

## 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 cultures/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 by 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 culminates 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.** At the Bay School, incoming freshmen are introduced to high school science with a two-trimester course in basic physics. Because of its crucial role in achieving a sustainable future for the planet, we begin with the concept of energy. As the course continues, we focus more specifically on the energy transfers and transformations most important to modern society, namely, those associated with sound, electricity and light. In addition to acquisition of knowledge and understanding that is foundational to subsequent science courses, students will develop crucial learning skills. These include: being able to explain physical reasoning verbally; using computers to collect, analyze and present data; using algebra to express simple relationships between physical quantities; calculating with and without electronic calculators; accounting for measurement error; working productively in small groups; and knowing when to ask for help.

**Chemistry.** In the first trimester of this two-trimester course, students will learn about atomic structure, the periodic table, nuclear reactions, chemical bonding, chemical reactions, and basic chemical reaction types. In the second trimester, students will deepen their study of chemical reactions, focus on measurement of products and reactants in reactions (stoichiometry), investigate energy of reactions, and study molecular structure and function. Throughout, students will consider the societal impact of chemistry in the context of current events. Students will engage in lab activities, class discussions, group and individual work as well as utilize online tools such as an online chemistry text, computer simulations, and the online homework system WebAssign in order to study, practice and ultimately show a deep understanding of chemistry, its applications and its implications.

**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: Cosmology.** Students continue the journey back in time to the age of quasars and black holes that formed the galaxies and the cosmos. Students will integrate their studies in physics, chemistry and biology to study the instant of creation and the development of life on Earth. Hands-on laboratory assignments will include overnight field trips to local observatories and field locations. Students may take both Astrophysics courses as a year-long lab science course. (Note: When taken in conjunction with Astrophysics: Stellar Evolution, this course has been designated as an honors course by the University of California). Open to juniors and seniors only.

**Astrophysics: Stellar Evolution.** Students will journey from planet Earth through the solar system to other stellar systems to discover the creation of other planets and star systems. Students will integrate their studies in physics and chemistry to study the development of mankind's exploration in outer space. Hands-on laboratory assignments will include overnight field trips to local observatories and field locations. (Note: This course, when taken in conjunction with Astrophysics: Cosmos, has been designated as an honors course by the University of California). Open to juniors and seniors only.

**Bioethics.** Is cloning a human being morally acceptable? Are genetically engineered salmon a good idea? Should insurance companies have access to the results of your genetic tests? This one-trimester course is a philosophical and scientific approach to understanding current ethical issues affecting society. We will begin with an introduction to a variety of ethical frameworks as applied to difficult decision-making moments, and we will apply these frameworks to specific cases drawn from ethics textbooks, journal articles, the Internet and our own experience. Thereafter, we will delve into four case studies on relevant issues. For each case study, students will learn the underlying scientific principles and techniques as well as applying philosophical concepts and ethical criteria to the bioethical issues. Students will be tested on their mastery of the scientific details, and they will prepare papers and participate in debates exploring the ethical dimensions of each new topic. The class will culminate with students choosing a bioethical issue and giving a presentation of their analysis. The course is available to juniors and seniors who have successfully completed the Conceptual Physics/Chem 1/Bio 1 sequence; no additional knowledge of biological topics is assumed. Students should be advised that this is a not a lab science course but a reading, discussion, and writing-intensive course. This course may be counted as either a Science or a Religion/Philosophy course, but not both.

**Biology II.** Biology II is an advanced-level laboratory course designed for students who have an expressed 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. Each of these units includes a formal test and several laboratory exercises. The core units of Biology 2 are: Biochemistry, Metabolism, Cellular Biology; the Biology of Disease; Molecular Genetics and Biotechnology; Physiological Adaptations of Plants and Animals; Evolution and Behavior. (Note: This course has been designated as an honors course by the University of California). Prerequisite: Average of B+ or better in Biology 1, or permission of instructor.

**Biotechnology.** Biotechnology comes in many forms: pharmaceuticals, DNA fingerprinting, individualized medicine, cloning, gene therapy, genetically modified crops, and made-to-order glow in the dark fish. One definition common to all these cases of biotechnology is they involve an application of knowledge from the biological sciences towards the creation of tools to solve problems. Discoveries about DNA, and the life instructions therein, open up a vast possibility of biological tools. We will survey these technologies and discuss their potential, possible pitfalls, and the significant ethical issues that arise. Students will work in groups to learn how to amplify, subclone, and sequence portions of their own DNA. The course will involve field trips as well as guest speakers from local biotech companies and research institutions. The course will include many labs as well as group projects. Prerequisite: completion of Biology 2, or instructor permission.

**Chemistry II.** Chemistry II is a two-trimester course. The second-year Chemistry course will advance students' understanding of the concepts covered in Introductory Chemistry as well introduce several new principles. Topics which were covered in Introductory Chemistry on a conceptual level will be tackled with formulas and equations. Major topic areas that will be covered are the structure and interactions of matter, stoichiometry, states of matter, chemical equilibrium, acids and bases, redox chemistry, kinetics and thermodynamics, gas laws, electrochemistry, and reduction/oxidation chemistry. Coursework will focus around the laboratory – experiments will serve both as an introduction to new ideas as well as a tool to model real-world situations. (Note: This course has been designated as an honors course by the University of California). Prerequisite: Instructor permission or B+ or better in Chemistry 1A& 1B or permission of instructor.

**Environmental Chemistry.** In this course we will study environmental issues from a chemistry point of view. We will be investigating topics such as pollution, global warming, energy sources, and waste management as well as focused study of current events in environmental chemistry. The 2011-12 course will focus on the chemical consequences of the waste we produce in San Francisco. The class will engage in discussions, debates, lectures, projects, field trips, lab work as well as a deep study of a college level environmental chemistry textbook and supporting documents. The course will culminate with a class project aimed at educating the Bay School community about our findings.

