

Brunswick School
and
Greenwich Academy

COURSE CATALOGUE
2017-18

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BRUNSWICK SCHOOL & GREENWICH ACADEMY

Brunswick School and Greenwich Academy are college-preparatory schools. Mindful of their responsibility to provide their students with a rigorous academic program and at the same time to recognize individual talents and special interests, both schools coordinately maintain a strong and balanced offering of required and elective subjects. Honors and Advanced Placement sections in many courses provide qualified students with special challenges, while elective courses available in most disciplines furnish enrichment and variety in traditional academic areas and in art, drama, dance and music.

Statements of each Department's requirements and philosophy and complete descriptions of core and elective courses are provided in the following pages.

Note that both Brunswick and Greenwich Academy reserve the right to cancel any course because of under-enrollment. Registrants in any canceled course will be notified as early as possible.

A minimum of five academic courses is required for all students. Those students proposing a program of six or more full-credit courses that include honors and Advanced Placement must have the permission of the Head of the Upper School for Greenwich Academy students or the Dean of Academic Affairs for Brunswick students.

Students from Brunswick and Greenwich Academy enroll in courses on both campuses, schedule and numbers permitting. Both schools share a common academic schedule with hour-long classes and ten-minute passing time between classes. Students are expected to honor the rules of both schools as outlined in their respective handbooks.

Graduation Requirements:

ENGLISH:	Four years
HISTORY:	Two and one-half years (including Modern World History and U.S. History)
MATHEMATICS:	Three years (including Geometry)
SCIENCE:	Three years (Biology, Chemistry and Physics) at GA Three years (including Biology and Chemistry or Physics) at BR
WORLD LANGUAGE:	Completion of Level III in one language at GA Three years at BR
ARTS:	One year (both semesters in a studio or performance course) at GA Two years at BR
PHYSICAL EDUCATION:	Four years
HEALTH:	One half-year
PUBLIC SPEAKING:	One half-year at BR

Typical Recommended Four-Year Sequence of Courses:

The sequence outlined below, while typical, is not fixed. Other options, permitting stronger emphasis in a particular subject area (e.g., Language, History, Science) are also open to students.

9 TH GRADE	10 TH GRADE	11 TH GRADE	12 TH GRADE
English 9	English 10	English 11	English 12 electives
Modern World	U.S. History	History elective	History elective
Geometry	Algebra II	Precalculus	Adv. Mathematics
Biology	Chemistry	Physics	Science elective
Languages	Languages	Languages	Languages
Arts	Arts	Arts	Arts
Health (GA: ½ year)	Health (GA & BWK: ½ year)		Public Speaking (BWK: ½ year)

OFF-CAMPUS STUDY

Brunswick School and Greenwich Academy sponsor a variety of off-campus study options that give students the opportunity to discover new cultures, engage in site-specific study and, in the case of studying abroad, speak a foreign language in full immersion with homestay programs. An array of experiences is offered domestically and abroad during the year, each of which offers intense academics, consistent with Brunswick and Greenwich Academy's academic program. Please consult the schools' websites for more information on these exciting educational opportunities.

GLOBAL ONLINE ACADEMY

Global Online Academy is a partnership consisting of select exemplary independent schools from around the world that have come together to offer a diverse array of online courses. These courses are designed with a focus on academic rigor, collaboration, innovation and development of key 21st-century learning skills. Students may enroll in a GOA course as part of the registration process. Guidelines and the GOA course offerings are included at the end of this catalogue and can be found at www.globalonlineacademy.org.

ADVANCED PLACEMENT COURSES

Advanced Placement (AP) courses are college-level courses offered chiefly in grades 10 through 12. Almost all departments offer AP courses that carry extra credit included in computing GPA's. A sufficiently high score on an AP examination may allow the student to earn credit in the college he or she eventually attends. Students enrolling for any AP course **must take** the AP Examination in that course—even if they have already been accepted to college/university.

Students are carefully selected for AP courses according to the following criteria:

- teacher recommendation;
- grades in prerequisite courses;
- consideration of the student's total academic load;
- other specific departmental requirements (see appropriate section).

Students may not take more than three AP courses in a given year without permission of the Head of the Upper School for Greenwich Academy students or the Academic Dean for Brunswick students. The work of a typical AP course involves homework of an hour or more each night. Both schools expect students to give serious commitment to AP courses and require students to take the AP examination in May. A student may, at the teacher's discretion, lose AP status at any point during the year. Students do not, however, have the prerogative to opt out of an AP course after the designated drop/add period. Colleges will be notified of any change in a student's AP status.

HONORS COURSES

Honors courses are significantly more rigorous than regular courses, and student work is expected to show greater depth, more sophisticated reasoning, academic independence and higher creativity than the work in regular courses. Almost all departments offer Honors courses that carry extra credit included in computing Honors. Students need specific departmental recommendation to take Honors courses. A student may, at the teacher's discretion, lose Honors status at any point during the year. Students do not, however, have the prerogative to opt out of an Honors course after the designated drop/add period.

EXPEDITION COURSES

In several disciplines, Greenwich Academy offers Expedition Courses in which academic study is enriched and deepened by an extended class trip. The class expedition -- whether it's traveling to landmarks of the Civil Rights Movement or studying the ecosystem of the Galapagos Islands -- is an essential part of the course. For these classes, financial aid is available so that students have an equal opportunity to participate.

INDEPENDENT STUDY

Independent projects, in which students do considerable work on their own without the constant supervision of the teacher, are sometimes available. Subject to administrative and departmental approval, and working with a designated faculty sponsor, students will receive full or partial course credit for their work. An independent study cannot be used to fulfill the required minimum of five academic courses per semester.

GLOBAL SCHOLARS

With the goal of preparing students to be active and engaged members of the increasingly global community, the Global Scholars program offers Greenwich Academy students a thematic, interdisciplinary approach to their education. The program requires, among other things, international travel and project-based scholarship and seeks to teach students skills in problem-solving, communication, analytical thinking, collaboration, adaptability and inclusion. Most students apply to the program in the spring of their Group IX year. Successful completion of the Global Scholars program requires well-roundedness across the curriculum, the design of a digital portfolio, at least two weeks of study or project work outside of the United States and a capstone project to be completed during senior year.

DISTINCTION IN CLASSICS

In recognition for having successfully completed four years of Latin in the Upper School, including one AP level Latin course and two years of classical Greek, Brunswick students are awarded a Classics diploma written in Latin. Greenwich Academy students who have completed the equivalent course of study are formally recognized at the Senior Honors Convocation.

INTERDISCIPLINARY STUDIES

The Interdisciplinary Studies Program is not a separate department but a collection of courses developed from the traditional disciplines of Art, English, Classics, History, World Languages, Math and Science.

Interdisciplinary Studies (I.S.) courses encourage students to integrate two or more disciplines. Increasingly, understanding and solving complex intellectual and practical problems in real life prove difficult when only looking through the prism of one field of study. By helping students amalgamate the insights of various disciplines, they will learn to synthesize knowledge and further develop key creative, collaborative, and decision-making skills—all critical in making interconnections in life beyond the academic realm. Furthermore, with an emphasis on at least one project-based learning assessment requiring “design thinking,” students will take on tasks that will promote both mental acuity and flexibility.

In many cases, two teachers from different academic departments will lead each I.S. course. As well, working under the premise that “no discipline knows more than all disciplines,” visiting faculty from other departments will be invited to guest instruct throughout the semester. This will help provide wide-ranging perspectives on a given topic while also leveraging the varied expertise of the faculty at large.

(Please Note: Rising 12's are given placement preference over Rising 11's and 10's.)

The following courses will fulfill the arts requirements of either campus:

- Honors Engineering & Design I
- Honors Engineering & Design II
- 3D Design & Fabrication
- Art and Code
- AP Art History

Honors Engineering and Design I

Grade Level: 10th - 12th

Prerequisite: Departmental approval

*This course is offered jointly through the science and art departments.

Got an idea? In this course we will teach you how to design it, build it and make it go! You will have the opportunity to experiment with state-of-the art fabrication machines in Greenwich Academy's Engineering and Design Lab. Using cutting edge computer-aided design and fabrication, along with electronics and Arduino programming, you will design and build creative solutions to authentic problems. Together we'll work on projects developed to introduce you to all of the equipment in the lab, things like a programmable RGB LED lamp, constructing and programming an LED light up "word clock" and a special holiday project.

American computer scientist Alan Kay once said, “The best way to predict the future is to invent it.” Learn the tools to design and invent your future.

Honors Engineering and Design II: Inventions that make life better

Grade Level: 11th - 12th

Prerequisite: Two of the following lab electives: 3D Design for Fabrication, Art and Code, Microcontrollers for Interactive Art and Make Something Big or Honors Engineering and Design I and departmental approval

*This course is offered jointly through the science and art departments.

This course is designed for students who have experience working with 2D and 3D design, digital fabrication, electronics and microcontrollers and would like to apply these skills to engineering problems of their design. Students will engage with the cyclical engineering design process to come up with solutions. Greenwich Academy's Engineering and Design Lab offers state-of-the-art fabrication machines and tools for building and prototyping their designs. The class will culminate in a presentation of projects and prototypes to a panel.

FALL SEMESTER COURSES

3D Design for Fabrication and Movement

Grade Level: 9th - 12th (fulfills one semester art requirement)

Prerequisite: None

Do you enjoy the intersection of engineering, sculpture and design? In this semester-long course you will have the opportunity to design in 3D using traditional hand building tools as well as state-of-the-art digital fabrication machines in Greenwich Academy's Engineering and Design Lab. Throughout the semester you will be creating artistic objects that include simple machines such as gears, pulleys, springs and levers by incorporating them into your designs.

Mechanical objects such as wooden toys, automata and kinetic sculpture will be included in the list of projects that will get you started on the journey towards understanding the principles of movement and learning how to incorporate them into your sculptural ideas. Design and fabrication processes that will be covered include computer-aided design, 3D printing, laser cutting, as well as CNC machining, mold making, and casting for replicating forms used in projects.

American Film: Big Screen Cultural Reflections

Grade Level: 10th - 12th

Prerequisite: None

This interdisciplinary course will celebrate America's most vivid cultural product, the Big Screen picture. Through readings, screenings and demonstrations, we will examine the craft, meaning and impact of some of the great films of the past 100 years. We will explore the roles of the producer, writer and director in developing the script. We will learn how the cinematographer, production designers and editors shape the images and sounds. We will look into the varying methods that produce performances that move us. We will discuss the criticism and business practices that define the tension between the art and commerce of moving pictures. Our work will always consider how film impacts and reflects US cultural landmarks of the day. Themes to explore include: Art versus Entertainment; The Teenage Experience; Life during Wartime; Civil Rights and Gender Roles. Students will be assessed on content through short written responses and in-class discussions. Final projects, highlighting the confluence of disciplines required to produce a film, will be fulfilled through an in-class powerpoint presentation.

This class can be taken in conjunction with the spring semester class, "American Film and Beyond," for full year credit, or as a one-semester course in the fall.

Arabic Cinema and Culture

Grade Level: 10th - 12th

Prerequisite: None

This course reflects on the Arab cinema from the colonial times to the 21st century, and provides an in-depth exploration of cultural identity and politics in the Arab World. The course includes various cinemas from the Arab World, from Morocco, Algeria and Egypt to Syria, Lebanon, Saudi Arabia and Palestine. Students will be introduced to notable moments and phenomena in the history of these cinemas. The course will be taught in English and all films will be in Arabic with English subtitle. Furthermore, students will be required to read critical and theoretical articles that pertain to class discussion. These films and readings serve as the basis for debate, discussion and written analysis of issues relevant to the history, culture and politics of the Arab world and the Middle East. Films will be on reserve at the school library, and screenings will be scheduled.

War, Literature & Popular Culture: From Homer to the War on Terror

Grade Level: 10th - 12th

Prerequisite: None

Why are Hollywood movies like *Troy*, *300*, or *The Hurt Locker* able to exert a powerful fascination in contemporary audiences? Why is war a recurring topic in Western literature through the ages—from Homer to contemporary memoirs of American soldiers who served in Iraq and Afghanistan? Why have videogames exploring facets of war, like *Call of Duty*, have reached such a high degree of popularity?

This course will explore first the continuity of the phenomenon of war from classical to contemporary times. Second, it will investigate the classical roots of Western culture. (For instance, a discussion of Livy's Second Punic War narrative, Rome's war against Hannibal, explains how the Romans set the basis for the concept of "nation" and "citizenship" that we cherish in the United States.) Finally, it will take a closer look at artistic manifestations of war, namely in literature and film, but also in the popular culture of our 21st century, "globalized" world.

This is an interdisciplinary class involving English, the Classics, and History and will be team-taught by two Brunswick faculty members. Readings may range from passages in translation of classical authors such as Homer, Herodotus, or Vergil, to 20th century writers like poet Wilfred Owen or novelist Ernest Hemingway. Knowledge of Latin is not a requirement, however, students with a Classics background will be able to integrate translation skills into the course.

SPRING SEMESTER COURSES

American Film and Beyond

Grade Level: 10th - 12th

Prerequisite: None

This interdisciplinary course will celebrate the Big Screen picture from Hollywood and beyond. Through readings, screenings and demonstrations, we will examine the craft, meaning and impact of some of the great films of the past 100 years. We will explore the role of the producer, writer and director in developing the script. We will learn how the cinematographer, production designers and editors shape the images and sounds. We will look into the varying methods that produce performances that move us. We will discuss the criticism and business practices that define the tension between the art and commerce of moving pictures. Our work will always consider how film impacts and reflects relevant cultural landmarks of the day. During each semester we will focus on different themes including: Art versus Entertainment; The Teenage Experience; Life during Wartime; Civil Rights and Gender Roles. Students will be assessed on content through short written responses and in-class discussions. Final projects, highlighting the confluence of disciplines required to produce a film, will be fulfilled through an in-class powerpoint presentation.

This class can be taken in conjunction with the fall semester class, "American Film: Big Screen Cultural Reflections," for full year credit, or as a one-semester course in the spring.

Art and Code

Grade Level: 9th - 12th (fulfills one semester art requirement)

Prerequisite: None

Do you enjoy computer science and visual art? Designed like a studio art class with a technical bent, this semester-long course you will give you the opportunity to explore using computer code as an expressive medium. You will be producing art objects and functional objects in 2D and 3D as well as use code to control machines YOU make that make art, like programmable scribble bots. Programming languages we will use include Processing, a visual language based on java for 2D design, and OpenScad, a programming-oriented tool for 3D modeling. In the course you will also be using microcontrollers, small programmable computers, to interface with graphical programs. Explored will be a full range of fabrication processes and creative material use in art projects including using the laser cutter to cut leather and etch glass, make giant drawings on the CNC router and design for the 3D printer to make chocolate molds.

Cognitive Psychology

Grade Level: 10th - 12th

Prerequisite: B in Biology

This course addresses the question of how we learn from two perspectives within the field of psychology: neuroscience and social psychology. We go to school to learn about a variety of subjects, from the humanities to the sciences. This course takes a step back and investigates how all this learning occurs. To understand how knowledge is shared and developed in the classroom, we will look at how our brains make sense of what we hear and what we see. In addition, we will investigate the importance of social interaction to learning. Students will participate in web-based cognition experiments and discussion blogs, write brief position papers on current research in these fields, and define and carry out a final research project relevant to the course topics.

Understanding 9/11: Attack & Aftermath

Grade Level: 10th - 12th

Prerequisite: None

This interdisciplinary course will explore the underlying forces that led to the four coordinated attacks in the United States on September 11th, 2001. Through the varied lens of history, culture and literature, students will examine the recent social, political and economic realities of life in the Middle East. A thorough examination of the phenomenon of terrorism and more specifically, the radical ideology of Al Qaeda and their former leader Osama bin Laden will be completed.

Students will discover how Americans initially tried to cope emotionally with the horrors of 9/11 and later pushed to permanently memorialize the 2,977 victims of the attacks. Participants will also examine the various ways the US government responded to these acts of violence both on the domestic and international fronts. Specific attention will be given to the creation of the Department of Homeland Security, the imprisonment and interrogation of “enemy combatants,” the passing of and subsequent renewal of the Patriot Act and the wars in both Afghanistan and Iraq. Finally, the class will look at the US’ overall counter-terrorism strategies in the present day in dealing with the recent rise of groups like the Islamic State of Iraq & Syria (ISIS/ISIL) and Al Qaeda in the Arabian Peninsula (AQAP).

Two faculty members will lead this team-taught semester elective, one from both the History and English departments. As well, a member of the Foreign Language department, an Arabic instructor, will guest lecture on the intricacies of Middle Eastern thought in relation to Islamic fundamentalism. A trip to the 9/11 Memorial Museum and surrounding neighborhood will round out the course requirements.

ENGLISH

The English program has several major objectives: to help students increase their understanding and command of language, to develop the process of critical and creative thinking and to foster the knowledge of a wide range of literature.

All English courses on both campuses are designed to help students improve their proficiency in reading, thinking, speaking and writing, through reading and discussing literature, through extensive writing, and through grammar and vocabulary work. Word processing, which both departments regard as an integral tool for thinking and writing, is required for all outside assignments.

English IX (Greenwich Academy)

Grade Level: 9th

The 9th grade English course at Greenwich Academy has as its theme *New Worlds, New Eyes, New Voices*. The course creates a foundation in the study of literature and in the increasingly complex writing and thinking skills needed in the Upper School. Active reading, annotation, discussions, and frequent writing-to-learn assignments help students to build their own complex interpretations of a variety of texts. Students learn to interpret and re-interpret variations of a story and to see from more than one perspective. Writing instruction focuses primarily on the analytical essay (original topic, thesis, elaboration, evidence, structure, voice, style) but students also write poems and stories. Ongoing self-assessment and portfolios help students to recognize the strengths and weaknesses in their own writing process and to set goals. Students use laptop computers for writing, inquiry, and multi-media projects, including making their own videos. Recent texts have included: *Antigone, Pride and Prejudice, Twelfth Night, Lord of the Flies, Persepolis, The Catcher in the Rye*, and Genesis.

English IX (Brunswick School)

Grade Level: 9th

Continuing a longstanding Brunswick tradition, English IX is an all-boys class taught around a Harkness table; it focuses on many examples of exemplary and cautionary models of manhood. Examining a variety of literary and non-fiction works from many periods and genres, the course is coordinated with the freshman history course on the origins of the modern world across the globe. The course stresses the development of critical reading and thinking skills while challenging each boy to improve his writing. We also carry out a comprehensive study of grammar, vocabulary, and the mechanics of essay writing. In addition to the focus on analytical writing, students will complete various projects including creative writing, oral presentations, memorization, and a significant interdisciplinary project during the second semester.

English X

Grade Level: 10th

Prerequisite: English 9 or equivalent

English 10 traces American experiences as they are reflected from the country's colonial beginnings to twenty-first century literature. Students read a variety of genres and explore writing in myriad forms, with emphasis on the analytical essay. Grammar study arises out of the students' specific needs and vocabulary is studied through the literary texts. Works to be studied may include *The Crucible, Our Town*, short stories by Nathaniel Hawthorne and essays by Thoreau and Emerson, *The Adventures of Huckleberry Finn, Narrative of the Life of Frederick Douglass, Their Eyes Were Watching God, The Great Gatsby*, and selected poetry and essays.

English XI

Grade Level: 11th

Prerequisite: English 10 or equivalent

English 11 traces American experiences as they are reflected from the country's colonial beginnings to twenty-first century literature. Recent years have included such works as *The Scarlet Letter*, *Adventures of Huckleberry Finn*, *As I Lay Dying*, *Passing*, *The Great Gatsby*, *The Things They Carried*, *One Flew Over the Cuckoo's Nest*, *Narrative of the Life of Frederick Douglass*, *The Bluest Eye*, *A Streetcar Named Desire*, and *The Namesake*. In addition, students will study a wide range of poetry and non-fiction prose and will explore the writing of more complex expository and creative papers. In May, students may sit for the AP English examinations (English Language and/or English Literature).

Honors English Seminar in Literature

Grade Level: 11th - 12th

Prerequisite: Departmental approval

This honors English course, taken in addition to either a required English course or AP Spanish Literature, offers intensive study of more advanced works. Students will be challenged to become more independent, insightful readers and more forceful, artful writers with confident critical voices. Through study of narrative structure, form and style, students will learn to discern and articulate authors' methods of making meaning through texts, themes and concepts comparable to those that occur in college literature courses. Application process to the English department includes a graded essay and a personal essay expressing interest in a more in-depth study of literature. Works could include *Invisible Man*, *Anna Karenina*, *Beloved*, *The Grapes of Wrath*, *White Teeth*, *Mrs. Dalloway*, and *King Lear*, as well as poetry, short stories and screenplays.

FALL SEMESTER COURSES

Creative Writing I: Fiction Workshop

Grade Level: 10th - 12th

Prerequisite: None; This course does not fulfill departmental requirements.

This class will cover fundamentals of the craft of fiction writing (such as plot, characterization, theme, narration, dialogue, and setting), expose students to a variety of writers and styles, and nurture students' individual aesthetics. Students should expect to read and write short and flash fiction, share their writing in workshop, and comment on their peers' work. They will leave prepared to tackle longer projects, participate in future workshops, and submit writing for publication. Writers of all experience levels welcome!

This class may be taken on its own or as part of a full-year course with Creative Writing II.

SPRING SEMESTER COURSES

Creative Writing II: Poetry and Manuscript Workshops

Grade Level: 10th - 12th

Prerequisite: None; This course does not fulfill departmental requirements.

This class, a continuation of Creative Writing I, is designed to help students identify and pursue their individual writing goals. In the third quarter, we will read, write, and workshop poems, and in the fourth, each student will undertake a long-form creative writing project: a poetry collection, short story collection, or novella. Over the course of the semester, we will discuss examples of all of these forms, learn techniques for critiquing and revising collections, and practice submitting work for publication.

Students are encouraged but not required to take Creative Writing I ahead of this course.

ENGLISH XII: LITERATURE & COMPOSITION - SENIOR ELECTIVES

The English Department offers specialized senior level courses that continue to teach reading, writing and critical thinking skills. Although the syllabi of these seminars vary, the goals of instruction are consistent -- to develop students' comprehension and expression so that they graduate as independent thinkers and persuasive writers. Common skills represented in each course will range from the proper methods of seeking outside critical sources to presentation skills, and in all courses, analytical writing will be stressed in full. In each course, students will write in various forms and read works representing diverse voices, experiences, genres, time periods and cultures. Selected seniors may sit for the A.P. English Literature exam in May. In the fourth quarter, students will submit a significant critical paper that will be graded by the student's own teacher, and then submitted to a panel of English teachers. Each year, the joint English Departments will select one essay from each campus as a Senior Prize Paper.

American Me: The Power of Memoir

Grade Level: 12th

According to publishers, memoir (that hipper cousin to staid autobiography) now routinely sells better than fiction. Why? What is it about memoir that so captivates both readers and writers? In this course we'll examine memoir as a means for introspection, advocacy, confession, healing, and self-promotion. In our discussions we'll ask questions such as: what choices do writers make in constructing an identity within a narrative? What is the relationship between fact and imagination? Drawing on insights from our coursework, students will have the opportunity to explore their own lives through personal writing. Some of the authors on our reading list may include Henry David Thoreau, Ulysses S. Grant, Joan Didion, Jeanette Walls, James Frey, Lena Dunham, and Barack Obama. Possible texts include Tina Fey's *Bossypants*, Ernest Hemingway's *A Moveable Feast*, Frank McCourt's *Angela's Ashes*, William Styron's *Darkness Visible*, and Paul Kalanithi's *When Breath Becomes Air*.

The Art of Science (and Science Fiction) Writing

Grade Level: 12th

Space travel. Poisonous chemicals. Infectious diseases. Nanotechnology. Climate change. Brain tumors. For many of us, these topics are confusing at best, utterly mysterious at worst. If we don't understand the data, how are we supposed to understand these and other scientific problems and discoveries of our time? One answer is through the work of gifted science writers who parse information and distill it in ways that makes it clear, accessible and even magical. In this course we'll look at works that tackle such subjects as the environment and animal behavior, medicine, outer space and technology to determine how science writers bring strange worlds alive for us. And through the work of science fiction writers, we'll examine how scientific discovery influences fiction and how fiction influences what scientists might choose to investigate. In their writing, students will also have the opportunity to research their own questions about science.

Possible writers include: Rachel Carson (*Silent Spring*), Peter Mattheissen (*The Snow Leopard*), Stephen Hawking (*A Brief History of Time*), Rebecca Skloot (*The Immortal Life of Henrietta Lacks*), Siddhartha Mukherjee (*The Emperor of All Maladies*), Oliver Sacks (*The Man who Mistook his Wife for a Hat*), Philip K. Dick (*Do Androids Dream of Electric Sheep?*), Margaret Atwood (*Oryx and Crake*), Dave Eggers (*The Circle*).

Breaking the Rules: Voices of Revolution

Grade Level: 12th

Books can change the world. In this class we will examine novels, plays, films, essays, and even some television shows that have pushed us to change the ways we see our world and ourselves. We'll also look at the variety of approaches writers and filmmakers use to tell a story – breaking traditional rules and pushing the boundaries by communicating in original, innovative ways. The works will entertain and challenge as we delve into fiction and non-fiction featuring some notable literary rebels and non-conformists. Possible works include *Beloved*, *Slaughterhouse Five*, *The Reluctant Fundamentalist*, *Invisible Man*, *The Bonfire of the Vanities*, *The Brief Wondrous Life of Oscar Wao*, *The Age of Innocence*, *Zeitoun*, *Catch 22*, *Angels in America*, *Twilight Los Angeles*, *Mad Men*, as well as films by Jane Campion, Spike Lee, Stanley Kubrick and other filmmakers.

Creative Writing

Grade Level: 12th

This course is an introduction to creative writing in its many forms. Students will read and analyze great pieces of writing while simultaneously working on their own creative writing; they will also develop their own literary and artistic sensibilities while grappling with the question: *what makes good writing?* The class will consider non-fiction, fiction, memoir, screenwriting, and songwriting as related disciplines, and the year will be divided into units according to these genres.

We will spend much of the fall semester working on non-fiction writing, starting with a *New Yorker*-style profile on an interesting person of each student's choosing. After writing about places and events, students will segue into writing about themselves (personal narratives and memoir). In the winter months, we will begin to study some of the great short story writers while students continue to workshop their own writing. In the spring, we will dive into a study of screenplays and song lyrics.

Students will work towards the creation of a multi-genre portfolio that will include work-shopped, revised pieces to be considered for publication in literary magazines such as Brunswick's *Oracle* or Greenwich Academy's *Daedalus*.

