

# SAINT ANN'S SCHOOL



## HIGH SCHOOL COURSE CATALOG 2011 – 2012



Dear Students,

Welcome to a new and exciting year in our High School!

Within these pages you will find rich and diverse course offerings created just for you. Read through the catalog, sharing your thoughts and questions with your teachers, family, and friends. As you consider your course selection, be ambitious and play to your strengths, or take a chance and try something new.

This is your high school; this is your time. We're delighted to share your journey!

Love,

Dana and Sam

## MINIMUM GRADUATION REQUIREMENTS

- Arts:** four courses in the arts, preferably at least one in art, one in music, and one in theater
- Computer:** no requirement, but students are encouraged to become comfortable with usage and applications of the computer
- English:** four years
- History:** four years
- Language:** four years of one language, or three years of one language and two years of another
- Math:** four years, including Algebra 1, Geometry and Algebra 2
- Rec Arts:** one course or the equivalent, or one interscholastic sport per year
- Science:** three years including one year of biology and one year of physical science

# HIGH SCHOOL COURSE CATALOG 2011-2012

## TABLE OF CONTENTS

Art.....	6
Computer .....	8
English.....	12
Health .....	17
History.....	17
Languages	
Chinese.....	21
Japanese.....	22
Greek .....	23
Latin .....	24
French.....	26
Spanish .....	28
Mathematics .....	30
Music .....	36
Recreational Arts .....	40
Science .....	44
Seminars .....	49
Theater .....	54

# ART

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All classes meet one double period per week unless otherwise noted. **Note:** Although the descriptions for many of the art electives are general, it is the teachers' prerogative to be more specialized in their individual approaches. For instance, the painting and painting/drawing courses have several sections taught by different teachers in the Department. Each teacher guides the curriculum through personal aesthetic passions and interests, while taking into consideration the experiential and technical abilities of each student in the class.

## **INTRODUCTION TO ARCHITECTURE & DESIGN I**

(Luce, Ramage)

This course introduces and explores some of the basic perspective drawing systems used to translate 3-D architectural forms into a 2-D format (elevations, floor plans, isometric and axonometric). Students progress from rendering simple 3-D elements to designing complex architectural structures within a specific site, eventually learning how to translate their architectural drawings into scale models constructed from cardboard, plaster and wood. This class is limited to ten students. No involvement in fall sports is preferred.

## **INTRODUCTION TO ARCHITECTURE & DESIGN II**

(Luce)

This course is an extension of the introduction to architecture and design course. The course will continue to explore architectural concepts and allow students to gain more confidence and fluency with applying the various projection and mechanical drawing systems to design problems. This is an excellent course to prepare for the more rigorous Advanced Architecture and Design course. **Note:** This class is limited to ten students.

## **ADVANCED ARCHITECTURE & DESIGN**

(Posel)

To enter this rigorous advanced course, students are required to have completed Introduction to Architecture & Design (I and II), or to have gained permission from the instructor. Each student is also required to be skilled in presenting design considerations in plan, section, elevation and axonometric projection drawings. This course explores a variety of architectural/design problems in greater depth than in previous A/D courses. In order to develop skills in 3-D problem solving, model making is a major component of this course. **Note:** This class is limited to ten students.

## **ANIMATION INTENSIVE**

(Tokmakova)

Students in this course will produce an entire short film using characters they create either from clay (Wallace and Gromit) or other sculptural materials, paper cutouts (South Park), traditional drawing, or a combination of these media. They will write the script, build the sets, and shoot each frame with a simple digital camera. Everything comes together in the computer during the editing stage, when the individual frames are combined to produce the effect of fluid motion--music, dialogue, and narration are then added to enhance the story (no previous experience necessary).

## **INTRODUCTION TO DIGITAL PHOTOGRAPHY**

(Poindexter)

This is a photography course that explores image making through an entirely digital format. Along with using digital cameras, the course relies on the computer to refine and manipulate images that are then produced through a digital printer. No photography experience is necessary. **Note:** The course is limited to ten students.

## **ADVANCED DIGITAL PHOTOGRAPHY**

(Poindexter)

Advanced Digital Photography builds on the ideas presented in Introduction to Digital Photography. Students will explore how to nuance their images to move beyond the real—to understand how to use light to generate a

variety of visual, psychological and conceptual effects. Class assignments pursue alternate approaches to the organization of information: maps, diagrams, indexes and encyclopedias. Over the course of the year, two separate portfolios of photos will be generated (one for each semester). We will draw inspiration from master manipulators (such as Hiro, Jeff Wall, Thomas Demand, Ryszard Horowitz and Philippe Halsman), as well as more experimental images found in print advertising. A solid understanding of how to use an SLR camera in manual mode is required. Students must have completed the introductory course. **Note:** The course is limited to ten students.

## **DRAWING**

(Keating, Sassoon)

This class investigates ideas about drawing, using a variety of media and surfaces. Observation, perception, composition, and the language of mark making are stressed. The course moves beyond the pencil to delve into charcoal, pastel, ink, tonal and color washes, watercolor, clay, colored paper, and digital technology as a means to develop an expressive personal vocabulary.

## **FIGURE DRAWING**

(Arnold, Hillis)

This class in drawing from the life model uses anatomical exercises studying the skeleton, muscles and organs to convey an understanding of forms and shapes that make and influence our positions and motions. There is attention to anatomy and proportion and to ways of describing contour and form through the study of light, shadow and movement.

## **ILLUSTRATION & DESIGN**

(Poindexter)

In Illustration & Design, students are challenged to generate work using their own visual vocabularies. Class assignments will include: designing letters and alphabets, "one-liner" comics, abstract collages, maps (of dwellings, caves, video games). The course will also explore other multi-media such as abstract video slideshows that accompany pieces of music. Projects will allow students to explore a range of materials and formats.

## **PAINTING**

(Arnold, Hillis, Lee)

This course is an exploration, through a variety of painting media, of pictorial construction, color, composition and conception.

## **PAINTING INTENSIVE**

(Bellfatto, Keating)

See Painting. Offered in an intensive format of **two double periods a week**. Permission of the instructor is required.

## **PAINTING & DRAWING**

(Keating, Luce)

An exploration of pictorial life—how drawing begins, its development, manifestation and transmutation. An alchemical approach to picture making: experimentation with content in a variety of styles and media toward the development of a personal vision.

## **PHOTOGRAPHY I**

(Hord)

A beginning course introducing the student to photographic techniques and visual skills. Starting with the basics of exposure—film speed, shutter speed, and aperture—we learn to process film and make contact sheets, test strips, work prints, and exhibition-sized final prints. Assignments require work outside class. Open to 10<sup>th</sup>

graders and above.

## **PHOTOGRAPHY II**

(Hord)

A continuation of Photo 1, with emphasis on expanding and refining technical abilities: in the camera by using depth-of-field, in film processing by learning to manipulate film speed, and in the darkroom by dodging and burning. Assignments require work outside class. **Prerequisite: Photography I**

## **PRINTMAKING**

(Lee)

This is a broad course that combines various screen printing techniques with relief printing (linoleum, woodblock and intaglio techniques). The premise is to evolve imagery from an understanding of the character of these processes.

## **PRINTMAKING: POSTERS**

(Lee)

This course is devoted to poster design and production. A historical survey of poster designs includes: Japanese nineteenth century playbills, Polish circus posters, Mexican revolutionary leaflets, rock posters of the sixties, and more. This course also works with the Theater Department to produce the posters for school productions throughout the year. Various printing techniques are explored.

## **CERAMIC SCULPTURE**

(Bellfatto)

Not a pottery course. We explore basic clay building techniques such as coil, slab and pinchpot to generate functional and non-functional sculpture. Various surface treatments are investigated: stain, paint, and glazes. Students develop a body of work reflecting an eclectic variety of sources and themes: personal, historical, geometric and organic form, human and animal figure, narrative relief, architecture.

## **SCULPTURE**

(Bellfatto, Hillis, Ramage)

A broad course for both beginning and advanced students. The class investigates the three-dimensional form as a medium for self-expression. This exploration uses a variety of sculptural techniques and materials, such as modeling from life in clay and wax, plaster casting and carving, and wood constructions.

## **COMPUTER**

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Using software that (mostly) runs identically on Mac and Windows, our courses teach programming, graphics, and other skills that are relevant to all kinds of computers (with Mac OSX giving us access to Unix/Linux programs). Classes meet twice a week for the entire year in classrooms with one computer per student.

## **3D ANIMATION**

(The Department)

This class will be hands-on and project focused. Students will learn how to work with Blender, a popular and free 3D modeling package, and how to make a project from design to final render. Along the way, students will work on exercises to develop the skills needed for each project. Topics covered will also include related techniques needed to create 3D scenes including lighting, texturing and rendering. **Prerequisite: any previous computer class or permission of the department chair.**

## **ALGORITHMS FOR GENETIC SEQUENCING**

(Roam)

For experienced programmers, this class introduces programs that analyze genetic sequences. There are

numerous exercises in pattern-matching and string comparisons, calculating family trees based on DNA sequences while taking into account the basic operations of mutation, insertion, deletion, and transposition. Though we mostly use simplified models of DNA (without worrying about protein folding), this topic gives us a chance to study "design patterns," data-structures and algorithms for large data sets, and basic molecular models.

**Prerequisite: Programming II**

## **ANIMATION**

(The Department)

This class will explore a range of techniques including stop motion, collage, abstract and cartoon animation. A variety of tools such as SingleFramer, Photoshop, After Effects, and Flash will be used, and students will be encouraged to experiment. Drawing skills are not necessary though students are required to maintain a weekly sketchbook. **Prerequisite: none.**

## **COMPUTING I**

(The Department)

The basic information necessary to use computers for schoolwork, learned through creative independent projects. We emphasize the use of computers as aids to writing and research (typing, word processing, database, spreadsheet), programming, desktop publishing, web page design, animation, and telecommunication.