**Geology in the Western US.** What are the Basin and Range? Why do the Sierras exist? 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? This one-trimester course is designed to study the environment you may or may not know through a different 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 study of the geology of the Western US. The course will include field trips. Open to juniors and seniors only.

**Hydrology.** What happens when science, politics, and greed face off? Water is now a valuable commodity. Where does our water come from? What is an underground reservoir and how does it evolve in time? What are the risks of flood 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 US changed over time? These are some of the questions we will investigate in this one-trimester class. We will attempt to understand the interactions between rivers, their floodplains, their deltas and the underground water tables to better understand river dynamics and potential hazards. We will look at water management both from the perspective of apportioning water and preventing flooding. Finally we will look at the history of water management in the US over the last century. Open to juniors and seniors only.

**Physics I.** In this two-trimester course, we will use math to focus on areas of physics that are the most relevant to chemistry and biology. We will delve deeply into thermodynamics, electric forces, electric circuits, electromagnetic radiation and the birth of quantum physics. Each topic will be approached through student inquiry, be it experimental, theoretical, or computational. This course will draw heavily on the mathematical concepts and symbolic manipulation skills studied in Math 3 and Analysis of Functions. Although Physics 1 is not a prerequisite for Astrophysics or Physics 2, it will serve as strong preparation for both. Requires concurrent enrollment in or successful completion of Analysis of Functions.

**Physics II.** This is a two-trimester calculus-based physics course that covers the fundamentals of Mechanics, Electromagnetism, and Quantum Mechanics. Computer-based laboratory investigations and analytical problem solving skills will be required throughout the course. Calculus is a co-requisite for the course. (Note: This course has been designated as an honors course by the University of California). Students signing up for Physics 2 should either be concurrently enrolled in Calculus or have already completed Calculus. Additional prerequisites: Average of B+ or better in Analysis of Functions, or permission of the instructor.

**San Francisco Bay I.** During this trimester-long course, students will investigate the natural forces which formed and continue to shape and influence the San Francisco Bay Area. Students will apply many of the concepts learned in physics and chemistry as well as learn fundamental principles about physical oceanography, geology, and atmospheric science. Initial investigations will focus on the geology of the Bay Area—how the region was formed and shaped by plate tectonics, glaciers, water, and wind. The second unit of study will focus on the weather of the Bay Area and look at the dominant conditions which influence the weather. The final unit of study will focus on the water of the San Francisco Bay; it will combine the knowledge learned in the first two units with an investigation of physical oceanography. Topics will include the movement of ocean water as well as a look at the freshwater supply for the Bay—the San Francisco Bay watershed. Students will then investigate the human impact on the region and begin to assess potential long-term effects of human activity. In addition to weekly laboratory work, there will be several ongoing term-long projects. These projects will include collecting and analyzing atmospheric weather data, observing tidal variations, and gathering water samples. No prerequisite; open to juniors and seniors only.

**San Francisco Bay II.** During this course, students will study the biology and ecology of the San Francisco Bay Area. Beginning with the smallest organisms, students will investigate the life cycles of the different organisms and see how their role is significant and an indicator of the overall health of the Bay. Early laboratory work will include gathering water samples from different regions of the Bay and analyzing microscopic organism content. Later course and lab work will investigate the life cycles and roles of the larger organisms. Each student will undertake a trimester-long research project examining a specific aspect of microbial ecology in the San Francisco Bay. Students will perform a background reading on a topic of interest, propose a project, conduct research, analyze data, and present a final summary of the project. Research may involve collaboration with non-profit and/or government organizations. There will be two Saturday field trips during the trimester. Reading materials will come from journals and publications of scientific groups. No prerequisite; open to juniors and seniors only.

## MATHEMATICS

The Bay School mathematics program has been designed with three key goals in mind. First, it presents challenging mathematical content to develop quantitative literacy. Second, it provides a solid mathematical foundation for students who may wish to study math- and science-related fields in college and beyond. And third, it places significant emphasis on training students to think like mathematicians. “Thinking like a mathematician” includes working collaboratively with one’s peers; looking at the world through a mathematical lens to find interesting mathematics in a variety of situations; persevering on challenging problems; choosing mathematical representations that apply to a given problem; recognizing what mathematical tools might be appropriate for a given problem and using those tools in a meaningful way; and communicating mathematical ideas elegantly in a variety of forms and media.

The Bay School’s integrated core mathematics courses replace sequential courses in Algebra 1, Geometry, and Algebra II. Students who complete Analysis of Functions will be prepared for Calculus. In addition to these two standard high school electives, Bay offers a range of advanced elective courses which expose students to a broad range of mathematical fields.

### CORE MATHEMATICS COURSES

**Math I.** Math I introduces students to tabular, graphical, recursive, and algebraic approaches to problem-solving. The course focuses on the use of these tools in dealing with linear models and scenarios. Math 1 also deals extensively with descriptive statistics, basic algebra, and qualitative examinations of two- and three-dimensional geometric figures.

**Math II.** In Math II, students extend their study of algebra and geometry. The course focuses on the study of exponential and power models, matrices and their applications in a variety of contexts, multiple approaches to solving systems of linear equations, and the study of two-dimensional shapes from a coordinate and transformational geometric perspective.

**Math III.** Math III covers topics drawn from advanced algebra, plane geometry, and triangle trigonometry. Within the context of these topics, students are also introduced to the idea of formal deductive proof, as opposed to the inductive reasoning emphasized in Math 1 and Math 2. Another major theme running throughout the course is using mathematics to create models of real-world phenomena and analyzing and interpreting the predictions made by those models.