The Criminal Mind

Grade Level: 12th

Quick: think of a story that *doesn't* have a crime in it. (See, it's harder than you think.) This course will form a jury of sorts as we consider the role of crime committed in works of literature and film, both fiction and non-fiction. We will discuss the nature of crime and the motives of a variety of criminals. We will look at how writers choose to present their criminals and how these choices influence our reactions to them, sometimes in surprising ways. We will consider: Do great stories require great transgressions? Is it more satisfying when a mystery has an artful solution or when it lives on, unsolved, in our hearts and minds? Recent texts have included: *Atonement*, *In Cold Blood*, *In the Lake of the Woods*, *Equus*, *The Talented Mr. Ripley*, and *Glengarry Glen Ross*; films such as *Memento*, *Double Indemnity*, and *L.A. Confidential*; and a mix of classic and contemporary short fiction.

In Our Time: Contemporary Fiction

Grade Level: 12th

While studying "The Classics"—the great artistic works of the rich and distant past—provides a necessary intellectual foundation for understanding literature, history, and culture, it is interesting to consider works created "in our time," by artists of the Contemporary World. With this in mind, this course will explore ways in which contemporary novelists, screenwriters, and songwriters have expressed and are currently expressing themselves through their works, and referencing the great works of the past. Texts may include: Chuck Palahniuk's existentialist novel *Fight Club* (1996), Daniel Woodrell's, *Winter's Bone* (2006), Philip Roth's *The Humbling* (2009), as well as novellas, short stories, and contemporary stage plays. The emphasis will be on characterization and storytelling with any eye to both the past and the present. The course will also include coverage of contemporary screenplays by Alan Ball ("American Beauty"), Diablo Cody ("Juno,") and Paul Thomas Anderson ("Magnolia"), as well as a treatment of contemporary songwriting in which we will study complete albums by artists such as Pink Floyd, The Antlers, The Decemberists, Green Day, and/or other musical artists "of our world."

Let's Talk About Sex

Grade Level: 12th

Boys wear blue and girls wear pink. Boys play with toy cars, girls play with dolls. Boys are active, girls are emotional. Even if we don't agree with these generalizations, they're certainly out in the world. But where do they come from? By examining a range of works including Chimamanda Ngozi Adichie's talks on feminism and H.G. Bissinger's football classic *Friday Night Lights*, this course will attempt to discover the extent to which—and the ways in which—our ideas of gender and sexuality are socially and culturally created and enforced. Readings, films, discussions, and projects will help us uncover what role literature has in reinforcing gender stereotypes, breaking them down, or redefining them altogether. Possible authors include: William Shakespeare, Virginia Woolf, Junot Diaz, Alison Bechdel, Michael Chabon, James Baldwin, Philip Roth, Djuna Barnes, Margaret Atwood, Alan Hollinghurst, and others.

Mythology Then and Now

Grade Level: 12th

Have you ever wondered why Scout's father in *To Kill A Mockingbird* is named Atticus? Or why Beowulf, a 5th century Scandinavian warrior, never spoke of Thor or Odin? Or how that young boy who would one day be the King of England actually got the sword out of its stone? Besides providing insights into their societies, myths also make great stories. Sometimes the stories are didactic or explanatory, sometimes they simply provide insights into how a society thinks, but the stories are always entertaining.

"Mythology, Then and Now" will focus on but not necessarily be limited to Ancient Greek, Norse, Christian, and North American mythologies, with a look at how more contemporary authors have included mythology in their writing. In addition to the formal study of mythology, students may also be asked to do research into different mythologies and to create and illustrate their own original stories.

Texts being considered include Hesiod's *Theogony*; Aeschylus's *Oresteia*; Malory's *Morte D'Arthur*; Harper Lee's *To Kill a Mockingbird*; and Steinbeck's *East of Eden*.

New York State of Mind (Expedition Course)

Grade Level: 12th

Using the city in our backyard as our greatest resource, this course will explore literature written about New York City and the writers who loved it. We will take a new look at New York through the lenses of its many cultural traditions; we'll spend time with the Harlem Renaissance, with the Rat Pack and jazz, with immigrant stories, hip-hop, Beat poets, and responses to September 11. We'll look at high society at the turn of the twentieth century, and at the squalor of tenement life with which it coexisted. We'll cross the borders between boroughs from the Bronx to Brooklyn, and, in so doing, catch a glimpse of New York's wild history. Through art, music, film, poetry, fiction, and nonfiction, we'll aim to understand what it means to live in New York, to be a part of an urban community, and to capture the wonder and the loneliness of what's arguably the greatest city of them all.

To contextualize our reading, we'll also take several trips to New York throughout the year. Possible expeditions include: walking tours of the boroughs, the September 11 Memorial, Little Italy, Central Park, a baseball game, the NY Historical Society, and the New York Times building.

Possible texts include *Age of Innocence*, *Bonfire of the Vanities*, *Let the Great World Spin*, *Jazz*, *Rules of Civility*, *Angels in America* and *Death of a Salesman*. We'll likely look at the work of Langston Hughes, e.e. cummings, Frank O'Hara, Emma Lazarus, Elizabeth Bishop, Jay-Z, the Beastie Boys, Talib Kweli, Frank Sinatra, Spike Lee, and Woody Allen, among many others.

Students will be expected to go on four field trips to New York City; financial aid is provided for eligible students.

Power to the People: Hip Hop, Art, and Literature for Social Justice

Grade Level: 12th

In this course, we will examine literature, art, and music that engages in issues of social justice. How do artists and musicians use their art to reveal injustices in our society and perhaps even advocate ways to fight those injustices? How do writers imagine new realities and wield their literature as instruments for social change? We will think critically about issues of privilege, oppression, race, class, sexual orientation, and gender and discuss ways that these structures of power intersect. As individuals, we will examine our own backgrounds, biases, and beliefs and think about how we each approach and relate to these issues. We will often examine works that challenge dominant narratives and ideologies and offer new ways of seeing the world. We will read novels, short stories, essays and poems by authors such as James Baldwin, Gloria Naylor, Audre Lorde, Ta-Nehisi Coates, Piri Thomas, Walter Mosley, Natasha Trethewey, John Murillo, and more. We'll examine music, with a focus on hip hop, by artists such as The Notorious B.I.G, Public Enemy, Kendrick Lamar, J. Cole, Jay-Z, Beyonce, and more. We'll analyze visual art by artists such as Kerry James Marshall, Carrie Mae Weems, Helen Zughaib, William Pope.L, and various muralists and street artists like Taki 183 and Banksy. We will also familiarize ourselves with ideas from critical race theory, queer theory, and feminist theory. This class will encounter many complex and difficult questions of race, gender, and politics, so students should be prepared for challenging discussions and debates. Students who enter this class should have an open-mind, curiosity, compassion, and a desire to work towards a more just and equitable future.

The Seven Deadly Sins (and the Seven Heavenly Virtues)

Grade Level: 12th

From the wrath of Achilles and the occasion of Adam and Eve's prideful disobedience, much Western literature has concerned itself with the identification and chronicling of human folly—even as it has also struggled to suggest moral or ethical solutions. In this course we shall examine literary works that have explored the human concern with identifying vices and virtues as well as various philosophical theories developed to aid humans in their struggle. Using the traditional seven deadly sins to structure our examination of human error, we shall read works of literature including such classic texts as Shakespeare's *King Lear*, Dante's *Inferno*, and Milton's *Paradise Lost*, as well as works by such contemporary writers as Ian McEwan, Don DeLillo, Joyce Carol Oates, David Mitchell, and Tom Stoppard.

The Soul on the Steppe

Grade Level: 12th

Ian Frazier humorously calls Russia, “the greatest horrible country on earth.” It is an immense nation that has a habit of producing both imaginative geniuses and brutal dictators, often at the same time. This course will explore the soulful depth of Russian literature as it grapples with the Great Mysteries and the swirling social forces that shaped Russian history. We’ll read such literary giants as Tolstoy, Dostoevsky, Gogol, Turgenev, Pushkin, and Chekov. We’ll travel to St. Petersburg to witness one of the most famous murders in all of literature, fall hopelessly in love in Yalta, stop in Moscow to meet a beautiful woman who pursues a disastrous affair, and drift across the Siberian steppe where Dostoevsky found both God and creative inspiration after a firing squad held a gun to his head. We’ll also explore the ways that the Russian tradition has been embraced and, at times, resisted in the West by such disparate figures as Shakespeare and Woody Allen.

Theatre on Both Sides of the Pond: Page to Stage

Grade Level: 12th

This course will examine past and current American and British plays. The curriculum is determined by what is playing between New Haven and New York City. Students will study and go see a series of plays written on both sides of the Atlantic. Theater is a device to explore the collective conscience of a nation. Through the lenses of playwrights, we will look at the challenges and collective joys of the world around us. Comedies and tragedies abound in this class.

Playwrights we will be studying: Lin-Manuel Miranda, Stephen Sondheim, Tom Stoppard, Samuel Beckett, William Shakespeare, Tony Kushner, and Tennessee Williams to name a few. Some of the plays we have seen: *Hamilton*, *Book of Mormon*, *Sleep No More*, *Hamlet*, *Fun Home*, *Into the Woods*, *Arcadia*, and many more.

**There will be an additional fee for tickets.

The Wide World of Sports and Storytelling

Grade Level: 12th

How can we tell the stories of sports? How can we use sports as a prism to view a much wider world of experience and emotion — or use storytelling to hit something inside people and move them — as former managing editor of *Sports Illustrated* Terry McDonell once suggested? In this senior elective, we will seek to do so by reading, writing, and discussing “all things sports,” analyzing the rhetorical strategies and techniques authors and journalists employ to tell a powerful story. We will read, write, and think about the players, places, and events of male and female sports, discussing essays, book excerpts, poems, stories, and pieces of journalism. In addition, we will view sports from our own personal lenses and focus on how they have transformed our own lives or the lives of those around us. Most important, we will work tirelessly to become more polished readers, writers, thinkers, and grammarians — using the art of sport as our guide as we share, critique, revise, and rewrite. It is often said that sports can represent a metaphor for life: In this class, we’ll dive in (head first) and search for the truth.

Possible texts and authors may include: David Remnick (editor), *The Only Game in Town: Sportswriting from The New Yorker*; David Halberstam (editor), *The Best American Sports Writing of the Century*; Wright Thompson (editor), *The Best American Sports Writing 2015*; Rob Fleder (editor), *Sports Illustrated: Fifty Years of Great Writing*; Roger Angell, *Let Me Finish*; John McPhee, *A Sense of Where You Are: Bill Bradley at Princeton*; Christine Brennan, *Best Seat in the House: A Father, a Daughter, a Journey Through Sports*, Andre Agassi, *Open*; Patricia O’Connor, *Woe Is I: The Grammarphobe’s Guide to Better English in Plain English*; along with selections from male and female writers including John Updike, Sally Jenkins, Malcolm Gladwell, Joyce Carol Oates, Dan Jenkins, Frank Deford, Melissa Ludtke, Rick Reilly, Susan Orlean, Leigh Montville, Roy Blount Jr., George Plimpton, and many more.

HISTORY AND SOCIAL SCIENCES

The Brunswick and Greenwich Academy History & Social Sciences Departments have developed a curriculum based on the premise that history and humankind are shaped by the past. Therefore, the examination of this past is paramount in preparing for the future. Furthermore, the study of history and the social sciences is critical to understanding the institutions and functioning of human society. At both Greenwich Academy and Brunswick, students develop a core of understanding, learn how to analyze their own and others' opinions and participate in civic and community life as active, informed citizens. Skill at reading, writing and speaking is rigorously promoted throughout the program.

Opportunities for pursuing history and/or social studies beyond credit courses in the classroom are:

- Current Events Clubs at both Greenwich Academy and Brunswick School
- The Brunswick/Greenwich Academy Magazine of History—an in-house writing journal
- Participation with other schools in the Model U. N. program and Harvard's Model Congress
- The World Affairs Forum's annual Academic World Quest Trivia Contest
- The Annual Endowed Lectures:
 - Dr. Jane W. Berman Lecture Series at Greenwich Academy
 - Louise Lehrman Visiting Fellow Lecture in American History

Modern World History

Grade Level: 9th
Prerequisite: None

This required survey course introduces students to the ideological concepts that define and dominate the modern era. The course is chronological and thematic exploring such themes as globalization and its impact, technology and demographic change over time, how revolutions and reform movements have transformed the modern world and seeks to account for the West's dominance in this era. Specific content areas include: globalization and trade; the Enlightenment and Atlantic Revolutions; persistence and change in Afro-Eurasia; industrialization and its global consequences; nationalism and imperialism; early twentieth-century revolution; and the world wars. Furthermore, the class culminates with an exploration of modernity's impact on current issues in the postmodern world. The class seeks to enhance students' abilities to engage in historical inquiry, their empathy for the human condition, and to understand the complexities of the human record. Students will continue to develop their reading comprehension and critical thinking skills with the use of diverse resources, including primary, secondary, and material sources as well as scholarly monographs. Myriad strategies to engage students and bolster their ability to synthesize and analyze historical events are implemented in this class, including projects, a research paper, oral presentations and discussion, and various writing exercises.

United States History

Grade Level: 10th - 12th

This required course provides a comprehensive study of United States history, encouraging students to think, write and speak clearly about many of the fundamental issues in America's past. The scope is thematic, moving from the origins of settlement to world responsibilities and the pressures of modern times. Topics for study include: New England Puritanism, the meaning of the American Revolution, Constitutional issues, the causes of the Civil War, Industrialization, Immigration, the Gilded Age and Progressive reform, the Great Depression, the New Deal, U.S. responses to the Cold War, the Civil Rights Movement, including the lessons of Vietnam, and the eras of Carter, Reagan, Bush & Clinton. With the help of maps, original and interpretive sources, students explore American politics, economics, society and values. Class discussions and debates help develop communication skills and stimulate ideas to be pursued in required student research and writing.

United States History - Focus on Civil Rights (Expedition Course)

Grade Level: 10th - 12th

Prerequisite: Signed commitment regarding required experiential study tour

This 11th grade US History course provides a comprehensive study of United States history, with a specific core focus on Civil Rights. The course will follow the traditional survey curriculum but will also seek to evaluate the evolving definitions of freedom, democracy, and civil rights in our national history. Special thematic attention will be paid to the African American narrative and topics will include but are not limited to: Slavery, Reconstruction, Jim Crow Laws, Voting Rights, Desegregation and the Civil Rights Movement. **A required Civil Rights Study Tour will augment the course--financial aid is available for eligible students.**

Students will travel to key cities and locations that were on the front lines of engagement during the 1960's Civil Rights Movement. The class will fly to Atlanta and then travel via bus to Selma, Montgomery, Birmingham and Memphis. As students get the chance to walk over the Edmund Pettis Bridge in Selma, the start of the famous Voting Rights March from Selma to Montgomery, or stand in Kelly Ingram Park in Birmingham, across the street from the bombing site of the 16th Street Baptist Church, the experiential impact on the students will be profound. The class will then visit the Lorraine Motel in Memphis where Dr. King was assassinated and the Civil Rights Museum where they will follow the footsteps of the activists and martyrs of the movement. During the bus journeys between the cities, the students will have an opportunity to watch movies and listen to music that will help illuminate the zeitgeist of the times. Each evening there will be an opportunity to debrief on the days' experiences and visits. This course does fulfill the state-mandated requirement for a yearlong US history course.

ADVANCED PLACEMENT - HISTORY

APPS - Advanced Placement Prerequisite Statement

Advanced Placement courses in History (European, United States, World and Art), U.S. Government & Politics, Comparative Government, Psychology, Economics and Human Geography are highly demanding. Admission to these courses is dependent upon approval of both the Greenwich Academy and Brunswick History & Social Sciences Departments.

Minimum grade requirements for applying to a given course are as follows:

Current **Freshman and Sophomores** *should have* at least an A- in their current non-A.P. History course or at least a B+ in their current A.P. History course to be considered for an A.P. course for the following year.

Current **Juniors** *should have* a B+ in their current non-A.P. History course or at least a B in their current A.P. History course to be considered for an A.P. course for the following year.

Please note: Rising Seniors are given placement preference over Rising Juniors, Rising Juniors over Rising Sophomores. All interested students must first complete and submit an application form. The respective department heads evaluate these forms, analyzing both their quantitative and qualitative merits. The criteria for acceptance include the following: the recommendation of the student's most recent history teacher, history grades over the past two years, and his or her overall G.P.A, total academic and co-curricular commitments and demonstrated evidence of enthusiasm for the subject matter. The final decision is contingent upon successful completion of the candidate's present history course.

Students enrolling for any A.P. course **must take** the A.P. Examination in that course—even if they have been accepted to college/university. In the first two quarters of the academic year, students who are performing below the normal standard for any given A.P. course may be asked to switch to a non-A.P. elective if their level of effort and/or achievement does not improve over time. Finally, students may not opt out of an A.P. **on their own accord** after the add/drop period has passed.

AP Art History

Grade Level: 11th - 12th

Prerequisite: Departmental approval (see APPS)

This course explores the history of art through the centuries and prepares students for the AP Art History exam in May. It emphasizes the understanding of the role of art in society, the importance of artifacts as evidence of past civilizations, and the formal analysis of art works. The first semester examines the history of art and artifacts from the earliest objects created by humans to the High Renaissance in Europe. The second semester covers art from the Renaissance to the present. There is an emphasis on analyzing primary and secondary sources, as well as on writing interpretive essays. Slides, DVD's and Web sites provide important sources and trips to museums and galleries may complement the curriculum.

Note: AP Art History may also fulfill the Arts Requirement at Brunswick School and Greenwich Academy.

AP Comparative Government & Politics

Grade Level: 11th - 12th

Prerequisite: Departmental approval (see APPS)

AP Comparative Government and Politics will introduce the student to critical issues in contemporary and historical world politics. The course will begin with a conceptual approach to political science through the introduction of themes such as power, political culture, and political organizations and institutions. Students will then use those themes to compare and to contrast the political experiences of specific nations. They will examine Iran, Great Britain, Nigeria, Mexico, Russia and China and identify the characteristics of political systems that both distinguish and unite diverse countries. By the end of the course, students will have a stronger understanding of international issues of globalization, economic and political power, and political institutions.

AP Economics

Grade Level: 12th only

Prerequisite: Departmental approval (see APPS)

This college-level course is a survey of both microeconomics (fall) and macroeconomics (spring). Microeconomics concentrates on those principles that relate to the functions of individual decision makers in our economy. Beginning with an understanding of the central economic problem of scarcity, it explores: concepts of opportunity costs and trade-offs; how different types of economies decide what, how, and for whom to produce; comparative advantage in trade; consumer and producer supply and demand interaction, with attention to pure competition, oligopolies, and monopolies, as well as factors such as land, labor, and capital. It also considers the degree of government intervention necessary in our market system and the effect of government taxation and transfer programs on income distribution and economic efficiency. Finally, it examines international economics.

Macroeconomics teaches those principles that apply to an economic system as a whole. To give students a firm foundation, the curriculum begins with an overview of the basics of economics and then moves on to a study of the measurement of economic performance, including trends in such areas as the gross domestic product, inflation, and unemployment. It analyzes national income and the price level, the role of money and banking, and the workings of monetary and fiscal policies to balance the short and long-term unemployment and inflation rates, and the federal budget and the national debt. In May, students take the two-hour A. P. examination on Microeconomics and another two-hour AP examination on Macroeconomics.

AP European History

Grade Level: 10th - 12th

Prerequisite: Departmental approval (see APPS)

This class is designed to mimic, in both its depth and breadth, an introductory college course in European history. The course content will begin in the late medieval period and culminate with a study of post-Cold War Europe. Throughout the year students will examine the political, economic, social, religious, intellectual, and artistic developments that played, and continue to play, a crucial role in shaping European society and the world beyond. The curriculum prepares students for the AP European History Examination, which asks students to display a solid understanding of the principle themes in European history through multiple choice and free-response essay questions and an ability to work critically with historical documents.

AP Human Geography

Grade Level: 11th - 12th

Prerequisite: Departmental approval (see APPS)

Human Geography is the study of the patterns and processes of human activity on the earth's surface. People are central to geography in that their activities help shape the earth's surface largely through their interaction with the physical environment. Human settlements and structures are part of that tapestry of interaction. The main areas of study are the nature and perspectives of geography, population, cultural patterns and processes, the political organization of space, agricultural and rural land use, industrialization, economic development and urbanization. Students will also learn about the tools and methods which geographers use in their work. This course prepares students for the AP examination in Human Geography given in May.

AP Psychology

Grade Level: 12th only

Prerequisite: Departmental approval (see APPS)

This course is a standard college introductory psychology course, and it prepares the student for the AP Psychology examination in May. Topics include perception, learning, child development, personality, and group behavior. The course features much lab work, a range of computer simulations, and a chance for students to design and perform their own psychological experiments. **A strong background in biology and/ or human physiology is highly recommended--**many of the concepts covered in this course do resemble those seen in high-level biology classes.

AP United States Government & Politics

Grade Level: 11th - 12th

Prerequisite: Departmental approval (see APPS)

This college-level course prepares the student for the Advanced Placement Exam in United States Government in May. It explores general concepts and specific case studies, providing an understanding of the institutions, groups, and beliefs that make up the nation's political reality. The curriculum includes the study of the constitutional basis of the U. S. government, major political theories and actions, the role of political parties, the interaction of the various branches of national government, and the development of civil liberties.

Much time is dedicated to the study of current events and how real-life issues relate to the concepts covered in the course's textbooks. In the final quarter, the students study the structures and politics of local government including the state of Connecticut and the town of Greenwich. An evening trip to a Representative Town Meeting (RTM), town zoning meeting, and/or other town board sessions will complement in-class instruction on all aspects of local governmental functions.

AP United States History

Grade Level: 10th - 12th

Prerequisite: Departmental approval (see APPS)

The Advanced Placement course in U.S. History presents a college-level survey course to secondary school students. It differs from the regular American History course in that students are expected to perform more independently and analytically and be responsible for a heavier reading load. While the basic content and skills are the same, the course examines in greater depth such areas as political philosophy, intellectual and social movements, foreign policy, and historiography. More time is devoted to the study of primary and interpretive sources and the writing of expository essays. The course prepares students for the Advanced Placement Examination in American History, given in May, which serves as the final exam for the course.

AP World History

Grade Level: 11th - 12th

Prerequisite: Departmental approval (see APPS)

AP World History seeks to provide a solid understanding of the geographical, political, economic, social and cultural developments that have shaped global history from approximately 8000 B.C.E. to the present. The course focuses on the analysis of five overarching themes, which include the impact of humans interacting with their environment and demographic trends, the influence of cultural trends such as religion and technology, the significance of state- and empire-building, the development of economic systems, and the evolution of social and gender structures. Truly global in nature, the class will examine the regions of Asia, Africa, Europe and the Americas and adhere to the AP emphases on comparison, change over time, point of view, and historical context. Student assessments will include periodic tests, projects, and comparative and transitional essays.

FALL SEMESTER COURSES

20th Century American Women's History

Grade Level: 11th - 12th (For 11th graders, concurrent with required US History course)

Prerequisite: None

What is feminism? If it stands for equality why does it often carry a negative connotation in American society? If you're interested in exploring these topics and more, this course will examine the history of gender in American politics in the late 20th century, which would include topics such as: the history of women's suffrage in the United States, the fight for the Equal Rights Amendment, reproductive rights, Title IX, second and third 'wave' feminism, feminist theory, and women in political leadership. The class will also examine the intersectionality of women's rights with issues of gender, sexuality, and race as they relate to American politics as well as how the feminine and masculine binary are influenced by modern political, social, religious and economic thought in the United States. Lastly, the course will investigate the ways in which activism seeks to address obstacles that women face in the modern world.

Economics: Entrepreneurship

Grade Level: 11th - 12th (does not fulfill departmental core curriculum requirements)

Prerequisite: None

Do you want to start your own business someday and to be your own boss? Do you have the next big idea you want to get to the market? This course will help you develop the basic skills and knowledge required to start a business in the 21st century. It will cover the most effective entrepreneurial theories and approaches being taught at leading universities. It will focus heavily on the scientific method of determining the validity of startup ideas with minimal cost and maximum efficiency, otherwise known as the Lean Startup methodology. Students will learn the vocabulary of entrepreneurship, develop actual business models, work in groups to research outside of the classroom and present their ideas, and develop a portfolio of experiences to take with them to college.

Everyday Economics

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: None

This course is a non-AP introductory course designed to give students a foundation in the most important economic concepts. Topics include the following: how economics makes us better decision makers, the forces behind the prices that we pay for things, the governments role in stabilizing the economy, and the role of innovation and incentives in a free market. All topics will be taught with a focus on the United States economy. Some semester highlights include: spending some time every week looking at Econ in the news and in pop culture, reading selected chapters from the trilogy of best selling Freakonomics books, along with watching the documentary, reading the weekly *Sunday New York Times* “Economic View” and creating our own YouTube videos that will help other students understand important economic concepts. This class will make future Econ courses taken at the college level much easier to digest!

From Ancient Greece to Medieval Times: History and Philosophy

Grade Level: 10th - 11th

Prerequisite: None

This course is for those students wishing to complete their understanding of world history by exploring the hallmarks of ancient and medieval civilization and thought. It will expose students to the philosophical, religious and political ideologies that were the precursors to the development of the modern world. This class, along with the Cold War semester elective, is an excellent opportunity to enhance one’s understanding of world history. We will explore the development of Judaism and Christianity in the west as well as the rise of Buddhism, Confucianism, Daoism, Hinduism and Islam in the East. We’ll also discuss the influence of these religions on social and political thought throughout the ancient and medieval world. The course will cover diverse political structures, along with the philosophical ideas behind them, from the city-states of ancient Greece to the fragmentation represented by feudalism and the development of imperial governments on a global scale with attention to how rulers constructed and maintained authority. Students will be exposed to the development of trade and the growth of cities as both represented cross cultural opportunity and impacted intellectual life in the late medieval and early modern period. Throughout the course students will hone their historical thinking skills, such as comparison, change over time, historical interpretation and argumentation.

Military History I: Factors in War

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: None

This semester course examines the experience of men in combat through the lens of particular battles, such as Gettysburg, Waterloo, Stalingrad, Jutland, D-Day, and The Bulge. Factors affecting warfare, such as weather, terrain, and generalship are investigated using the particular battles as examples. In addition, the politics, tactics, strategy and culture that affected the battles will be analyzed. Movies, video documentaries, and laptop resources on the Web are used extensively, and the syllabus will be tailored to examine battles of particular interest to the students in the course.