**Prerequisite: none.**

## **COMPUTING II**

(The Department)

This course builds on the concepts and skills introduced in Computing I, and is designed for those students who wish to create more advanced projects. The focus is on creative applications of the computer: multimedia and web page design with advanced graphics, programming, animation, desktop publishing, sound editing, desktop publishing, and video. **Prerequisite: any middle school computing course, HS Computing I, or permission of the department chair.**

## **GAME PROGRAMMING**

(The Department)

Designing games presents unique challenges distinct from the design issues of other interactive media. In addition to the user interface, one must consider story, culture, modeling, and implementation. This course will explore developing usable and engaging games, human computer interaction, thematic structures, graphic design, sound effects, and game aesthetics. The course will operate in a workshop format and will take into account the history of non-digital and digital games, role-playing, puzzles, interactive fiction, and 3D modeling. Students will plan and create games both individually and collaboratively using a variety of languages, which may include ActionScript, Inform, Javascript, Lingo, Arduino and Python. The goal of the course is to allow students to explore the creative possibilities presented through the field of game design and to develop an appreciation for the beauty and logic of programming. **Prerequisite: some programming or permission of the instructor.**

## **GRAPHICS PROGRAMMING**

(Roam)

We write programs that create 3D computer graphics (houses, robots, landscapes). Once we complete a brief introduction to matrix multiplication, we can start shading, rotating, and animating objects that we have designed. Our programs read and process text files that contain descriptions of 3D graphic objects and display the resulting 3D objects from arbitrary viewpoints. For advanced students, projects include the construction of race car and airplane games with first person and chase plane viewpoints. **Prerequisite: Programming II or permission of the instructor.**

## **INTERACTIVE DESIGN**

(The Department)

Students gain a hands-on understanding of how to combine physical controls and screen-based design elements to support different types of interactions. Explore information design, visual composition, relationship between visuals and text, and how to visualize the possibilities of an idea. Students will create assignments related to the display and visualization of information; documenting a survey, graphically interpreting data, drawing schematic diagrams to illustrate concepts, and creating prototypes. Students will learn how to create applications that load data, render something visually compelling, and interpret data in some meaningful way. Software used will include Processing, Openframeworks, Photoshop and BBEdit. **Prerequisite: none.**

## **IPHONE PROGRAMMING**

(The Department)

Learn how to program with Objective-C, Interface Builder, and XCode on the iPhone and iPod touch's unix-based operating system. Understand the way the iPhone applications work and how to build them. Actively and creatively explore this new field of little computers using the iPhone as the main research platform. No iPhone required. **Prerequisite: some programming experience.**

## **MOTION GRAPHICS**

(The Department)

Motion Graphics, or animated graphic design, is the process of integrating drawings, photos, typography, digital video and audio to create visually innovative and dynamic graphics. While you will edit images, video and sound, emphasis will be placed on how you combine the pieces together over time to create your own short movies, digital stories, main title sequences or animations. By creating projects, managing footage, setting keyframes, working with alpha channels, applying effects, animating text, and experimenting while you design, you will gain a conceptual understanding of the role time and motion have on the presentation of your content. **Prerequisite: permission from instructor.**

## **PHYSICAL COMPUTING I**

(The Department)

Learn how to physically interact with a computer without using the mouse, keyboard and monitor interface. Move beyond the idea that a computer is a box or a system of information retrieval and processing. Using a microcontroller, a single-chip computer that can fit in your hand, write and execute interactive computer programs that convert movement into digital information. Work with components such as resistors, capacitors, diodes and transistors as well as integrated components. Through lab exercises and longer creative assignments learn how to program, prototype and use components effectively. Control motors and interpret sensors, as well as explore advanced concepts in interface, motion and display. **Prerequisite: some programming experience or permission of the instructor.**

## **PHYSICAL COMPUTING II**

(Arum)

This class is an experimental environment in which students can combine theory and practice to interface microcontrollers and transducers. Learn how to make devices respond to a wide range of human physical actions. Building on previous knowledge acquired in Physical Computing 1, students will build projects from schematics, make programs based on class examples, and make interfaces talk to each other. Topics may include: networking protocols and network topologies; mobile objects; and wireless networks of various sorts, digital logic building blocks and digital numbering systems. Students will be involved in short production assignments and final projects, and keep an online journal documenting their work and reading. **Prerequisite: Physical Computing I or permission of the instructor.**

## PHYSICAL COMPUTING WORKSHOP

(Arum)

Creating interactive work relies on building a relationship between the object and the viewer. By gathering information in the form of input, processing that into meaningful data, and outputting that contextually, new forms of engagement and interaction with an audience can be established. This class will focus on the input side of physical computing by researching various sensors and sensing methods and developing example methods for their use. By the end of the year the class will assemble a library of sensor applications for interactive applications. Topics will include different types of sensors; time and events; amplification and filtering of sensor signals; sensor networks; data processing, gesture recognition, serial and wireless communication, I2C, and related topics that aid in making sensor systems effective. By using Arduino, Processing and C++, students will also further develop their programming skills. There will be short one-week exercises that students complete to demonstrate the techniques discussed in class. In addition, students will be responsible for a sensor research project in which they explain the operating principles of a given sensor and present a working example of the sensor in use. **Prerequisite: two years of physical computing.**

## PROGRAMMING I

(The Department)

Explore the science and art of computer programming. For students who want to create and modify their own computer software, this course uses the high-level programming languages Java (an internet-savvy version of C++) and Transcript (a multimedia descendent of Pascal) to introduce the basics of computer control. We use loops, variables, procedures, input, output, and branching decisions (with Boolean logic) to control graphics, sounds, and information. **Prerequisite: none.**

## PROGRAMMING II

(The Department)

A continuation of Programming 1, for students who are becoming more confident in their ability to combine data types and complex computer routines. We use Java (an internet-savvy version of C++) to look more deeply at object-oriented programming: class definitions, inheritance, methods, fields, arrays, and collections. Large projects include writing an interactive, animated project with control windows and graphics. **Prerequisite: Programming I or permission of the department chair.**

## PROGRAMMING III

(The Department)

Once we get threads and buttons and class hierarchies under control, we can focus more on code that can work on large data sets: sorting random sequences, controlling pointers, and creating a phone directory with records that can be searched and saved to disk. The large projects require greater skill in breaking tasks into efficient sub-tasks that have clear purposes. **Prerequisite: Programming II or permission of the department chair.**

## PROGRAMMING IV

(The Department)

For the student with a great deal of experience with classes and methods, this course demands advanced programming. Topics include sorting, searching, simulations, file input/output, doubly and circularly linked lists, stacks, queues, trees, hash tables, and recursion. Some projects are joint efforts; team members split writing and debugging tasks and we will spend some time comparing the efficiencies of different algorithms. **Prerequisite: Programming III or permission of the department chair.**

## PROGRAMMING FOR LITTLE COMPUTERS

(Arum)

The class covers object oriented programming, Objective-C, scripting languages, OS X internals, Interface Builder, and XCode. We'll also explore the rapid developing OpenFrameworks port for the iPhone, as well as

web apps. The class is highly technical in nature and is geared to students who are looking for a challenging programming experience. The goal of the course is to actively and creatively explore this new field of little computers using the iPhone, iPad and Chumby as the main platforms. **Prerequisite: experience with Object-oriented programming.**

### **SOFT CIRCUITS: WEARABLE, SOFT AND EXPERIMENTAL CIRCUITS**

(Arum)

Standard electronic components can be hard, brittle or difficult to work with. Embedding them in soft environments, like clothing or toys can be awkward. Building circuits using paper, fabrics, thread and paint opens up new possibilities for soft, curly, organic, visible and attractive electronics. This class will explore materials, components and construction techniques for successfully integrating soft materials with standard electrical supplies. The results will be light, thin, flexible, durable, aesthetic, and even expressive circuits. We will also cover techniques for integrating the Arduino LilyPad microcontroller and XBee radio communication to create interactive and social objects. Students will develop wearable devices and accessories as a means of self-expression and communication. Explore the relationship between the body, fashion, technology and social interaction. Experiment with materials and objects, and develop concepts to refine, construct and test. Make t-shirts that interact with each other, objects that light up in the dark, toys that talk to each other or artwork that responds to a user's movements. The resulting possibilities are almost endless. **Prerequisite: none.**

### **WEB PROGRAMMING**

(The Department)

This class will cover in depth the codes and design concepts required to make professional, functional web pages. The first half of the course will cover topics such as web layout and design using xHTML for content, CSS for design and layout, and Photoshop essentials for web graphic creation. The second part of the course will cover PHP (used to add functionality to your web pages and to streamline your xHTML code) and MySQL (databases). Small weekly projects will be used to prepare students for larger projects such as online portfolios, blogs, and personal web pages. Note that while this class will require significant programming, no previous programming or design experience is assumed of students taking this class. **Prerequisite: none.**

## **ENGLISH**

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### **WESTERN LITERATURE & THE ESSAY (9<sup>th</sup> Grade)**

The backbone of the ninth grade English course is formed by modern European and American literature, with Shakespeare, Sophocles, and poets from all periods in permanent residence. Freshmen vigorously air their responses to literature, hone their essay skills, and experiment creatively throughout the year. Grammar and vocabulary exercises reinforce reading and writing skills.

### **POETRY, DRAMA & THE NOVEL (10<sup>th</sup> Grade)**

Sophomores encounter increasing demands on the quality of their thinking and writing, while we provide a widening background in the Western classical tradition and in modern voices. Working with a different teacher each semester, students examine several genres in depth. The first term typically concentrates on drama and poetry, the second on short forms and the novel. Authors include Shakespeare, E. Brontë, Camus, Faulkner, and O'Connor. In an additional class period each week, small groups of six to ten sophomores practice their analytic skills or work on individual writing problems.

### **JUNIOR/SENIOR ELECTIVES**

#### **BEYOND THE PALE: OTHERNESS IN LITERATURE**

(Miller)

Who's in? Who's out? This is a course about the strange ecology of power and hierarchy. There are insiders to

the mainstream of power, and sometimes super-insiders, who are endowed with blessings by a mix of lucky virtues, perhaps of birth or gender or religion or race or some other distinguishing feature. And then there are the outsiders, those “beyond the pale,” who, by force of law or power of custom, are held at bay, excluded, oppressed.

And what was the pale? The pale is a term for the fence marking the town boundary, delineating an insider place, of safety and economic and social blessing, and at the same time an outsider place, where the others live. This idea can be quite literal, as in the case of ghettoized Jews or native South Africans living in townships or the Irish in Dublin under English rule, where nobody “with a Mac or an O before their name could sway or swagger after dark.” But one can live beyond the pale in a more figurative sense, like women kept at home or homosexuals isolated by law and tradition. This is a story with some common threads that is told, without uniformity, in the pages of literature from time immemorial. What can we learn from the subtle, unprogrammatic explorations of power in drama, poetry and fiction from the ancient period onwards? Our course begins in Europe, with Euripides, and ends in the modern period.

Possible Texts: Selections from *Genesis* and *Exodus* and *Joshua*; *The Bacchae*; Selections from *The Canterbury Tales: The Wife of Bath* and *The Prioress*; *The Merchant of Venice*; *Persuasion*; *Heart of Darkness*; *Mrs. Plum*; *Waiting for Godot*; *Giovanni's Room*; *Sula*; *Angels in America*.

## EPIC & APOCALYPSE

(Rutter)

Homer, *Iliad* (parts)—Shakespeare, *King Lear*—Melville, *Moby-Dick* and Camus, *The Plague* or Joyce, *Ulysses* (parts).

If classical epic presents the making of a world (Greece in Homer, Rome in Virgil), modern epic offers a vision of apocalypse, of worlds unmade and hanging open at the seams. That is the hope, at any rate. *Apokalupsis* means unveiling; only when the curtain is torn will the truth be revealed. We'll begin with the *Iliad*, for the rules of epic, and the Book of Revelations, for the authentic Christian apocalypse, but our big books will be *Moby-Dick* and the tragedy that inspired it, *King Lear*. These are works that flirt with nihilism while aspiring, as if in compensation, to hugeness. *Moby-Dick* is indeed a bit too long, and the ornamental density of the prose is not to everyone's taste. (Twain said, “If you find an adverb, kill it”; Melville runs a sort of orphanage.) But when my Mom told me she liked listening to it in the car this winter, I decided to give it a try. We'll stop for smaller visions along the way—Bosch's *Garden of Earthly Delights*, Kleist's “On the Marionette Theater”—and arrive by springtime in the twentieth century, where we'll try Camus's *Plague* or parts of Joyce's modernist epic, *Ulysses*.

## FICTION & POLITICS IN PRE-REVOLUTIONARY RUSSIA

(Donohue)

People are often surprised to learn that in literary matters, Russia was a late bloomer. Its 17th century had no Shakespeare, Molière, or Cervantes; its 18th no Swift, Voltaire, or Goethe. In 1840, the British writer Thomas Carlyle called Russia “a great dumb monster” that had given the world not a single “voice of genius.” Pushkin fans might have protested, but Carlyle was basically right: nobody in London or Paris was reading Russian literature.