### ELECTIVE COURSES

**Analysis of Functions.** Analysis of Functions is a course designed to help students make the transition from the conceptually-oriented inductive reasoning approach used in much of Math 1, Math 2, and Math 3 to the more rigorous deductive approach often seen in higher-level mathematics and science courses. Students who think they may have a desire to study a math- or science-related field in college should take this class. Topics covered in this class include function transformations, the theory of inverse functions, logarithms, polynomial and rational functions, analytic trigonometry, and advanced algebraic manipulations. Prerequisite: Math 3.

**Calculus.** This is a two-trimester course in single-variable differential and integral calculus with an emphasis on applications to the physical, life, and social sciences. Major concepts will be developed through the investigation of practical, real-world scenarios. Topics covered will include applications of the derivative as a rate of change and a slope, symbolic formulas for computing derivatives, applications of the definite integral as an accumulation function and an area, creating mathematical models using Riemann sums, symbolic techniques of antidifferentiation, and creating mathematical models using differential equations. Time permitting, students may also study Taylor series and their applications. (Note: This course has been designated as an honors course by the University of California). Prerequisite: Analysis of Functions.

**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 pursue individual study of a topic using materials available in print or online. Each student in this one-trimester course spends the term studying a mathematical topic of his or her choosing with instructor approval and guidance. 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, however, any student who is academically and intellectually independent, self-motivated, persistent, and flexible is encouraged to apply.

**Statistics.** This two-trimester course has two guiding questions. First, how can you collect meaningful data about a population without examining every single member of the population? Second, how can you analyze this data quantitatively to reach statistically valid conclusions about your population? In both trimesters, students will look at a wide variety of examples and case studies drawn that illustrate how statistical concepts are applied in the life, social, and physical sciences. Students will also spend a significant amount of time designing their own statistical studies, collecting data, and analyzing the results. Prerequisite: Math III, or instructor permission.

**Topology.** Topology is the mathematical study of shapes and spaces. Bowls and plates share the same topological categorization, but a coffee mug is different because of the hole made by the handle. In fact, in topology, squares, rectangles, parallelograms, trapezoids, and circles are all considered to be the same. Topology is the branch of mathematics that ignores things like size and angle. But here’s the tricky question: if we ignore these ways of measuring, how can we tell when two shapes are different? When you take topology, you’ll figure this out. You’ll also explore shapes like the Mobius Strip, the Klein Bottle, the torus, and ideas about gluing, orientability, and dimension, including ways to represent the 4th dimension. Prerequisite: Math III.

## TECHNOLOGY – COMPUTER SCIENCE AND ENGINEERING

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.

### COMPUTER SCIENCE

Computer science, physics, and mathematics share common threads involving problem-solving. Computer science actually formalizes problem-solving strategies more explicitly than physics or mathematics. Being aware of specific problem-solving techniques and terminology enable students to reach a higher level of sophistication in all science and engineering pursuits. These techniques include: abstraction, generalization, recursion, scope, iteration, value vs. reference, accuracy and precision, specification vs. requirement, version control and debugging.

Bay School computer science courses are founded on the process called “Computational Thinking” pioneered at MIT. Bay students have the opportunity to learn a wide variety of programming languages including: Assembly, C, C++, C#, Java, Lisp, Fortran, Visual Basic, HTML sql, Ruby, XML, and many others.

**Computer Science I.** This course is aimed at students with little or no programming experience. It provides students with an understanding of the role computation can play in solving problems. It also aims to help students, regardless of their primary academic focus, to feel justifiably confident of their ability to write small programs that allow them to accomplish useful goals. The class will use the Python™ programming language and the Geogebra mathematics tool.

**Computer Science II.** Computer Science II addresses software development and data structures. Students will learn to employ integrated development environments (IDEs) such as Eclipse, and IDLE. Students will use linked lists, queues, hash tables, and various tree structures to efficiently implement programs that they design. Prerequisite: Computer Science I or instructor permission.

**Computer Science III: 3D Geometry & Graphics.** This course allows students to apply geometry to the natural and familiar problem of 3D computer graphics. It serves as both a mathematics course providing an in-depth application of geometry and linear algebra, and as a computer science course teaching students how to integrate domain knowledge from another discipline into code and finally into a fully functioning program. Prerequisite: Computer Science II or instructor permission.

**Computer Science: Project Management.** Students who have completed Computer Science I, II or III may sign up to work as a project manager for that course. This role is part teaching assistant, part academic advisor, part mentor, and part work group administrator, with the exact details to be determined by the teacher and student. Project managers will have some opportunities to work as programmers, but they should not expect this to be the primary focus of their duties. Prerequisites: must have successfully completed the course being managed; instructor permission required.

## ENGINEERING

The 21st century is the era of design. Design separates elegant from cumbersome, sustainable from wasteful, intuitive from confusing. Design is interwoven into every Bay School class, nowhere more so than in our Engineering Program. A truly interdisciplinary study, Engineering at Bay incorporates arts and science, requires collaboration and communication, and depends upon a reasoned understanding of the world in which we live. Whether they are 9th graders learning engineering in Bay's Freshman Seminar or 12th graders in an advanced Engineering course, Bay's young engineers learn the process of understanding a problem, testing possible responses, crafting a solution, and honing that solution through iterative testing and improvement. Working in Bay's unique Project Center, students use industrial tools and processes as well as technological resources to build real devices, crafting real solutions to real problems. By empowering our students to dream, investigate, and literally engineer their way out of a problem, we prepare them to think about the world's problems in a new way.

## ELECTIVE COURSES

**Engineering Design I.** This one-trimester course provides an introduction to the various methods and skills involved in design and engineering, from methodology, basic modeling and drawing skills, to material shaping in metal, plastic, and wood using both machine and hand tools. This is a project-based class in which students learn the skills to transform the raw materials into sculpture, architecture, machinery, gizmos, etc. We will explore 3-4 projects during the course, increasing the complexity of the design and building methods along the way. No prerequisite.