Modern Middle East

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: None

This semester course provides students with a foundation in the 20th century history of the Middle East and North Africa, in order to explore contemporary events in the region in greater depth. While countries in the Middle East are often the subject of dire headlines, the context for those headlines is often unexplained or mis-understood. To better understand the recent history of Syria, Egypt, Iran, Turkey and Israel, students will engage with film, contemporary art, graffiti, poetry and music. Guest lecturers will include artists and musicians, including Syrian artist Mohamad Hafez, whose work will be on view at Greenwich Academy in fall 2017. This class will be discussion based, with emphasis on critical thinking skills.

Philosophy I: Ancient Greeks To The Enlightenment

Grade Level: 10th - 12th

Prerequisite: None

This semester course will introduce students to the history of Western philosophy, beginning with the ancient Greeks and ending with the Great Empiricists of the 17th century. Students will be introduced to what these great philosophers had to say about topics like metaphysics, epistemology, the problem of evil, and the philosophical roots of ethics. Students will first learn what philosophy is and then be challenged to become philosophers themselves as they learn from the masters how to question and reason. As they investigate fascinating classic philosophical topics considered by Ancient Greek, Medieval and Enlightenment thinkers, students will read from the works of ancient Greek philosophers to more modern Enlightenment thinkers such as Plato, Aristotle, Augustine, Aquinas, Galileo, Newton, Descartes, Locke, Pascal and a few others, as they grapple with the timeless questions that humans have contemplated throughout history. We will also tap some modern sources, such as Michael Sandel's *Justice*, a Harvard course video streamed on-line, as we consider classic ethical challenges that have confronted humans throughout history.

Philosophy II: Enlightenment to Existentialism

Grade Level: 10th - 12th

Prerequisite: None - but recommend having taken Intro to Philosophy I

This course may be considered a logical continuation of our study of *Philosophy I* in the first semester for students who would like to continue exploring great minds and ideas. Beginning with a brief review of the roots of philosophical thought in ancient Greece, we will then continue where we left off in *Philosophy I* by considering the ideas of more recent thinkers and in the fourth quarter shift our focus to the major philosophical issues that have challenged our world in the 20th and 21st centuries. Our aim will be to consider the thoughts of more recent Post-Enlightenment philosophers - Russell, Ludwig Wittgenstein, Kierkegaard, Hegel, Marx, Heidegger and a few others - who looked to the ancients for their foundations, and see what insights they can offer as we consider historical events such as the World Wars, the Russian Revolution, the Holocaust, the use of atomic weapons, the foundation of the United Nations, the Vietnam War, the collapse of the Soviet Union, and the role of philosophical thought in Christian, Jewish, Islamic, and Hindu contexts. We'll discuss how these events have created ever-sharper demands on moral reasoning, political, economic and social philosophy, as well as philosophy of religion, as we consider how these thinkers grappled with profound issues.

Sports in International Relations

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: None

This course examines the role that sports have played in international relations during the past century and a half, focusing on the extent to which sports have been used to unify or divide people, both within and among nations (and empires). Students will also consider the extent to which sports and politics can be separated, as is dictated by the International Olympic Committee and FIFA. With these overarching questions, students will delve into studies of four historical areas. The mini-units include a study of the British Empire and how the spread of "British" sports impacted relations amongst the Commonwealth nations; an examination of sports as a vehicle for nationalism in Germany; sports as a tool for bringing pressure to bear upon South Africa to end Apartheid; and sports as a proxy for war during the Cold War. The course will utilize a variety of academic journals, newspaper articles, books, films and other historical materials.

The Cold War

Grade Level: 10th - 11th

Prerequisite: None

Friction between the United States and Russia is in the news a lot these days. Of course this is nothing new, but it does lend credence to the idea that looking at the Cold War is in fact a Hot Topic.

This semester elective seeks to better understand the second half of the 20th century through a careful examination of the Cold War. This class, along with the course, From Ancient Greece to Medieval Times: History and Philosophy semester elective is an excellent opportunity to enhance one's understanding of world history.

In many ways the tension between liberal democracy (the system you live in!) and communism set the stage for the great majority of the world's happenings. To better understand that tension and the resulting consequences is to better understand the world in which we live today. Special attention will be devoted to examining this conflict through a non-US focused approach. The course will begin with relevant political science, political ideologies, and history before focusing our lens toward a variety of case studies. Each of these case studies was selected for their importance in highlighting the truly global nature of the Cold War and for their continued modern relevance. We will begin with the Soviet Union and then expand to include such countries as China, Afghanistan, Iran, Germany, Angola, Cuba and other Cold War hotspots.

SPRING SEMESTER COURSES

Advanced Civil Rights: A Seminar in Kingian Nonviolence Philosophy

Grade Level: 11th - 12th (For 11th graders, concurrent with required US History course)

Prerequisite: US History, US History Civil Rights, or APUS History (unless taken concurrently)

This course will examine the philosophy on nonviolence as expressed through the writings and example of Dr. Martin Luther King, Jr. The course will include an introduction to nonviolence and examples of how nonviolence has been applied throughout history. Through a variety of essays and articles we will establish a conceptual framework for the course by considering the extent to which people such as Gandhi and Martin Luther King, Jr. used nonviolence to achieve peace.

Students enrolled in this class will participate in Level I Kingian Nonviolence training. The curriculum for the training, designed by Civil Rights leader Dr. Bernard LaFayette, includes 18 modules of instruction and culminates with teaching practicums of the material. Successful completion of the course results in certification to lead future workshops.

A required three-day trip to Chicago to explore Dr. King's work and legacy will also augment this course—financial aid is available for eligible students.

An Introduction to Behavioral Economics

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: Everyday Economics or take in conjunction with AP Economics

Behavioral Economics is a fascinating and growing field of economics that incorporates psychology with standard economic theory. Whereas traditional economics assumes we are all rational decision makers, behavioral economics challenges that fundamental tenet. We will explore parts of some recent current best selling books on the subject, like Predictably Irrational, Thinking, Fast and Slow, and Nudge. Students will also design and conduct their own experiment in order to test hypotheses, based on recent findings in the field of Behavioral Economics, on the GA /Brunswick population. There is a reason that this sector of Economics is growing! Experience the excitement for yourself!

Criminal Justice

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: None

Why do so many people end up in jail? Look behind the headlines and analyze the foundations of the criminal justice system. Critically review the procedures related to how people end up in court (including police stops, interrogations, arraignments, trials, pleas, and sentencing) and examine Constitutional protections for individuals, case law, statutes, police and court procedures. Delve into differences between state and federal law and how and why "justice" may vary for different individuals. Read Supreme Court decisions in case studies about search and seizure law. Try out the process used by the FBI and Justice Bureau to gather statistics about crimes and victims. Weigh citizens' rights against the tools at the prosecutors' disposal (sentencing guidelines, attempt and conspiracy law) in real life scenarios and cases. Develop your own view about what works or doesn't in our criminal justice system. Students will learn legal terminology, constructs, and procedures. Examination of case studies, courtroom simulations, classroom debates, and analytical and creative writing will be at the center of student led project work.

Economics: Personal Finance & Investment

Grade Level: 11th - 12th (does not fulfill departmental core curriculum requirements)

Prerequisite: None

If you don't want to spend all of your life working for money, learn the skills necessary to make your money work for you. This course will explain the basics of personal financial management. It will begin with an overview of budgeting, borrowing, and saving principles. It will cover personal cash management, mortgages, buying versus leasing, credit scoring, personal income tax issues, and retirement investment opportunities. Students will prepare for a final project by getting an overview of portfolio theory, stock valuation, fixed income investments (including CDs, bonds, and annuities) and mutual funds. The final project will be a presentation of a plan to meet a long-term investment objective through structuring a mix of different investment instruments.

Faith and Reason: The Great Debate- Is There a God?

Grade Level: 10th - 12th

Prerequisite: None - but recommend having taken Intro to Philosophy I or II

From Plato's *Allegory of the Cave* to Benedict XVI's now famous (or infamous, depending on your point of view) speech at the *University of Regensburg*, philosophical inquiry has insisted that we depend on reason in our quest for truth. Does a superior being such as God/Allah/Yahweh actually exist, or, as Nietzsche and Richard Dawkins would put it, have religious traditions successfully tricked some of us into believing so? If there is a God, how can we explain the existence of evil in the world? If we are convinced that religious belief makes sense, which of the many creeds or types of religious expression do we consider most "reasonable?" Throughout the history of western thought many religious thinkers have insisted that the only reliable path to truth is by way of the use of our "God given" reason. Since the Enlightenment, an equal number of well known thinkers have insisted that our ability to think makes belief in God no longer necessary. We'll explore and debate many arguments from many thinkers on both sides of the "Question of God" and decide for ourselves whether we think these arguments are "reasonable."

From Ancient Greece to Medieval Times: History and Philosophy

Grade Level: 10th - 11th

Prerequisite: None

This course is for those students wishing to complete their understanding of world history by exploring the hallmarks of ancient and medieval civilization and thought. It will expose students to the philosophical, religious and political ideologies that were the precursors to the development of the modern world. This class, along with the Cold War semester elective, is an excellent opportunity to enhance one's understanding of world history. We will explore the development of Judaism and Christianity in the west as well as the rise of Buddhism, Confucianism, Daoism, Hinduism and Islam in the East. We'll also discuss the influence of these religions on social and political thought throughout the ancient and medieval world. The course will cover diverse political structures, along with the philosophical ideas behind them, from the city-states of ancient Greece to the fragmentation represented by feudalism and the development of imperial governments on a global scale with attention to how rulers constructed and maintained authority. Students will be exposed to the development of trade and the growth of cities as both represented cross cultural opportunity and impacted intellectual life in the late medieval and early modern period. Throughout the course students will hone their historical thinking skills, such as comparison, change over time, historical interpretation and argumentation.

Military History II: Warfare Throughout History

Grade Level: 10th - 12th (For 10th graders, concurrent with a 10th grade history course)

Prerequisite: Not required, but Military History I is recommended

This semester course examines the history of warfare from earliest times to the present day. Civilizations and armies throughout history will be studied, and their wars analyzed in terms of geography, politics, strategy and culture. The armies of the Ancient Greeks and Romans, Mongols, Vikings, Zulus, and Napoleon will receive special attention, as will the Crusades, American Revolution and Civil War, World Wars I and II, Vietnam, and present-day military conflicts. Movies, video documentaries, and laptop resources on the Web will be used extensively, and the syllabus will be tailored to examine battles of particular interest to the students in the course.

Philosophy I: Ancient Greeks To The Enlightenment

Grade Level: 10th - 12th

Prerequisite: None

This semester course will introduce students to the history of Western philosophy, beginning with the ancient Greeks and ending with the Great Empiricists of the 17th century. Students will be introduced to what these great philosophers had to say about topics like metaphysics, epistemology, the problem of evil, and the philosophical roots of ethics. Students will first learn what philosophy is and then be challenged to become philosophers themselves as they learn from the masters how to question and reason. As they investigate fascinating classic philosophical topics considered by Ancient Greek, Medieval and Enlightenment thinkers, students will read from the works of ancient Greek philosophers to more modern Enlightenment thinkers such as Plato, Aristotle, Augustine, Aquinas, Galileo, Newton, Descartes, Locke, Pascal and a few others, as they grapple with the timeless questions that humans have contemplated throughout history. We will also tap some modern sources, such as Michael Sandel's *Justice*, a Harvard course video streamed on-line, as we consider classic ethical challenges that have confronted humans throughout history.

Philosophy II: Enlightenment to Existentialism

Grade Level: 10th - 12th

Prerequisite: None - but recommend having taken Intro to Philosophy I

This course may be considered a logical continuation of our study of *Philosophy I* in the first semester for students who would like to continue exploring great minds and ideas. Beginning with a brief review of the roots of philosophical thought in ancient Greece, we will then continue where we left off in *Philosophy I* by considering the ideas of more recent thinkers and in the fourth quarter shift our focus to the major philosophical issues that have challenged our world in the 20th and 21st centuries. Our aim will be to consider the thoughts of more recent Post-Enlightenment philosophers - Russell, Ludwig Wittgenstein, Kierkegaard, Hegel, Marx, Heidegger and a few others - who looked to the ancients for their foundations, and see what insights they can offer as we consider historical events such as the World Wars, the Russian Revolution, the Holocaust, the use of atomic weapons, the foundation of the United Nations, the Vietnam War, the collapse of the Soviet Union, and the role of philosophical thought in Christian, Jewish, Islamic, and Hindu contexts. We'll discuss how these events have created ever-sharper demands on moral reasoning, political, economic and social philosophy, as well as philosophy of religion, as we consider how these thinkers grappled with profound issues.

The Cold War

Grade Level: 10th - 11th

Prerequisite: None

Friction between the United States and Russia is in the news a lot these days. Of course this is nothing new, but it does lend credence to the idea that looking at the Cold War is in fact a Hot Topic.

This semester elective seeks to better understand the second half of the 20th century through a careful examination of the Cold War. This class, along with the course, From Ancient Greece to Medieval Times: History and Philosophy semester elective is an excellent opportunity to enhance one's understanding of world history.

In many ways the tension between liberal democracy (the system you live in!) and communism set the stage for the great majority of the world's happenings. To better understand that tension and the resulting consequences is to better understand the world in which we live today. Special attention will be devoted to examining this conflict through a non-US focused approach. The course will begin with relevant political science, political ideologies, and history before focusing our lens toward a variety of case studies. Each of these case studies was selected for their importance in highlighting the truly global nature of the Cold War and for their continued modern relevance. We will begin with the Soviet Union and then expand to include such countries as China, Afghanistan, Iran, Germany, Angola, Cuba and other Cold War hotspots.

MATHEMATICS - BRUNSWICK SCHOOL

The goal of the Brunswick Mathematics Department is to develop in every student a firm grounding in the basic facts and skills, to extend these skills to advanced topics, and to encourage the initiative required for the solution of mathematical problems. The curriculum is flexible; a variety of courses is offered to accommodate the needs of all students, including those who are highly accelerated.

In order to encourage the number sense required in everyday life and to prepare students for the no-calculator sections of future examinations, a substantial amount of pencil-and-paper and mental arithmetic is involved in every course. In addition, technology is used to reinforce concepts and to tackle problems that cannot be solved by other means. Thus, every student is expected to have an approved graphing calculator.

Algebra I

Prerequisite: C+ or below in previous Algebra I course, or no previous Algebra I course

This course is designed for 9th grade students who have had difficulty in their previous Algebra I courses, or who have not yet taken Algebra I. Care will be taken to establish, with great clarity, the arithmetic and algebraic skills necessary for mathematical study, with the aim that the students be prepared for success in their future math courses. Students will gain familiarity with mathematical notation and language, will further their understanding of the interchange between expressions written in sentence and mathematical forms, and will apply the ideas they are learning in both real-life and theoretical contexts. Most importantly, the inherent *sense* that lies behind all mathematical thought will be constantly reinforced. The traditional Algebra I curriculum will be presented, including linear, quadratic, rational, and radical expressions and equations; factoring; inequalities; exponents; graph plotting and sketching; and word problems. Students successful in this course will go on to take Geometry in the 10th grade and Algebra II in the 11th grade, with the option of taking Precalculus in their final year at Brunswick.

Geometry

Prerequisite: Algebra I

In this course students develop a detailed and analytical understanding of the ideas of shape and space to which they have been introduced in their middle school courses. Complex geometric situations are analyzed on a quantitative level and the ideas of a cohesive argument in the form of mathematical proof are included in the course. Also, the students' algebra skills are maintained and developed through application to geometric problems. The topics in this course include parallel lines and angles, polygons, similarity, the Pythagorean Theorem, areas and volumes, and circle theorems.

Honors Geometry

Prerequisite: Algebra I and departmental approval

This course covers the same topics as Geometry, but students will encounter more complex problems and proofs. In this way, a foundation in deduction and problem-solving is established for students who wish to do high-level mathematical work in future years.

Algebra II

Prerequisite: Geometry

In this course the algebraic understanding established in Algebra I and in Geometry is extended to more advanced topics. The student develops an understanding of abstract ideas such as the nature of functions and through this enhances his powers of analysis and increases his problem-solving ability. The topics covered include algebraic modeling, functions and graphs, polynomials, exponential and logarithmic functions, trigonometry of right triangles, trigonometrical functions of all angles, sequences and series, and probability.

Accelerated Algebra II

Prerequisite: Geometry and departmental approval

This course offers a more extensive range of topics and a higher level of problem solving than that which is required in Algebra II, with material being covered less rapidly and to a slightly more accessible level than in the Honors Algebra II course. All the topics covered in Algebra II will be included here, along with a more thorough treatment in several areas, including trigonometry, exponential and logarithmic functions, curve sketching, conic sections, and sequences and series.

Honors Algebra II

Prerequisite: Honors Geometry and departmental approval

This course covers all the topics included in Algebra II and Accelerated Algebra II, with more complex problems being tackled at every stage. Additionally, some topics that are more advanced than those in Algebra II are covered, including trigonometrical equations and identities, exponential and log equations, graphs of rational functions, complex solutions of polynomial equations, equations of circles and other conic sections, and arithmetic and geometric sequences and series. By learning to solve demanding problems and covering the more advanced topics, students extend their minds toward the high level of thinking required in advanced mathematics courses.

Precalculus

Prerequisite: Algebra II

This course offers a comprehensive foundation in the advanced mathematical skills and concepts needed to study calculus. New topics are introduced, and subject areas already encountered in Algebra II are covered in greater detail, with more complex problems being encountered at every stage. The topics covered include functions, trigonometrical equations and identities, polynomials, inequalities, exponential functions, logarithms, complex numbers, matrices, sequences and series, and probability.

Accelerated Precalculus

Prerequisite: Algebra II and departmental approval

This course offers a more extensive scope of material and a higher level of problem solving than that which is required in Precalculus, while offering a greater accessibility and a less demanding range of topics than in the Honors Precalculus course. Students frequently encounter word problems, and at every stage are encouraged to think logically and analytically. Thorough attention is paid to the facts and skills required for the study of calculus.

Honors PreCalculus

Prerequisite: Accelerated Algebra II and departmental approval

This course is designed to provide students with effective preparation for Advanced Placement Calculus and future college-level mathematics and science courses. Throughout the course the development of the student's problem-solving ability is emphasized. The topics covered include functions, graphs, polynomials, exponential functions, logarithms, rational functions, trigonometry, parametric equations, conic sections, polar coordinates, systems of equations and inequalities, vectors (in two and three dimensions), sequences, series, mathematical induction, counting principles, and probability.

Applied Calculus

Prerequisite: Precalculus

This course provides students with a practical introduction to calculus. Concepts are presented in an intuitive way and students learn to use advanced problem-solving techniques. The graphing calculator is used to clarify concepts and to produce numerical solutions to calculus problems. Topics include differentiation, applications of the derivative, techniques of differentiation, exponential and logarithmic functions, integration, techniques of integration, and differential equations.

Accelerated Applied Calculus

Prerequisite: Accelerated Precalculus or A- in Precalculus; departmental approval required

This course covers all the topics included in Applied Calculus, with more demanding problems being tackled within those topic areas. Additionally, some topics that are more advanced than those in Applied Calculus are covered. This course offers a strong basis in the ideas required for college courses in calculus and other mathematical disciplines.

AP Calculus AB

Prerequisite: Honors Precalculus and departmental approval or A- average in Accelerated Precalculus and departmental approval

An Advanced Placement course in mathematics consists of a full academic year of work in calculus comparable to that undertaken in colleges and universities. Calculators are used for solving equations numerically, evaluating derivatives and integrals, and for demonstration of calculus concepts. The topics covered in the course include functions and graphs, limits and continuity, derivative formulas, the Mean Value Theorem, related rates of change, antiderivatives, differential equations, the Fundamental Theorem of Calculus, the trapezoidal rule, areas between curves, volumes of solids of revolution, and techniques of integration.

AP Calculus BC

Prerequisite: Honors Precalculus and departmental approval

Calculus BC is a full-year course in the calculus of functions of a single variable. In addition to all the topics covered in the Calculus AB course, the BC course covers derivatives of vector functions and parametrically defined functions, the area bounded by polar curves, logistic growth functions, the length of a path, work as an integral, improper integrals, convergence of sequences and series, power series, and Taylor polynomials. Although this course tends to be more demanding since it contains more topics than Calculus AB, both require a similar depth of understanding.

Honors Math: Multivariable Calculus

Prerequisite: AP Calculus BC and departmental approval

This course is an equivalent of a college Calculus 3 course. The topics covered will include functions of several variables, vector-valued functions, partial differentiation, multiple integration including changes of variables, the gradient of a scalar field, the divergence and curl of a vector field, line integrals, surface integrals, Green's theorem, the divergence theorem, and Stokes' theorem.

Methods of Statistics

Grade Level: 12th

Prerequisite: Algebra II

This course is designed with the intention of presenting statistical ideas and practices at a level that is accessible to any student who wishes to take it. Students will familiarize themselves with statistical quantities using pencil-and-paper and basic calculator functions. For larger data sets these quantities will be evaluated using computers or the more advanced functions of calculators. Likewise, statistical displays will be constructed both by hand and using technology. Throughout the course, interpretation of statistical quantities and graphs will be emphasized. Topics will include counting techniques, probability, measures of center and spread, graphical displays, correlation and regression, the normal distribution, and an introduction to statistical inference.

AP Statistics

Prerequisite: Honors Precalculus and departmental approval or A- average in Accelerated Precalculus and departmental approval or A average in Honors Algebra II and departmental approval

This course consists of a full academic year of work in preparation for the Advanced Placement examination. Students study the techniques of data collection and learn how to analyze the results both qualitatively and quantitatively. The graphing calculator is used extensively both for data display and for the precise statistical tests used in business, industry, and science. The topics studied include sampling, experimental design, probability, the normal distribution, the t -distribution, the binomial distribution, the chi-square distribution, the central limit theorem, correlation and regression, confidence intervals, and hypothesis testing.

Stanford Advanced Mathematics

Prerequisite: Calculus BC and departmental approval

The Online High School (OHSx) at Stanford University provides mathematics courses in a variety of college-level subjects including multivariable differential calculus, multivariable integral calculus, linear algebra, differential equations, and number theory. All of the courses offered correspond to courses regularly taught to Stanford University undergraduates. Students tackle written assignments topic by topic, and are assessed by means of examinations provided by the Stanford program. In addition to the resources provided by Stanford University, the Brunswick teacher supervising the course provides help with concepts and problem-solving. Those completing OHSx courses may be eligible to receive college credit.

MATHEMATICS - GREENWICH ACADEMY

The department of mathematics at Greenwich Academy is dedicated to helping young women acquire the confidence and the fundamental skills necessary to succeed in mathematics. Students are empowered within the classroom environment to develop literacy and proficiency in mathematics as well as a command of mathematical concepts and problem-solving strategies. With a curriculum grounded in algebra, geometry, calculus and statistics, students develop strong analytical skills that provide a strong foundation for further study in mathematics or math-related courses after high school.

Geometry

Prerequisite: Algebra I and departmental approval

Geometry helps students develop a strong spatial understanding as they explore two-dimensional shapes in Euclidean and Cartesian coordinate geometry. Congruence, similarity, transformational geometry, circles, and right triangle trigonometry are the core topics of this course. Deductive reasoning is motivated by investigation, often aided by *GeoGebra*, and Algebra I skills are integrated into all applications of the concepts studied.

Geometry Accelerated

Prerequisite: Algebra I and departmental approval

Geometry Accelerated emphasizes the traditional elements of Euclidean geometry. Deductive reasoning is motivated by student investigation, done both individually and collaboratively, and is often aided by work done in *GeoGebra*. Students are expected to have strong Algebra skills and will be asked to do some of their learning independently as they test hypotheses and make conclusions based on their work. In addition to Euclidean geometry, students will study coordinate geometry, transformational geometry, and right triangle trigonometry in depth.

Honors Geometry

Prerequisite: Algebra I and departmental approval

Honors Geometry assumes that students are ready to think and work independently. This course leads students to investigate complex geometric concepts and proofs, and develop a foundation in deduction and problem-solving. In addition to Euclidean geometry, students investigate the Cartesian coordinate plane (linear functions and conic sections), transformations, sets, vectors and right triangle trigonometry.

Algebra II

Prerequisite: Geometry and departmental approval

The development of a strong fundamental understanding of polynomials, rational, radical, and trigonometric functions and expressions is the foundation of Algebra II. Students are expected to gain a working knowledge of polynomial, rational, radical, and trigonometric equations and inequalities, as well as develop a solid understanding and analysis of functions. Among the topics introduced are the basics of trigonometry, logarithmic and exponential functions and equations.

Algebra II Accelerated

Prerequisite: Geometry Accelerated and departmental approval

In this course, the concepts established in Algebra I and Geometry are extended to more advanced topics. The development of a strong fundamental understanding and analysis of functions, with a focus on polynomial, rational, logarithmic, exponential, and trigonometric functions, is the principal objective. Students use algebraic and graphical techniques to obtain numerical solutions to complex equations. The ability to work and learn independently is an integral part of Algebra II Accelerated and is expected for success in this course.

Honors Algebra II

Prerequisite: Honors Geometry and departmental approval

Honors Algebra II exposes students to advanced algebraic concepts and problem solving. Students are expected to work with a great deal of independence as they master algebraic manipulation, graphical applications, and problem solving techniques. A thorough development of the polynomial, rational, trigonometric, and logarithmic functions and their inverses highlights the course. Students completing the course successfully are expected to take the SAT II Level I Subject test.

Precalculus

Prerequisite: Algebra II and departmental approval

Precalculus is designed to give students a solid algebraic and graphic understanding of polynomial, rational, trigonometric, exponential and logarithmic functions. New topics are introduced and subject areas already encountered in Algebra II are covered in greater detail, with more complex problems encountered at every stage. The graphing calculator is an important tool in this process. Upon successful completion of this course, juniors are expected to take the SAT II Level I Subject Test.

Precalculus Accelerated

Prerequisite: Algebra II Accelerated and departmental approval

Precalculus Accelerated continues and further develops the study of functions begun in Algebra II, including polynomial, rational, trigonometric, logarithmic, and exponential functions. In addition, students are exposed to some discrete mathematics, conics, and the basic concepts of the limit, the derivative, and some simple derivative rules. The graphing calculator is an important tool in this process. Students are expected to take the SAT II Level I Subject Test following the completion of the course.

Precalculus with Statistics

Prerequisite: Algebra II or Algebra II Accelerated and departmental approval

The first half of this course provides the student with a solid foundation in traditional precalculus topics including functions, their inverses, and their graphs with a focus on polynomial, rational, logarithmic, exponential, and trigonometric functions and equations. The second semester of this course provides the background for a college level AP statistics course. The topics include methods of data collection and graphical displays. Students learn how to choose appropriate methods for summarizing distributions of univariate data. Juniors are expected to take the SAT II Level I Subject Test upon successful completion of this course.