By 1900 Carlyle's view would have been unthinkable, for five simple reasons: Gogol, Turgenev, Dostoevsky, Tolstoy, and Chekhov. Works by these writers form the core of this elective. We read Gogol's *Dead Souls*, Turgenev's *Home of the Gentry* and several of his *Sketches from a Hunter's Album*, Dostoevsky's *Crime and Punishment*, Tolstoy's *Anna Karenina*, and Chekhov's *Story of an Unknown Man*.

We give careful readings to these works, but we also situate them against a background of Russian political and cultural history. This was an era of discord and uncertainty, from the failed Decembrist uprising of 1825 to the

Bolshevik revolution of 1917. New ideas—liberalism, socialism, anarchism—swept the Russian intelligentsia, even as the Tsars, terrified by the revolutions in Europe, cracked down on dissent. The idealism of the 1840s gave way to the so-called nihilism of the 1860s and the Populist terrorism of the 1880s. For insight into these years, we read Annenkov, Herzen, Bakunin, Belinsky, Pisarev, and Lenin; we also read selections from Orlando Figes’s *Natasha’s Dance: A Cultural History of Russia*, Richard Pipes’s *Russia Under the Old Regime*, and Isaiah Berlin’s *Russian Thinkers*. Time permitting, we end the year with Vladimir Nabokov’s *Pnin* (1957), a requiem of sorts for the 19th-century Russian intelligentsia.

## **A HOUSE DIVIDED**

(Chapman)

Your house is a series of walls where you negotiate your identity, assemble your property, sit down for meals, and see your face mirrored across the table. Your house is a web of relationships, an instrument to reckon time and growth, a crucible of beliefs, an edifice of authority. It’s the place you belong to and break from.

In this course we look at houses, tangible and intangible, where the walls fall down. Assaulted by internal tensions and external revolutions, slipping on fault-lines of passion and jealousy, race and age, gender and status, the very structures of identity can dissolve. Love fails. Siblings fight. Owners clutch their property and certainties to the grave. War and politics and old age shriek, and houses tumble. We’ll watch some characters climb walls to escape their families and histories, marvel when others walk through walls. We’ll see some characters fly from their house and nation and, taking root elsewhere, discover themselves.

We’ll visit at least three continents and consider divisions that have brought down the house across the last two centuries, with a possible visit to Shakespeare (*The Tempest* or *King Lear*). Through slides and film we’ll explore the way artists invent houses visually.

Probable authors include: Joyce, Stendhal, Gordimer, Frederick Douglass, the Brontës, M. Robinson, R. Doyle, W.G. Sebald. Possible authors include: Shakespeare, Nabokov, Conrad, Ishiguro, Poe, Charlotte Perkins Gilman, Morrison, Kincaid, Chekhov, Dickens, Henry Green, Forster, Austen.

## **LITERATURE AND PHILOSOPHY**

(Aronson)

In Book X of *The Republic*, Plato refers to “an ancient quarrel between philosophy and poetry”—and, along the lines drawn by Plato, we often think of the philosophical and literary endeavors as being quite separate. Yet among philosophers there is a long-standing tradition of employing the medium of literature to express philosophical ideas (beginning with Plato’s use of the dramatic form of the dialogue as the vehicle for his philosophical system). There is an equally long-standing tradition of writers and poets crossing over into the realm of philosophy. This course focuses on a wide range of literary figures who are first and foremost writers and poets, but are also working within a particular philosophical paradigm or in part attempting in their novels, plays, poems and short stories to “do philosophy,” i.e., to say something about metaphysics or epistemology or ethics.

Of necessity, we regularly turn to primary philosophical texts, but always within the context set by the literary work in question—which may ultimately be a political novel, a psychological drama, a love story or a work of science fiction. Possible authors include: Wordsworth, Whitman, Chaucer, Kafka, Borges, Kobo Abe, Stoppard, Virginia Woolf, Nabokov, Philip K. Dick, Aldous Huxley, Wallace Stevens, Milan Kundera, Haruki Murakami, and Emily Dickinson.

## **MACABRE MARRIAGES**

(Avrich)

Once upon a time, marriage was often a loveless contract based on wealth or status or even safety (if you were Chief Argh’s son, you married Chief Bargh’s daughter so the two clans would stop raiding and stomping on each

other). Later in novels love does come into play, but money and status are still essential qualities. People gossip about you and your betrothed, speculating on the size of your houses, acreage, noses and annual income. Marriage is very public.

But marriage is very private too. What if, little by little, you discover that your new husband or wife has a hidden secret or three? He sneaks out at night. She foams at the mouth. He is cruel with his fists. She uses a nutmeg grater. He drinks and gambles. She is your sister.

This class is about books with rotten marriages at their core. We will meet deviant spouses who are better suited to storage spaces and wax museums than connubial bedrooms. At the same time, these messed-up mates make us question the moral and social systems they flout; they blur the boundaries between the public and the private, between the civilized self and the dark double.

We will begin with Geoffrey Chaucer's "The Wife of Bath's Tale" from the *Canterbury Tales* in which Dame Alisoun's sermon and parable reveal the secrets of marriage and desire. Next is Shakespeare's *King Lear*, a play whose entire action pivots on a contract of marriage and inheritance. Afterwards, we enter the nineteenth century. We read Jane Austen's *Pride and Prejudice*, a well-tuned novel about the musical chairs of marriage, then delve into romantic literature: Charlotte Brontë's *Jane Eyre*, Charles Dickens' *Great Expectations*, and if time, Wilkie Collins' *Woman in White*.

As always, our method is close reading. Language is what we love and we take the time to pore over it.

### **A MATTER OF DEATH (and LIFE)**

(Levin)

Our subject shall be deaths: figurative and literal, heroic and cowardly, tragic and absurd. Yes, the topic is morbid, but we may well find that the literature of death invigorates our appreciation of life. We will examine depictions of death in a number of periods and genres, beginning with two plays from The English Renaissance: Shakespeare's tragi-comic, cerebral and complex *The Winter's Tale* and Tourneur's challenging, bloody *The Revenger's Tragedy*. As we will be performing scenes, students should be prepared to memorize many lines, dress up in costumes, and act. We will then read some of the Romantic poets who wrote obsessively and brilliantly about death: Coleridge, Keats, and the demanding (if under-appreciated) Beddoes. The first semester ends with a quick reading of Dickens' *A Christmas Carol*. Two difficult Modern novels usher in the second term: James' *The Turn of the Screw* and Woolf's *Mrs. Dalloway*. Term papers will be on Woolf. We will study Joyce's *Dubliners* and finish the year with Ishiguro's quiet and restrained *The Remains of the Day*. We will investigate the power of revision through multiple drafts of creative and expository pieces.

### **"THERE'LL ALWAYS BE AN ENGLAND": TWENTIETH-CENTURY BRITISH LITERATURE**

(Meslow)

In 1900 England's power stretched for four million square miles; as the saying went, the sun never set on the British Empire. By 2000 even Scotland had reclaimed its political independence from its neighbor to the south. In the intervening years England coped with the ramifications of imperialism, survived two world wars, watched the rise of socialism, and struggled to uphold its monarchy. Even as England's might abroad waned, the power of its language steadily gained momentum, becoming, indeed, the *lingua Franca*. How did the heirs to the literary tradition of Chaucer, Shakespeare, and Milton address the issues that shaped their century and defined their collective identity? In this course we will study the works of individual authors in the context of broader artistic movements and cultural phenomena. Possible novelists include Joseph Conrad, E.M. Forster, Rebecca West, Virginia Woolf, Evelyn Waugh, W. Somerset Maugham, George Orwell, Elizabeth Bowen, Graham Greene, Muriel Spark, and Ian McEwan. We will consider the works of various poets, essayists, and playwrights, as well.

## TRAGICOMEDY

(Khoury)

Admittedly, the term is not an elegant one. Lumped awkwardly together, it implies a certain lazy indecisiveness, a wishy-washy blurring of categories and distinctions. The man who popularized its use at the end of the sixteenth century, Sir Philip Sidney, seems to have intended these connotations. In *An Apology for Poetry*, he describes the disturbing popularity of recent plays that are “neither right Tragedies, nor right Comedies” but “mungrell Tragy-comedie”—plays that fail to achieve the proper “commiseration” of the former or the “right sportfulness” of the latter. His argument, and Aristotle’s before him, is that pity and humor do not mix: we cannot laugh at characters and subjects we are made really to care about, and vice versa.

Shakespeare is poking fun at the same trend when Polonius touts the readiness of the players to perform something in the “tragical-comical-historical-pastoral” vein. But in many of Shakespeare’s own plays, and especially his last, comic and tragic elements arrive in roughly equal measure, sometimes simultaneously. Rather than reaching for extremes of mirth or pain with great hordes of characters married or buried, these works tend to achieve a more delicate balance—one in which pity and humor do somehow mix, each intensifying rather than diluting the other.

Our readings will likely include most or many of the texts listed below—one Shakespearean tragicomedy, a handful of more recent heirs to the tradition it creates, and a few examples of other branches of the tragicomic: the less forgiving wit of satire and the gallows humor of absurdism.

Shakespeare	<i>The Tempest</i>
Swift	<i>Gulliver’s Travels</i> or shorter works
Balzac	<i>Père Goriot</i>
Dostoevsky	<i>The Eternal Husband</i> or shorter works
Unamuno	<i>Mist</i>
Hemingway	<i>The Sun Also Rises</i>
Beckett	<i>Waiting for Godot</i>
Nabokov	<i>Pnin</i>
Short stories by Gogol, Kafka, Borges, Chekhov and others.	

## UNHAPPY FAMILIES

(Kantor)

Man hands on misery to man.  
It deepens like a coastal shelf.  
Get out as early as you can,  
And don't have any kids yourself.  
—Philip Larkin

Happy families are all alike; every unhappy family is unhappy in its own way.

—Leo Tolstoy

This course will look at some very unhappy families. In one, a brother wants to have sex with his sister. In another, the mother repeatedly subjects her daughters to public humiliation. In a third, the brother actually *does* have sex with his sister. But is she really his sister? A son must reject not just his family but his entire cultural identity because his parents undermine his writing career. Brothers turn their sister-in-law into a prostitute. No one gets to live happily ever after, few people learn anything, and the best you can hope for is that someone will leave you a house when he dies.

Your own family never looked so good.

Titles will include: *The Sound and the Fury*, *Pride and Prejudice*, *One Hundred Years of Solitude*, *The Homecoming*, *The Ghostwriter* and *Howards End*. Time permitting, we will read other novels, plays and works of poetry.

## **WRITING**

(Bosworth)

In this elective we hope to provide the best possible environment in which each student may produce fine fictions and poems. Creative assignments will therefore vary widely, ranging from the occasional autobiographical piece to the sheer fantasy to the political satire and so on. Readings, also quite diverse, will be chosen to provoke, to energize, to dazzle; works by Bulgakov, Mann, Beard, Baldwin, Paley, Doctorow, Woolf, Shakespeare, Marlowe, Achebe, Brecht, von Kleist, and a slew of contemporary poets and short story writers may figure. Will essays be assigned? Yes. Such essays might focus on aspects of writing itself—Lear’s use of natural imagery, say, or Beard’s use of motif or understatement. Meanwhile, as students become accustomed to sharing their own stories and poems, we’ll begin respectfully to workshop these pieces. The aim here is always to understand what a given piece intends to accomplish and how it may do so.