**Engineering Design II: Design Focus.** Engineering is basic to human nature. From flint-knapping to make hunting tools to particle accelerators, a methodology of design is the thread common to any man made object. In this course students will explore how to design. The process is an experience in problem solving, from defining what needs to be designed to finding and refining creative solutions to building working prototypes. This project-based one-trimester course will continue to explore design methodology to solve more complex problems. It will focus on finding elegant solutions using a language of engineering and aesthetics to accomplish this goal. Continued development of fabrication methods as well as more in-depth exploration of materials will be used on various assigned and student defined projects. Prerequisite: Engineering Design 1, or instructor permission.

**Engineering Design II: Mechanical Focus.** Making working mechanical objects is challenging. We take for granted that our cars or our computers work reliably and consistently. Experiencing just how much thought and effort goes into the simplest mechanical device is an exciting exploration. In this one-trimester course, students focus on mechanical devices, gaining a greater understanding of how design decisions made along the way inform the reliability and functionality of objects. Using the machine shop and fabrication tools as well as CAD and other visualization methods, students will work on several projects, both assigned and student-defined, to make functional devices. Prerequisites: Engineering Design I, or instructor permission.

**Robotics.** Robotics requires a working combination of several skill sets. Using design methodology to solve problems, students will learn to use the Vex Robotics System to construct working robots able to accomplish specific game-related tasks. Students will be asked to formulate mechanical solutions, fabrication methods and programming skills and integrate them into an automated human-controlled robot. This one-trimester course will be a fun, challenging and rewarding exploration of what it takes to make things that work. Prerequisites: none.

## 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/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 COURSES

**Writing Workshop** is a one-trimester course required 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 in 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 historical background of 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

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 students' ability to express themselves in a variety of presentation forms.

### REQUIRED COURSE

**American Literature.** This course focuses on the roots and evolution of American literature. Students will explore the idea of America through novels, poetry, and drama from different eras and by authors from a variety of backgrounds. The themes of immigration, race, gender, and class—all in relation to power—will guide the course, and the works we read will often deal with more than one theme. Students will revisit the definition of America throughout the course as they ask the following: Who has power? What is the role of money in attaining power? How did we get here? How do we identify/define ourselves? How do others identify us? As students read works of literature that address these questions, they will respond in thought pieces and formal analytical essays. Major projects will include literary analyses (including comparison and contrast essays), poetry explication, and imaginative writing and/or performance synthesizing course themes. Required of all juniors.

### ELECTIVE COURSES

**Advanced Composition.** This course focuses on the genres of short fiction, memoir, and literary criticism. During the term, students will both read samples of these genres, and applying what they have learned, compose works of their own. Students also will learn how to use grammar as style so they are able to hone their writing voices in different genres. By the end of the term, students will have composed three to four major pieces of writing. Possible authors include James McBride, Anne Lamott, Annie Dillard, David Sedaris, Jonathan Safran Foer, Alice Walker, Joyce Carol Oates, Nick Hornby.

**African American Women's Literature.** In this course students will receive a historical and multi-genre overview of African American Women's writing in the United States. Beginning with slave narratives in the 19th century through the poetry, novels, and television/film of the 20th century, students will explore the historical, political, social, and artistic forces that shape these women's works while also examining texts through the lenses of race and gender. Students will engage in independent study of an author of their choice in order to understand one writer's work more deeply. Possible authors include Phillis Wheatley, Sojourner Truth, Harriet Jacobs, Pauline Hopkins, Zora Neale Hurston, Ann Petry, Alice Walker, Toni Morrison, Gloria Naylor, Nikki Giovanni, Audre Lorde, Bell Hooks, Toni Cade Bambara, Ntozake Shange, and Rita Dove.

**Existentialism.** This course will study existentialist philosophy via multiple disciplines, including literature, psychology, religion and film. Students will grapple with basic existential themes such as the meaning of human existence, freedom and responsibility, the limits of reason, the significance of death, the individual versus society, and the role of suffering. Students will be asked to consider questions of freedom and authenticity, and to what extent they have the power to make a mark on the world through their actions and choices. Potential readings include Tolstoy, Kierkegaard, Dostoevsky, Nietzsche, Camus, Sartre, Simone de Beauvoir, Martin Buber and Victor Frankl. Films TBD. NOTE: This course may count either as a Literature course or a Religion/Philosophy course, but not both.

**Myth and Literature in Ancient Greece.** The mythic narratives of the ancient Greeks retain extraordinary richness, power, and relevance. This course will pursue two objectives: 1) familiarity with the fundamentals of Greek mythology (cosmology, pantheon, world view) and 2) understanding of how this mythic vision is revealed and explored in works of enduring literary value. These works will include selections from the great dramatic trilogies of Sophocles (*Oedipus Rex*, *Oedipus at Colonus*, *Antigone*) and/or Aeschylus (*Agamemnon*, *The Libation Bearers*, *The Eumenides*) and *The Odyssey of Homer*.

**Poetry.** This course introduces and explores the playfulness, the fun, the challenges and the fundamental features of poetry. Through reading poems from different eras and cultures, students will gain a sense of the power of poetry across the centuries. Expect to write about poetry as well as to write your own poetry.

**Shakespeare.** In this course, we will begin with sonnets, and then read some of Shakespeare's best-known and most complex plays—plays whose concerns make them seem as if they were written yesterday. *Othello* deals with issues of race and jealousy that seem to make a tragic end inevitable. *Much Ado About Nothing* pokes fun, sometimes uncomfortably, at the differences between the sexes. In *Twelfth Night*, we will discover ourselves (in spite of Bay School values!) laughing at the misfortunes of others. Whenever possible, we will examine, through live and video performance, how different productions and casting (for example, whether a White or Black actor plays Othello) affect our interpretations of the plays. Students should expect daily reading assignments and a variety of writing opportunities.