Honors Precalculus

Prerequisite: Algebra II Honors and departmental approval

This course is designed to prepare students for Advanced Placement Calculus BC as well as further college level study in mathematics. The first semester continues with the study of functions begun in Algebra 2 Honors with an emphasis on the student's problem solving ability. Discrete mathematics is introduced including such topics as polar coordinates, vectors, parametric equations, mathematical induction, matrices, and sequences and series. The second semester focuses on the study of differential calculus including all applications of limits, continuity, differentiation, and related rates of change.

Calculus

Prerequisite: Precalculus and departmental approval

This is a senior elective course that provides an introduction to differential and integral calculus. This course deals with the rules of differentiation, the applications of the derivative to graphing, rates of change, and optimization. Students will investigate techniques of integration, focusing on the Fundamental Theorem of Calculus as applied to areas under the curve, between curves, volumes of solids, and accumulations functions.

Statistics

Prerequisite: Precalculus and departmental approval

The goal of this senior elective is to help students understand numerical information and enable them to make decisions based on their interpretation of this information. This is an activity-based course that introduces statistical concepts and builds a foundation applicable to a wide variety of disciplines. The topics studied include data collection, graphical representation, normal distribution, bivariate data, and inference.

AP Calculus AB

Prerequisite: Precalculus Accelerated and departmental approval

This is a college-level course in calculus requiring considerable time, effort, and motivation. The topics covered include functions and graphs, limits and continuity, derivative formulas, the Mean Value Theorem, related rates of change, antiderivatives, differential equations, the Fundamental Theorem of Calculus, areas between curves, volumes of solids and revolution, and techniques of integration. All students in this course will take the AB Calculus Advanced Placement exam at year's end.

AP Calculus BC

Prerequisite: Precalculus Honors and departmental approval

Calculus BC is a full-year college-level course in the study of calculus of functions of a single variable. Considerable effort and motivation are required for success in this course, as well as an ability to work and learn independently. The course begins with a review of the topics covered in Precalculus honors including all applications of limits, continuity, and differentiation. Integration of polynomial, trigonometric, and logarithmic functions is introduced, and integration and differentiation techniques are applied to vector, polar and parametrically defined functions. The BC course concludes with the study of differential equations, improper integrals, convergence of sequences and series, and Taylor polynomials. All students in this course will take the BC Calculus Advanced Placement Exam at year's end.

AP Statistics

Prerequisite: Precalculus with Statistics and/or departmental approval

This course is a continuation of Precalculus with Statistics completing the AP Statistics curriculum. It is a college-level course in statistics requiring considerable time, effort, and motivation. After a quick review of univariate and bivariate data analysis, students then study simulation, probability, and statistical inference. All students in this course will take the AP Statistics Exam upon successful completion of this course.

AP Statistics (Y)

Prerequisite: A- in Algebra II Acc., B+ in Honors Algebra II, and departmental approval

This course consists of a full academic year of work in preparation for the Advanced Placement examination. Students learn the techniques of data collection, conduct their own experiments and surveys, and learn how to analyze the results both qualitatively and quantitatively. The TI-83 calculator is used extensively both for data display and for the precise statistical tests used in business, industry, and science. The topics studied include sampling, experimental design, probability, the normal distribution, the t -distribution, the binomial distribution, the chi-squared distribution, the central limit theorem, correlation and regression, confidence intervals, and hypothesis testing.

Stanford Advanced Mathematics

Prerequisite: Calculus BC and departmental approval

The Stanford Pre-Collegiate University Level Math & Physics program provides mathematics courses in a variety of college level subjects including linear algebra, multivariable calculus, differential equations, and number theory. Each student works under the supervision of a math department teacher, but the curriculum, problem sets, tutorials, and tests are sent from Stanford University. This is a course for students considering studying higher level mathematics and requires independent study. Note: All courses carry Stanford University Continuing Studies credit and students earn a Stanford University Continuing Studies transcript. (Formerly offered as University-Level EPGY).

COMPUTER SCIENCE - BRUNSWICK SCHOOL

The Upper School's Computer Science curriculum reflects our philosophy of providing students with active, hands-on learning experiences that teaches them logical reasoning, critical thinking and problem solving - all valuable skills that scale well beyond the classroom. Computer Science and coding skills are widely recognized as a valuable asset in the current and projected job market, and the ability to create and adapt new technologies distinguishes Computer Science from mere computer literacy, which emphasizes using existing technologies (e.g., word processing). The Computer Science Dept. is focused on providing our students 21st century skills necessary for innovation, besides making the curriculum more relevant for students by tapping into their interest in technology, helping them to become real innovators.

AP Computer Science Principles

Grade Level: 10th - 12th

Prerequisite: Introduction to Computer Science and departmental approval

The curriculum for AP Computer Science Principles is based on the syllabus developed by the College Board, and is offered as an easier alternative to AP Computer Science A course.

The curriculum framework for AP Computer Science Principles is designed to really engage students, providing them an opportunity to study rigorous Computer Science content, without being focused solely on programming.

The course is geared to whet the interest of students in Computer Science topics, while retaining the flexibility of teaching Computer Science principles using simple, block-based programming languages like Snap! or Scratch, that can be far more accessible for new coders. In fact, programming is just one of seven major topics in the AP Computer Science Principles course. Students in this course will also study how the Internet works, the global impact of computing, and the ways computational processes can be applied to large datasets.

The syllabi will cover all required topics and both performance tasks (below).

1. Thinking Practices -Connecting computing; Creating computational artifacts; Abstracting; Analyzing problems and artifacts; Communicating, Collaborating.
2. Big Ideas -Creativity; Abstraction; Data and Information; Algorithms; Programming; The Internet; Global Impact.

AP Computer Science A

Grade Level: 10th - 12th

Prerequisite: Introduction to Computer Science or AP Computer Science Principles and departmental approval

The AP Computer Science A course is equivalent to a first-semester, college-level course in Computer Science. The class introduces students to Computer Science with fundamental topics that include problem solving, design strategies and methodologies, organization of data structures, approaches to processing data (algorithms), analysis of potential solutions, and the ethical and social implications of computing. The course emphasizes object-oriented and imperative problem-solving and design using the Java language. These techniques represent proven approaches for developing solutions that can scale up from small, simple problems to large, complex problems.

Major areas of study include:

- Understand and apply principles of object-oriented software design and programming: classes and objects, constructors, methods, instance and static variables, inheritance, class hierarchies, and polymorphism.
- Learn to code fluently in Java in a well-structured fashion, paying attention to code clarity and documentation.
- Use Java library packages and classes within the scope of the AP Java subset.
- Understand the concept of an algorithm; implement algorithms using conditional and iterative control structures and recursion.
- Learn to select appropriate algorithms and data structures to solve a given problem.
- Compare efficiency of alternative solutions to a given problem.
- Learn common searching and sorting algorithms: Sequential Search and Binary Search; Selection Sort, Insertion Sort, and Merge-sort.
- Understand one and two-dimensional arrays, the List interface, and the ArrayList class, and use them appropriately in programming projects.
- Acquire skills in designing object-oriented software solutions to problems from various application areas.

Advanced Honors Computer Science Seminar I and II

Grade Level: 11th - 12th

Prerequisite: Score of 5 in AP Computer Science A exam and departmental approval

This course explores advanced topics in Computer Science beyond the College Board's AP Computer Science curriculum and is expressly designed for students who have taken the AP Computer Science A exam and would like to continue their study of this fascinating topic. Students will benefit from the emphasis on developing alternate problem-solving techniques; abstract thinking and representation; and using computers in ways that casual users almost never do. They will become adept at computational thinking. By the end of this course, students will feel empowered to use computers to perform a wide range of functions, many of which are applicable to a myriad of professional and academic pursuits.

The syllabus for this two-semester course rotates each year, and focuses on students learning advanced Computer Science principles by building useful mobile apps. The course is heavily project-based and emphasizes communication, collaboration and creativity. Students taking this course are typically inspired to be creative and have fun while developing useful apps that can immediately be shared with family and friends. The course helps students realize they can have real social impact when they learn Computer Science.

A GUI (Graphical User Interface) is used extensively for input/output operations, further developing algorithmic thinking through the lens of game creation and graphic-driven programs. Students will learn how to build Apps for iOS and Android devices using Swift and Android Studio, gaining an in-depth exposure to different subsets of Computer Science and how programming is applicable across domains. Students will learn to design and program a wide variety of large-scale software projects; including simulations, computer and mobile video games, statistical modeling and visualizations with virtual-reality programs. Students will be exposed to a multitude of programming languages and will develop a digital portfolio of original computer programs throughout the year that can be used for applying to college and beyond.

FALL SEMESTER COURSES

Introduction to Computer Science

Grade Level: 9th - 12th

Prerequisite: None

This course seeks to provide students with a solid introduction and overview of the fundamentals of the Java programming language and class libraries. Basic concepts of Computer Science and programming are taught and students are encouraged to write code of graduated complexity and to write and manipulate their own programs, all the while having fun while learning by exploration. Topics include algorithmic design, variables, logic, decision-making, loops and control structures. The class transitions smoothly through a carefully selected set of procedural programming fundamentals and conceptual understanding is developed through a problem-solving approach.

This single-semester course is expressly designed for aspiring first-time programmers and is perfect for problem-solvers looking for a challenge, or novice programmers interested in taking their coding skills to the next level.

Note: This introductory course in programming is a mandatory precursor to taking any A.P. level course in Computer Science. The course is offered in fall and spring semesters, as well as a for-credit immersion course during Brunswick's Summer Session for students whose schedule did not permit them to take it earlier.

SPRING SEMESTER COURSES

Introduction to Computer Science

Grade Level: 9th - 12th

Prerequisite: None

This course seeks to provide students with a solid introduction and overview of the fundamentals of the Java programming language and class libraries. Basic concepts of Computer Science and programming are taught and students are encouraged to write code of graduated complexity and to write and manipulate their own programs, all the while having fun while learning by exploration. Topics include algorithmic design, variables, logic, decision-making, loops and control structures. The class transitions smoothly through a carefully selected set of procedural programming fundamentals and conceptual understanding is developed through a problem-solving approach.

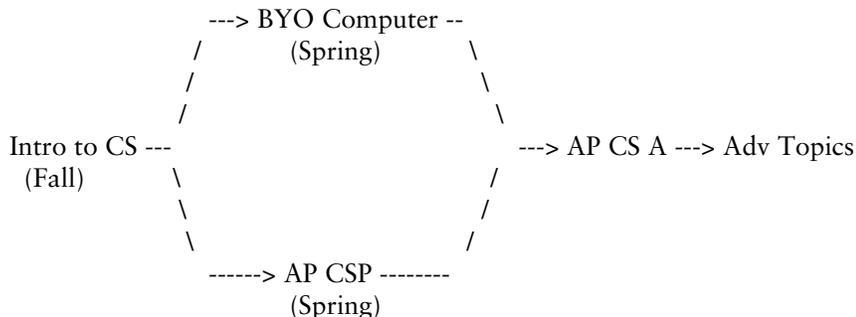
This single-semester course is expressly designed for aspiring first-time programmers and is perfect for problem-solvers looking for a challenge, or novice programmers interested in taking their coding skills to the next level.

Note: This introductory course in programming is a mandatory precursor to taking any AP level course in Computer Science. The course is offered in fall and spring semesters, as well as a for-credit immersion course during Brunswick's Summer Session for students whose schedule did not permit them to take it earlier.

COMPUTER SCIENCE - GREENWICH ACADEMY

The GA Upper School Computer Science department works to build on the foundation of computing that girls developed during their time in our Lower and Middle Schools. The study of computer science invokes problem solving and algorithmic thinking, while promoting both collaborative work and independent resourcefulness. We aim to provide our students with an understanding of how computing can be used in the real world and believe that possessing the ability to design and write software prepares students for the problems and opportunities of the 21st century. We provide courses for those who are new to writing code and the process of physical computing so they can not only understand computer science but also become better thinkers. We also offer coursework for those who would like to pursue advanced work through the AP curriculum and beyond.

Pathways through GA Computer Science:



AP Computer Science A

Grade Level: 9th - 12th

Prerequisite: To be considered for the course students must obtain department permission and satisfy one of the following: complete the GA introductory computer science course or an approved equivalent or be concurrently enrolled in AB or BC calculus

GA's AP Computer Science course is for the student who likes to think about and tackle problems. The curriculum for AP Computer Science is based on the syllabus developed by the College Board. Our focus is on problem solving and algorithm development using the AP Java Language Subset as our tool kit. You will study programming methodology, algorithms, data structures, procedural and data abstraction, and object orientation.

Students will leave the course with a solid understanding of computer science as a field of study, the skills to write programs in Java and significant experience with problem solving and debugging. All essential skills for the 21st century no matter what you decide to study!

Advanced Topics in Computer Science and Engineering: App Development (GA)

Grade Level: 11th - 12th

Prerequisite: AP Computer Science and departmental approval

“I think there’s an app for that.” How many times have you said that only to be surprised that there wasn’t? This is an advanced topics course for those who are seriously in love with programming (or maybe just like it), have completed AP Computer Science and are interested in app design. Students enrolled in this course will learn to build iOS applications using Swift, developed by Apple. You will identify a problem, then design and build an application to solve it. Students enrolled in the course will consider who will use their app, define how it will be used, and research existing apps.

FALL SEMESTER COURSES

Introduction to Computer Science

Grade Level: 9th - 12th

Prerequisite: Group 9: concurrently enrolled in Accelerated Geometry

This single semester course is designed for students with little or no programming experience and serves as an introduction to the field of computer science and programming. Students will learn the fundamentals of programming while beefing up their problem solving skills. They will learn to think like a computer scientist through applying logic and creativity to the design of programs for a variety of problems. They will learn to dismantle problems and approach them systematically on their own and in a collaborative environment - both essential skills. While this course is a springboard for the future study of computer science and engineering, its lessons will be applicable to a much broader set of fields.

Note: At the end of this course students may continue on to either Build-Your-Own Computer or AP Computer Science Principles in the spring.

SPRING SEMESTER COURSES

AP Computer Science Principles (GA)

Grade Level: 9th - 12th

Prerequisite: Introduction to Computer Science and Departmental Approval

For those students who took the introductory course during fall semester, this course continues where they left off, but with a broader focus. AP Computer Science Principles focuses on a much more diverse set of issues than the introductory course, including the use of programs to analyze data, the internet, the impact of technology on society, and a more in-depth discussion of algorithms. These topics allow students to engage with technology in an entirely different way than they are used to!

Build-Your-Own Computer

Grade Level: 9th - 12th

Prerequisite: Introduction to Computer Science

Have you ever wondered what your computers are composed of? In this course, students will explore that very question and others by building their own computers. We will learn about the various components of computers, the world wide web, how to create our own network, and will use physical computing to explore data collection and analysis. Additionally, students will use what they learned in Introduction to Computer Science through a mix of individual and collaborative projects. Come and get your hands dirty!

SCIENCE

Students are urged to study science during each of their Upper School years and required to complete work in the basic sciences of biology, chemistry, and physics prior to graduation. The goal is to create and inspire students to become scientifically literate and critical thinkers. Through interactive, investigative study students learn to use the scientific method to answer questions which further serves to promote and develop creative problem solving applicable across all disciplines. The program seeks to develop skills in scientific observation, data collection, analysis, and the drawing of conclusions as well as to provide opportunities for students to explore their own scientific interests through a wide offering of science electives and independent studies. Our offerings serve to foster a sense of curiosity, show the applicability of science in daily life, and provide students with the background needed to make informed decisions in a world increasingly affected by science and technology.

Biology

Grade Level: 9th

Prerequisite: None

This course will help to develop an appreciation for the beauty, complexity, and diversity of living systems. The focus of the course is on both the juxtaposition and similarity of the physiological processes present in all living things and how these connections help us understand natural selection and other evolutionary processes. The course is taught as a unified subject rather than disconnected units, and through classroom and laboratory experiences, students will accumulate a set of concrete proficiencies from which they can draw in future science courses.

Honors Biology

Grade Level: 9th

Prerequisite: Science: B+ in 8th Grade Science AND

Math: Honors Math or Accelerated Math concurrently

Departmental approval is necessary in all cases.

This course offers a comprehensive investigation of high school biology. Although the course strives to develop an appreciation for the beauty, complexity, and diversity of living systems, each topic is explored in-depth. Students are exposed to significantly more vocabulary and detailed processes, and an emphasis is put on the development of scientific-inquiry skills that will enable students to become more sophisticated in conducting investigations and explaining their findings. Topics include: ecology, evolution, genetics, and animal and plant physiology.

Honors Expedition Biology

Grade Level: 9th

Prerequisite: Science: B+ in 8th Grade Science AND

Math: Honors Math or Accelerated Math concurrently

Departmental approval is necessary in all cases.

*Signed commitment regarding required expedition study tour is required

This course surveys the major topics of modern biological inquiry using a research-based approach to learning. The curriculum will closely mirror the current Honors Biology curriculum, but will also seek to provide additional insight into a specific region of biological interest. Special thematic attention will be paid to conservation biology, evolution of key species, taxonomic classification in the context of tropical and subtropical species, and research methods currently employed by conservation biologists in a particular region of biological interest. *A required Research Expedition will augment this course—financial aid is available for eligible students.*

Research Expedition: June 2018

Students will travel to a research location (TBD) in order to take part in an ongoing research effort. Students will partner with principal investigators, PhD's, post-docs, and graduate students and work in a real research setting—implementing methods learned throughout the course. Throughout the expedition, students will rotate around various research projects to gain hands-on experience, and will enjoy a series of lecture and discussion sessions focusing on local wildlife and conservation. The experiential impact on the students will be profound and will hopefully stimulate additional interest in the biological sciences, in particular, conservation biology.

Chemistry

Grade Level: 10th - 12th

Prerequisite: Biology

Students will have an overview of the fundamental principles of Chemistry. The course examines the composition of various substances and the changes they can undergo. Major topics are introduced via both classroom work and laboratory experiments and include atomic theory, chemical bonding, stoichiometry, properties of solutions, gas laws, thermodynamics, redox, equilibrium, and acid-base reactions. The course features both qualitative and quantitative analyses of the relationships between variables associated with chemical reactions. Inquiry based laboratory experiences are included throughout the year.

Honors Chemistry

Grade Level: 10th - 12th

Prerequisite: Science: B in Honors Biology or A- in Biology AND

Math (GA) B+ in Honors Geometry, or A- in Accel. Geometry, or B in any level Algebra II

Math (BWK): B+ in Honors Geometry or A- in Geometry or B in any level Algebra II

Departmental approval is necessary in all cases.

This course offers a more comprehensive introduction to the fundamental principles of Chemistry. Topics include atomic theory, chemical bonding, stoichiometry, properties of solutions, gas laws, thermodynamics, redox, equilibrium, and acid-base reactions. These topics are covered through both classroom work and laboratory experiments. The course stresses a more quantitative approach to the major topics covered. Upon completion of the course, the student is well positioned for more advanced courses within the discipline. Inquiry based laboratory experiences are included throughout the year.

Physics

Grade Level: 10th - 12th

Prerequisite: Biology

This course presents students with an overview of the fundamental principles of Physics. The course examines the physical world around us and how it works. Major topics include mechanics, thermodynamics, electricity, electromagnetism, sound and light. The course leans more toward the quantitative analysis to show mathematical relationships between variables of the equations. This course is designed to be a hands-on approach with emphasis on practical application on the concepts and theories. Laboratory experiments are an integral part of the course.

Honors Physics

Grade Level: 10th - 12th

Prerequisite: Science: B in Honors Biology or A- in Biology and B in Honors Chemistry, or A- in Chemistry

Math: Honors or Accelerated Math

Departmental approval is necessary in all cases.

Honors Physics is a full-year foundations class designed to prepare students for more advanced work in physics. The course content centers around the basic core topics in physics, including but not limited to kinematics, Newton's Laws, sound, light, electricity, and magnetism. Each topic is accompanied by a lab exercise(s) and demonstration(s) meant to exhibit and reinforce the math and concepts covered. Both the class content and lab work require strong algebra skills and some trigonometry. The goal of the combination of class and lab is to foster the necessary analytical skills required at this level as well as permitting advancement in the subject.

AP Biology

Grade Level: 10th - 12th

Prerequisite: Science: B+ in Honors Biology or A- in Biology and B in Honors Chemistry or B+ in Chemistry; Rising 10th graders must have A in Honors Biology and take Honors Chemistry concurrently.

Departmental approval is necessary in all cases.

This is a rigorous survey course covering major biological topics, including biochemistry, cell biology, genetics, molecular biology, animals and evolution. Emphasis is placed on thematic relationships between the major topic areas. Sophisticated, college-level laboratory experiences are an integral part of the course. This course prepares students for the AP Biology exam taken in May.

AP Chemistry

Grade Level: 11th - 12th

Prerequisite: Science: B in Honors Chemistry

Math: B in Honors Algebra II, or B+ in Accel. Algebra II or A- in Algebra II, or B+ in any level Pre-Calc

Departmental approval is necessary in all cases.

This intensive college level course pursues in greater depth those topics studied in first year chemistry. In addition, quantitative analysis is included as a significant segment of the full year laboratory program. This course prepares students for the AP Chemistry exam taken in May.

AP Environmental Science

Grade Level: 10th - 12th

Prerequisite: Science: B in Honors Biology or B+ in Biology and B in Honors Chemistry or B+ in Chemistry, or Honors Chemistry concurrently

Departmental approval is necessary in all cases.

This AP course is designed to give college level treatment to the understanding of interrelationships within the natural world, to identify and analyze environmental problems and their relative risks, and to examine potential solutions. Topics include: ecosystem structure and function, population dynamics, renewable and nonrenewable resources, and air, water, and soil pollution. The course is designed to prepare for the AP Environmental Studies exam.

AP Physics 1

Grade Level: 11th - 12th

Prerequisite: Science: B in Honors Chemistry, or A- in Chemistry

Math: B in Honors Algebra II, or B+ in Accel. Algebra II, or A- in Algebra II, or B+ in any level Pre-Calc

Departmental approval is necessary in all cases.

AP Physics 1 is an algebra-based, full-year physics course and is the equivalent of a first-semester college course in algebra-based physics. The course is organized around seven foundational big ideas in physics: Newtonian mechanics (including rotational dynamics and angular momentum), work, energy, and power, and mechanical waves and sound. It will also introduce electric circuits. The ability to develop and use physics knowledge by applying it to the practice of scientific inquiry and reasoning through increased experimentation and analysis is the core of this course. It will be an engaging and rigorous experience.

AP Physics 2

Grade Level: 11th - 12th

Prerequisite: Science: B in AP Physics 1

Math : B in Honors Algebra II, or B+ in Accel. Algebra II, or A- in Algebra II, or B+ in any level Pre-Calc

Departmental approval is necessary in all cases.

AP Physics 2 is an algebra-based, full-year physics course and is the equivalent of a second-semester college course in algebra-based physics. This class should be taken as a second-year course by students who have already completed AP Physics 1. The course is organized around seven foundational big ideas in physics and covers fluid mechanics, thermodynamics, electricity and magnetism, optics, and atomic and nuclear physics. As with AP Physics 1, the ability to develop and use physics knowledge by applying it to the practice of scientific inquiry and reasoning through increased experimentation and analysis is the core of this course. It is another challenging, lab-based physics class for those students who enjoy the study of physics.

AP Physics C

Grade Level: 11th - 12th

Prerequisite: Science: A- in Honors Physics or B AP Physics 1

Math: B in A.P. Calculus or AP Calculus concurrently

Departmental approval is necessary in all cases.

This is actually two one-semester courses, culminating in a separate AP exam for each at the end of the year: Mechanics, and Electricity and Magnetism. Both semesters employ introductory calculus in problem solving and are designed to build on and expand on some of the topics covered in Honors Physics. Topics in Mechanics include kinematics, conservation of energy, rotational dynamics, and angular momentum. Second semester topics include electric fields, Gauss's Law, electric potentials, magnetism and electromagnetic induction. Upon completion of the course, students will be prepared for both AP Physics C exams as well as having the foundations for engineering in college.

Honors Research Seminar - Greenwich Academy

Grade Level: 11th - 12th

Prerequisite: Departmental approval is necessary in all cases.

The objective of this course is to train students in designing and executing a research project. The classroom is actually a research lab, and the class is a research group. The focus of the research is the isolation and initial characterization of soil microbes that exhibit antimicrobial properties. We have partnered with The Small World Initiative, an organization that is focused on the search for new antibiotics through the methods we will use in this course. Each student will be the director of their individual project while at the same time contributing to the understanding and work of the entire group. Students will be assessed on their understanding of the project, their work related to the broader goal, as well as the underlying microbiology concepts and techniques they are performing.

Honors Science Research - Brunswick School

Grade Level: 10th and 11th (10th graders must take concurrently with a core science course)

Prerequisite: Science: A- in Biology

Departmental approval is necessary in all cases.

This course is designed to expose students to a variety of laboratory techniques, as well as teach students how to conduct scientific research. Over the course of two years students will investigate and experiment with lab techniques used in various science disciplines using both traditional and state-of-the-art protocols. Students will also be taught the process of research by exploring topics of interest, designing an original project, completing that project with an accompanying paper, and submitting that project to a scientific competition. Student work will be published in Brunswick's Journal of Scientific Research. It is expected/required that each student enrolled in the class will also participate in summer science work as an intern, a scholar/participant in a reputable college summer science program, or attend a two-week, field-research trip with the class. Summer placement is instructor-assisted and individualized based on student commitments.

FALL SEMESTER COURSES

Astronomy

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: Two years of science (second year can be concurrent)

If you have ever wondered how the Universe began, or how it will end, if Mars had an ocean, how black holes form, and where life might exist on other planets, then consider taking the Astronomy course. This semester course also examines comets, meteors, the sun, stars, supernovas, and galaxies and the latest discoveries in space. Recent movies and TV shows featuring astronomy are also discussed, and lab work includes some telescope sessions and the use of astronomy planetarium laptop computer programs.

Biology of Human Health

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: Biology

How are cancer cells formed and how does cancer develop at the basic science level? How does exposure to chemicals in an environment affect your body? What happens to the neurons in your brain that leads to Alzheimer's? What research is being done at this time to help understand and fight these diseases? What is the science and biology behind Cancer, Genetic Disorders, Parkinson's, Alzheimer's, Heart Disease, Diabetes? Biology of Human Health will discuss all aspects of these non-contagious diseases including how they affect the human body, the science behind the diseases, and their impact on families and society as a whole.

Climate Science

Grade Level: 11th - 12th (does not fulfill departmental core curriculum requirements)

Prerequisite: B in Biology and B in Chemistry

Why do our national news broadcasts begin on most evenings with a wild weather story? While Earth's climate has always undergone change, unlike recently, it has always been in step with geologic change. This course will be a study of the scientific basis of global warming, and its likely impacts on society. In addition, the world's governments' responses to the challenges posed by climate change will be considered.