While much of our experience in Writing is shared, including the dominant fact of weekly writing (and the compilation of typed, twenty-five-page portfolios each semester), some aspects of this experience will be tailored to fit the individual’s wishes. The extent to which writing prompts prove useful or fall away, the extent to which reality informs a story or poem, the exploration of different forms (including the longer short story)—these, along with term paper topics, will be largely determined by each student, albeit in close consultation with the instructor. Such praxis is in keeping with our dual philosophy: writing is hard work, and writing is freedom.

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## **HEALTH EDUCATION**

(Required) (Friedrichs)

Ninth grade health is a full year class. It explores health as something of both immediate relevance to teens, and also as an issue that affects society on a global scale. The course asks how ethics shape health-related decision making, discusses prevention as a cornerstone to wellness, and tackles controversies in health (for example, abstinence-only sexuality education, the “War on Drugs,” and same-sex marriage).

Broadly, the year is broken down into three areas:

- 1) Sexuality
- 2) Food A (eating disorders and issues) & food B (nutrition and food politics)
- 3) Substances

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## **HISTORY**

### **WORLD HISTORY: FRENCH REVOLUTION TO THE PRESENT (9<sup>th</sup> Grade)**

(The Department)

This course covers the 19<sup>th</sup> and 20<sup>th</sup> centuries. Europe is the main actor in the 19<sup>th</sup> century, but with the Europeanization of much of the world in the 20<sup>th</sup> century, our focus becomes more global. Starting with the impact of the Enlightenment on politics and of the Industrial Revolution on economics and society, we study the “isms” that have dominated the modern world. Throughout the year, students work with primary sources to create both analytical and research-based essays.

### **AMERICAN HISTORY SURVEY (10<sup>th</sup> Grade)**

(The Department)

This course covers American history, from Columbus to the present. Students learn about exploration and colonization, and about the important traditions brought from the old world to the new. The course encompasses the events that have shaped this American republic straight through to where we are today. A basic text, along

with source documents, is used.

## **JUNIOR/SENIOR ELECTIVES**

### **AMERICAN WOMEN'S HISTORY**

(Schragger)

This course examines the contributions of women throughout American history, from the colonial era to the present day. In the fall semester, students examine women's history from the 17<sup>th</sup> century to the early 20<sup>th</sup> century, focusing on the roles of women as America modernized. In the spring semester, the course covers material from the early 20<sup>th</sup> century to the present, with a concentration on the 20<sup>th</sup> century women's movements as well as contemporary issues. Topics covered include the changing legal, economic, and political rights of women, shifting notions of gender roles, images of women in popular culture, and the development of Third Wave feminism today.

Women have had a diverse history of their own in America, including their fight for suffrage as well as social and legal equality. In addition, women have played an important role in broader social, cultural, economic and political events such as the growth of labor unions, reform movements, and wars. At times women were central to the dynamic changes that occurred, whereas at others they remained outside the mainstream. This course attempts to highlight both the unifying forces and dividing factors among women.

Readings include *Major Problems in American Women's History: Documents and Essays* (ed. Mary Beth Norton), *Nickel and Dime: On (Not) Getting by in America* (Barbara Ehrenreich), and *Feminism in Our Time: The Essential Writings, World War II to the Present* (ed. Miriam Schneir).

### **AMERICA *sin Yanqui*: AMERICAN HISTORY WITHOUT THE UNITED STATES**

(Bertram)

In the common parlance, when we say "America" we are generally taken to mean the United States, but there are thirty-five other countries in the Americas, as well as the hundreds of nations and tribes of the forty-seven million indigenous Americans. Furthermore, all too often, when we learn about these other countries, we see them through the lens of the United States, instead of considering them on their own merits. In this class, we will attempt to address that. Using a variety of sources including primary texts dating to before the Columbian Exchange up through the present day, film, music, and art, we will explore the shared history of Native and Latin America as well as focusing on specific historical events in specific nations including Mexico, Cuba, Haiti, and Chile. Readings will be commensurate with the level of study and may include Bartolomeo de las Casas *In Defense of the Indians*, Miguel León-Portilla's *The Broken Spears*, Marifele Pérez-Stable's *The Cuban Revolution*, Ernesto Guevara's *Motorcycle Diaries*, and Laurent Dubois' *Avengers of the New World*.

### **COMPARATIVE GOVERNMENT AND POLITICS**

(Everdell)

Is China socialist? Is it a dictatorship? Is Egypt a constitutional republic? How are governing elites recruited in Russia? This is a course in Political "Science" founded on a study of the political and economic systems in about ten nation-states as they have developed in the 65 years since World War 2.

### **HISTORY OF THE CITY OF NEW YORK FROM SIX PERSPECTIVES**

(Swacker)

This course will examine the entire history of New York City from the Dutch colonial period (1625-1664), through the English period (1664-1783), and up to the present. The history of the city will be repeated six times throughout the year, each time from a different key perspective: economic, spatial, immigration and demography, religion, politics, and the arts (including architecture and popular culture). Field trips, walking tours, and interviews will be arranged. A research paper will be required. History books, various maps and

charts, novels, short stories, memoirs, archival newspaper articles, and collections of photographs will comprise the reading.

## **LEGAL FRAMEWORKS**

(Levy)

Why is it legal for an American citizen to publish a blog calling for violence? Why is it illegal for a Chinese citizen to publish a blog calling for a peaceful protest in Tiananmen Square? Why is the Alabama state Constitution the longest constitution in the world? Why doesn't Great Britain even *have* a Constitution? Is George Bush in danger of being indicted for war crimes? By whom? What *is* a "war crime"?

This course will look at various legal systems (from Constitutional to Confucian; from common law to case law; from ancient to modern; from local to international) and examine their historical development, their philosophical underpinnings, their merits, and their consequences. Special emphasis will be placed on the American Constitutional system, the Chinese Communist system, and the recent emergence of an international criminal code.

Students should expect brief nightly readings, largely culled from primary sources. Their writing will mostly come in the form of close textual analysis. Towards the end of the year, there will be an opportunity for in-depth research on a topic of each student's choosing.

## **MODERN ART HISTORY IN THREE FRAMES**

(Kapp)

This course will be a multi-disciplinary exploration of modern art in Europe and America, 1865 to the present, in an attempt to discover different ways the visual arts can be read, understood and discussed as both works of art and historical artifacts. We will focus on, and then try to synthesize, three different types of investigation.

We will begin with an examination of the origins of modern painting in 19<sup>th</sup> century France, and the emergence of an avant-garde in Paris in the art of Eduard Manet. Our text for this part of the course will be E.H. Gombrich, *The Story of Art*, one of the most beloved art history textbooks of all time. Gombrich will guide us through a study of Impressionism, Post-Impressionism, Cubism, and experiments in abstraction of the early 20<sup>th</sup> century, and help us sort out what was groundbreaking and original about these artistic movements, primarily in aesthetic terms. As we make sense of the modern tradition in the west, we will pause for comparisons with a selection of non-western forms of visual expression. You will become well versed in the language of formal analysis, the bread and butter of traditional art history.

Then our perspective will shift across the Atlantic to New York and the 1913 Armory Show, where American artists, long considered provincial and peripheral to the art scene, emerge as the new avant-garde. At this point, the course tightens its lens to bring into sharper focus key works of art at particular moments in the 20<sup>th</sup> century and new analytical tools. Our approach will be historical, cultural, and interpretive, a real training in deep analysis of visual and material culture. How specific artists responded to and represented different aspects of American history and experience will come to the fore as we probe, for example: George Catlin's Indian portraits, urban documentary photographs, the art of the Harlem Renaissance, regional, anti-modern art from the Great Depression, post-war abstract expressionist paintings, commercial and media-driven Pop fabrications, and art by and about women.

For the last part of the course, we launch into expansive research-based projects, bringing together research, analysis, and writing to tell our own modern art stories. Students will choose a topic from our mix, research it at length, write about it through several frames of analysis, and create a multi-media digital story combining music, narration and text, drawing on techniques used in cutting-edge historical documentaries.

## **THE PRESIDENCY**

(Mellon)

*“The presidency has made every man who occupied it, no matter how small, bigger than he was; and no matter how big, not big enough for its demands.”* -Lyndon Baines Johnson

Fourteen paragraphs. That is all that the executive branch got in the Constitution. In this course we will trace how from these very humble beginnings, the Presidency became the powerful institution it is today. This means that we will start at the Revolution and work our way forward through American history, examining how this office, and its occupants changed as the country changed. We will not talk about every President, but we will spend some serious time dealing with whether the occupants of this office (and their families) shaped the country or were shaped by it. This means more than just the usual pantheon of GW, TJ, AL, TR and FDR but we shall not, of course, neglect them. As we enter the now seemingly eternal run-up to the election of 2012, we will also pay close attention to the primary process. Expect lots of reading, some papers and tests as we cover as much ground as possible. Authors will include, among others, Flexner, Brinkley, Ellis, Wood, Meacham, and Foner.

## **UNDERSTANDING THE COLD WAR**

(Kang)

In the 20th century, the political, economic, strategic, social and cultural orders were fundamentally altered in the realm of the Cold War. After a close examination of the ideologies contributing to the Cold War, this course will pursue an understanding of a variety of other factors that influenced the new world order. In developing an understanding of the Cold War, we will not merely look at the polarization between the United States and the Soviet Union, but examine the global impact of the war. In this widened perspective, our study of the Cold War will likely include an examination of the Chinese Civil War and the relationship between China and the U.S. and the Soviet Union, the development and build-up of atomic weaponry, the Korean and Vietnam Wars, the U.S.’ relations with Cuba, the space race, liberation movements and political challenges in Latin America, and the conflicts and dynamics that emerged in the Middle East as a result of Cold War tensions. Moreover, we will examine a number of significant American domestic issues including the communist scare in the 1950s, the impact that the Cold War had on art and culture, and the influences of the Cold War on the Civil Rights Movement.

In addition to a variety of secondary sources, we will read a number of primary sources. We will furthermore view a number of documentary and feature films related to the wars. Be prepared to write regular essays, take regular quizzes/tests, and to write one major research paper.

## **UNDERSTANDING THE MODERN MIDDLE EAST**

(Kohn)

This course will examine the history of the Middle East and Central Asia from the early 20<sup>th</sup> century to the present day, focusing particularly on the past thirty years. Together, we will explore the causes of contemporary struggles (and the prospects for their future resolution) in the Arab and Persian world, spending significant time on the Israeli-Palestinian conflict. We will also seek to understand America’s involvement in the region. In addition to studying political history, we will take a thematic approach by investigating how topics such as gender, fundamentalism, and oil have shaped the modern Middle East. Current events will also be an important component of our inquiries, and students are expected to stay abreast of major news in the region. Students will also write two substantial research papers using a wealth of primary and secondary sources.

## **VARIETIES OF MONOTHEISM IN ANTIQUITY**

(Deimling)

Is one God better than many gods? Are there social, political, and legal consequences of monotheism in different periods? This course will examine the historical context and evidence for monotheistic and quasi-monotheistic religions of the ancient world. In addition to covering the “Abrahamic” religions of Judaism, Christianity, and

Islam, we will look to the Atonism of eighteenth-dynasty Egypt, history's first recorded monotheism, as well as ancient Hinduism, Stoicism, and the neo-Platonic monotheism of the later Roman Empire. The class will focus on close readings of ancient religious texts. In the case of the Hebrew Bible, we will focus mainly on the historical books such as Kings and Chronicles. By the end of the course, students will be able to identify Yahweh's consort, explain the doctrine of the Trinity, and directly apprehend the Forms.