**Short Fiction.** In this course, we will share the pleasure of reading short stories and short novels from different eras and locations, stories that range from those already deemed great to those which may well be on their way into that category. Beginning with some of Chaucer's *Canterbury Tales*, we may read Franz Kafka's novella *Metamorphosis* and/or Joseph Conrad's *Heart of Darkness*. We will also read contemporary "flash fiction." Students should expect daily reading assignments and a variety of writing opportunities, including writing a short story.

**Utopia/Dystopia.** During this term, we will explore both utopias: ideal societies, real or imagined, meant to be seen as better than the society in which readers live and dystopias: 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, 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, as your text *The Utopia Reader* notes, fashions in utopias have changed over the millennia, centuries, even decades. The texts we will read include: *The Utopia Reader* (containing excerpts from many works) and several novels, possibly including *1984* by George Orwell, *The Handmaid's Tale* by Margaret Atwood, and *Ecotopia* by Ernest Callenbach. NOTE: This course may count either as a Literature course or a Religion/Philosophy course, but not both.

**Vietnam: Changing Perspectives.** America's experience in Vietnam remains a touchstone in our national discourse. This course will examine Vietnam—both the war and the country—through poems, novels, memoirs, stories and letters from the US and Vietnam and through stories and poems by Vietnamese-Americans. We will also view documentaries and several films, possibly including *Apocalypse Now*, *Platoon*, *Regret to Inform*, *The Fog of War*, and *Daughter from Danang*. As part of the course, students should expect daily reading assignments, guest speakers and independent work. Texts we will read as a class might include *The Quiet American* by Graham Greene; *The Things They Carried* by Tim O'Brien; *In Pharaoh's Army: Memories of the Lost War* by Tobias Wolff; *The Stars, The Earth, the River* by contemporary Vietnamese author Le Minh Khue; and *The Gangster We Are All Looking For* by Vietnamese-American author Le Thi Diem Thuy.

## HISTORY AND SOCIAL SCIENCE

The History and Social Science 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

**US History.** In this course, we thematically explore our country's history. The selected themes have real relevance in today's world and will continue to be essential to comprehending our country in the coming decades. The course investigates three broad areas: immigration, identity and power, and foreign policy. Within immigration, students learn about historic and contemporary motives for migrating to the United States as well as immigrants' responses and residents' reactions to migratory waves. To understand how identity and power relate, students examine four case studies: the Constitutional Era, the Civil War and Reconstruction, the Progressive Era, and the Civil Rights Movement. Finally, we explore the relationship between U.S. foreign policy and international perceptions of the United States. Frequently connections are made between the past and the present. Analysis of a wide variety of primary and secondary sources is central to our work. During the second trimester of the course, students have the opportunity to investigate, in depth, a topic of their choice. In this project, they put into practice many of the historians' skills they have learned such as the formation of a hypothesis, the process of gathering information, evaluation of sources, and the construction of arguments and analysis supported by evidence.

### ELECTIVE COURSES

**Comparative Genocide.** 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 we'll examine the roots of genocide and mass violence over the last century through in-depth case studies of Weimar Germany, South Africa, Rwanda, and either Colombia or Guatemala. Ultimately, at the root of such tragedies is human behavior. In an effort to investigate this we'll examine 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? We'll also look at how societies repair and rebuild themselves and ultimately grapple with the question, 'What is justice'? While our Bay School classroom will be the venue for our studies, we will work to be part of a larger, community conversation on these issues, central to the survival of so many communities, worldwide.

**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. Students will explore five different political systems (the US, France, Mexico, China, and Iran) and will simultaneously conduct independent research projects (country-specific case studies). Unit 1: Introduction to Comparative Politics and Conceptual Framework. Unit 2: Comparative Democracies: the U.S., France & Mexico. Central Questions: What aspects do all democratic regimes and ideologies share in common? What are some variations in the institutional structures and practices of different democratic systems? In what ways do these systems (US, France and Mexico) fail to live up to democratic criteria? What can the US learn from other systems? Vice versa? Unit 3: Authoritarian Regimes. Central Questions: Are economic reform and political reform necessarily linked? Does economic growth promote democracy? Are theocracies inherently autocratic? Or, can theocracy and democracy co-exist? Unit 4: Student Case Studies. Prerequisite: Instructor permission.

**Political Economy.** Economics and politics are inextricably linked. To fully understand our economy, we must understand the political decisions that influence it. We begin with an overview of the advantages political economy, as opposed to conventional economics, offers for grappling with contemporary issues. Next, we learn basic economic principles and the ways that political economists apply them. Finally, we turn to the ultimate aim of this course, which is to help students comprehend and confront some of the most complex problems facing their generation: a broken national economy, out-of-control climate change, and endemic global poverty. Be prepared for fun and engaging simulations of economic concepts, as well as serious discussion and debate as students are called on to propose potential solutions to these challenging problems.

**Latin American Studies.** The region to the south impacts us in a multitude of ways. Understanding Latin Americans' diverse experiences enables greater comprehension of our own nation's present and future. In this course, we focus on Latin America in the twentieth century, exploring the relationship between cultural expression and the politics, economy, and history of the region. The course begins with a virtual voyage through Latin America, focusing on three cities portrayed in contemporary films. After this initial exposure to prevalent aspects of the region such as racism, class tensions, gender roles, urbanization, violence, and United States' influence, we turn backwards in time to explore the historical roots of these characteristics. We begin with a brief overview of major historical forces: conquest, colonization, and independence. Then, we explore four key themes of the twentieth century: neocolonialism, nationalism, revolution, and reaction. We investigate these in Cuba, Mexico, Brazil, Guatemala, and Argentina. A variety of sources – film, novels, poetry, short stories, songs, and historical documents are examined.