Genetics

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: B in Biology and two years of science (second year can be concurrent)

How can modern techniques be used to diagnose and treat human genetic diseases? What are the bioethical implications of personal genetics? This semester-long, project-based course will explore the cause and effect of human diseases with known genetic influences. It will use case studies and different disease models to investigate the topics of classical genetics, DNA, and protein structure and function. In the lab, students will utilize current methods for diagnosing and treating genetic diseases, especially ones with no known cures.

Human Physiology I

Grade Level: 11th - 12th

Prerequisite: Science: B in Biology

The overall theme of this course is the human body, its organization, and its physiology. This course is designed as a further study of biology and biochemistry for those students wishing to expand their biological experience and who are possibly considering a pre-medical course of study in college. Beginning with a re-introduction to the body, a navigation of the basic biochemistry of cells and tissues is undertaken to lay a foundation for studying the various systems of the body individually. Systems to be studied include the integumentary, musculoskeletal, nervous (including special senses) and cardiovascular. This is a laboratory course with experiments and experiences using students themselves as laboratories in addition to dissection opportunities.

Introduction to Engineering and Robotics I

Grade Level: 11th - 12th

Prerequisite: Science: Two years of science

This course will introduce students to the practical application of science through the completion of various engineering and robotic projects. Students will improve critical thinking skills through project-based challenges while learning about basic engineering disciplines, various computer and software programs, and the design and synthesis of goal-oriented robots. Students will be required to work in groups and demonstrate strong teamwork and communication skills. This course will allow students to be creative and innovative while applying math and science concepts to solving specific challenges. Robotic work *may* include participation in local competitions.

Marine Biology

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: B in Biology and two years of science (second year can be concurrent)

This one semester course provides an introduction to oceanography and marine biology. During the first part of the course students will investigate oceanography including units on marine research, the sea floor, chemical and physical properties of seawater, and the world's oceans. During the second part of the course students will learn about marine organisms including prokaryotes, those that photosynthesize, multicellular invertebrates, and a brief survey of marine vertebrates. Evolution and marine ecology will be emphasized in each unit. Students will be assessed on content, varied lab experiences, and a major presentation. Sophomores are able to register for this course, but must take chemistry or honors chemistry concurrently.

SPRING SEMESTER COURSES

Astrophysics

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Math: Algebra II prior or concurrently

This course will dive into current topics in cosmology while using physics as a background. All of the necessary physics will be taught within the course, and will not require math beyond algebra II. Topics will include the nature of light and gravity, and how those topics link to most everything we know about our universe. We will discuss stellar formation, energy generation, and lifecycles. We will introduce relativity and other more modern topics in astronomy including (but not limited to) dark matter and energy, the physics of the big bang, and extrasolar planets. We will also spend time learning the nuts and bolts of observational astronomy.

Environmental Science and Sustainability

Grade Level: 10th-12th (10th graders must take concurrently with a lab course)

Prerequisite: Biology (current or past APES students are not eligible for this course, but APES is potentially an option after the completion of this course)

This course (modeled after an academic major at Cornell University) seeks to advance students' ability to understand and address real world environmental problems, manage social ecological systems in a sustainable manner, and affect decisions involving environmental policy, resource management, and biodiversity conservation. Although categorized as an environmental science, this course delivers an interdisciplinary and integrated experience that provides both breadth and depth about the causes, consequences, and management or remediation of environmental problems ranging from local to global. Although challenging, the curriculum leaves students flexibility to pursue greater depth in specific areas of environmental science and sustainability, and to expand their knowledge outside of a core curricular course.

Food Science

Grade Level: 11th - 12th

Prerequisite: Science: B in Honors Chemistry or A in Chemistry

Departmental approval required in all cases

This semester course is designed to study the chemistry of molecules that are the basis for life, and what makes up the food we eat. Have you ever wondered what artificial sweeteners such as aspartame or sucralose are? What is the meaning of modified starch, and how is it that Easy Mac can be prepared so fast just by microwaving? The course work encompasses both classroom and laboratory components, some of which are going to be edible! Topics include the structures and metabolism of carbohydrates, lipids, and proteins.

Forensic Science & Investigation

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: Biology

Beginning with a historical look at the development of forensics and modern techniques, we will learn the basis for forensic study and tools as well as utilizing the methods ourselves in laboratory investigations. Topics that we will cover include, but are not limited to, fingerprinting, blood analysis, direct and microscopic investigation of crime scenes, DNA collection and analysis, ballistics and toxicology. Famous cases and famous forensic investigators are studied as a backdrop for learning the scientific steps beyond modern forensic advancements.

Geology

Grade Level: 10th – 12th (10th graders must take concurrently with core science course)

Placement preference will be given to rising Juniors and Seniors.

Prerequisite: Science: Two years of science (second year can be concurrent)

The mysteries of the Earth beneath our feet are examined in the Geology course. Volcanoes, earthquakes, tsunamis, oceans and glaciers form an important part of this semester course, as well as deserts, mountains, rivers, shorelines, rocks and minerals, the structure of the earth, and plate tectonics. Classes begin with discussions of the latest discoveries and special emphasis is given to dinosaurs and the geologic history of New England. Popular TV shows and movies dealing with these topics also form an important part of the course.

Human Physiology II

Grade Level: 11th - 12th

Prerequisite: Science: B in Biology

Human Physiology I is NOT a prerequisite for this course.

The overall theme of this course is the human body, its organization, and its physiology. This course is designed as a further study of biology and biochemistry for those students wishing to expand their biological experience and who are possibly considering a pre-medical course of study in college. Beginning with a re-introduction to the body, a navigation of the basic biochemistry of cells and tissues is undertaken to lay a foundation for studying the various systems of the body individually. Systems to be studied include the respiratory, urinary, digestion, immune and endocrine. This is a laboratory course with experiments and experiences using students themselves as laboratories in addition to dissection opportunities.

Introduction to Engineering and Robotics II

Grade Level: 11th - 12th

Prerequisite: Two years of science

This course will introduce students to the practical application of science through the completion of various engineering and robotic projects. Students will improve critical thinking skills through project-based challenges while learning about basic engineering disciplines, various computer and software programs, and the design and synthesis of goal-oriented robots. Students will be required to work in groups and demonstrate strong teamwork and communication skills. This course will allow students to be creative and innovative while applying math and science concepts to solving specific challenges. Robotic work *may* include participation in local competitions.

WORLD LANGUAGES

In the modern language classroom emphasis is placed on developing communication skills and cultural competence. In accordance with national standards, all classes are conducted primarily in the target language; use of English is kept to a minimum. Students learn to interact linguistically and culturally with native speakers at the highest level of proficiency. Additionally, we provide our students with a strong foundation so that they can pursue their study of language in college and beyond.

Students learn to listen, speak, read, and write by exploring thematic units and interacting with authentic materials. Multi-media resources are used frequently in the classroom throughout the program to strengthen students' language skills, to provide them with practical experiences, and to promote cultural understanding. Classes are intended to provide optimal learning experiences for all students.

Upon completion of Level III or III honors as required at GA or three years of Upper School study as required at BWK, students are encouraged to pursue their language studies through more advanced courses. Students may elect to study more than one language on either campus. Students who wish to advance to an honors-level course must have the recommendation of their current teacher and complete summer study with the approval of the department. The department makes the final decision about the placement of students.

Brunswick School and Greenwich Academy sponsor a variety of study abroad options, which give students the opportunity to discover new cultures and, in most cases, speak the foreign language they study in full immersion with homestay programs. The Brunswick Summer School is also an option for those wishing to gauge their interest in a new language. Please consult the schools' websites for more information on these exciting educational opportunities.

Advanced Placement

Advanced Placement classes in the modern languages are highly demanding. Admission to these courses is dependent upon approval of both the Greenwich Academy and Brunswick Language Departments.

Minimum grade requirements are as follows:

Current Level IV Honors students, maintaining at least a B+, may proceed to the AP level.

Students enrolled in Level III Honors, maintaining grades of at least A- or above, may petition to enter the AP language course by completing an application and sitting for a formal assessment, which is administered in the spring.

For these students, a committee evaluates these forms, analyzing both their quantitative and qualitative merits. The criteria for acceptance include the following: the recommendation of the student's most recent language teacher, language grades over the past two years, and his or her overall G.P.A. The student's total academic and co-curricular commitments will also be taken into consideration. The final decision to admit is contingent upon continued success in the student's current language course. Department chairs communicate with the students at the end of the process. Some summer work may be required.

ARABIC

Arabic I

Grade Level: 9th - 11th

Prerequisite: None

This beginning course is an introduction to Modern Standard Arabic. Students learn the fundamentals of beginning Arabic such as the alphabet, handwriting, and correct pronunciation of Arabic letters. Students become familiar and comfortable with the sounds and the structure of the language. A variety of activities are used to develop the four language skills: listening, speaking, reading and writing. Grammar is introduced towards the end of this course. The curriculum is based on *Al-Kitaab* series. In Arabic I we start with *Alif Baa, Introduction to the Arabic Alphabet*, and *Al-Kitaab, A Textbook for Beginning Arabic*. Cultural aspects are presented through videos and Internet materials. Students are introduced to the ancient art of Arabic calligraphy.

Arabic II

Prerequisite: Arabic I and departmental approval

This is the continuation of Arabic I. Students begin to learn more complex aspects of the language, such as grammar and reading comprehension as they develop listening and oral proficiency. In addition to using the textbook, students are introduced to a variety of Arabic language resources such as videos, radio programs, newspapers, and Internet sites. Students become more familiar with the different cultures of the Arab world.

Arabic III

Prerequisite: Arabic II and departmental approval

This course expands the students' knowledge of vocabulary and grammar, as they continue to develop their oral proficiency and reading/listening comprehension. Students improve writing skills by writing essays and short stories. Literature and poems are introduced during the second semester of this course. Students read excerpts of classic and modern Arabic poems. They are also introduced to some of the famous modern and classic Arabic poets and writers.

Arabic IV

Prerequisite: Arabic III and departmental approval

In this course, students will expand their knowledge of grammar, continue learning new vocabulary, and improve their knowledge of Arabic literature. The students will learn about various well-known dialects of Arabic and gain more knowledge about the culture of various Arabic-speaking countries. For the first time students will be exposed to what is known in Arab culture as 'The Seventh Art', which is cinema. Students will learn about the Arabic film industry and television entertainment world. They will learn about famous Arab actors and actresses, film-makers and famous film producers. Students will also learn about the music industry and famous Arab singers, including the French-influenced Rai music of Morocco and Algeria, the most popular pop music of Egypt and Lebanon, and the traditional Eastern-influenced music of the Arabian Peninsula. Thus, while gaining a better knowledge of the Arabic language, the students will become familiar with the pop culture of the Middle East, as well as its traditions and history. Students will be encouraged and expected to explore Arabic films, music, and literature on their own and share materials with the class. Upon completion of this course, the students will feel comfortable speaking the language and making connections to Arabic culture.

Arabic IV Honors

Prerequisite: Minimum grade of A- in Arabic III and departmental approval

This rigorous course builds upon the skills established in previous years of studying Arabic. It is for linguistically strong students who are ready and eager to work at an accelerated pace. In this course students will be able to concentrate on several different areas of the language including more in-depth examinations of Arabic literature and the broadening of one's oral and aural comprehension to include different dialects from across the Arabic speaking world. The reading and memorizing of famous poems from the pre-Islamic, Islamic and modern eras will be complemented by the students attempt at writing their own poems. Another area of concentration during this course will be Arabic media, such as modern day television programs, newspapers, and radio. Students will learn about different vocabulary and practice expressions germane to Arabic journalism while writing articles about current events affecting all parts of the globe. After completing this course, students will have obtained an advanced level of proficiency that will allow them to excel both in their travels abroad and during their undergraduate studies in college.

CHINESE

Chinese I

Grade Level: 9th - 11th

Prerequisite: None

This course is an introduction to Chinese language and culture. Students learn proper pronunciation and tones, the foundation of spoken Mandarin, and basic strokes, stroke order, radical and phonemes, the foundation of written Chinese. Vocabulary, basic sentence patterns and other fundamentals of listening, speaking, reading, and writing are all taught within the context of practical communication, using primarily simplified Chinese characters; the pinyin Romanization tool is also taught and employed as an aid to developing speaking and reading skills. Students learn to write approximately 250 words and to read an additional 250 characters by the end of the year. This course is designed for students with no previous background in Chinese.

Chinese II

Prerequisite: Chinese I and departmental approval

This course aims at further developing the skills that were established in Chinese I. Basic material is reviewed and expanded upon, enabling students to advance their knowledge of Chinese grammar in the cultural context of daily life in China. Speaking and listening skills continue to be stressed, and writing in Chinese characters is now mandatory. Chinese word processing enables students to read and express themselves in writing in Chinese.

Chinese II Honors

Prerequisite: Minimum grade of A- in Chinese I and departmental approval

This rigorous course is for linguistically strong students who are ready and eager to develop their Chinese language skills at an accelerated pace. New grammar and vocabulary are introduced using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. With contemporary Chinese societies serving as a cultural backdrop, reading and writing skills are developed to provide students with insights into the rich diversity of the Chinese-speaking world. As their level of Chinese language sophistication increases, the students produce incrementally more complex projects on the cultures they study.

Chinese III

Prerequisite: Chinese II and departmental approval

This course expands and refines the students' foundation in Chinese language and culture. New grammar, vocabulary and characters are introduced then extensively practiced in class, using a wide variety of instructional techniques and material. Continued Word processing in Chinese provides students with a useful tool to express themselves with greater ease when preparing written assignments. The development of stronger listening and speaking skills remains a priority.

Chinese III Honors

Prerequisite: Minimum grade of B in Chinese II Honors and departmental approval

This fast-paced course will give students the vocabulary and structures they need to enable them to further advance their knowledge of spoken and written Chinese. Students will develop reading strategies to comprehend and discuss materials composed in formal written Chinese and will develop enough independence in the language to write some guided stories. Authentic resources including newspapers, magazines and television programs are used throughout the course. Deeper insights into Chinese culture are fostered through the use of Chinese films.

Chinese IV

Prerequisite: Chinese III and departmental approval

This course enables students to solidify their foundation as they move forward expanding their knowledge of Chinese language and culture. By working with varied vocabulary and more complex structures students will be able to use the language in more complex situations. The textbook is supplemented with authentic materials, such as newspapers and magazines, to provide a springboard for listening, speaking, reading and writing opportunities. Insight into Chinese culture, an integral part of the course, is additionally fostered by the use of Chinese films.

Chinese IV Honors

Prerequisite: Minimum grade of B in Chinese III honors and departmental approval

In this accelerated course, linguistically strong students are encouraged to hone their reading, writing, word processing, listening and speaking skills in Chinese. Writing assignments involving both writing and typing are given frequently in order to help students communicate constructively and creatively. Previously learned concepts and textbook materials are significantly expanded through introductory expository speaking that begins the process of mastering new grammar patterns and creative ways of describing realistic situations, people, character, locations, etc. Varied aspects of Chinese culture and history are used as topics for reading and class discussion.

Chinese V

Prerequisite: Chinese IV and departmental approval

This course aims at further developing the skills that were established in intermediate Chinese. Students will advance their knowledge of Chinese grammar in the cultural context of daily life in China. Emphasis will be placed on the spoken language. Students will discuss practical, social and cultural topics with the aid of spoken language materials such as Chinese movies, plays, daily news, etc. More conversational strategies and the stylistic features of conversation will be covered.

AP Chinese Language and Culture

Prerequisite: Minimum grade of B in Chinese IV Honors and department approval
(See Advanced Placement Prerequisite Statement at the beginning of the World Languages section)

This course conforms to the standards and expectations as described in the College Board curriculum for AP Chinese Language and Culture. Its aim is to provide students with ongoing and varied opportunities to further develop their proficiencies across the full range of language skills within a cultural frame of reference reflecting the richness of Chinese language and culture. The course introduces students to frequently used formal and idiomatic expressions as well as popular and colloquial phrases. Students study Chinese poetry and literature, and they experience culture through the study of Chinese history, art, traditions, newspaper articles, and current events. They also prepare lengthy essays on a wide range of topics. This course culminates in the Advanced Placement Chinese and Culture Exam given in May, which must be taken by all students enrolled in this class.

FRENCH

French I

Grade Level: 9th - 11th
Prerequisite: None

This course is for those students who wish to begin their study of French in the Upper School. It is designed to provide students with foundational skills in reading, writing, speaking and understanding spoken French. A basal text provides grammar and cultural studies, while reading and writing skills are developed through the use of a variety of documents (poems, surveys, and passages from magazines and newspapers) and media (videos, short clips, and movies).

French II

Prerequisite: French I and departmental approval

Students in this course continue to develop their foundational skills in French. New grammar and vocabulary are presented then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, reading and writing skills are developed in contexts that provide students with insights into the richly varied cultures of the French-speaking world.

French II Honors

Prerequisite: Minimum grade of A- in French I and departmental approval

This rigorous course builds upon the skills established in French I. It is for linguistically strong students who are ready and eager to work at an accelerated pace. New grammar and vocabulary are introduced using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, reading and writing skills are developed in contexts that provide students with insights into the rich diversity of the French-speaking world. As their level of French language sophistication increases, the students are asked to produce incrementally more complex projects on the Francophone cultures they study.

French III

Prerequisite: French II and departmental approval

This course expands and refines the students' foundation in French language and Francophone culture. New grammar and vocabulary are introduced then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students role play, do group work, prepare oral presentations or work with on-line or local digital resources, and read short stories and/or articles on current events. In addition to the language, students will study customs, traditions and histories of French-speaking nations and regions so that their knowledge of French is embedded in cultural understanding.

French III Honors

Prerequisite: Minimum grade of B in French II Honors and departmental approval

This course is designed to begin perfecting the language skills necessary for highly proficient oral and written communication. The finer points of grammar are reviewed, strengthened and clarified. Discussions and compositions, which provide opportunities for self-expression, are based on Francophone current events and literature through a range of possibilities: on-line and local digital resources, newspaper articles, extracts, short stories, and the like. Students develop their listening and speaking skills through the frequent use of recorded activities as well as through a wide variety of class activities. Students further broaden their cultural foundation through Internet projects and exploration.

French IV: Language & Culture

Prerequisite: French III and departmental approval

This is a conversation and culture course. Communication skills are developed via the exploration of the varied cultures of the French-speaking world. Films, on-line and local digital resources, short stories and other documents all provide the basis for vocabulary expansion and class discussions. The core curriculum concerning grammar review and expansion is augmented by a wide variety of topics relevant to the French-speaking world. A key factor to success in this highly interactive course is the student's commitment to active participation in all class activities.

French IV Honors: Contemporary Francophone Cultural and Social Issues

Prerequisite: Minimum grade of B in French III Honors and departmental approval

In this pre-AP language course, the finer points of French grammar are reviewed, strengthened and clarified. Students discuss examples of contemporary Francophone cultural and social issues. Discussions and compositions based on current publications provide the students with opportunities for independent self-expression. Students develop their listening skills through the frequent use of taped activities. Students make recordings and do a wide variety of class exercises to improve their speaking ability. Films and on-line or local digital resources enhance listening skills and culture study.

French V: A Cultural Survey

Prerequisite: French IV and departmental approval

The goal of this course is to provide students with more opportunities to further their French language skills via in-depth study of different cultural aspects of the French-speaking world. Possible themes might include cinema, different literary genres or current cultural trends. Vocabulary and grammar are introduced or reviewed based on the needs of the group. Films, on-line and local digital resources, short stories and other documents can all provide the basis for vocabulary expansion and class discussions. Practical use of the French language is emphasized, and students are given the opportunity to use their skills in paired activities, role-plays, and oral presentations. A key factor to success in this highly interactive course is the student's commitment to active participation in all class activities.

AP French Language & Culture

Prerequisite: Minimum grade of B in French IV Honors or A- in French III Honors and departmental approval (See Advanced Placement Prerequisite Statement at the beginning of the World Languages section)

The goals of this course conform to the standards and expectations described in the College Board curriculum for Advanced Placement French Language and Culture. Students will be prepared to demonstrate their level of proficiency in French across three communicative modes (interpersonal, interpretive and presentational) and the five goal areas outlined in the *Standards for Foreign Language Learning in the 21st Century* (communication, cultures, connections, comparisons and communities). Films, literature, articles on current issues, and Internet based activities serve as a springboard for discussions, debates, compositions and presentations. Students also endeavor to broaden their active vocabulary and to become comfortable using a variety of tenses and idiomatic expressions both when writing and speaking in a variety of contexts. This course culminates in the Advanced Placement French Language Exam given in May, which must be taken by all students enrolled in this class.

Honors French Seminar

Grade Level: 11th - 12th

Prerequisite: Departmental approval

This course is a voyage into the French ‘psyche’, from the Middle Ages to modern France. The students explore and discuss important texts from French literature as it reflects the society of a particular era, from François Villon and Rabelais to Flaubert, Le Clézio and more. Classic movies are also studied to enrich students’ familiarity with the time periods covered. The learning experience is enhanced by the use of other media drawn from periodicals, *bandes dessinées*, and the Internet. This is a rigorous course in which students will be expected to write frequent essays on subjects generated by the readings. In addition active participation in class discussions is critical to success.

ITALIAN

Italian I

Grade Level: 9th - 11th

Prerequisite: None

This course is for those students who wish to begin their study of Italian. Students make use of a complete program, supported by audio, video and computer resources, that enables them to develop a strong foundation in the language and culture of Italy. Meaningful communication and the establishment of a strong grammatical foundation in Italian are the goals of this course. Additionally, reading and writing skills are developed in contexts that provide students with insights into Italian culture.

Italian II

Prerequisite: Italian I and departmental approval

Students in this course continue to develop their foundational skills in Italian. New grammar and vocabulary are presented then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, reading and writing skills are developed in contexts that provide students with insights into the richly varied cultures of the Italian-speaking world.

Italian II Honors

Prerequisite: Minimum grade of A- in Italian I and departmental approval

This rigorous course builds upon Italian I. It is for students who have strong linguistic ability and who are eager to work at a rapid pace. The goal of the program is to develop their communication skills with conversation, role-plays, written assignments, readings and listening comprehension exercises to enable the student to develop strong skills. The relationship between Italian language and culture is integral to the course.

Italian III

Prerequisite: Italian II and departmental approval

This course expands and refines the students' foundation in Italian language and culture. New grammar and vocabulary are introduced then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students role-play, do group work, prepare oral presentations using on-line or local digital resources, and read short stories and/or articles on current events. In addition to the language, students will study specific customs, traditions and history of Italy so that their knowledge of Italian is embedded in cultural understanding.

Italian III Honors

Prerequisite: Minimum grade of B in Italian II Honors and departmental approval

This course is designed to begin perfecting the language skills necessary for highly proficient oral and written communication. The finer points of grammar are reviewed, strengthened and clarified. Discussions and compositions, which provide opportunities for self-expression, are based on Italian current events and literature through a range of possibilities: on-line and local digital resources newspaper articles, extracts, short stories, and the like. Students develop their listening and speaking skills through the frequent use of taped and recorded activities as well as through a wide variety of class activities. Students further broaden their cultural foundation through Internet projects and exploration.

Italian IV Honors

Prerequisite: Minimum grade of B in Italian III Honors and departmental approval

In this advanced language course, the finer points of Italian grammar are reviewed, strengthened and clarified. Students discuss contemporary cultural and social issues in Italy basing that work on current publications and media. Students develop their listening skills through the frequent use of taped activities. Students make recordings and do a wide variety of class exercises to improve their speaking ability. Films, on-line and local digital resources enhance listening skills and culture study.

Italian IV: Language & Culture

Prerequisite: Italian III and departmental approval

This is a conversation and culture course. Communication skills are developed via the exploration of the rich Italian culture. Films, on-line and local digital resources, short stories and other documents all provide the basis for vocabulary expansion and class discussions. The core curriculum concerning grammar review and expansion is augmented by a wide variety of topics relevant to Italy - past and present. A key factor to success in this highly interactive course is the student's commitment to active participation in all class activities.

AP Italian Language & Culture

Prerequisite: Minimum grade of B in Italian IV Honors or A- in Italian III Honors and departmental approval (See Advanced Placement Prerequisite Statement at the beginning of the World Languages section)

The goals of this course conform to the standards and expectations described in the College Board curriculum for AP Italian Language and Culture. Students will be prepared to demonstrate their level of Italian proficiency across three communicative modes (interpersonal, interpretive and presentational) and the five goal areas outlined in the *Standards for Foreign Language Learning in the 21st Century* (communication, cultures, connections, comparisons and communities). Films, literature, articles on current issues, and Internet based activities serve as a springboard for discussions, debates, compositions and presentations. Students also endeavor to broaden their active vocabulary and to become comfortable using a variety of tenses and idiomatic expressions both when writing and speaking in a variety of contexts. This course culminates in the Advanced Placement Italian Language and Culture Exam given in May, which must be taken by all students enrolled in this class.

SPANISH

Spanish I

Grade Level: 9th - 11th

Prerequisite: None

This course is for those students who wish to begin their study of Spanish in the Upper School. Students make use of multi-media resources, as well as the textbook, to explore general cultural themes to learn basic grammar and vocabulary. These first steps in the Spanish language are supported by a variety of written and oral-aural exercises. Meaningful communication is the natural goal of the course, with strong emphasis on the mastery of basic grammar needed to progress in the language. Reading and writing are developed in contexts that provide students with insights into the cultures of the Spanish-speaking world.

Spanish II

Prerequisite: Spanish I and departmental approval

Students in this course continue to develop their foundational skills in Spanish. New grammar and vocabulary are introduced then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, thematic lessons provide students with insights into the cultural richness of the Hispanic world.

Spanish II Honors

Prerequisite: Minimum grade of A- in Spanish I and departmental approval

This rigorous course builds upon the skills established in Spanish I. It is for linguistically strong students who are ready and eager to work at an accelerated pace. The program continues to introduce new grammar and vocabulary through a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, thematic lessons provide students with insights into the rich cultural tapestry of the Spanish-speaking world. As their level of Spanish language sophistication increases, the students are asked to produce incrementally more complex projects on the cultures they study.

Spanish III

Prerequisite: Spanish II and departmental approval

This course expands and refines the students' foundation in Spanish language and Hispanic culture. The first quarter is a review of material studied in the first two years. New grammar and vocabulary are introduced thematically then extensively practiced in class, using a wide variety of instructional techniques and material. Speaking, listening, reading and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. Additionally, thematic lessons help students to explore the written language through level-appropriate literary selections and newspaper articles. In addition to the language, students will study customs, traditions, and histories of Spanish-speaking nations and regions so that their knowledge of Spanish is embedded in cultural understanding.