## **OTHER HISTORY COURSES**

### **INDEPENDENT RESEARCH IN HISTORY**

(The Department) (1x per week)

The Independent Research in History program enables students to explore a historical topic in depth over the course of the school year. Working with a mentor from the department, students will identify the significant historical questions raised by their chosen topic, and pursue them by various research techniques, and through the use of a variety of sources and documents. Students will meet with their individual mentors once per week throughout the year.

Each research project may be the work of up to two students. The expectation is that students will develop their research into a significant formal historical essay, to be presented at the end of the school year in a symposium. Papers may be accompanied by a supplementary presentation of research in another medium.

## **ASIAN LANGUAGES**

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### **CHINESE**

Students in Chinese classes speak, read, write, and listen to Chinese in order to develop proficiency in the language. The first four volumes of *Far East Chinese for Youth* are used at the beginning and intermediate levels and the *New Practical Chinese Reader* series is used at advanced levels, along with selected poems, short plays, newspaper clippings and authentic Chinese literary works. In addition to developing the language skills of students, the courses endeavor to increase students' awareness and understanding of Chinese-speaking cultures. The integration of language learning and culture is strongly emphasized. Both traditional and simplified characters are introduced according to the interest of the students.

#### **CHINESE I**

(The Department)

This course is an introduction to the Chinese language, with an emphasis on pronunciation – Pin Yin and four tones. At the same time, students study radicals, stroke orders, characters and basic sentence structures. Chinese songs, poems, and rhymes are introduced. Students study 350 characters. **Textbook:** *Chinese for Youth* Level 1

#### **CHINESE II**

(The Department)

The review of Pin Yin and tones continues throughout the year with an emphasis on the use of Chinese to discuss related topics in both speaking and writing. Students study more grammar, sentence structures and vocabulary. They read short paragraphs and selected authentic materials such as advertisements, weather forecasts, etc. Students are encouraged to initiate and carry on conversations to exchange information and express opinions about related topics. Students study an additional 360 words and expressions. **Textbook:** *Chinese for Youth* Level 2

#### **CHINESE III**

(The Department)

This course is designed to help students solidify their grasp of grammar and vocabulary. The emphasis is on increased ease and accuracy in speaking Chinese and reading comprehension. Students are expected to give oral

presentations about topics such as schools and places in China. They study topics like Chinese cooking, communities, Chinese festivals, and school calendars. Students learn an additional 600 words and expressions.

**Textbook:** *Chinese for Youth* Level 3 up to Lesson 8

## CHINESE IV

(The Department)

In addition to introducing more vocabulary and grammatical points, this class concentrates on more complex sentences and paragraphs. Intensive study increases the students' command of linguistic structures and functions and gives them a firmer grounding in speaking and writing more idiomatic Chinese. Students learn to discuss and write more fluently and with greater length on the geography of China, the relationships between parents and their children, the differences and similarities between Chinese medicine and Western medicine, and the relationship between pollution and environmental protection. Another 600 words and phrases are introduced.

**Textbook:** *Chinese for Youth* Level 3 & Level 4 up to Lesson 5

## CHINESE V

(The Department)

Students finish the remaining five lessons in *Chinese for Youth*, which introduce Chinese paintings and calligraphy, famous writers and their works, the influence of modern inventions to our lives, summer vacation plans and part-time jobs. Students learn to express their personal views and exchange opinions about these social issues in more complex language. They do more exercises like responding to e-mails and writing personal letters on related topics, reading more complicated signs, public announcements, newspaper clippings, giving presentations and doing interviews in more fluent and accurate Chinese. When studying *New Practical Chinese Reader*, students will be in the cultural setting of Chinese society with several international students, Ding Libo, Lin Na and Ma Dawei. Through many interesting adventures, students will not only learn authentic Chinese, but also understand Chinese society and culture. Students learn an additional 500 words and expressions. **Textbook:** *Chinese for Youth* Level 4 & *New Practical Chinese Reader* Book 4 up to Lesson 2

## CHINESE VI

(The Department)

Students continue to study *New Practical Chinese Reader* with more probing texts that reflect the many facets of contemporary Chinese society, family values and Chinese literature. China's strengths and problems are revealed through analysis, explanation and debate. Some lessons deal with crucial social and intellectual concerns in current China. Students continue to hone their overall abilities in speaking, reading and writing Chinese. Another 500 characters and phrases will be introduced. **Textbook:** *New Practical Chinese Reader* Book 4 and selected poems and authentic materials

## CHINESE CONVERSATION

(2x per week) (The Department)

Students who have completed Chinese 4 are strongly encouraged to take this course in addition to their regular Chinese class. Through the use of various practical scenarios, it offers an opportunity to gain confidence and facility in speaking more idiomatic and spontaneous Chinese. By enlarging vocabulary and improving oral/aural skills, students gain fluency in discussions about daily life, education, politics, food, travel, and so on.

## JAPANESE

### JAPANESE I

(Otsue)

This course serves as an introduction to the Japanese language. Students are asked to master two sets of Japanese phonetic syllables: 46 hiraganas and 46 katakanas, modified and combination forms respectively. Emphasis is placed on the Japanese accent system, basic Chinese characters with Japanese pronunciation, basic

sentence structures and cultural background.

## **JAPANESE II**

(Otsue)

The study of Japanese grammar and Chinese characters is continued and extended. Students learn practical sentence patterns and further their conversational abilities. Reading Japanese is explored as well. Students begin writing journal entries.

## **JAPANESE III**

(Otsue)

Students move on to an intermediate level. The course focuses on consolidating grammar and vocabulary from previous years. Students are asked to use their language skills to function in various social situations with an emphasis on customs and culture. Vocabulary words with previously acquired Kanji are introduced as well.

## **JAPANESE IV**

(Otsue)

This is a continuation of the work begun in Japanese 3. In addition, the course focuses more on developing reading skills. Students learn more complicated grammatical structures and more sophisticated Kanji vocabulary as well.

## **JAPANESE CONVERSATION/COMPOSITION**

(Otsue)

Students further their abilities to express themselves effectively. Communication skills in writing and speaking are enhanced; we use news articles, videotapes, and other materials to expand vocabulary, gain an understanding of social customs, and increase spontaneity. Based on what we discuss in class, students work on writing assignments at home.

# **CLASSICAL LANGUAGES**

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## **GREEK**

### **GREEK I**

(The Department)

This course introduces students to the rudiments of Ancient Greek. Memorization of forms, vocabulary and syntax are stressed in order to facilitate the reading of unadapted Greek texts as quickly as possible. By the year's end, students will have a strong command of basic syntax and will be prepared to learn complex syntax in Intermediate Greek.

### **INTENSIVE ANCIENT GREEK**

(Mason)

This is a fast-paced, intense course that introduces the essential morphology and syntax of Ancient Greek. The systematic acquisition of forms and vocabulary complement the learning of simple and complex syntax. As the name of the course indicates, this is an intense experience, but one that enables students to read Ancient Greek texts in the original by the end of the year. Open to juniors and seniors; others must seek the permission of the instructor.

### **INTERMEDIATE GREEK**

(The Department)

This course features review of material from Greek 1 and continues to round out the students' knowledge of

Greek forms and syntax. In the second semester, students will refine their skills through translation of selections from a variety of authors, including Herodotus, Plato, and Aristophanes, and will explore the different styles and expressions employed by each. The course is intended to provide students with the skills and confidence to move on to more intensive exploration of specific Greek texts. **Prerequisite: Greek I.**

### **GREEK III**

(Henneman)

A pure translation course, this class focuses on writings that concern the conflict between rational and irrational on individual and societal levels. We read from Plato and Euripides, possibly delving into the world of comedy. Students gain an advanced understanding of syntax and familiarize themselves with prose and tragic constructions. **Prerequisite: Intermediate Greek or Intensive Ancient Greek.**

### **HOMER'S ODYSSEY**

(Siebengartner)

We will read selections from Homer's foundational epic the *Odyssey*, the inspiration for arguably much of our Western cultural tradition. We will be in awe of its ability to be both mysteriously distant and archaic while also brilliantly contemporary and relevant to our 21st-century experience.

In addition to following Odysseus on his journey, through some of literature's best-known scenes -- the Sirens, the Cyclops, the suitors, etc. -- we will also be entering, as best we can, into the world that produced this masterpiece and examining the social, political, and intellectual context of early Greece. Always on our mind will be the question of defining the Classic: we must agree that the *Odyssey* is one; how?

### **PLATO'S REPUBLIC AND ATHENIAN DEMOCRACY**

(Kingsley)

Socrates calls himself, in the *Gorgias*, the only true politician alive, thanks to his pursuing The Best instead of his own favor or pleasure. In fact, not one good man had ever participated in politics, he asserts, and democracy's best leaders filled Athens with no *sophrosune* or *dikaiosune*, but with only walls, docks, and revenues. Thucydides has also been described as anti-democratic, thanks to his depictions of the War between Athens and Sparta, and though he and Plato's Socrates are far from lonely critics of direct government, their critiques are most trenchant and compelling, in both thought and style. So we will take them up, students of their language and spectators of their civic explorations. Our main text will be Plato's *Republic*, a magnificent dialogue full of exciting prose, great drama, and urgent cases pressed for the just man and the just city. Let us find out what government the good doctor, a life-long Athenian, prescribes. Thucydides we will study in excerpts, focusing on Pericles (the funeral oration, especially), Cleon (the Mytilenean affair, especially), and the Melian Dialogue, with the Sicilian expedition a possible addendum. Sideline commentary on democracy from Solon, Homer, Aristophanes, and the Old Oligarch might be fruitful, if time and interest demand it, but our attentions and enthusiasms will be well-fed by the Greek and the greatness of our main texts. Daily translations, supplementary English readings, and class discussion will be expected. **Prerequisite: Homer.**

## **LATIN**

### **LATIN I**

(The Department)

This course introduces the student to the basics of Latin forms and syntax. Memorization of forms and syntax is stressed in order to facilitate the reading of Latin literature as quickly as possible. Readings are selected from Cicero, Caesar, Martial and others. The course also covers background material on mythology, history, and Roman life.

### **LATIN POETRY, PROSE, DRAMA & THE NOVEL**

(The Department)

Designed as a bridge between the introductory Latin course and specialized electives, this course emphasizes

facility in reading and translating Latin authors, studying the literary forms we read, and using textual evidence to gain insight into life in the ancient world. Authors include Cicero, Ovid, Plautus, Sallust, Livy, Catullus, Horace, Caesar, Vergil, and others. The course also intensively reviews Latin grammar and syntax.

### **THE AENEID: VERGIL AND THE LATIN EPIC**

(The Department)

The *Aeneid* is the Roman epic that charts the mythohistorical founding of the Roman people and state. Books I, II, IV, VI, X and XII of the *Aeneid* are read in Latin, in part or in whole, and the rest of the text in English. Emphasis is on translation and textual analysis, with daily assignments for translation as well as passages for sight-reading in class. Several short critical papers examining patterns of symbolism, imagery and meter are required. **Prerequisite:** PPDN.