**US Government & Politics.** The course will briefly review the origins and structure of the American political system and will examine the respective roles of the three branches of government, political parties, the media, and interest groups in the formation of public policy. This course encourages students to form their own critical perspectives on government and politics in the United States. Students will learn the concepts necessary for interpreting U.S. politics and gain the tools necessary to be engaged and informed citizens. Activities include the following: analysis of contemporary case studies; frequent debates and simulations (on current topics); weekly student-led discussion sections on current political challenges and controversies; student-generated solutions to pressing political problems such as health care, campaign finance, climate change.

## 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 also integrated into the Humanities I and II courses in the 9th and 10th grades.

### ELECTIVE COURSES

**African American Spirituality and Philosophy.** During their freshman and sophomore years, the students in Humanities explored the manner in which humans have sought to make meaning of their existence and the world around them. Two of the questions which guided our discussion were: How do we perceive the world? How do we behave as a consequence? With the premise that environment, perception, and behavior are inextricably linked, the African American Spirituality and Philosophy course will examine the African American experience with a particular emphasis upon the following: African American perceptions of the world around them from their arrival to America as slaves to the modern day; the development of African American's 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, and we will spend the term primarily examining African American interpretations of Christianity, Islam, Judaism, as well as the development of Rastafarianism.

**Bioethics.** Is cloning a human being morally acceptable? Are genetically engineered salmon a good idea? Should insurance companies have access to the results of your genetic tests? This one-semester course is a philosophical and scientific approach to understanding current ethical issues affecting society. We will begin with an introduction to a variety of ethical frameworks as applied to difficult decision-making moments, and we will apply these frameworks to specific cases drawn from ethics textbooks, journal articles, the Internet and our own experience. Thereafter, we will delve into four case studies on relevant issues. In each case study, students will learn the underlying scientific principles and techniques as well as apply philosophical concepts and ethical criteria to the bioethical issues. Students will be tested on their mastery of the scientific details, and they will prepare papers and participate in debates exploring the ethical dimensions of each new topic. The class will culminate with students choosing a bioethical issue and giving a presentation of their analysis. The course is available to juniors and seniors who have successfully completed the Conceptual Physics/Chem 1/Bio 1 sequence; no additional knowledge of biological topics is assumed. Students should be advised that this is a not a lab science course but a reading, discussion, and writing-intensive course. This course may be counted as either a Science or a Religion/Philosophy course, but not both.

**Buddhism.** The essence of Buddhism is to awaken, to be free in the midst of this changing world. The function of that awakening is to give, to be able to love unconditionally and serve people. The path to that awakening is a deep curiosity about the mind, how it makes us unhappy and how it can be trained to unveil our natural deep contentment and joy. This class will be experiential, it will offer teachings and skills that will give students a chance to change the way they perceive themselves and their world, to see more clearly and be more authentic. We will study Buddhist ethics, the Two Truths, the Eight Fold Path and the profound teaching of dependent arising. It is important to make these teachings come alive in daily life so “paying attention” assignments will be given for homework. We will spend time during each class in meditation. We’ll study characters in movies and discuss how they illustrate different states of mind. We’ll take field trips to various Bay Area Buddhist communities like Green Gulch Farm and Spirit Rock Meditation Center. Buddhism has a long and rich history from ancient India to the Bay Area. We’ll study that history with an emphasis on how Buddhism has impacted the West, revolutionizing disciplines from neuroscience and psychology to education. Our primary text will be *Wide Awake: a Buddhist Guide for Teens* by Diana Winston. We will also read chapters from *The Issue at Hand, Spiritual Materialism and the Power of Now* as well as articles from research journals. Life for a teenager can sometimes feel like a roller coaster with wonderful highs and equally low, dark times. In the midst of these changes there is a still quiet place that is our home. We will find that home in each of us giving us an abiding place to return, a place from which to live.

**Comparative Philosophy.** This course grounds students in the study of philosophy and explores central questions within a comparative framework. Students read a wide range of responses to shared concerns, largely centering around the following three core questions: What is the good life? (What is happiness? Is there ultimate meaning?) What is the role of the individual in society? (What is his/her responsibility? How should we relate to others?) What is justice and the just state? (What constitutes freedom, liberty, and justice? How do we navigate the unjust state?) To address these questions, we will read both classical and contemporary philosophers from the East and West and draw upon film and literary selections as supplemental texts. Possible texts and authors include Plato, *The Republic*; Confucius *The Analects*; The Dalai Lama, *Ethics for a New Millennium*; Emerson; Mill; Kant; Ayn Rand; Nietzsche; Zhuangzi; Xunzi; Albert Camus, *The Stranger*; Jean Paul Sartre *No Exit*; Viktor Frankl, *Man’s Search for Meaning*. Open to juniors and seniors only.

**The End of the World as We Know It: Apocalypse and the American Imagination.** Throughout human history, we can find narratives about the end of times. In the latter part of the 20th century and the first part of this century, the technologies we have developed have only increased this anxiety for some—pushing apocalyptic thought out of the realm of purely religious thought. This course examines the various expressions of apocalyptic thought that exist in the United States today, like the popular *Left Behind* series, and in days past, such as the Native American Ghost Dance movements in the late nineteenth century. Is social scientist John Wiley Nelson correct in stating that apocalyptic ideas are “as American as the hot dog?” In our study of apocalypse and the American imagination, we will come to our own conclusions.