Spanish III Honors

Prerequisite: Minimum grade of B in Spanish II Honors and departmental approval

This course is designed to begin perfecting the language skills necessary for highly proficient oral and written communication through the exploration of cultural themes. The finer points of grammar are reviewed, strengthened and clarified. Discussions and compositions, which provide opportunities for self-expression, are based on current events, short films, and literature from the Hispanic world through sources such as on-line and local digital resources, newspaper articles, extracts, and short stories. Students develop their listening and speaking skills through the frequent use of multi-media sources as well as through a wide variety of class activities. Students further broaden their cultural foundation through Internet projects and exploration.

Spanish IV: Hispanic Language & Culture

Prerequisite: Spanish III and departmental approval

This is a conversation and culture course. Earlier language skills are reviewed and expanded with renewed emphasis on broad cultural themes within the Spanish-speaking world. Films, Podcasts, research on the Internet, short stories and other documents all provide the basis for vocabulary expansion and class discussions. The core curriculum concerning grammar review and expansion is augmented by a wide variety of topics relevant to the Spanish-speaking world. A key factor to success in this highly interactive course is the student's commitment to active participation in all class activities.

Spanish IV Honors: Hispanic Literature & Culture

Prerequisite: Minimum grade of B in Spanish III Honors and departmental approval

In this Pre-AP course, students are encouraged to delve into issues such as science, politics, contemporary life, and history. In addition, they examine how art and literature reflect these themes. Speaking, listening, reading, and writing skills are solidified as students develop their interpretive, interpersonal, and presentational communication skills. We study a range of literary texts as well as film and music. The curriculum covered in this class prepares students to enter either the AP Spanish Language and Culture class or the AP Spanish Literature class.

Spanish V: Panorama of Hispanic Culture through the Arts

Prerequisite: Spanish IV and departmental approval

Join us for a year of cultural awakening. Learn about Latin American and Spanish culture through film. We study, discuss, present and write about the history, geography, and current events related to each film while also advancing our oral and written proficiency. Portions of the film are used to further vocabulary development and to review specific grammar topics. The films for this course are organized by theme rather than country: Immigration, Civil War and Revolution, Dictatorships, and Contemporary Issues. Some of the films include "Arráncame la vida", "Belle époque", and "Como agua para chocolate", while the authors include Allende, García-Márquez and Cortázar.

Spanish V Honors: Hispanic Civilization & Culture through Film & Fiction

Prerequisite: Minimum grade of B in Spanish IV Honors or A- in Spanish IV and departmental approval

Students take a close look at a wide range of artistic and literary works from the 20th Century Hispanic world, starting with Modernism and ending with late 20th century icons. Students combine the study of different literary texts, both poetry (Machado, Garcia Lorca, Neruda) and short story (Quiroga, Matute), with in-depth analysis of other artistic sources: painting (Dalí, Picasso), architecture (Gaudi), and film (Almódovar). The literary and artistic works studied provide a backdrop to the culture and history of both Spain and Hispano-America. Students are required to participate in active class discussions as well as write frequent essays in literary analysis, comparisons between art or music and literature, and cultural connections between history of the Spanish world and its interpretation in literature.

AP Spanish Language & Culture

Prerequisite: Minimum grade of B in Spanish IV Honors or A- in Spanish III Honors and departmental approval (See Advanced Placement Prerequisite Statement at the beginning of the World Languages section)

The goals of this course conform to the standards and expectations described in the College Board curriculum for AP Spanish Language and Culture. Students will be prepared to demonstrate their level of proficiency in Spanish across three communicative modes (interpersonal, interpretive and presentational) and the five goal areas outlined in the *Standards for Foreign Language Learning in the 21st Century* (communication, cultures, connections, comparisons and communities). Films, literature, articles on current issues, and Internet based activities serve as a springboard for discussions, debates, compositions and presentations. Students also endeavor to broaden their active vocabulary and to become comfortable using a variety of tenses and idiomatic expressions both when writing and speaking in a variety of contexts. This course culminates in the Advanced Placement Spanish Language Exam given in May, which must be taken by all students enrolled in this class.

AP Spanish Literature & Culture

Prerequisite: Minimum grade of B in Spanish IV Honors or A.P. Spanish Language and departmental approval (See Advanced Placement Prerequisite Statement at the beginning of the World Languages section)

Following the prescribed Advanced Placement syllabus, this course offers the advanced Spanish student a remarkable overview of Spanish and Hispanic literature from medieval times through present day. The list of approximately 40 works from more than 35 authors, containing poems, plays, short stories and novels, is demanding. Students are required to participate in active class discussions as well as write frequent essays in literary analysis, comparisons between literature and art or music, and cultural connections between the history of the Hispanic world and its interpretations in literature. Students in this course are required to take the AP Spanish Literature and Culture Exam given in the spring.

FALL SEMESTER COURSES

Español en vivo—Spanish in the Community

Grade Level: 10th - 12th

Prerequisite: Spanish III, Spanish IIIH or above. Heritage speakers may take this course with departmental approval.

Take advantage of this opportunity to show how relevant your study of Spanish truly is! This community-based class takes you out of the classroom and into the Spanish speaking community. This course emphasizes independent and group work, internet tools such as *FluentU* and *Talk to Me*, journal writing, language skill building, and community outreach through local agencies. Every student is required to do one service and one collaborative project. Preparation for and visits to different agencies takes place during class time and helps to develop your communication skills.

SPRING SEMESTER COURSES

Español de negocios—Business Spanish

Grade Level: 10th - 12th

Prerequisite: Completion of Spanish III, Spanish IIIH or above. Heritage speakers may take this course with the approval of the department chair.

This course will familiarize students with the world of finance in the Hispanic world, including a survey of the culture and the basic vocabulary used in business, through hands-on work and projects that look to a direct application of the students' language skills. Themes to be studied include marketing and advertising in the Hispanic world; issues of international leadership; the metric system and foreign exchange; and matters of transportation and foreign travel.

The goal of the course is to enrich students' awareness and understanding of the social and political issues currently confronting the Latin-American . With that in mind, the students will do research on various aspects of the economy of the Spanish-speaking world; follow news that pertains to economics and policy; and discuss economic relations between Latin America and the USA.

CLASSICS

In Levels I through Advanced Placement, the goal is to encourage Latin and Greek students to become involved first-hand with the Classics by acquiring the ability to read standard Latin and Greek authors with competence and appreciation. Understanding of the social and political history of the ancient Romans, along with related topics in Greco-Roman mythology, religion, and literature, is developed. The Classics Department promotes the additional benefits gained from the study of Latin and Greek, such as a sharper insight into the grammar of other languages including English, and the acquisition of English vocabulary.

The Classics program emphasizes a reading approach to the study of the language: students begin reading simple Latin or Greek passages immediately upon starting the first year. Continuous attention to derivatives enables students to develop their vocabulary. Due emphasis on grammar, memorization of forms, and word study equips the students with the necessary tools to understand and appreciate classical literature. As their facility with the syntax and vocabulary of the language increases, they read authentic pieces of Latin or Greek literature of increasing complexity.

LATIN

Latin I

Grade Level: 9th - 11th

Prerequisite: None

This course is a standard introductory course to Latin. The emphasis will be on learning basic forms and grammatical concepts. There will be applications of what is learned in grammar to translation of simple passages from Latin to English. An introduction to Latin composition will round out the course.

Latin II

Prerequisite: Latin I and departmental approval

This course has two primary objectives: first, to solidify the student's foundation of Latin grammar; and second, to build upon it a broader structure for the reading of Latin authors. Advanced grammatical concepts to be introduced in this course include indirect statement and the forms and uses of both participles and the subjunctive. Continued emphasis is placed on the enhancement of sight translation skills and the development of an awareness of the historical context for the language itself. Throughout the year, students will use this knowledge to read adapted passages of Latin prose and poetry.

Latin II Honors

Prerequisite: Minimum grade of B+ in Middle School Latin and departmental approval

This course is for those students who have completed Latin I in either the Middle School or in Upper School and have shown themselves to be strong students, achieving a B+ grade or better in Latin I. All essentials of Latin grammar are completed by April. The rest of the year is devoted to advanced grammar topics and reading in Caesar's *Gallic War*. The instruction in this course follows a tight schedule, and the student should be prepared for the rigorous pace of the course.

Latin III

Prerequisite: Latin II and departmental approval

This course begins with an intensive review of grammar and syntax in order to expand and solidify the student's understanding of the Latin language. These skills provide the foundation for the rest of the course, in which the students read a variety of classical authors such as Caesar and Sallust. In addition to discussion of meaning and writing style, students also learn about Roman history and culture. They are encouraged to explore political, philosophical, and ethical issues at play and relate them to issues that face the modern world.

Latin III Honors

Prerequisite: Minimum grade of B in Latin II Honors and departmental approval

This is a rigorous third year Latin course that prepares students for the AP Latin course. The class focuses on developing and expanding students' translation skills, using classical Latin authors. Authors may include Cicero, Catullus, Ovid, Apuleius, and Horace. In addition to translating, students are introduced to textual, stylistic, and metrical analysis. Discussions of translations always include aspects of Roman culture and history and their influence on the intellectual history of the West.

Latin IV

Prerequisite: Latin III and departmental approval

This rigorous course is for students who want to continue their course of study in Latin but who are not ready for the rigid demands, requirements and time schedule of an AP course. The readings done in the course will vary from year to year and will include the Classical Tradition as well as the literature of later Latin. The class discussions of the ideas presented in the readings form an integral part of this course, especially as these ideas relate to the humanistic culture of the West. Grammar review of special topics is also included in the course.

AP Latin

Prerequisite: Minimum grade of B in Latin III Honors or A- in Latin IV and departmental approval

AP Latin is a rigorous course that promotes reading Latin poetry and prose with historical and literary sensitivity. Students are encouraged to develop linguistic skills by engaging in multiple activities, including translating poetry and prose precisely and literally; reading passages of poetry and prose with comprehension; and analyzing literary texts in clear, coherent written arguments, supported by textual examples. The course focuses upon selections from Caesar's *De Bello Gallico* and Vergil's *Aeneid*, but includes other classical authors of prose and poetry.

Honors Latin Studies

Prerequisite: Departmental approval

Honors Latin Studies is a fourth year Latin course for those who have successfully completed an AP Latin course. Readings from several Latin authors will make up the text of the course with a concentration on Classical authors such as Cicero, Catullus and Tacitus while also drawing from medieval and renaissance texts. In addition to tests and exams, seminar presentations and a major paper will be required. Entrance into this course requires the recommendation of the student's AP instructor.

GREEK

Greek I

Prerequisite: Departmental approval

This class is a standard introductory course to classical Greek. It will combine a study of basic Attic grammar and syntax with efforts to gain a reasonable facility in reading Greek prose and in translating from English to Greek. By springtime, students will gradually come to read adapted excerpts from Greek prose (namely Herodotus and Xenophon).

Greek II

Prerequisite: Greek I and departmental approval

This course builds upon the grammatical foundation and basic translation skills learned in Greek I. It will expand the study of basic Attic grammar and syntax. In the fall students will read selections from Herodotus and Xenophon. In the spring students will read selections from Plato's dialogues. Throughout the year students will learn an appreciation for the cultural, moral, and artistic values that distinguish the ancient Greek culture and literature.

Greek II Honors

Prerequisite: Minimum grade of B+- in Greek I and departmental approval

This rigorous course builds upon the grammatical foundation and translation skills learned in Greek I. It will seek to reinforce important and increasingly sophisticated grammatical and syntactical principles. In the fall students will read selections from Xenophon's *Anabasis* and *Memorabilia*. In the spring students will read selections from Plato's *Apology* and *Crito*. Throughout the year students will learn an appreciation for the cultural, moral, and artistic values that distinguish the ancient Greek culture and literature.

Greek III

Prerequisite: Greek II and departmental approval

The third year of the Regular Greek track presupposes an acceptable grasp of all the essentials of Attic morphology, syntax, and vocabulary. Building on this foundation, it takes as its primary author Homer, who stands at the very beginning of western literature. Students will read at least 500 lines of Homer's poetry, and will develop a familiarity with the syntactic and morphological peculiarities of the epic dialect, while at the same time immersing themselves in the culture and philosophy of Homer's heroic world. Time permitting, Greek texts of other periods and genres will be studied, including history, philosophy, drama, and the New Testament.

Greek III Honors

Prerequisite: Minimum grade of B in Greek II Honors and departmental approval

The third year of the Honors Greek track presupposes a firm grasp of all the essentials of Attic morphology, syntax, and vocabulary. Building on this foundation, it takes as its primary author Homer, who stands at the very beginning of western literature. Students will read well over 1,000 lines of Homer's poetry, and will develop a strong control over the syntactic and morphological peculiarities of the epic dialect, while at the same time immersing themselves in the culture and philosophy of Homer's heroic world. Time permitting, Greek texts of other periods and genres will be studied, including history, philosophy, drama, and the New Testament.

VISUAL AND PERFORMING ARTS

Participation in the Arts encourages us to react to, record and share our impressions of the world. The goal of the Arts Departments of Brunswick School and Greenwich Academy is to enable students to experience, understand, and enjoy the Visual and Performing Arts, including studio art, dance, music and theater.

The program encourages individual creative expression, the development of specific skills in each area, communication with the public through exhibitions and performances, and appreciation of all art forms. Courses provide recognition of the role of the Arts in history and in the culture of our world.

The departments require of all students a minimum of one year's participation in any of the Arts areas. In addition, students are welcome to participate in a variety of co-curricular dance, music and theater performances, and arts clubs.

VISUAL ARTS

In studio art classes, students are guided to fulfill their individual potential by acquiring and developing skills and techniques in a variety of media, including the resources of new kinds of technology, while solving problems and thinking creatively. They learn to communicate their ideas and emotions in an original, personal style. Aesthetics, art history, art criticism, and contemporary developments are introduced in classes and through field trips, visiting artists, and exhibitions by professionals or by the students themselves.

The following courses listed in the Interdisciplinary section of the catalog will fulfill the arts requirements of either campus:

Honors Engineering & Design I
Honors Engineering & Design II
3D Design & Fabrication
Art and Code
AP Art History

Art I

Grade Level: 9th
Prerequisite: None

The course emphasizes the fundamentals of fine art techniques including drawing, painting, printmaking, computer graphics, ceramics and sculpture. Important art concepts as composition, perspective, and color theory are introduced. The course challenges each student to think critically and creatively, be original, and to experiment with a variety of materials. Students work from observation, memory, imagination, and personal expression toward styles that express their own vision. They are exposed to historical and contemporary art through visits to museums and galleries, slide presentations, and visits from professional guest artists. A sketchbook for developing designs and a portfolio review are part of the course. Students who have successfully completed this course will be approved for an AP course the following year.

Ceramics I

Grade Level: 9th - 12th
Prerequisite: None

The course offers an interesting, varied, and exciting introduction to one of the oldest art forms known to the artist, ceramics. Clay has a unique plastic quality that changes dramatically when exposed to heat. This course is designed to introduce the student to a broad range of ceramic techniques and processes, including throwing and hand building processes, slips, glazes and decoration styles, and firing. We encourage students to develop themes and topics for themselves. A sketchbook for developing design ideas, a museum visit, and a portfolio review are all part of the course. Students who have successfully completed this course will be approved for an AP course the following year.

Computer Graphics I

Grade Level: 9th - 12th

Prerequisite: None

This course offers the opportunity for students to develop and explore the unlimited design and visual communication possibilities that computers have to offer. The class will cover the use of computers and cameras as tools of the artist, photographer, graphic designer, product designer, and web designer. The goal of the class is to explore computer technology and use it to foster creative thinking as an artist's tool and as a way to enhance the visual clarity and style of any design work. Students will be working with a variety of modern design software, and will adapt to the frequent changes occurring in the fields of computers and interactive media. Hardware includes computers, slide and flatbed scanners, digital cameras, color laser printers and the Internet. There may be some cross-curricular exploration with other arts classes as well. Students who have successfully completed this course will be approved for an AP course the following year.

Film Production I

Grade Level: 9th - 12th

Prerequisite: None

This course focuses on the development of introductory film production skills. Students will work collaboratively through a series of creative challenges and assignment prompts to develop strong creative problem-solving skills in the film studio. They will learn to write, storyboard, shoot, and edit footage; creating several short films over the course of the year. Students will produce work using digital cameras (Canon HD XA10's) and edit in Final Cut Pro. Discussion and application of techniques such as camera frame, continuity, coverage, and montage will be addressed. We will also explore new and emerging technology and experimental camera apps. Both feature and short films will be screened as related to assignments.

Art II

Grade Level: 10th - 11th

Prerequisite: Art I or departmental approval

This course offers a varied development of broad range art techniques and processes. The course covers all the major disciplines in art which may include drawing, design, painting, computer graphics, ceramics, textiles, printmaking, and a wide range of sculptural techniques. The projects and themes are very open, leaving as much scope for individual learning as possible. Students are encouraged to develop their own personal themes and topics. A sketchbook for developing design ideas, guest artists and a portfolio review are important aspects of the course. Students will develop works in this course that may be included in the Advanced Placement 2D Design and Drawing portfolios.

Ceramics II: Form & Function

Grade Level: 10th - 12th

Prerequisite: Art I, Ceramics I or departmental approval

The course offers a wide variety of clay-building methods, such as pinch, coil, slab and wheel throwing, to be used in functional and sculptural pieces. Other materials will be used to develop three-dimensional forms and craft items such as jewelry, tiles and decorative art pieces. Students are encouraged to develop a personal style and direction. Work in this course can be used in the Breadth Section of the AP Portfolio in Three-Dimensional Design the following year.

Ceramics II: Ceramic Sculpture

Grade Level: 10th - 12th

Prerequisite: Art I, Ceramics I or departmental approval

This course is designed for second-year Ceramics students to advance their range of ceramic techniques and processes, including throwing and hand building, slips, glazes and decoration styles, and firing. They also explore working with different mediums like wire, wood, and plaster with their clay elements. The students are asked to be more independent in the choosing of the themes and topics of the works. The course is built as a lead-in to the Advanced Placement studio courses. Assessment is based on the breadth and quality of the portfolio.

Computer Graphics II

Grade Level: 10th - 12th

Prerequisite: Computer Graphics I

This course offers the opportunity for students who have already taken the computer graphics class to explore this art form at a more advanced level. Students will be working with a variety of modern design software and will adapt to the frequent changes occurring in the fields of computers and interactive media. The class will cover the use of computers and cameras as tools of the artist, photographer, graphic designer, product designer, and web designer. Hardware includes computers, slide and flatbed scanners, digital cameras, color laser printers and the Internet. There may be some cross-curricular exploration with other arts classes as well. By the end of this class, students will be expected to produce work meant for a college portfolio or an Advanced Placement concentration. The concentration is a focused body of work exploring a personal, central interest as intensively as possible.

Film Production II

Grade Level: 10th - 12th

Prerequisite: Film Production I

The Film Production II class offers students the opportunity to further develop their film creation, production and editing skills while exploring new genres and techniques of filmmaking. The focus will be on more advanced levels of editing within Final Cut Pro. Additional time will be spent exploring the range of manual operations on the camera including white balance, exposure and shutter speed. Students will develop, script and produce several short films each semester. We will also explore new and emerging technology and experimental camera apps. Both feature and short films will be screened as related to assignments.

Honors Studio Art

Grade Level: 11th - 12th

Prerequisite: Art II and departmental approval or A.P. Studio

This course is designed for advanced students to further their exploration in making Art. The course provides the student with a wide berth of flexibility, allowing for skills to be honed, unique ideas to be developed, and experimentation with materials to be expanded. Students will pursue their individual projects under the guidance of the Visual Arts faculty and will participate in the Honors Slide Show in May.

Honors Film Production

Grade Level: 10th - 12th

Prerequisite: Film Production II or departmental approval

This class will provide an opportunity for students who are serious about filmmaking to continue to produce work at a higher and more personal level. Each student will determine the direction, production calendar, and goals for his/her individual creative pursuit. Students will produce work on Canon 5D Mark III cameras and edit in Final Cut Pro. They will be required to assist each other in writer's room, during critiques, while screening professional and festival films, and as crew for each other during production blocks. Time will be dedicated to developing script arcs, beat sheets, storyboarding, and ultimately translating ideas to screen. Preparation of individual film reels for college review will be ongoing throughout the year.

Independent Film Projects

Grade Level: 12th

Prerequisite: Honors Film Production

In this class, students will be given the opportunity to conceive, develop, and produce completely independent, upper-level film projects. Students' work can be created as either single, long form films, or as a series of shorts sharing ideas, focus, or content. Students may work individually or in collaborative teams pending teacher approval. Screenings, critiques, and new equipment workshops will be used throughout the year. This is a highly self-driven, process and product based, upper-level, creative class.

AP Studio Art: Drawing Portfolio

Grade Level: 10th - 12th

Prerequisite: Departmental approval

The drawing portfolio is designed to address a broad interpretation of drawing issues and media. Light and shade, line quality, rendering of form, composition, surface manipulation and illusion of depth are drawing issues that can be addressed through a variety of means. Many works of painting, printmaking and mixed media as well as abstract, observations and inventive works may qualify. The goal of the class is to address drawing issues, and also to develop a concentration, which is a body of related works based on an individual's interest in a particular idea expressed visually. It focuses on a process of investigation, growth, and discovery.

AP Studio Art: 2-D Design Portfolio

Grade Level: 10th - 12th

Prerequisite: Departmental approval

The two-dimensional design portfolio is intended to address a very broad interpretation of two-dimensional (2-D) design issues. This type of design involves purposeful decision-making about how to use the elements and principles of art in an integrative way. The elements of design (line, shape, illusion of space, illusion of motion, pattern, texture, value and color) are like a palette of possibilities that artists use to express themselves. The principles of design help guide artists in making decisions about how to organize the elements on a picture plane in order to communicate content. In addition to general work in 2-D design, a concentration is required for the course. A concentration is a body of related works based on an individual's interest in a particular idea expressed visually. It focuses on a process of investigation, growth and discovery. This portfolio can include the use of advanced technology, digital photography, computer art, computer graphics, graphic design, collage, typography, product design, fabric design, weaving, illustration, drawing, painting, printmaking, etc.

AP Studio Art: 3-D Design Portfolio

Grade Level: 10th - 12th

Prerequisite: Departmental approval

The three-dimensional design portfolio is intended to address a broad interpretation of sculptural issues in depth and space. These may include mass, volume, form, plane, light, and texture. Such elements and concepts may be articulated through additive, subtractive, and/or fabrication processes. A variety of approaches to representation, abstraction, and expression may be part of the student's portfolio. These might include traditional sculpture, architectural models, apparel, ceramics, three-dimensional fiber arts or metal work, among others. A concentration of works based on an individual's interest in a particular idea expressed visually is required.

FALL SEMESTER COURSES

Architecture & Design I

Grade Level: 9th - 10th

Prerequisite: None

This is an introductory course in which basic fundamentals of architectural design are examined and perfected. Using a combination of problem solving, drawing, and construction techniques students will be introduced to how an idea develops from concept to construction. Students will be introduced to the computer program Google *SketchUp* which allows the development of design ideas and presentation. This course culminates with a series of three-dimensional explorations using a variety of materials and techniques.

Architectural Space & Design Elements I

Grade Level: 10th - 12th

Prerequisite: Architecture & Design I, Architecture & Design II or departmental approval

This is an introductory course to architectural design and examines the relationship between interior and exterior spaces. Students will involve themselves with the development of an idea from concept to construction using a series of problem solving and design techniques. Students will use a variety of media to develop their ideas and construct their concepts. Students will be introduced to the computer program, Google *SketchUp*, which will allow the development of design ideas and presentation. This course is a complement to Architecture and Design I.

SPRING SEMESTER COURSES

Architecture & Design II

Grade Level: 9th - 10th

Prerequisite: None

This course is a practical look at architecture through drawing, design, and construction using a variety of different media. It is structured to develop an understanding and ability to use representational media to visualize, document, investigate, and present intentions within the graphic language of architectural communication. Students will be introduced to computer programs *AutoCad* and *Rhino*, which will allow for the development of design ideas and presentation. This course culminates with a series of three-dimensional explorations.

Architectural Space & Design Elements II

Grade Level: 10th - 12th

Prerequisite: Architecture & Design I, Architecture & Design II or departmental approval

Architects envision, design, and process ideas through a variety of different media. They record concepts, test scenarios, and resolve problems for spaces. This course will concentrate on the designing and making of functional and/or sculptural elements for an architectural space. Using a combination of problem solving design techniques students will involve themselves with the understanding of an idea from concept to construction. Using state-of-the-art equipment and our shop space, students will learn how to design and construct. This course is a complement to the other architecture classes, which concentrates on the exterior of architectural spaces. This course focuses on the design of interior space.

PERFORMING ARTS

The Music Departments of Brunswick School and Greenwich Academy offer students the opportunity to perform in a variety of ensembles, both choral and instrumental. Non-performance classes are also available, including A.P. Music Theory and Recording Studio.

INSTRUMENTAL MUSIC

There are a number of opportunities for instrumental musicians at the Academy and Brunswick. Brass, woodwind, guitar and percussion students may play in large and small ensembles, from chamber music to auditioned jazz groups such as the Blue Notes. Private lessons are offered on all instruments as well as in piano and voice.

Band I

Grade Level: 9th - 10th
Prerequisite: None

This course is designed for students who have experience on a musical instrument and want to continue to improve their playing skills and technique. Band I is open to all instrumentation, including brass, woodwinds, percussion, electric bass and guitar, keyboard and strings. A variety of music will be studied including blues, rock, funk, swing, Latin and pop. An understanding of music theory and improvisation will be an important part of this class. This course will also prepare each student for audition for an upper level ensemble.

Guitar I

Grade Level: 9th - 12th
Prerequisite: None

This course is offered to students on both campuses who wish to learn to play the guitar or would like to increase their guitar playing skills. Previous experience is encouraged, but not required for this course.

Recording Studio I

Grade Level: 9th - 12th
Prerequisite: None

This course provides students from Brunswick and GA the opportunity to study and work in a recording studio environment. Students need no prior experience in the studio or other music courses in order to participate in Recording Studio I. During the year the student will learn the basic techniques necessary to record instrumental and vocal sounds and to engineer and mix down a project to be burned on a CD. The opportunity to present work to the school community will be made available at several venues.

Band II

Grade Level: 10th
Prerequisite: None

Band 2 is open to all instrumentation, including brass, woodwinds, percussion, electric bass and guitar, keyboard and strings. This course will further the student's knowledge of chord structure, scale usage, rhythm and form by studying various jazz styles and genres such as the blues, R&B, funk, swing, Latin and pop. Members of this band will continue to develop their own musical vocabulary and become more skilled at applying them to improvised solos and jazz technique.