### **CICERO: POLITICIAN, PHILOSOPHER, ORATOR.**

(Connaghan)

Cicero lived through one of the most important and dramatic periods in all Roman history. As the Republic collapsed and Rome moved towards dictatorship, Cicero was a primary political mover. In his fight to save the Republic he was confronted by Caesar, Pompey, Crassus, Mark Anthony, and Octavian (later to become the emperor Augustus). His weapon against the wealth, violence and military might with which he was faced was the brilliance of his oratory and the genius of his Latin prose.

Cicero is arguably the greatest of Latin prose writers. In class we will read the *pro Milone*, a forensic speech which plunges the reader into the sordid reality of Roman politics of the first century BCE; the *Tusculan Disputations*, a collection of philosophical writings composed when he was driven into exile by Caesar's vindictive supporters; and the *Philippics*, a series of political harangues written to undermine the rise to power of Mark Anthony – so powerful were these speeches that Anthony had Cicero murdered and ‘the hands which had written the Philippics’ cut off and nailed up in the forum.

**Prerequisite:** *Aeneid*.

### **HERAKLES, HERACLES, AND HERCULES. MEHERCLE!**

(Siebengartner)

This course will consist of the close reading and analysis of all - or as many as we can get to - of the various portrayals of Heracles (Lat.) in Latin literature.

Hercules (Eng.) is defined by boundary-crossing: alternately and even simultaneously he plays the roles of tragic sufferer and comically overindulgent buffoon, elegiac lover of men and women, epic hero, epic god, symbol of Stoic philosophical achievement, and many more. As a result, our reading will include all genres of Latin literature, from fragmentary early comedies and tragedies, as well as of those of Plautus and Terence (in which the exclamation *mehercle!*, “by Hercules!,” is common), to the tragedies of Seneca, two of which feature Heracles as a main character; from Livy's histories, across whose early books Heracles occasionally wanders while carrying out his labors, to Silius Italicus' late epic poem on the Punic Wars, in which Heracles gazes down from Olympus and feels for human action, just like his fellow gods; from Propertius' elegies, which feature the sad story of Heracles and his boy-lover Hylas, to the heroically civilizing Heracles of *Aeneid* 8. Throughout our work, the Greek literary background will be crucial, and we will spend time reading in translation from key works representing Heracles (Grk.) to preface and supplement our readings of the Latin Heracles.

With such a mass of material and such a multifaceted character behind it, it will help to organize our reading around themes and stories, for example Hercules as sufferer, for which philosophy and tragedy provide abundant material, or the story of Heracles and Cacus, narrated in the *Aeneid*, Livy's history of early Rome, and Propertius *Elegies* 4.9. By reading across genres in this way, we will see how Hercules functions not only as a useful symbol against which to define the categories of beast, man, and god in a narrative, but also as a literary

test of generic boundaries: the same Hercules, performing the same labor, can appear quite different when seen through the lens of a different genre or author.

The spread of Hercules' representation across non-literary artistic media as well as his extraordinary longevity in the history of mythology means that we will also be examining the ways in which Hercules has been represented outside of Latin literature, including ancient visual arts such as sculpture and fresco, as well as modern portrayals of our hero. It is a select few Greco-Roman literary figures who have made their way deeply enough into our modern culture to have their own Disney movie. In addition to translating, there will be an emphasis on in-class discussion, as well as the requirement that students give a period-length in-class presentation, backed up by secondary reading. **Prerequisite: Aeneid.**

### **HORACE: ODES 1-3**

(Mason)

In his Odes, Horace transformed Latin poetry, bending Latin to fit the lyric meters of Greek. This was no small achievement, and to marvel at Horace's musicality and technical brilliance will be a goal of our reading. But Horace did much more than create artful poems: he relocated the world of Greek lyric to the Rome of Augustus while exploring themes that resound for a modern reader. We will read as many (possibly all) of Horace's Odes, and in doing so we will think about the things Horace found compelling: love, desire, death, aging, youth, country, war, sex, beauty, nature, and, of course, drinking wine. We will come to understand what Horace really meant when he wrote *carpe diem* (*Ode 1.11*), and, if we read these poems as Horace meant us to, we will be changed. **Prerequisite: Aeneid.**

## **ROMANCE LANGUAGES**

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### **FRENCH**

#### **ACCELERATED FRENCH**

(The Department)

This course is offered to students who have successfully completed at least two years of another romance language, whose experience with language learning enables them to proceed at a faster pace in assimilating the usages of French. This course emphasizes aural/oral proficiency as well as written skills.

#### **FRENCH I**

(The Department)

This course is for students who are new at learning a romance language, and for those who need one more year to solidify their knowledge and usage of the fundamentals. Emphasis is placed on sentence structure and oral expression. Students acquire elementary conversational skills, and vocabulary is learned through texts and review exercises. Web-based interactive exercises and activities help students practice and retain the material. Special attention is given to accurate pronunciation.

#### **FRENCH II**

(The Department)

Students entering this level already possess fundamental skills of grammar and expression (as described in French I). This course is designed to foster continued development in each of the four language skills: speaking, writing, reading, and oral comprehension. A variety of materials are used: a textbook and workbook to reinforce grammar and vocabulary, and short readings to encourage class discussion and serve as samples of written text. Audio materials are used in class to improve listening comprehension skills. Accurate pronunciation is stressed.

#### **FRENCH III**

(The Department)

In French III the objectives are to reinforce the students' basic grammatical concepts and to stress the idiomatic

use of French. We place an emphasis on the assimilation of all major grammatical structures. Readings such as Saint Exupéry's *Le Petit Prince* or Sempé and Goscinny's *Le Petit Nicolas* are used to expand vocabulary and provide topics of discussion. We consider questions of content and form. Topics of class discussion serve as the basis for composition writing. At the end of this course, students should be able to speak and understand French with relative ease and write coherently.

#### **FRENCH IV: FRENCH LANGUAGE & CULTURE**

(The Department)

This course exposes the students to a variety of materials, textual as well as audio-visual, and emphasizes communicative skills through conversation and hands-on activities. Cultural themes pertaining to the “French way of life,” as well as other relevant forms of art, are presented through French films and other appropriate material. After a careful elucidation and practice of the linguistic elements necessary for exploring these themes, the students are able to express themselves on the various topics introduced.

#### **FRENCH IV: FRENCH LANGUAGE & COMPOSITION**

(The Department)

This course is designed (1) to help students refine their knowledge of the subtler, more complex points of French syntax, and (2) to put the students at ease with the practice of the structures learned previously, by seeing them and applying them “in context.” To that end, literary texts are used as tools to expand vocabulary and to familiarize students with increasingly difficult texts. By the end of the year, the students should have assimilated and synthesized all previously learned rules for forms of French syntax. They should also be proficient readers and writers.

#### **CONTEMPORARY TOPICS IN FRENCH LITERATURE AND FILM**

(Martinho/Zimmerman)

This is a two-semester course exploring contemporary topics in the French-speaking world through literature and documentary films. It is designed for students interested in gaining increased fluency in oral French, and who have successfully completed French 4. One semester is dedicated to the viewing and discussing of films addressing topics such as the judicial system, the educational system, and questions of immigration and identities. We view *Entre les murs*, by Laurent Cantet, *Les plages* by Agnès Varda, and *10ème chambre, instant d'audience*, by Raymond Depardon. Special attention is paid to idiomatic expressions and the way French is spoken in everyday life. The other semester we focus on the reading and discussing of works by contemporary French writers (Tahar Ben Jelloun, Yasmina Reza, Michel Tournier, Marie NDiaye, Philippe Delerm, Marjane Satrapi, among others). The linguistic forms encountered in the texts (plays, short stories, and graphic novels) may vary from highly literary and standard French to slang, thus exposing the students to the language as it can be experienced in the Francophone world today. Students are required to read an average of five to ten pages per night and to keep up with the new vocabulary introduced. While the emphasis of the course is on oral expression, students are expected to write summaries, character and plot analyses, as well as short essays, on a regular basis. By the end of the year, the students should have refined their expressive skills and gained a greater awareness of some aspects of French contemporary society.

#### **FRENCH LITERARY TRENDS FROM THE 19th TO THE 20th CENTURY**

(The Department)

The early 19th century sees the flowering of the Romantic movement in literature, music, and art. The poets, novelists, and dramaturges of the period often incarnate the Romantic hero portrayed in their works: Lamartine, Hugo, Chateaubriand, Stendhal, Musset. With the onset of the industrial age, new writers reject *l'idéalisme romantique* for *la réalité matérielle*. The preferred genre of the realists is the novel, which comes into its own in the nineteenth century: Balzac, Flaubert, Zola. Poetry flourishes with the works of Baudelaire, Verlaine, Rimbaud, and Mallarmé. The early twentieth century celebrates the marriage of philosophy and literature in *la littérature engagée* of Sartre, Camus, and Malraux, while the theater—Ionesco, Beckett, Anouilh—seeks its own solutions to depicting the modern *condition humaine*. Finally, the *nouveau roman* not only announces the death

of character but seems to herald the demise of the novel itself: Robbe-Grillet, Duras. Other authors: Maupassant, Gide, Proust, Breton, Césaire.

## **FRENCH CLASSICISM AND THE ENLIGHTENMENT: FROM RULE TO REVOLUTION**

(The Department)

Open to juniors and seniors who have successfully completed the French Literary Trends course. We begin at the golden age in France, a time of belief not only in the divine right of kings but in the divine itself. Inherent in such beliefs was the idea of the absolute—absolute power, absolute reason, and, by extension, the “absolute” work of art. In literature, perfection becomes the rule, and prescriptions for achieving it are devised. Corneille, Racine, and Molière are recognized as major craftsmen. By the 18th century, cracks begin to appear in the bastion of Absolutism. Writers known as *Les Philosophes* declare war on heretofore sacrosanct tenets, with words for weapons. The French Revolution begins as a conflict of ideas eventually exploding into insurrection. “*On est tombé par terre, c’est la faute à Voltaire; le nez dans le ruisseau, c’est la faute à Rousseau.*” Authors are chosen from those above and from the following: Pascal, Madame de Sévigné, Madame de la Fayette, La Bruyère, La Fontaine, La Rochefoucauld, Beaumarchais, Cazotte, Diderot, and Montesquieu.

## **ADVANCED READINGS IN FRENCH LITERATURE**

(The Department)

For students who have completed all other French electives. Works are selected based on students’ interests and literary background.

## **FRENCH CONVERSATION**

(2X per week) (The Department)

Offered to juniors and seniors, and to sophomores with permission of the department chair, this class helps students use their acquired vocabulary to express themselves more fluently. Through a variety of verbal games, paired activities, and oral reports, students build their oral/aural skills and eventually use them in a context of informal conversation on topics such as politics, education, fashion, everyday life including family life, food, amusement, and travel. We also discuss other subjects of interest to the group.

## **SPANISH**

### **ACCELERATED SPANISH**

(The Department)

This course is offered to students who have successfully completed at least two years of another romance language, whose experience with language learning enables them to proceed at a faster pace in assimilating the usages of French. This course emphasizes aural/oral proficiency as well as written skills.

### **SPANISH I**

(The Department)

This course is for students who are new at learning a romance language, and for those who need one more year to solidify their knowledge and usage of the fundamentals. Emphasis is placed on sentence structure and oral expression. Students acquire elementary conversational skills, and vocabulary is learned through texts and review exercises. Web-based interactive exercises and activities help students practice and retain the material. Special attention is given to accurate pronunciation.

