin by exploring the structure and functions of drama across early civilizations (Mayan, Aztec, Hindu, Buddhist, Greek, Roman) and the Middle Ages. Drama 1B includes exploration of Renaissance theater, Commedia del Arte, 19th-century Romanticism and Realism, and 20th century movements. Students will compare and contrast a diversity of theories of movement (LaBán, Alexander, Grotowski, and Suzuki) and vocal training, and they will incorporate these into their daily practice. Improvisational skills are cultivated throughout each term and will become both an outlet for creative energies and a forum for experimentation in character and scene development. Participation in scenes, preparation of monologues, and attendance at (and critique of) one or more professional theatrical performance per term are all required.

**Intensive Performance Workshop.** This advanced performance course begins with intensive scene study and directing theory. Delving, in turn, into Stanislavski, Meisner, and Viewpoints theory, students will develop and perform three assigned scenes. Focus will then turn to improvisational work in acting, dance, and music as students begin to study the origins and mechanics of entertainment. Through these explorations, students will develop a program of original material. Students will integrate their knowledge and collaborate in the writing, editing, design, and production of their own culminating Cabaret. Texts: *The Physical Comedy Handbook*, David Rider Robinson; *Impro*, Keith Johnstone; various scripts and excerpts.

**Jazz Ensemble 1A and 1B.** The Jazz Ensemble sequence of courses seeks to develop students' instrumental skills and music appreciation as reflected in a popular jazz repertoire. No prior instrumental experience is necessary. You will learn some of the harmonic and melodic devices used in all Western music, and you will explore the vocabulary that musicians use to communicate with one another. You will also hear great recordings and analyze them with your classmates. An evening field trip to a jazz club each term is a highlight of the course. As an ensemble class, participation in a final music performance is required.

**Jazz 2.** This is a performing ensemble class for students who have mastered an instrument and are familiar with the basics of jazz improvisation. Students will increase their repertoire of standards, hone their rhythmic and harmonic vocabulary, improve their performance skills, and enrich their knowledge of jazz history. Students will also hear live music at a jazz club at least once in the trimester. As with the Jazz 1 sequence, participation in a final music performance is required.

**Music Composition.** Music Composition is for students who are interested in writing songs, scoring instrumental pieces, and learning the fundamentals of music theory. We will practice composing melodies, putting melodies to harmony, and putting words to our music. We will learn strategies for notating our compositions and also study some of the software that is available to composers. Finally, we will examine the theory behind our songs and some of the great pieces of music from Gregorian Chants to the Beatles. No experience necessary.

**Electronic Music Studio 1 and 2.** Bay's Electronic Music Studio courses represent a comprehensive introduction to the production of hip hop music, specifically using Reason and Pro Tools software packages. Though this course focuses specifically on hip hop, techniques learned with Reason can be applied to the creation of pieces in a variety of musical genres. We will explore the fundamentals of Digital Audio Workstation software; experiment with advanced sampling; work with reverbs, delays, compressors, and equalizers; use Mastering Plug-Ins on mixes; and practice recording and editing vocals. Throughout the production process, students will learn about a variety of styles of hip hop music spanning both time periods and regions of the U.S. Guest lecturers will include local hip hop producers, who will offer their time and services to further our collective knowledge of hip hop production. As we complete songs, they will be aired for the school community through our own podcasts.

**Dance in a Cultural Context 1A: Hip Hop.** Dance 1A is a lecture and movement course designed for students who are interested in learning the fundamental elements that define hip hop culture. Students will develop a knowledge and understanding of hip hop culture by examining four major elements that encompass this art form: movement style (dancing), creative verbal expression (lyrics), sound composition (mixing and sampling sound, dj-ing), and composition of music video's and graffiti art (visual). In lectures and discussions, students will critically examine and question hip hop culture in terms of its historical evolution and its direct effect on American society. Students will participate by learning hip hop dance technique and will be introduced diverse regional styles including break dancing, East Coast wave and slide, West Coast popping and locking, improvisation and choreography. Students will participate in an end-of-term production that culminates in a final dance performance, spoken word performance, and a group music video production.

**Dance in a Cultural Context 1B: Black Dance in America.** In Dance 1B, students will explore historical connections as to how African Culture significantly impacted the art and popularity of dance in America. Students will practice and learn new techniques and develop a working vocabulary in Tap, Jazz, and African Haitian dance, and they will deepen their locomotor and coordination skills. Students will develop an understanding that most popular American dances were direct descendants of traditional and ritual dances brought over by African slaves. Students will also be introduced to pivotal African artists, performers, and choreographers who made a great impact on dance despite the challenges of poverty and racism. Students will see live performances of various African-related dance ensembles and have guest artists lecture on related topics. The course culminates in a public dance performance.

### SAMPLE FOUR-YEAR COURSE SCHEDULE

	1st Trimester	2nd Trimester	3rd Trimester
<b>9th Grade Year</b>	Humanities I	Humanities I	Humanities I
	Conceptual Physics	Conceptual Physics	Chemistry
	Math I	Math I	Arts Elective
	Writing Workshop	Foreign Language I	Foreign Language I
<b>10th Grade Year</b>	Humanities II	Humanities II	Humanities II
	Chemistry	Biology	Biology
	Foreign Language II	Research/Community	Foreign Language II
	Arts Elective	Math II	Math II
<b>11th Grade Year</b>	U.S. History	U.S. History	History Elective
	Science Elective	Science Elective	Arts Elective
	English Elective	Foreign Language III	Foreign Language III
	Math III	English Elective	Math III
<b>12th Grade Year</b>	Religion/Phil. Elective	English Elective	Arts Elective
	Math IV	Math IV	History Elective
	Senior Project	Science Elective	Technology Elective
	Senior Project	Senior Project	Senior Project

**Note:** 23 academic credits are required for graduation. Junior and senior schedules shown above indicate maximum course loads. Individual student course schedules will vary.

### HONORS AND ADVANCED PLACEMENT COURSES

The Bay School is committed to challenging our strongest students by offering focused, high-level courses in all disciplines. These courses promote rigor and discipline in mastering detail, cultivate depth of synthesis and analysis, demand authentic inquiry, and emphasize examination of the most salient problems faced by the world in the 21st century. Many of our upper-level courses have been approved as honors courses by the University of California, giving them the same weight as AP courses in the eyes of the UC/CSU system, and approval of additional honors-level courses is pending.

High school Advanced Placement (AP) programs are the subject of considerable and continuing debate at independent schools and colleges. The Bay School has elected not to offer a traditional AP-style program. We believe that our upper-level courses have tremendous integrity and value unto themselves; and thus our courses do not seek to take the place of any college freshman courses. The Bay School has joined with dozens of other upper-tier independent schools from across the nation as part of the Independent Curriculum Group ([www.independentcurriculum.org](http://www.independentcurriculum.org)), an organization promoting creative and informed alternatives to a traditional AP program. ICG publishes an extensive list of references in support of such alternatives.

Even so, a number of motivated students each year prepare for, and take, AP exams in a wide range of subject areas. These students meet with their teachers during free blocks and commit themselves to additional study outside the normal school day.

Our academic committee is continuing to watch and learn about the relative merits of AP programs. ○