Guitar II

Grade Level: 10th - 12th
Prerequisite: Guitar Ensemble I or departmental approval

Guitar II is offered to students on both campuses who wish to increase their guitar playing skills beyond what is learned in Guitar I. Instruction includes advanced chords, power chords, finger-style picking, and reading tablature. All students will have the opportunity to learn to play bass guitar along with improving techniques and skills on electric guitar and acoustic guitar.

Recording Studio II

Grade Level: 10th - 11th
Prerequisite: Recording Studio I

This course is a continuation of the skills and techniques learned in Recording Studio I. This course will offer a number of project opportunities for students, such as recording CDs, creating background music and sounds for movie and theatrical productions, recording and engineering CDs for fellow classmates and becoming more advanced in the technical knowledge in this cutting edge technological field. Previous recording experience (or Recording Studio) is a prerequisite for this course.

Musical Improv

Grade Level: 10th - 12th
Prerequisite: Band I or departmental approval

This course builds on the ideas from Band I. A more in depth approach to scale and chord structure is taken as students explore harmonic extensions, rhythm and syncopation in greater detail. Songs in the blues, rock, jazz, funk and world music idiom will be explored as a platform to apply the concepts taught in this class. Students will also establish a foundation in basic piano theory that will act as supplement to their primary instrument skills. Students will have the opportunity to perform as the group will be expected to perform at all major concerts and functions throughout the school year.

Honors Musical Improv

Grade Level: 11th - 12th
Prerequisite: Musical Improv

In this course, students will have a decent grasp on all of the modes derived from the major scale: Dorian, Phrygian, Lydian, Mixolydian, Aeolian and Locrian. Through various repertoires consisting of Jazz, blues, rock, funk, and world music students will apply and build upon the concepts learned in the previous Improv classes. Students will explore the use of polyrhythms and should be able to accurately count and clap rhythms presented to them for sight-reading. Elements of Jazz harmony and Be-Bop are used to demonstrate the crossover to other idioms. Students will have the opportunity to perform at all major concerts and functions throughout the school year.

Blue Notes-Honors Jazz Band

Grade Level: 9th - 12th

Prerequisite: Audition

The Blue Notes, Brunswick's premiere performing ensemble, provides an opportunity for highly motivated instrumental students to participate in an outstanding jazz ensemble. Often called upon to play on both campuses and in the Greenwich community, the Blue Notes enjoy numerous performance opportunities. In 2015, the Blue Notes will travel to Italy on their fourth international music tour. A variety of music is learned, including various genres of jazz: swing, funk, Latin, rock, pop and blues. Auditions are held in the spring for the following school year.

VOCAL/CHORAL MUSIC

In the choral groups the goal is to educate students in the rudiments of music in order to be literate and proficient in reading and performing from various historical periods and musical styles. The vast choral repertoire for male, female and mixed voices is explored.

Gospel Choir

Grade Level: 9th - 12th

Prerequisite: None

Gospel choir is open to students in both Brunswick and Greenwich Academy. Participating members will receive credit for the year towards their arts requirement. Students will have the opportunity to explore the various styles of gospel music, both contemporary and traditional. Emphasis will be placed on strengthening vocal technique and part singing ability. Singers will perform as an ensemble with solo opportunities throughout the school year. No audition is necessary. Rehearsals are held during the Clubs time on Fridays with some additional rehearsals on Wednesdays after school as scheduled.

The Mob

Grade Level: 9th - 12th

Prerequisite: None

"The MOB" is Brunswick's all male a cappella ensemble which meets three times a week from 7:00 a.m.-7:45 a.m. This select ensemble participates in our main concerts during the year, and they also perform for special events such as homecoming and all-school assemblies. In addition, they are a featured performing group at our annual "Lessons and Carols" service in December. Each member of the "MOB" receives instruction in vocal technique as well as the fundamentals of music theory, thus helping each singer to achieve his highest potential both as a vocalist, and as a musician.

Bel Canto

Grade Level: 9th - 10th

Prerequisite: None

This course is open to all girls who are interested in singing. The focus of the class is to build a healthy vocal technique for each singer, whether her goal is to perform in school musicals or audition for Madrigal Singers. Singers will perform as an ensemble in school concerts throughout the year, studying treble literature of all styles, from classical to popular music. *Bel Canto* (from the Italian, *beautiful singing*) is a style that emphasizes beauty of tone throughout the full range of the voice. Students will also concentrate on improving sight-singing skills through solfege study and basic music theory.

Bel Canto is a prerequisite course for Madrigal Singers.

Madrigal Honors Ensemble

Grade Level: 10th - 12th

Prerequisite: Bel Canto; audition required

This course is designed to offer the most advanced level of choral music training at the Academy. The Madrigal Singers study treble literature of all periods, from the Renaissance through contemporary music. Their schedule includes several performances a year for school and community events and an international tour every two years.

Musical excellence is achieved by emphasis on ear training, vocal/choral techniques, and study of the highest quality literature written for women's voices. Solfege is the foundation of sight-reading using the Oxford *Folk Song Sight Singing Series*. Students are assessed through regular singing tests in solfege and in the performance repertoire. Auditions are held in the spring for the following school year. Students with other choral experience or voice training may audition with permission of instructor.

MUSIC THEORY

AP Music Theory

Grade Level: 11th - 12th

Prerequisite: Intro to Music Theory or departmental approval

The AP course in Music Theory consists of a full academic year of work in preparation for the Advanced Placement examination. Ear training is studied by rhythmic and melodic dictation and through identification of intervals, triads and inversions. Harmonic analysis utilizes figured bass symbols and emphasizes the principals of voice leading in tonal harmony. Exercises in part writing and composition are an integral part of the course.

FALL SEMESTER COURSES

Music History Survey

Grade Level: 9th - 12th

Prerequisite: None

This is a one-semester course which covers the history of music from the medieval period to the contemporary music of today. Students will listen to and study works from the major historical periods of music. The course will also provide opportunities to understand the relationships of musical works, composers, forms and styles with the political and social events of their historical periods.

SPRING SEMESTER COURSES

Intro to Music Theory and Composition

Grade Level: 9th - 12th

Prerequisite: None

A one-semester course, Music Theory and Composition is designed to equip students for further musical pursuits. In particular, this class would be excellent preparation for the AP music theory course. Emphasis will be on the development of skills in sight-reading, ear training, and keyboard. Music composition will be an important part of this course with students developing their own composition projects by the end of the semester.

THEATER

The Theater Arts Department offers classes in both performance and technical studies. The program is structured for students who are serious about their craft as well as those who want to take a class for the joy of it. With creativity and collaboration students learn the process of bringing a production from conception through performance. By heightening individual skills, students become a part of the collective whole. Theater students are encouraged to supplement their class work by participating in any of the numerous productions mounted each year.

Acting I

Grade Level: 9th - 10th

Prerequisite: None

This course is designed for anyone who is interested in acting. Students will develop essential performance skills, including strong diction, confident stage presence, and the ability to portray a character effectively. Actors will learn to tackle a wide variety of material, from mastering challenging Shakespeare monologues to performing truthfully in contemporary scenes from modern plays and films. In addition to our in-class stage performances, we will work in collaboration with the film class to create short, filmed scenes. The course will be taught jointly by faculty from Greenwich Academy and Brunswick with classes being held on both campuses.

Acting II

Grade Level: 10th - 12th

Prerequisite: Acting I or departmental approval

Students will explore a variety of different acting techniques through vocal and movement exercises and in depth scene study. We will work to find the acting techniques that resonate best with each individual student by looking at some of theatre's most influential figures, such as Stanislavski, Meisner, Strasberg, Brecht, and Suzuki. The ways in which theatre has questioned and challenged cultural norms of each generation will also be explored. The course will be taught jointly by faculty from Greenwich Academy and Brunswick with classes being held on both campuses.

Honors Acting

Grade Level: 11th - 12th

Prerequisite: Acting I, Acting II or departmental approval

This course, for both the actor and director, investigates tools to create a character on stage. Students will take turns between acting and directing scenes after a thorough analysis of the material. Through advanced scene study students will focus on process as well as product. Course projects will include showing one's work as both actor and director to an audience.

Playwriting and Directing

Grade Level: 11th - 12th

Prerequisite: Acting II or departmental approval

This course gives students the opportunity to write their own short scenes and one-act plays and develop them into a theatrical production. Members of the class serve as actors and directors for one another. Students will help bring original student works to life by providing input from these different perspectives so that everyone can experience the advantage of thoughtful collaboration in the creation of a new play. Each student's final script will be entered in the Stamford Young Playwright competition.

Theatrical Design and Stage Craft I

Grade Level: 9th - 12th

Prerequisite: None

Students are introduced to the elements of basic stagecraft in this open-level course. Utilizing the state-of-the-art resources in the Baker and Black Box Theaters, students focus on the professional conventions used today in set construction, scene painting, costumes, lighting, and sound. Students have the opportunity to learn experientially using cutting-edge stage, lighting, and sound equipment as crew members for the various productions that happen throughout the year.

Theatrical Design and Stage Craft II

Grade Level: 10th - 12th

Prerequisite: Theatrical Design and Stage Craft I or departmental approval

Students continue their education in stage technology and design in this second year course. Advanced study in set construction, lighting, and sound combines with an introduction to the Color Kinetics LED lighting system in the Baker Theater. Students also continue study in set, lighting, and sound design principles through a partnership with the Acting II class wherein they will plan, design, and execute small theater projects. Technical design using the computer drafting program AutoCAD, basic set design sketching, lighting plot design, and sound design principles are also introduced.

Honors Design and Stage Craft

Grade Level: 10th - 12th

Prerequisite: Theatrical Design and Stage Craft II or departmental approval

Requiring the foundational skills gained through Theatrical Design and Stage Craft II, this class focuses coursework on one to two chosen areas of specialized study within the technical theater realm. Honors students may elect to pursue advanced projects in the following areas: set design/construction, light design/electrics, sound design/audio engineering, and/or technical direction. Practicums are required for various concerts and special events during the academic year. These experiential projects are used as training exercises in anticipation of Brunswick's fall play, winter musical, and spring comedy, for which students will be assigned management-level production posts in their chosen area(s).

Costume Design

Grade Level: 9th - 12th

Prerequisite: None

Students will be introduced to the fundamentals of costume design in this open-level course. They will have the opportunity to learn every element from initial design concept to the final garment, while gaining hands-on experience. Students will explore styles (including wig, make up and accessory design) and their historical contexts ranging from two thousand years ago to present day. Show budgeting and basic sewing skills will be taught throughout the course with a culminating project, designing the Group V play.

DANCE

The goal of the dance program is to enable students to express their ideas and feelings through movement. Dance classes (which are offered as an alternative to PE) and the performing companies at GA emphasize the development of choreographic skills paired with the study of a variety of technical styles, which serve the creative effort of the choreographer and the dancer.

Dance Corps

Grade Level: 9th - 12th

Prerequisite: Audition

The Greenwich Academy Dance Corps is our resident dance company comprised of students from grades 9-12 who have been selected for their technical ability, interest in creative expression and commitment to dance. Once selected from an audition process during pre-season, Dance Corps members are invited to participate for the duration of their time at the Academy. **Dance Corps members must take dance class as an alternative to P.E. at least two trimesters during the school year. A commitment to Dance Corps includes rehearsal on Monday evenings and most Sunday afternoons to prepare for *Winterfest* and the Spring Dance Concert.** These concerts are comprised of pieces choreographed primarily by Dance Corps members, incorporating a range of styles. Dance Corps members also have the privilege of working with professional faculty and guest choreographers as part of our Upper School dance residency—an experience which broadens their understanding of movement and of the dance field.

Junior Dance Corps

Grade Level: 9th - 12th

Prerequisite: Audition

Junior Dance Corps is the preparatory company for the Greenwich Academy Dance Corps. Once selected from an audition process during pre-season, JDC members are invited to participate for the duration of their time at the Academy, or they may wish to audition again for admittance to Dance Corps. JDC is comprised of students in grades 9-12 who have exhibited a love of dance and a desire to build upon their creative and technical abilities. JDC meets every Thursday after school in the PAC. Members are required to participate in dance at least one trimester per year and perform in both *Winterfest* and the Spring Dance Concert. Senior JDC members may have the opportunity to showcase their choreography in one of two concerts.

ONE-SEMESTER COURSES

Computer Science (BR):

Fall

Introduction to Computer Science

Spring

Introduction to Computer Science

Computer Science (GA):

Fall

Introduction to Computer Science

Spring

AP Computer Science Principles
Build-Your-Own Computer

History:

Fall

Ancient & Medieval History
Cold War
Economics: Entrepreneurship
Everyday Economics
Military History I: Factors in War
Modern Middle East
Philosophy I
Philosophy II
Sports in International Relations
Twentieth Century Women's History

Spring

Advanced Civil Rights
Ancient & Medieval History
Behavioral Economics
Cold War
Criminal Justice
Economics: Personal Finance
Faith & Reason
Military History II: Warfare Throughout History
Philosophy I
Philosophy II

Interdisciplinary Studies:

Fall

3D Design for Fabrication
Arabic Cinema & Culture
American Film
War, Literature & Popular Culture

Spring

American Film & Beyond
Art & Code
Cognitive Psychology
Understanding 9/11: Attack & Aftermath

Science:

Fall

Astronomy
Biology of Human Health
Climate Science
Genetics
Human Physiology I
Intro to Engineering & Robotics I
Marine Biology

Spring

Environmental Science
Food Science
Forensic Science & Investigation
Geology
Human Physiology II
Intro to Engineering & Robotics II

Visual and Performing Arts:

Fall

Architectural Space & Design Elements I
Architecture & Design I
Introduction to Music Theory
Music History Survey

Spring

Architectural Space & Design Elements I
Architecture & Design II
Introduction to Music Theory
Music History Survey

World Languages:

Fall

Spanish in the Community

Spring

Business Spanish

GLOBAL ONLINE ACADEMY

2017-2018 STUDENT COURSE CATALOG

AT GOA, WE LEARN DIFFERENTLY.

The GOA experience connects you to a global network of people and resources: students and teachers come from more than sixty of the best independent schools around the world. Just by taking a GOA class, you will meet and collaborate with people you might never otherwise know.

GOA courses are...

- **Interactive:** You'll log in multiple times a week to engage in discussions, collaborate on projects, and apply your knowledge in creative ways. No hours of video watching or test-taking here.
- **Challenging:** Similar to a course at your home school, you'll spend 5-7 hours a week working on your course. GOA courses are mostly asynchronous; you are not expected to show up at one place at one time every day. Instead, you'll have to become proactive about managing your schedule, asking for help when you need it, and overcoming obstacles and solving problems on your own. You'll be challenged to become a more independent learner.
- **Relevant:** GOA courses give you a chance to explore topics you care about in a way that feels creative and engaging. We design courses so you have the opportunity to curate, create, and reflect on content that helps you understand course concepts in real-world contexts.
- **Communal:** We cap our classes at 18 students so you can form strong relationships as you collaborate with both your teacher and peers.

Students in grades 10-12 may enroll in a GOA course. These courses are semester electives that are offered as part of a student's regular schedule. Students should register for GOA courses through the described process at GA (see Mr. Schwartz) or Brunswick (see Mr. Booth) and consider the following guidelines:

- GOA courses are elective course offerings and are not intended to fulfill or replace core requirements.
- Students may not register for a GOA course that is determined (by the Head of Upper School) to conflict or overlap with a course currently offered at GA or Brunswick.
- The GOA course cannot be a seventh course for GA students.
- GOA course grades are listed and reported on student transcripts.
- Students must request GOA courses during GA/BR registration with Mr. Schwartz at GA or Mr. Booth at Brunswick.
- GOA adheres to strict drop/add policies and requires that students drop or add classes within the first two weeks of the GOA semester.

KEY DATES

SEMESTER 1: Wednesday, September 6 - Friday, December 15, 2017

SEMESTER 2: Wednesday, January 17 – Friday, April 27, 2018

YEARLONG: Both Semesters

ART, MEDIA, AND DESIGN

SEMESTER 1

CITIZEN ARTIST’S STUDIO: FROM MAKING TO ACTION: In this course, each student is an artist who utilizes the world of apps, memes, gifs, loops, views, posts, subs, and tweets to build an understanding of how digital art attracts audiences, affects social media platforms, sparks political activism, and transforms wherever you are into a production studio. The first half of the course is dedicated to tinkering with a plethora of software choices and media for self-expression: websites like YouTube, Giphy, Twine, and Pixlr; apps like Sketch, Paper 53, ProCreate, Boomerang, Aurasma, Prisma, Pic Collage, and Meme Generator; and social media classroom accounts on Instagram, Snapchat, and Twitter. Throughout, we’ll explore how art can aid in seeking unity, defending or defying norms, responding to opposing views, and envisioning better worlds. In the second half of the course, students use the Design Thinking model to identify a need in their community and fulfill the role of the citizen artist by addressing it through use of digital tools. Curricular content includes study of the effects of digital art on current events, lessons and tutorials on artistic techniques, and a history of citizen artwork both on and offline. Throughout the course, students engage in discussion and critique with each other, with students from other GOA classes, with their community contacts, and with professionals invited as guests of the course. *Prerequisites: Students should have daily access to a tablet or smartphone with reliable internet access.*

*Cross-listed in GOA Learning Studios

CREATIVE NONFICTION: This course focuses on shaping real experiences into powerful narratives. Students learn how to identify the genre of creative nonfiction both through the examination of professional examples of this genre and their own work of creative nonfiction. Students learn how to write in the genre of creative nonfiction both by exploring great stories in their lives and in the world around them and by effectively and respectfully writing about other people and their experiences. Feedback is an essential component of this course, and students will gain experience in the workshop model, learning how to effectively critique and discuss one another's writing in a digital environment. In addition, students have the opportunity to use technology to transform written work into audio experiences.

DIGITAL JOURNALISM: In a time when anyone and everyone has the right to write and the ability to publish, what does it mean to be a journalist? Students in this course learn fundamentals of reporting and shaping stories in text and multimedia; they learn to implement standards for copyright and fair use; and they learn to recognize excellence and bias in journalism from professional and amateur sources. In addition, students will skills in media literacy, becoming informed and thoughtful consumers of news in an increasingly rich but fragmented information landscape. This introductory course is intended for students with little to no experience with the craft of journalism. Experienced student journalists are encouraged to take Creative Nonfiction, which focuses on longer form work.

DIGITAL PHOTOGRAPHY: In an era where everyone has become a photographer obsessed with documenting most aspects of life, we swim in a sea of images, whether posted on Instagram, Facebook, Snapchat, Pinterest, or another digital medium. Yet what does taking a powerful and persuasive photo with a 35mm digital single lens reflex (DSLR) camera require? Digital photography explores this question in a variety of ways, beginning with the technical aspects of using and taking advantage of a powerful camera then moving to a host of creative questions and opportunities. Technical topics such as aperture, shutter, white balance, and resolution get ample coverage in the first half of the course, yet each is pursued with the goal of enabling students to leverage the possibilities that come with manual image capture. Once confident about technical basics, students apply their skills when pursuing creative questions such as how to understand and use light, how to consider composition, and how to take compelling portraits. Throughout the course, students tackle projects that enable sharing their local and diverse settings, ideally creating global perspectives through doing so. Additionally, students interact with each other often through critique sessions and collaborative exploration of the work of many noteworthy professional photographers, whose images serve to inspire and suggest the diverse ways that photography tells visual stories. *Prerequisites: Students must have daily access to a DSLR camera.*

FILMMAKING: This course is for students interested in developing their skills as filmmakers and creative problem-solvers. It is also a forum for screening the work of their peers and providing constructive feedback for revisions and future projects, while helping them to develop critical thinking skills. The course works from a set of specific exercises based on self-directed research and builds to a series of short experimental films that challenge students on both a technical and creative level. Throughout, we will increasingly focus on helping students express their personal outlooks and develop their unique styles as filmmakers. We will review and reference short films online and discuss how students might find inspiration and apply what they find to their own works.

POETRY WRITING: The poetry writing workshop explores identity and seeks to answer the question: How are you shaped (or not) by the community you live in? Our goal is to create a supportive online network of writers that uses language to discover unique and mutual understandings of what it means to be a global citizen from a local place. Students draft and revise poems, provide and receive frequent feedback, and read a range of modern and contemporary poets whose work is grounded in place. Sample assignments include audio and video recording, an online journal, study of performance poetry, peer video conferences, close reading, investigations into process and craft, collaborative poetry anthologies, and a class publication. All writers have the opportunity to send their work to international contests and publications.

SEMESTER 2

ADVOCACY: This skills-based course explores the creativity, effort, and diversity of techniques required to change people's minds and motivate them to act. Students learn how to craft persuasive arguments in a variety of formats (written, oral, and multimedia) by developing a campaign for change around an issue about which they care deeply. We explore a number of relevant case studies and examples as we craft our campaigns. Units include persuasive writing, social media, public speaking, informational graphics, and more. The culminating project is a multimedia presentation delivered and recorded before a live audience. ***Cross-listed in GOA Learning Studios**

ARCHITECTURE: In this course students explore the field of architecture through a series of units covering elements of architectural design, materials and structure, architectural analysis, and 3D design. Students begin the course by learning the basic elements of architectural design and then using Google SketchUp to build models of these elements. In the second unit students will study buildings like the Stonehenge, the Parthenon in Athens, the Roman Aqueduct of Pont du Gard in France, and the Pantheon in Rome to develop an understanding of materials and structures. At each stage students will learn how changes in materials, technology, and construction techniques lead to the evolution of architecture over time. In the third unit students will learn how to analyze structures using Ancient Greek temples as an example. The course will end with a final project in which each student will have the opportunity to design and build a sacred structure of their choice based on their new understanding of architecture, construction, and engineering.

COMPUTER SCIENCE II: GAME DESIGN AND DEVELOPMENT: In this course, students practice designing and developing games through hands-on practice. Comprised of a series of "game jams," the course asks students to solve problems and create content, developing the design and technical skills necessary to build their own games. The first month of the course is dedicated to understanding game design through game designer Jesse Schell's "lenses": different ways of looking at the same problem and answering questions that provide direction and refinement of a game's theme and structure. During this time, students also learn how to use Unity, the professional game development tool they use throughout the class. They become familiar with the methodologies of constructing a game using such assets as graphics, sounds, and effects, and controlling events and behavior within the game using the C# programming language. Throughout the remainder of the course, students will work in teams to brainstorm and develop new games in response to a theme or challenge. Students will develop their skills in communication, project- and time- management, and creative problem-solving while focusing on different aspects of asset creation, design, and coding. *Prerequisites: Computer Science I: Computational Thinking or its equivalent.* ***Cross-listed in GOA Learning Studios**

GRAPHIC DESIGN: What makes a message persuasive and compelling? What helps audiences and viewers sort and make sense of information? This course explores the relationship between information and influence from a graphic design perspective. Using an integrated case study and design-based approach, this course aims to deepen students' design, visual, and information literacies. Students are empowered to design and prototype communication projects about which they are passionate. Topics include: principles of design and visual communication, infographics, digital search skills, networks and social media, persuasion and storytelling with multimedia, and social activism on the Internet. Student work will include individual and collaborative group projects, graphic design, content curation, some analytical and creative writing, peer review and critiques, and online presentations.

FICTION WRITING: This course connects students interested in creative writing (primarily short fiction) and provides a space for supportive and constructive feedback. Students gain experience in the workshop model, learning how to effectively critique and discuss one another's writing in an online environment. In addition to developing skills as a reader within a workshop setting, students strive to develop their own writing identities through a variety of exercises. The course capitalizes on the geographic diversity of the students by eliciting stories that shed light on both the commonalities and differences of life experiences in different locations. Additionally, we read and discuss the work of authors from around the globe. Students' essential responsibilities are twofold: to engage in the class as readers and writers and to focus on their development as readers and writers. Both require participation in discussions of various formats within our online community, as well as dedicated time outside of class reading and providing feedback on one another's work and writing original pieces for the workshop.

MUSIC THEORY AND DIGITAL COMPOSITION: In Music Theory and Digital Composition, students explore the structure, writing, and recording of music as a design problem, with the intention of creating and releasing a finished piece of original music. The first half of the semester is focused on the history of music, the staff, notation, scales, intervals, chords, and harmony. In conjunction with this is the use of two pieces of software called Auralia and Musition, which quickly attune to each student's individual skill level in ear training and sight reading, respectively. This aids the student in writing an original composition, the quality and character of which is determined by personal music interests and learning more about their identified target audience. The foundation of the course is the Design Thinking model, which guides students through a process that begins with empathizing with their audience, defining their piece, iterating several design drafts, prototyping, and then releasing the finished recording for feedback and another iteration of refinement. The second half of the course is focused on performing, recording, mixing, mastering, and releasing a recording of their composition, all the while keeping key target audience members in the loop through surveys and conversations.