### **SPANISH II**

(The Department)

Continuing the study of grammar and building vocabulary, students read and discuss short stories relevant to Spanish culture and begin to express more sophisticated ideas in writing.

### **SPANISH III**

(The Department)

Grammatical concepts are further reviewed and reinforced at this level. Students are introduced to more literary texts, poetry, and to articles on culture and current events in Latin America and Spain.

### **SPANISH IV**

(The Department)

The curriculum of this course provides the groundwork for consolidation of skills acquired in earlier courses. At this level we focus on strengthening the student's ability to speak, as reading skills (reading out loud, reading comprehension, vocabulary work) are balanced with writing skills like spelling, grammar and syntax through drills and exercises as well as written compositions. To round out the students' familiarity and enhance their proficiency with the material, we review old vocabulary and grammar paradigms and introduce new words and idioms.

### **SPANISH COMPOSITION THROUGH SHORT FICTION**

(The Department)

Based on the reading and discussion of short literary selections (by authors such as Borges, Neruda, Cortázar, Unamuno, Esquivel, and Márquez) this course intends to improve active command of the language. While topics of intrinsic interest to students encourage class discussion and help reinforce grammar skills, particular emphasis is given to the practice of writing descriptive and narrative prose.

### **INTRODUCTION TO SPANISH LITERATURE**

(The Department)

This course is a comfortable transition from colloquial to literary language. Short stories, fables, poems, and eventually a novel and a play are systematically read, discussed and analyzed. Our authors include Lorca, Matute, Neruda, and Sábato. Some critical and much creative writing is done throughout the year. An in-depth review of grammar is offered if needed.

### **SPANISH & SPANISH-AMERICAN MASTERS OF THE 20th CENTURY**

(The Department)

The prose and poetry examined in this course—some of which students may already have read in translation—provides a comprehensive view of 20th century Hispanic letters. Through the works of Borges, Unamuno, Martín Gaité, Fuentes, Márquez, Rulfo, Donoso, Cortázar, and Bolaño (among others), the course aims to stimulate the students' interest in contemporary Hispanic literature and expand their knowledge of the language and culture.

### **ADVANCED READINGS IN SPANISH**

(The Department)

Open to students who have successfully completed *Masters of the 20th Century* this course focuses on the "Golden Age" of Spain through the works of Cervantes, Calderón, Lope de Vega, Tirso de Molina, Góngora, and Quevedo (among others). Our literary approach is complemented by a study of the famous artists of the time, such as El Greco, Velázquez, Zurbarán, Ribera, and Murillo.

### **SPANISH CONVERSATION**

(2x per week) (The Department)

For juniors and seniors who have completed at least Spanish 3, this course develops communicative proficiency. Placing special emphasis on practical vocabulary and enhancing the interactional use of the language, we try to build each student's self-confidence and facility in speaking Spanish.

# MATHEMATICS

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Required courses:

## **ALGEBRA I: TECHNIQUES AND APPLICATIONS** (8th grade)

(The Department)

In this presentation of the Algebra I curriculum, students learn to generalize the laws of arithmetic and perform the four operations on variable expressions. They develop their ability to model and solve word problems by assigning variables to unknown quantities and determining the precise relationship between constant and variable terms. Students apply the laws of equality in order to solve a wide variety of equations and proportions. In the process of graphing the solution sets of linear equations on the Cartesian plane, students gain familiarity with the concepts of slope and intercept. They find simultaneous solutions to systems of equations and apply factoring in order to find the roots of quadratic equations. All of these activities promote both arithmetic and algebraic fluency.

**OR**

## **ALGEBRA I** (8th grade)

(Lockhart)

This course traces the historical, philosophical, and aesthetic development of the subject from ancient Babylonian problem tablets and Egyptian number puzzles to the high art of the Renaissance algebraists. Our survey of classical algebra will include the study of linear and quadratic systems, polynomials, roots and factorizations, the complex numbers, and elementary algebraic geometry. Students will engage firsthand as mathematicians—posing and solving their own problems, creating and developing their own techniques and problem solving strategies, and working together as a mathematical community. Our in-class math journal will provide students with an opportunity to share ideas, critique each other's work, and to develop their own personal mathematical expository style.

## **GEOMETRY COURSES**

(The Department)

All geometry courses will cover topics that include the analysis of congruent and similar triangles, the Pythagorean Theorem, angle sum and area formulas, and theorems concerning the relationship between chords, secants, and tangents of a circle. All geometry courses will also, though to differing degrees, construct proofs, solve geometric problems, and explore geometric patterns.

**With advisement, students will choose one of the two following:**

### **GEOMETRY: SYSTEM BUILDING**

In this course, we begin with a small set of postulates, properties that have overpowering intuitive appeal, and then we build up a Euclidean geometric system by deductively proving further results. Along the way, we investigate and employ a variety of proof techniques- regularly looking at alternate proofs of theorems.

### **GEOMETRY: INVESTIGATIONS**

In this course, we engage in mathematics as an active exploration of unknown truths rather than a formal study of a finished subject. Specific problems serve as a starting point as we organize and extend our prior knowledge about shapes and their properties. By performing calculations and searching for patterns, students inductively formulate conjectures. When students are able to use previous results and rational arguments to prove a conjecture, it becomes a theorem. Ultimately, we come to an understanding of Euclidean geometry as a cohesive whole.

## ALGEBRA II COURSES

(The Department)

All Algebra II courses, students will hone their skills in such areas as solving equations, manipulating algebraic expressions, graphing on the Cartesian plane, and uncovering and describing properties of functions. Topics covered will include linear and quadratic equations, systems of equations and inequalities, binomial expansion, functions, polynomials, rational expressions, and exponents. **With advisement, students will choose one of the two following:**

### ALGEBRA II: ANALYTIC GEOMETRY

(The Department)

How can geometric forms be characterized algebraically? This presentation of the Algebra II curriculum aims to synthesize the algebraic and geometric viewpoints. Parallel and perpendicular lines are analyzed using the concept of slope. Geometric transformations such as reflection and translation and scaling are explored by graphing sets of equations on the Cartesian plane. Theorems in geometry concerning similar figures, right triangles, and properties of a circle are handled using algebraic equations. The quadratic formula is derived and the roots of the second-degree equation lead to the discovery of complex numbers and the complex plane. The binomial expansion allows students to characterize the relationship between counting techniques and the coefficients in Pascal's triangle.

### ALGEBRA II: FUNCTIONS AND ABSTRACT ALGEBRA

(The Department)

What, fundamentally, is an *algebra* and when are its equations solvable? This presentation of the Algebra II curriculum will answer these questions and explore their implications. Input/output machines called functions will be around every corner—as an object for investigation, a tool for connecting concepts, and a language of expression. New algebraic systems will be constructed, using abstract objects like symmetries, sets, and functions themselves. Their structures will be investigated and compared with the structure of numeric operations like addition and multiplication, revealing the underlying essence of our number system. Extensive work will be done with functions and their roots in the Cartesian coordinate plane. New operations and inverses will lead to new functions, creating new equations, necessitating the inclusion of new numbers. This process of extending the field of numbers will culminate with the introduction of imaginary numbers and the resulting complex plane.

## ELECTIVES

### TRIGONOMETRY

(First semester) (The Department)

Beginning with trigonometric functions and triangle solutions, we move on to identities, equations, angle formulae, and the practical applications thereof. Last, we cover the graphs of all the trigonometric functions including inverses and period, amplitude, and phase shifts. **Prerequisite: Algebra II.**

### TRIGONOMETRY/ANALYSIS

(The Department)

This is a rigorous approach to polynomial, trigonometric, and exponential functions: sequences and series; vectors; and some analytic geometry. Emphasis is on the mastery of proofs and creative applications to practical problems. This course is a prerequisite for calculus. Text: Dolciani et al., *Modern Introduction to Analysis*. **Prerequisite: Algebra II.**

### CALCULUS I: ALGEBRAIC FUNCTIONS

(Salomon, Sheridan Rossi)

This course is designed to be an in-depth look at the fundamentals of the Calculus and will have less emphasis

on technical details. In a supportive class setting, we will work on strengthening relevant algebraic skills while beginning to explore basic limit properties and the notion of continuity. The course will lead into a discussion of instantaneous rate of change, which will help to develop a definition of the derivative. Students will explore properties of derivatives and apply them primarily to polynomials. Additionally, some time will be spent on trigonometric and exponential functions. The remainder of the year will be dedicated to the exploration of the area under a curve and the concept of integration. **Prerequisite: Algebra II.**

### **CALCULUS I: EARLY TRANSCENDENTALS**

(Mann, Neesemann)

This is a rigorous calculus course with heavy emphasis on proofs, derivations, and creative applications. Limits, derivatives, integrals, and their technical applications are covered. This course will include an early use of transcendental functions and will require a working knowledge of trigonometric, exponential, logarithmic, and rational functions. **Prerequisite: Trigonometry/Analysis.**

### **SHAPE AND MOTION**

(Lockhart)

Perfect mathematical objects like circles can exist only in our minds. What is the nature of this imaginary Platonic realm? What can be known and how can we know it? This course will trace the historical and philosophical development of the mathematics of measurement. Our intellectual journey will take us through classical geometry and trigonometry, the measurement of polygons and polyhedra, conics, and projective transformations, coordinate systems and vectors, mechanical curves, spacetime representations, and the differential and integral calculus. Our focus will be on the beauty and elegance of these ideas and their pivotal role in mathematical history.

This course will offer you the opportunity to engage in the actual practice of mathematics: posing and pursuing your own problems and conjectures, devising your own original arguments and explanations, collaborating as a mathematical community, and experiencing firsthand the joys and frustrations of creative mathematical work.

### **CALCULUS II**

(Janka)

Calculus II is a continuation and expansion of the techniques of Calculus I. It includes a review and a proof of the fundamental theorem of Calculus, further methods of integration with application to physical problems, alternative coordinate systems, series and sequences, vector functions, and differential equations. **Prerequisite: Calculus I: Early Transcendentals.**

### **ADVANCED PROBLEM SOLVING**

(2x per week) (T. Theodosopoulos)

This course is designed for students intending to participate in the school's math team. We focus on mathematical topics not typically covered in the standard curriculum. Topics such as number theory and modular arithmetic, combinatorics, polynomials, geometric loci, probability, functional equations, algebraic and trigonometric identities, geometric inequalities, divisibility, colourings and tilings, Diophantine equations, three dimensional geometry, complex numbers, recursions, infinite series, graph theory, quadratic forms, abstract algebra, generating functions, geometry of conic sections, optimization, spherical trigonometry and logic are explored through a series of problems, often selected from various mathematical contests. We meet twice a week to discuss the solutions to problem sets we've been working on over the previous week. Students are encouraged to conduct independent research and present their discoveries at an in-school math fair. **Prerequisite: Algebra II, or permission of instructor.**

### **GAME THEORY 101**

(Kandel)

How do hawks coordinate their hunt? How does a stallion decide when to fight and when to back down? How

do apes decide when to share, whom to trust, whom to deceive? How do entire lineages decide how much energy to expend on nurturing the young?

When we sit down at the poker table, how do we formulate a betting strategy? Does it change fluidly in response to the behavior of others at the table? Is there any way to model such a thing, or are we stuck with our “gut” intuition? When we allow contractors to bid for that prestigious linoleum-countertop contract, when we decline the steroids even as we suspect others are benefiting from them, when we consider evolving a new limb over the next million years, when we form alliances with countries (or species) we can’t entirely trust... WHAT ARE WE GETTING OURSELVES INTO?!