**Existentialism.** This course will study existentialist philosophy via multiple disciplines, including literature, psychology, religion and film. Students will grapple with basic existential themes such as the meaning of human existence, freedom and responsibility, the limits of reason, the significance of death, the individual versus society, and the role of suffering. Students will be asked to consider questions of freedom and authenticity, and to what extent they have the power to make a mark on the world through their actions and choices. Potential readings include Kant, Kierkegaard, Dostoevsky, Nietzsche, Camus, Sartre, Simone de Beauvoir, Paul Tillich and Victor Frankl. Films TBD. NOTE: This course may count either as a Literature course or a Religion/Philosophy course, but not both.

**Faith and Religion in America.** This course is an examination of religion in the United States. Who believes what and why? We’ll take a look at dominant faiths and focus on subcultures, from Mormonism to Wicca, Scientology, and beyond. Focus questions include: How has religion played a role in our development as a nation? Should religion inform our political system? What is faith? Who has it? In what? How do all of our unique beliefs allow or prevent us from co-existing as a people? Possible texts: *Religion in America: A Very Short Introduction*, Timothy K. Beal; *What Really Matters, Searching for Wisdom in America*, Tony Schwartz; *Cults: Faith, Healing, and Coercion*, Marc Galanter; *America: Religions and Religion*, Catherine Albanese; *Mormonism: The Power and the Promise*, Richard Ostling and Joan K. Ostling.

**Hinduism.** This course is a thorough grounding on the religions of India based on the Vedas and, to some extent, on 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. Course Objectives: Students will differentiate between the various strands of Hindu devotion (Saivism, Vaisnavism, and Goddess-worship). Students will write a historical analysis of Hinduism’s history and its contact with outsiders. Students will undertake study of several Hindu texts. Students will write one research paper on the topic of their choice and present their findings to the class. Students will also visit a Hindu temple within the Bay Area.

**The Problem of Evil.** What constitutes evil and why does it exist? We will focus on these questions in this course, as we study the liabilities of freedom. Our path will take us through literature, philosophy, biology, psychology and theology as we investigate how people have tried to (and continue to try to) explain natural and moral evil. Texts: Hume, *Dialogues Concerning Natural Religion*, Freud, *Civilization and its Discontents*, Lyall Watson, *Dark Nature: A Natural History of Evil*, and David Bentley Hart, *The Doors of the Sea: Where Was God in the Tsunami?*

**Utopia/Dystopia.** During the term, we will explore both utopias: ideal societies, real or imagined, meant to be seen as better than the society in which readers live and dystopias: 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, 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, as your text *The Utopia Reader* notes, fashions in utopias have changed over the millennia, centuries, even decades. The texts we read will include: *The Utopia Reader* (containing excerpts from many works) and several novels, possibly including *1984* by George Orwell, *The Handmaid’s Tale* by Margaret Atwood, and *Ecotopia* by Ernest Callenbach. [NOTE: This course may count either as a Literature course or a Religion/Philosophy course, but not both.]

## WORLD 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.

### 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 continue to 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. The course incorporates Chinese literature and history, and explores 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.

**Mandarin V.** This upper level course explores the enduring influence of traditional martial arts cultural heroes (real and imagined). In the course, students explore how the Wuxia concept has historically evolved to its present form, as seen in film, comics and pop culture. Potential topics include chivalrous bandit heroes in Ming and Qing fiction, the Boxer Rebellion in Late Imperial China, and anti-dynastic sectarian movements in Ming and Qing history.

### 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. This course is designated as a UC honors course.

**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. This course is designated as a UC honors course.

## 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.

### VISUAL ARTS

**3-Dimensional Foundations IA and IB.** This two-trimester course sequence is designed to give students the chance to explore art in three dimensions. Students experiment with and create sculptures in different media including wire, clay, plaster, and found objects. We 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 IA and IB.** 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 emphasize the development of craftsmanship, technique, creativity, composition, and proportion.

**Painting IA and IB.** 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 and 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 then advance into thinking in color and learn how to mix color using the primary colors, white and black. From still-life, students move into nature and compose life studies from the lush landscape of the Presidio. Advanced painting students are 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 IA and IB.** 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 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* helps 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 is offered 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 IA and IB.** This series of courses is designed as an introduction to all phases of video production. The courses teach the skills necessary to accomplish the basic pre-production, production and post-production processes. Students 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 IA and IB.** 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 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 learn to compare and contrast a diversity of theories of movement (LaBan, Alexander, Grotowski, and Suzuki) and vocal training, and they 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 develop and perform three assigned scenes. Focus then turns to improvisational work in acting, dance, and music as students begin to study the origins and mechanics of entertainment. Through these explorations, students develop a program of original material. They will then 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 IA and IB.** 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. Students will learn the harmonic and melodic devices used in all of Western music, and explore the vocabulary that musicians use to communicate with one another. The class will hear and analyze a selection of jazz masterpieces. 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 II.** 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. The class will practice composing melodies, putting melodies to harmony, and putting words to music. Students will learn strategies for notating their compositions and also study some of the software that is available to composers. Finally, students will examine the theory behind their songs and some of the great pieces of music from Gregorian Chants to the Beatles. No experience necessary.

**Electronic Music Studio I and II.** 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. The class 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, offering their time and expertise to further our collective knowledge of hip hop production. As members of the class complete songs, they will be aired for the school community through podcasts.

**Dance in a Cultural Context IA: Hip Hop.** Dance IA 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 videos 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 to 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 IB: Black Dance in America.** In Dance IB, students explore historical connections discovering 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, as they 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 slaves from Africa. 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. The class will attend live performances of African-related dance ensembles and have guest artists lecture on related topics. The course culminates in a public dance performance.