GOA LEARNING STUDIOS

GOA Learning Studios explore interdisciplinary topics through student-driven learning. Led by a teacher who designs the overall structure, these courses ask students to craft their own projects based on their interests and develop strong relationships with classmates through frequent conversation and feedback. Students can expect to learn how to identify relevant local and/or global issues to explore deeply, how to craft their own plans for structuring and exploring the issue, how to test new ideas both in and out of class, and how to be an active part of a community of learners. Learning Studios demand a high level of organizational and interpersonal skills, curiosity, determination, and flexibility. These courses include:

SEMESTER 1

Advanced Topics in Economics

Citizen Artist's Studio: From Making to Action

Power: Redressing Inequity with Data

Social Psychology

Water

SEMESTER TWO

Advocacy

Entrepreneurship in a Global Context

MATHEMATICS AND TECHNOLOGY

OFFERED IN BOTH SEMESTER 1 AND 2

COMPUTER SCIENCE I: COMPUTATIONAL THINKING: *This course (or its equivalent) is a prerequisite to all Computer Science II classes at GOA.* Computational thinking centers on solving problems, designing systems, and understanding human behavior. It has applications not only in computer science, but also myriad other fields of study. This introductory level course focuses on thinking like a computer scientist, especially understanding how computer scientists define and solve problems. Students begin the course by developing an understanding of what computer science is, how it can be used by people who are not programmers, and why it's a useful skill for all people to cultivate. Within this context, students are exposed to the power and limits of computational thinking. Students are introduced to entry level programming constructs that will help them apply their knowledge of computational thinking in practical ways. They will learn how to read code and pseudocode as well as begin to develop strategies for debugging programs. By developing computational thinking and programming skills, students will have the core knowledge to define and solve problems in future computer science courses. While this course would be beneficial for any student without formal training as a programmer or computer scientist, it is intended for those with no programming experience.

iOS APP DESIGN: Learn how to design and build apps for the iPhone and iPad and prepare to publish them in the App Store. Students will work much like a small startup: collaborating as a team, sharing designs, and learning to communicate with each other throughout the course. Students will learn the valuable skills of creativity, collaboration, and communication as they create something amazing, challenging, and worthwhile. Coding experience is NOT required and does not play a significant role in this course. *Prerequisite: For this course, it is required that students have access to a computer running the most current Mac or Windows operating system (Mac OS X is necessary only if you plan to try your hand at publishing). An iOS device that can run apps (iPod Touch, iPhone, or iPad) is also highly recommended.*

SEMESTER 1

NUMBER THEORY: Once thought of as the purest but least applicable part of mathematics, number theory is now by far the most commonly applied: every one of the millions of secure internet transmissions occurring each second is encrypted using ideas from number theory. This course covers the fundamentals of this classical, elegant, yet supremely relevant subject. It provides a foundation for further study of number theory, but even more, it develops the skills of mathematical reasoning and proof in a concrete and intuitive way, good preparation for any future course in upper-level college mathematics or theoretical computer science. We progressively develop the tools needed to understand the RSA algorithm, the most common encryption scheme used worldwide. Along the way we invent some encryption schemes of our own and discover how to play games using number theory. We also get a taste of the history of the subject, which involves the most famous mathematicians from antiquity to the present day, and we see parts of the story of Fermat's Last Theorem, a 350-year-old statement that was fully proven only twenty years ago. While most calculations will be simple enough to do by hand, we will sometimes use the computer to see how the fundamental ideas can be applied to the huge numbers needed for modern applications. *Prerequisite: A strong background in precalculus and above, as well as a desire to do rigorous mathematics and proofs.*

SEMESTER 2

COMPUTER SCIENCE II: ANALYZING DATA with PYTHON: In this course, students utilize the Python programming language to read, manipulate and analyze data. The course emphasizes using real world datasets, which are often large, messy, and inconsistent. Because of the powerful data structures and clear syntax of Python, it is one of the most widely used programming languages in scientific computing. Students explore the multitude of practical applications of Python in fields like biology, engineering, and statistics. *Prerequisite: Completion of Computer Science I: Computational Thinking or its equivalent.*

COMPUTER SCIENCE II: GAME DESIGN AND DEVELOPMENT: In this course, students practice designing and developing games through hands-on practice. Comprised of a series of "game jams," the course asks students to solve problems and create content, developing the design and technical skills necessary to build their own games. The first month of the course is dedicated to understanding game design through game designer Jesse Schell's "lenses": different ways of looking at the same problem and answering questions that provide direction and refinement of a game's theme and structure. During this time, students also learn how to use Unity, the professional game development tool they use throughout the class. They become familiar with the methodologies of constructing a game using such assets as graphics, sounds, and effects, and controlling events and behavior within the game using the C# programming language. Throughout the remainder of the course, students will work in teams to brainstorm and develop new games in response to a theme or challenge. Students will develop their skills in communication, project- and time- management, and creative problem-solving while focusing on different aspects of asset creation, design, and coding. *Prerequisites: Computer Science I: Computational Thinking or its equivalent.* *Cross-listed in Art, Media, and Design

COMPUTER SCIENCE II: JAVA: This course teaches students how to write programs in the Java programming language. Java is the backbone of many web applications, especially eCommerce and government sites. It is also the foundational code of the Android operating system and many tools of the financial sector. Students learn the major syntactical elements of the Java language through object-oriented design. The emphasis in the course will be on creating intelligent systems through the fundamentals of Computer Science. Students will write working programs through short lab assignments and more extended projects that incorporate graphics and animation. *Prerequisite: Computer Science I: Computational Thinking or its equivalent.*

GAME THEORY: Do you play games? Do you ever wonder if you're using "the right" strategy? What makes one strategy better than another? In this course, we explore a branch of mathematics known as game theory, which answers these questions and many more. Game theory has many applications as we face dilemmas and conflicts every day, most of which we can treat as mathematical games. We consider significant global events from fields like diplomacy, political science, anthropology, philosophy, economics, and popular culture. Specific topics include two-person zero-sum games, two person non-zero-sum games, sequential games, multiplayer games, linear optimization, and voting and power theory.

LINEAR ALGEBRA: In this course students learn about the algebra of vector spaces and matrices by looking at how images of objects in the plane and space are transformed in computer graphics. We do some paper-and-pencil calculations early in the course, but the computer software package Geogebra (free) will be used to do most calculations after the opening weeks. No prior experience with this software or linear algebra is necessary. Following the introduction to core concepts and skills, students analyze social networks using linear algebraic techniques. Students will learn how to model social networks using matrices and to discover things about the network with linear algebra as your tool. We will consider applications like Facebook and Google. **Prerequisite: completion of Geometry and Algebra 2 or the equivalents.**

YEARLONG

MULTIVARIABLE CALCULUS: In this course students learn to differentiate and integrate functions of several variables. We extend the Fundamental Theorem of Calculus to multiple dimensions, and the course will culminate in Green's, Stokes' and Gauss' Theorems. We begin with a swift review of vectors, matrices, and parametric curves, with emphasis on those topics which are of value to multivariate calculus. We then move on to study partial derivatives, double and triple integrals, and vector calculus in both two and three dimensions. Students are expected to develop fluency with vector and matrix operations. Understanding of a parametric curve as a trajectory described by a position vector is an essential concept, and this allows us to break free from 1-dimensional calculus and investigate paths, velocities, and other applications of science that exist in three-dimensional space. We study derivatives in multiple dimensions, we use the ideas of the gradient and partial derivatives to explore optimization problems with multiple variables, and we consider constrained optimization problems using Lagrangians. After our study of differentials in multiple dimensions, we move to integral calculus. We use line and surface integrals to calculate physical quantities especially relevant to mechanics and electricity and magnetism, such as work and flux, and we employ volume integrals for calculations of mass and moments of inertia. We conclude with the major theorems (Green's, Stokes', Gauss') of the course, applying each to some physical applications that commonly appear in calculus-based physics. *Pre-requisite: The equivalent of a college year of single-variable calculus, including integration techniques, such as trigonometric substitution, integration by parts, and partial fractions. Completion of the AP Calculus BC curriculum with a score of 4 or 5 on the AP Exam would be considered adequate preparation.*

SCIENCE AND HEALTH

OFFERED IN BOTH SEMESTER 1 AND 2

BIOETHICS: Ethics is the study of what one should do as an individual and as a member of society. In this course students evaluate ethical issues related to medicine and the life sciences. During the semester, students explore real-life ethical issues, including vaccination policies, organ transplantation, genetic testing, human experimentation, and animal research. Through reading, writing, and discussion, students learn basic concepts and skills in the field of bioethics, deepen their understanding of biological concepts, strengthen their critical-reasoning skills, and learn to engage in respectful dialogue with people whose views may differ from their own. In addition to journal articles and position papers, students will be required to read Rebecca Skloot's *The Immortal Life of Henrietta Lacks*.

INTRODUCTION TO PSYCHOLOGY: What does it mean to think like a psychologist? In Introduction to Psychology, students explore three central psychological perspectives – the behavioral, the cognitive, and the sociocultural – in order to develop a multi-faceted understanding of what thinking like a psychologist encompasses. The additional question of “How do psychologists put what they know into practice?” informs study of the research methods in psychology, the ethics surrounding them, and the application of those methods to practice. During the first five units of the course, students gather essential information that they apply during a group project on the unique characteristics of adolescent psychology. Students similarly envision a case study on depression, which enables application of understandings from the first five units. The course concludes with a unit on positive psychology, which features current positive psychology research on living mentally healthy lives. Throughout the course, students collaborate on a variety of activities and assessments, which often enable learning about each other’s unique perspectives while building their research and critical thinking skills in service of understanding the complex field of psychology.

MEDICAL PROBLEM SOLVING: In this course students collaboratively solve medical mystery cases, similar to the approach used in many medical schools. Students enhance their critical thinking skills as they examine data, draw conclusions, diagnose, and treat patients. Students use problem-solving techniques in order to understand and appreciate relevant medical/biological facts as they confront the principles and practices of medicine. Students explore anatomy and physiology pertaining to medical scenarios and gain an understanding of the disease process, demographics of disease, and pharmacology. Additional learning experiences include studying current issues in health and medicine, building a community-service action plan, interviewing a patient, and creating a new mystery case.

SEMESTER 1

GLOBAL HEALTH: What makes people sick? What social and political factors lead to the health disparities we see both within our own community and on a global scale? What are the biggest challenges in global health and how might they be met? Using an interdisciplinary approach to address these two questions, this course improves students' health literacy through an examination of the most significant public-health challenges facing today's global population. Topics include the biology of infectious disease (specifically HIV and Malaria); the statistics and quantitative measures associated with health issues; the social determinants of health; and the role of organizations (public and private) in shaping the landscape of global health policy. Students use illness as a lens through which to examine social issues like poverty, gender, and race. Student work includes analytical and creative writing; research, and peer collaboration; reading and discussions of nonfiction; and online presentations.

PRACTICAL ASTRONOMY: This course serves as a model of how modern astronomy has benefited from the digital revolution and advances in imaging technology. In the past two decades, the amount of information about our place in the universe has seen an explosive expansion. Our understanding of our own solar system has become fundamentally different in that short time. Students learn the modern techniques used by professional astronomers to gather and analyze data. The course reviews coordinate systems used in locating astronomical objects and the basics of spherical trigonometry. Students then wrestle with practical problems such as determining the orbits of newly discovered solar system objects such as minor planets and comets. Data from professional observatories is used to analyze the light curves of binary star systems and variable stars as well as to search for supernovae. These projects, given the global nature of the course, could include timing of occultations of stars by the Moon and asteroids, providing information vital to professional researchers. The Cranbrook Observatory at the Cranbrook Institute of Science in Bloomfield Hills, Michigan, USA, will be used as a source of data along with other international sources specific to each student for individual projects. *Prerequisite: successful completion of a course in trigonometry and geometry.*

SOCIAL PSYCHOLOGY: Social psychology examines how the thoughts, feelings, and behaviors of a person are influenced by the actual, imagined, or implied presence of others. Students design research projects that explore contemporary issues relevant to this course, including but not limited to social media, advertising, peer pressure, and social conflict. In order to equip students to do this work, the course begins with an overview of research methods in psychology as well as several historical studies by Solomon Asch, Stanley Milgram, and Philip Zimbardo. Students develop foundational knowledge of social psychology by exploring a diversity of topics, including attitudes and actions, group behavior, prejudice and discrimination, interpersonal relationships, conformity, attraction, and persuasion. The capstone project of this course is a student-designed research project that will be submitted for publication, presentation to an audience, or used to catalyze change in local communities. This course may be taken as a continuation of Introduction to Psychology, although doing so is not required. ***Cross-listed in GOA Learning Studios**

WATER: This inquiry-based course examines water as a physical element of the earth, an essential element of life, and a driver of human experience. Short case studies introduce students to the range of disciplines through which water can be studied, including oceanography, literature, and international relations. Then, the class develops a master list of questions such as: how is water used in human cells? How does it get to our homes? How do people live on and around it in low-lying areas? How does it shape mountains and vegetation? What happens when rivers change course at international borders? How do drought and flood influence history, art, and cultural practices? Working in small groups, students tackle such questions through online research, observation, and interviews with local experts. Their findings are collected in a publicly available website which serves as the basis for "action projects." These student-designed projects will be created for specific audiences; they might involve building a prototype, creating a short film, or writing a formal proposal to an agency or organization. ***Cross-listed in GOA Learning Studios, Social Sciences**

SEMESTER 2

ABNORMAL PSYCHOLOGY: This course focuses on psychiatric disorders such as schizophrenia, eating disorders, anxiety disorders, substance abuse, and depression. As students examine these and other disorders, they learn about their symptoms, diagnoses, and treatments. Students also deepen their understanding of the social stigmas associated with mental illnesses. This course may be taken as a continuation of Introduction to Psychology, although doing so is not required.

MEDICAL PROBLEM SOLVING II: This course is an extension of the problem-based learning done in Medical Problem Solving I. While collaborative examination of medical case studies will remain the core work of the course, students will tackle more complex cases and explore new topics in medical science, such as the growing field of bioinformatics. Students in MPS II will also have opportunities to design cases based on personal interests, discuss current topics in medicine, and apply their learning to issues in their local communities. *Prerequisite: completion of Medical Problem Solving I.*

NEUROPSYCHOLOGY: This course is an exploration of the neurological basis of behavior. It covers basic brain anatomy and function as well as cognitive and behavioral disorders from a neurobiological perspective. Additionally, students explore current neuroscience research as well as the process of funding that research. Examples of illnesses that may be covered include: Alzheimer's disease, traumatic brain injury, and stroke. In addition, we explore diagnostic and treatment issues (including behavioral and pharmaceutical management) as well as attention, learning, memory, sleep, consciousness and emotional intelligence. Students conclude the course by developing a fundraising campaign to support research and/or patient care initiatives related to a specific neurological condition and nonprofit foundation. Neuropsychology can be taken as a continuation of Introduction to Psychology, although it is not required.

ORGANIC CHEMISTRY: This course is designed with two goals in mind: one pragmatic, and one philosophical. Pragmatically it provides a few foundational blocks for further studies in the organic chemistry field, giving students a small window on future, more traditional organic courses. Philosophically it aims to open an infinite world of discovery of complex molecules, their properties and reactions and applications, that hold the keys to confronting and solving the world's most challenging, future scientific problems. The emphasis of the course is on stimulating interest in organic chemistry through an exploration of the molecules relevant to modern life. Students can use this course as a springboard for further learning, as the beginning of a longer journey.

SOCIAL SCIENCES

OFFERED IN BOTH SEMESTER 1 AND 2

9/11 in a GLOBAL CONTEXT: September 11, 2001 was a tragic day that changed the world in profound ways. In this course students explore the causes of 9/11, the events of the day itself, and its aftermath locally, nationally, and around the world. In place of a standard chronological framework, students instead view these events through a series of separate lenses. Each lens represents a different way to view the attacks and allows students to understand 9/11 as an event with complex and interrelated causes and outcomes. Using a variety of technologies and activities, students work individually and with peers to evaluate each lens. Students then analyze the post-9/11 period and explore how this event affected the U.S., the Middle East, and the wider world.

SEMESTER 1

ADVANCED TOPICS IN ECONOMICS: What is the economic impact of professional sports teams on their local community? How does pollution in China affect vineyards in Italy? Why did the US financial market collapse in 2008 and how can we use this experience to predict our next global business cycle? In this course, students choose current events to explore through an economic lens. By building upon the principles discussed in microeconomics and macroeconomics, students will analyze how the presence of scarcity affects the behaviors of individuals, businesses, and governments. This course reiterates the rational expectations of the principles courses while also introducing irrational behaviors to provide students a better look at their local economy. With guidance from the instructor, students choose topics related to the stock market, environment, entertainment industry, politics, and more. Students research and analyze their economic issue and use their findings to formulate a solution to the problem. Through this course students build upon their understanding of economic principles and their application. Student work includes the synthesis of data, analytical writing, peer collaboration, and a defense of their findings to a committee. *Prerequisite: Completion of an introductory courses in microeconomics OR macroeconomics (at GOA or elsewhere).*

*Cross-listed in GOA Learning Studios

APPLYING PHILOSOPHY to MODERN GLOBAL ISSUES: This is an applied philosophy course that connects pressing contemporary issues with broad-range philosophical ideas and controversies, drawn from multiple traditions and many centuries. Students use ideas from influential philosophers to examine how thinkers have applied reason successfully, and unsuccessfully, to many social and political issues across the world. In addition to introducing students to the work of philosophers as diverse as Confucius, Kant, John Rawls and Michel Foucault, this course also aims to be richly interdisciplinary, incorporating models and methods from diverse fields including history, journalism, literary criticism, and media studies. Students learn to develop their own philosophy and then apply it to the ideological debates which surround efforts to improve their local and global communities.

GENOCIDE AND HUMAN RIGHTS: Students in this course study several of the major genocides of the 20th century (Armenian, the Holocaust, Cambodian, and Rwandan), analyze the role of the international community in responding to and preventing further genocides (with particular attention to the Nuremberg tribunals), and examine current human rights crises around the world. Students read primary and secondary sources, participate in both synchronous and asynchronous discussions with classmates, write brief papers, read short novels, watch documentaries, and develop a human rights report card website about a nation in the world of their choice.

INTRODUCTION TO INVESTMENTS: In this course, students simulate the work of investors by working with the tools, theories, and decision-making practices that define smart investment. We explore concepts in finance and apply them to investment decisions in three primary contexts: portfolio management, venture capital, and social investing. After an introduction to theories about valuation and risk management, students simulate scenarios in which they must make decisions to grow an investment portfolio. They manage investments in stocks, bonds, and options to learn a range of strategies for increasing the value of their portfolios. In the second unit, they take the perspective of venture capital investors, analyzing startup companies and predicting their value before they become public. In the third unit, students examine case studies of investment funds that apply the tools of finance to power social change. Throughout the course, students learn from experts who have experience in identifying value and managing risk in global markets. They develop their own ideas about methods for taking calculated financial risks and leave this course not just with a simulated portfolio of investments, but the skills necessary to manage portfolios in the future.

MICROECONOMICS: In this course, students learn about how consumers and producers interact to form a market and then how and why the government may intervene in that market. Students deepen their understanding of basic microeconomic theory through class discussion and debate, problem solving, and written reflection. Students visit a local production site and write a report using the market principals they have learned. Economic ways of thinking about the world will help them better understand their roles as consumers and workers, and someday, as voters and producers.

POWER: REDRESSING INEQUITY WITH DATA: Students utilize research, data, their own sense of social justice, and the application of all three to right wrongs in our world. A collaborative track and an independent track will run concurrently throughout the semester. Collaboratively, the full class works through a unit on Power Frameworks (Nietzsche, Foucault, Weber, and French & Raven) followed by a series of inequality case studies that will provide insight into and practice with all six steps of the Power and Inequality Assessment (PIA) approach:

1. Identify specific inequality.
2. Provide and analyze data to substantiate the inequality.
3. Identify type(s) of power that created and are maintaining the inequality.
4. Provide and analyze data to substantiate power claim.
5. Present and explain specific action steps to redress inequality.
6. Identify type(s) of power necessary to implement action plan.

Independently, all students will apply the PIA approach to a specific local, national, or global inequality of their choosing. Past PIA projects have explored gender inequality in NCAA collegiate coaching; racial inequality in the American police force; and economic inequality in the treatment of immigrants, to name only a few. Regular, guided peer review will help students to hone their final products. Final PIA products will be presented in multimedia formats asynchronously online. Invited audience members will include GOA classmates; site directors and other members of home school communities; and experts from relevant fields. ***Cross-listed in GOA Learning Studios**

WATER: This inquiry-based course examines water as a physical element of the earth, an essential element of life, and a driver of human experience. Short case studies introduce students to the range of disciplines through which water can be studied, including oceanography, literature, and international relations. Then, the class develops a master list of questions such as: how is water used in human cells? How does it get to our homes? How do people live on and around it in low-lying areas? How does it shape mountains and vegetation? What happens when rivers change course at international borders? How do drought and flood influence history, art, and cultural practices? Working in small groups, students tackle such questions through online research, observation, and interviews with local experts. Their findings are collected in a publicly available website which serves as the basis for “action projects.” These student-designed projects are created for specific audiences; they might involve building a prototype, creating a short film, or writing a formal proposal to an agency or organization. ***Cross-listed in GOA Learning Studios, Science and Health**

SEMESTER 2

COMPARATIVE POLITICS: In 2012, the Economist issued a report entitled “Democracy at a Standstill.” This course uses the comparative model to ask students to consider whether democracy is in fact at a standstill, but more importantly, if and why we should care. By looking at current events, reading scholarly research, analyzing data, conducting personal interviews, and engaging in a series of debates, students assess the status of democracy in the world and also explore the challenges and alternatives to democratic systems. In so doing, they constantly reevaluate their own beliefs and understandings about how power should be distributed and utilized.

ENERGY: In this course, students develop a keen ability to analyze global energy issues. A historical and scientific exploration of fossil fuels gives students the foundation to tackle economic and environmental concerns related to traditional and alternative energy. Students do technical analyses of the rates of depletion of the reserves of major oil-producing countries and investigate the motivations for an oil-producing nation to become member of OPEC. Students take sides in major energy debates on topics like “fracking” or the international movement of energy supplies. In their final project, students present to their peers on all key aspects of an alternative energy source, including technical and economic viability and environmental sustainability.

ENTREPRENEURSHIP IN A GLOBAL CONTEXT: How does an entrepreneur think? What skills must entrepreneurs possess to remain competitive and relevant? What are some of the strategies that entrepreneurs apply to solve problems? In this experiential course, students develop an understanding of entrepreneurship in today's global market; employ innovation, design, and creative solutions for building a viable business model; and learn to develop, refine, and pitch a new start-up. Units of study include Business Model Canvas, Customer Development vs. Design Thinking, Value Proposition, Customer Segments, Iterations & Pivots, Brand Strategy & Channels, and Funding Sources. Students use the Business Model Canvas as a roadmap to building and developing their own team start-up, a process that requires hypothesis testing, customer research conducted in hometown markets, product design, product iterations, and entrepreneur interviews. An online start-up pitch by the student team to an entrepreneurial advisory committee is the culminating assessment. Additional student work includes research, journaling, interviews, peer collaboration, and a case study involving real world consulting work for a current business. ***Cross-listed in GOA Learning Studios**

GENDER STUDIES: This course uses the concept of gender to examine a range of topics and disciplines that includes feminism, gay and lesbian studies, women's studies, popular culture, and politics. Throughout the course students examine the intersection of gender with other social identifiers: class, race, sexual orientation, culture, and ethnicity. Students read about, write about, and discuss gender issues as they simultaneously reflect on the ways that gender has manifested in and influenced their lives.

MACROECONOMICS: In this course students study macroeconomic theory as it relates to domestic and global policies on employment, national income, government spending, and the impact of foreign spending on domestic economies and foreign exchange markets. Students use real world events and data as case studies in order to develop a better understanding of the driving forces behind domestic and international macroeconomic markets. In the final portion of the course, students have the opportunity to develop their own solutions to a local/global issue of their choice (such as poverty, environmental pollution, and limited access to education) based on their new understanding of macroeconomic theory.

WATER: The second most common compound in the world, water is essential to life. It is also a cause of quick death. It sculpts mountains and reshapes coastlines. It gives rise to conflicts among neighbors and nations, yet it brings peace and pleasure to many. Characteristics of water can be studied in disciplines from art to zoology, and this course will touch on many of them through a set of case studies in the first five weeks. Those case studies are used to establish a pattern of questioning that shapes the rest of the course. For the next five weeks, students pursue answers to their favorite questions, choosing the disciplines on which to focus. They share their findings in a collaborative online environment and tag the connections among different areas of inquiry. They give and receive weekly critiques of each other's work, developing the skills to generate meaningful, actionable feedback. In the final month, individuals or groups design and complete projects that apply a multidisciplinary understanding of water to a specific, real world issue of their choice. These projects are submitted to relevant audiences in the public or private sector. ***Cross-listed in GOA Learning Studios, Science and Health**

WORLD LANGUAGES (YEARLONG)

ARABIC LANGUAGE THROUGH CULTURE I: This full-year course highlights Modern Standard Arabic and some of the spoken dialect of the Levant. With an emphasis on Arabic culture, students learn commonly used expressions and phrases from the Levant area. Students develop their skills in listening, reading, writing, forming grammatically correct structured sentences, and most importantly, conversation. This is accomplished through podcasts, videos, culture circles discussions, web conferencing, and collaborations in group projects. In addition, students have direct conversations with native speakers of Arabic through a virtual club called "Shu Fe Maa Fe," where students are required to meet online with their assigned partner and learn about a certain cultural topic every week, such as traditional food, greetings, gestures, values, history and more. Since Arabic is becoming one of the most functional languages in the world, especially in the areas of commerce, business, and trade, students participating in this course

can avail themselves of the opportunity to learn the language in a highly stimulating and rich cultural context. The focus on this course is 60 percent on language and 40 percent on culture.

ARABIC LANGUAGE THROUGH CULTURE II: This full-year course continues the work of Arabic Language Through Culture I, highlighting Modern Standard Arabic and the spoken dialect of the Levant. Grammar topics include continued exploration of the essential structures of Arabic (root/pattern systems) and verbs. Mastery of the alphabet (writing and reading) is an early goal of the course as it underlies more sophisticated work on sentence-writing skills. As in the first course, students develop their skills in listening, reading, writing, forming grammatically correct structured sentences, and, most importantly, conversation. Using these fundamental skills, students will explore and discuss current events related to cultural topics and have the opportunity to design their own inquiry projects to simultaneously build language skills and cultural understanding. The focus of this course is 60 percent on language and 40 percent on culture. *Prerequisite: Arabic Language through Culture I or permission from the instructor.*

JAPANESE LANGUAGE THROUGH CULTURE I: This full-year course is a unique combination of Japanese culture and language, weaving cultural comparison with the study of basic Japanese language and grammar. While examining various cultural topics such as literature, art, lifestyle and economy, students learn the basics of the Japanese writing system (Hiragana and Katakana), grammar and vocabulary. Through varied synchronous and asynchronous assignments, including hands-on projects and face-to-face communications, students develop their speaking, listening, reading and writing skills. The cultural study and discussions are conducted in English, with topics alternating every two to three weeks. The ultimate goal of this course is to raise awareness and appreciation of different cultures through learning the basics of the Japanese language. The focus of this course is 60 percent on language and 40 percent on culture. This course is appropriate for beginner-level students.

JAPANESE LANGUAGE THROUGH CULTURE II: Through language learning, students in this course share their voices, cultivate global perspectives, and foster appreciation of self and others. Students expand their knowledge of the basic skills introduced in Japanese Language Through Culture I while further developing their speaking, listening, writing, and reading skills. Each unit follows the IPA model (Integrated Performance Assessment), blending three modes of communication: interpretation of authentic material in Japanese, synchronous and asynchronous practice in speaking and writing, and oral and written presentations. Each unit focuses on one of the following cultural topics: Design and Expression, Ecology, Entertainment, East meets West, Harmony, and Nature. In addition, students will have the opportunity to select and pursue topics of their own interest. Grammar topics will cover the essential forms that are typically introduced in the second and third year of a high school Japanese program. By learning the Dictionary Form, Nominalizer, TE form, TA form, NAI form, and Noun Modifier, students are able to add more complexity to their sentence construction. In doing so, they shift from forming simple sentences to communicating in a coherent paragraph. As online learners, students are expected to exhibit superb time management and communication skills, as well as to take ownership of their learning. While grammar instruction will be delivered through asynchronous work and face-to-face meetings, much of the course content will be curated and created by students through their research and collaboration. The focus of this course is 60 percent on language and 40 percent on culture. *Prerequisite: Japanese Language through Culture I or permission from the instructor.*