**Athleticism and Dance.** This is a lecture and movement course designed for students who are interested in sports, movement, teamwork, dance and choreography. This course explores the fundamental elements of movement and dance that are present in all major sports, and applies these movements to Hip Hop and modern dance technique and choreography. Students study the choreography of baseball, football, basketball, tennis and rock climbing as well as the history of male and female dance choreographers with an inclination towards athleticism in dance. Students examine the historical evolution of each sport covered and contemplate gender issues relating to sports and dance. Students will gain knowledge and participate in movement that expands their locomotor skills and co-create choreography for a final production at the end of the trimester. The class will also observe local dance companies that fuse athleticism and dance and experience guest artists in the classroom.

**Feminism and Modern Dance.** This course examines the history of the feminist movement in America through a socio-political lens and through the movement of the great women choreographers of the 20th and 21st centuries. Students will investigate issues related to women's bodies in our culture. They will explore their own body image and self-identity and will critique the mass media's portrayal of women. This class is part lecture and will also include three modern dance/choreography classes weekly. Students will experience guest teachers from the local dance community as well attend professional dance performances. The class will culminate in a final performance. Male students are welcome! No prerequisite.

**SENIOR SIGNATURE PROJECT PROGRAM**

The Senior Signature Project Program provides all seniors with the opportunity to design and complete a project in a field they are passionate about. The program emphasizes depth of study and mastery in a field, independent problem solving, and risk taking. Successful completion of a Signature Project is a graduation requirement for all seniors. In this program, each senior works closely with the director and assistant director to research and develop a project idea, outline a detailed work plan, and collaborate with a mentor to complete their project. Successful completion of a Senior Signature Project includes a final portfolio and project deliverable that represents the results of their work. Students also present their work to the Bay School community at the annual Senior Signature Project Exhibition at the end of the spring trimester.

Students work on their projects during two of three trimesters in their senior year. Some seniors choose to begin work on their projects during the summer between their junior and senior years, typically to take advantage of summer opportunities such as research lab work or summer internships.

LIFE SKILLS COURSES >>>

**LIFE SKILLS COURSES**

At Bay, our commitment to educating students for lives of engagement and leadership as citizens of the 21st century world also involves attention to guiding and supporting their personal growth throughout the high school years. Our Life Skills curriculum spans all four years and asks students to examine a number of educational, technological, personal, interpersonal and societal issues affecting their daily lives both in and outside of school.

All students participate in elements of the Life Skills Curriculum during advisory periods and selected all-school and grade-level school gatherings. In addition, all 9th graders take Freshman Seminar, a non-credit course which meets once per week for the entire year.

**Freshman Seminar.** The overarching goal of the Freshman Seminar is to orient incoming students to the technological, social, cultural, and academic contexts of life at Bay. The course is taught by a diverse team that includes members of the faculty, staff, and administration; and it focuses on the following guiding questions:

- *Identity, diversity, and Bay School culture: How do we broaden our definitions of community membership while continuing to honor our individual identities?*
- *Bay as a laptop school: How do we effectively employ technology in an academic context?*
- *Executive function: What does educational research have to teach us about how our brains work and how we learn best?*
- *Research in the 21st century: How do we responsibly and efficiently access and evaluate digital information?*

Students completing the Freshman Seminar will be effective self-advocates, savvy consumers and producers of digital-age information, self-aware individuals, and conscientious contributors to the rich cultural and academic life of the Bay School.

**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 II	Math II	Digital Photography 1*
	Writing Workshop	Mandarin I	Mandarin I
<b>10th Grade Year</b>	Humanities II	Humanities II	Humanities II
	Chemistry	Biology	Biology
	Mandarin II	Research/Community	Mandarin II
	Digital Photography 2*	Math III	Math III
<b>11th Grade Year</b>	U.S. History	U.S. History	Political Economy*
	Chemistry II*	Chemistry II	Social Dance*
	Advanced Composition*	Mandarin III	Mandarin III
	Math-Analysis of Functions	American Literature	Math-Analysis of Functions
<b>12th Grade Year</b>	The Problem of Evil*	Historical Fiction*	3-Dimensional Design*
	Math-Calculus	Math-Calculus	Comparative Government*
	Shakespeare*	Astrophysics*	Computer Programming*
	Digital Video Production*	Senior Signature Project	Senior Signature Project

**Note:** All students are required to take four courses each trimester, each worth 0.5 credits. Twenty-three academic credits are required for graduation.

\*Denotes elective course

SENIOR SIGNATURE PROJECT PROGRAM >>>

## HONORS AND ADVANCED PLACEMENT COURSES

The Bay School is committed to challenging our strongest students by offering a broad range of advanced elective courses in all disciplines. As an expression of Bay's academic philosophy valuing depth over breadth, these courses are designed to promote rigor and discipline in mastering detail, cultivate depth of synthesis and analysis, demand authentic inquiry, and emphasize examination of the most salient issues faced by the world in the 21st century.

Advanced Placement curricula typically prescribe a course of study that prevents the depth of exploration and creative inquiry that are the hallmarks of a Bay School education. In recognition of this, Bay has, since the school's founding, been among a vanguard of independent schools nationwide that have chosen to define their college-level advanced electives in ways other than the AP system. The College Board is in the process of rewriting several AP courses in order to allow greater depth of inquiry; the Bay School faculty is tracking these developments to determine if the revised AP curricula will meet our high standards for in-depth, 21st century learning.

Bay School junior- and senior-year electives are college-level courses in their content, depth, and complexity. Colleges and universities throughout the US, including the University of California, have found our upper-level electives to be remarkable in their sophistication; many of these advanced electives have been designated as honors courses by the University of California, giving them the same weight as AP courses in the application process. Approval of additional honors-level courses is pending.

Each year, a number of Bay students successfully prepare for and take AP exams in a variety of subject areas, committing themselves to additional study and preparation outside the normal school day. Bay School students who earn high marks on the AP exams are able to earn course credit at those colleges and universities which participate in the AP system. ○