There’s no better way to develop a deep understanding of these multifarious scenarios than to actually PLAY the GAMES! We will spend our time developing game-theoretic models for everything from card games to ecosystems, from financial markets to dating strategies, and testing them in the lab of our own classroom. While we will be dealing on a deep level with very complex systems, there won’t be too much formalism (“math”) -- We’ll evaluate our games according to how well they model real-world scenarios, and how simple, fun, and enlightening they are to play. **Prerequisite: none.**

### **INDEPENDENT STUDY IN MATHEMATICS**

(1x per week) (The Department)

Topics to be determined by interest and inclination of individual student and teacher.

### **MICROECONOMICS**

(First semester) (The Department)

This course is an introduction to the principles and applications of microeconomics. Topics to be covered include the theory of supply and demand, market equilibrium, consumer behavior, the behavior of firms, and perfect and imperfect competition. Social issues such as pollution, income distribution, and welfare are analyzed within an economic framework. **Prerequisite: Algebra II.**

### **MACROECONOMICS**

(Second semester) (The Department)

This course is an introduction to the principles and applications of macroeconomics. Topics to be covered include the Keynesian and classical models of equilibrium, national income, inflation, unemployment, fiscal and monetary policy, investment and the banking system, international trade, and economic growth. **Prerequisite: Algebra II;** Microeconomics is **not** a prerequisite for this course.

### **MATHEMATICS OF LIFE**

(P. Theodosopoulos/T. Theodosopoulos)

We explore the use of mathematical models to understand biological processes. In the process, we investigate a diverse set of biological dynamics, including the genetic code, the relationship between structure and function of proteins, the forces that guide evolution in viruses, bacteria and eukaryotes, population dynamics, competition and cooperation among species, metabolism and catalysis, neural excitation and inhibition, immunological memory, origins and detection of life. The modelling process plays a central role in this class, offering opportunities to study various mathematical concepts in context, including dynamical systems, Markov chains, random walks and optimization.

Our method of inquiry begins with gathering data and organizing our observations using graphs, and moves to conjecturing models of the apparent relationships, calibrating the models to the data and finally simulating the models computationally to make predictions, both quantitative and qualitative. The readings will include excerpts from E. Schroedinger, *What is Life*, F. Dyson, *Origins of Life*, S. Kaufmann, *Origins of Order and At Home in the Universe*, M. Eigen and R. Winkler, *Laws of the Game*, G. Rowe, *Theoretical Models in Biology*, and A. Wagner, *Robustness and Evolvability in Living Systems*. The class includes a weekly computer lab, culminating in a set of group projects, to be presented at the end of the year. **Prerequisites: Biology and**

**Algebra II, or permission of instructor.**

## **PROBABILITY AND STATISTICS**

(Cross)

My backpack is filled with 600 red poker chips and 300 blue poker chips and your otherwise identical backpack is filled with 300 red chips and 600 blue chips. You select one of the bags, remove 13 chips and find that 8 of them are red and 5 of them are blue. Where's your homework?

We will discuss the nature of chance and learn how to tackle problems of chance. We will develop our methods while performing simple experiments, rolling dice, plucking playing cards from decks and receiving imaginary lab results. We will discuss topics as varied as strategies for the craps table, whether evolution really tends towards more complex life forms, why salts dissolve, the role of luck on the SAT, the odds of a lousy hitter batting .300 and evidence of crooked dice. We will learn to describe and analyze data, first with a paper and pencil and then using statistical software. We will design experiments, run simulations and forecast future events. As a final project, students will thoroughly analyze a set of data that is of particular interest to them.

**Prerequisite: none.**

## **WHAT IS MATH?**

(2x per week) (Lockhart)

What do mathematicians do, and why do they do it? This class examines the art of mathematics from both the philosophical and aesthetic points of view, providing a broad overview of the subject. Mathematics is about exploring our imaginations, finding beautiful patterns, and searching for explanations. Along the way we discover infinite numbers, the transcendence of pi, and the symmetry of knotted space. And we might just learn to see in four dimensions . . . The course features a survey of important unsolved problems that motivate modern research, as well as a "studio" where you create and critique your own works of mathematical art. The purpose of the course is to help you develop your mathematical intuition and taste, and in the process blow your mind to pieces. No previous mathematical experience is necessary, but permission of the instructor is required.

## **ONE SEMESTER COURSES**

The Mathematics Department has developed the following set of one-semester electives to add to our choices of high school courses. Depending on enrollment, not all electives will necessarily run next year. If you register for one of these electives, please be prepared to select a few alternate choices. Depending on interest, courses that do not run next year may run the following year and become part of an alternate-year cycle.

### **THE COMPLEX PLANE**

(First semester) (Salomon)

Why would we need more numbers? How can real mathematical structures be extended to higher dimensions? This in-depth analysis of the complex numbers, aims to take on these questions. Beginning with simple motivations for new, imaginary numbers, we will look at the beautiful algebra and geometry of the complex numbers, operations, and functions. We will take familiar concepts and extend them from their humble origins in the real line into higher dimensions. In doing so, the course will utilize new coordinate systems, vector algebra, and the real-valued trig functions, developing the necessary tools along the way. What is a polynomial if the coefficients aren't real? What's the Fundamental Theorem of Calculus? Extensions may include stereographic projection, infinite series, iteration, fractals, and quaternions. **Prerequisite: Algebra II.**

### **FRACTALS AND CHAOS**

(Second semester) (Neeseemann)

Fractals such as the Snowflake Curve, Cantor Dust, and the Sierpinski Carpet will be analyzed in terms of self-similarity and dimension. We will learn how to generate them pictorially through the use of recursive processes. The phenomenon of chaos will be explored in a variety of mathematical and physical settings. Computers will be used extensively to provide hands on experience with chaotic orbits, cellular automata and Julia and

Mandelbrot sets. **Prerequisite: Algebra II.**

## GEOMETRIC PUZZLES AND GAMES

(Second semester) (Ting)

Do you enjoy working on geometric puzzles? Are you intrigued and amused by the art of M. C. Escher? Would you like to learn more about the origins and development of puzzles, and try out lots of fun mathematical games? Whether you are interested in tangrams (the world's first puzzle craze) or more modern recreations such as Hex and polyominoes, this is the course for you. This class will offer you the opportunity to work on a wide variety of geometric puzzles and games, to develop your own strategies, and to create original masterpieces of mathematical art. **Prerequisite: Algebra I.**

## MODERN ALGEBRA

(Second semester) (Salomon, Weltman)

What is symmetry, and when are two patterns the same? What are numbers, to algebraists? How are the motions of a Rubik's cube like addition or multiplication? This course is an introduction to the abstract structures that typify 19<sup>th</sup> and 20<sup>th</sup> century algebra. These include groups, rings, fields, and vector spaces, both finite and infinite. We will begin with set theory and move on to binary operations, identities, inverses, order, subspaces, and extensions, looking at numerous examples along the way. This course will cast a new light on old structures, uniting seemingly disparate notions. We will see that even the most complicated of things are simply nothing more than the characteristics of their actions and interactions. **Prerequisite: Algebra II.**

## NON-EUCLIDEAN GEOMETRY

(Second semester) (Lanier)

The way that Euclid formalized his understanding of space held sway over the minds of human beings for over two thousand years. To contradict some part of Euclid's system—especially something as intuitive as the way he treats parallel lines—surely this would lead to absurdity, or even madness! Our course will trace the historical thread of this system-questioning and the non-Euclidean geometries that it birthed, from the first ancient inklings to their explosion onto the mathematical scene in the 19<sup>th</sup> century. In the light of this historical context, the main thrust of the course will be a thoroughgoing exploration of the two classical non-Euclidean geometries: elliptic geometry (residence of the right equilateral triangle) and hyperbolic geometry (home to straight lines that approach each other, but that never meet). Our work will involve extensive reading, writing of proofs and essays, solving problems, and building and examining physical and computer models. Through our studies, we'll make connections with such diverse mathematical fields as trigonometry, complex numbers, topology, and calculus, as well as to philosophy, psychology and physics. **Prerequisite: Geometry.**

## NUMBER THEORY

(First semester) (Fiori)

What did Leopold Kronecker mean when he famously said, "God made the integers; all else is the work of man"? In this course you can forget about fractions, polygons, curves, and derivatives. The counting numbers alone provide mathematicians with some of the deepest problems in the subject, and in this class we will begin an exploration of many of these. We look for attractive properties and patterns of numbers, describe them, and, when we can, prove our conjectures. From the elementary, *which combinations of integers make Pythagorean triples*, to the more difficult, *when is a number the sum of two squares*, to the unsolved, *are all even numbers the sum of two primes*, we will see that the most elementary set of numbers provides enough depth to leave us inspired, puzzled, bemused, and humbled. **Prerequisite: Algebra I.**

## TOPICS IN TOPOLOGY

(First semester) (Weltman)

If you had a donut made of rubber, could you stretch it into a coffee cup? If you have a knotted piece of string

(with its ends glued together), can you twist and un-twist, loop and un-loop it into a circle – no scissors allowed? Can you take a walking tour of New York, starting and ending in the same place, and cross each bridge exactly once? And if you try to stretch your rubber donut into a mug, twist your knot into a simple loop, or cross each bridge in a single closed path and find the task impossibly hard, what properties of these objects can you use to distinguish among them and prove that only ripping, cutting, teleportation, or some other non-continuous transformation will get you from start to finish? In this class, we will investigate these problems and others to explore some of the central questions of topology – what properties are shared by objects and spaces that can be continuously deformed into each other, and how do these deformations work? In exploring these questions, we will tie together familiar and new ideas from geometry, algebra, group theory, analysis, set theory, and combinatorics to examine a variety of objects and spaces, including knots, donuts, graphs, manifolds, and three and four (and more) dimensional space. **Prerequisite: Geometry.**

## MUSIC

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All music courses meet twice weekly unless otherwise noted.

### PERFORMANCE STUDY AND ENSEMBLES

The Music Department will offer the following large ensembles based on student needs and interests. It is recommended that students interested in large ensembles choose two (2). Please consult with your current instrumental teacher if you need to know more about any group. It is strongly encouraged that students engage in private lessons on his/her instrument. Students must be proficient in reading and sight singing as determined by the department. **Please note** that all performing ensembles are subject to change from year to year depending on the number and musical level of all participating students.

#### LARGE ENSEMBLES

<b>Brass Choir</b> (trumpets, horns, trombones)	Pickering
<b>Chamber Orchestra</b> (strings and winds)	The Department
<b>Consort*</b> (violin, viola, cello, bass, winds)	Gilbert
<b>High School Chorus</b>	Asbury/Busby

\*requires audition/approval of director

#### BACH ENSEMBLE: THE STUDY OF THE VOCAL AND INSTRUMENTAL CHAMBER AND SOLO MUSIC OF J.S. BACH AND HIS CONTEMPORARIES

(Asbury/Gilbert)

We will work on many aspects of Baroque interpretation, performance practice, style, ornamentation, tempi, the relationship and interdependence of words and music, and any other topics that come up in the rehearsal and preparation of repertoire. We will explore Bach and his contemporaries from the bottom up, paying close attention to the power and influence of the bass line in these great musical works. Keyboard players will learn how to interpret and realize a figured bass and will learn how to play the portative organ. Limited to advanced vocalists and instrumentalists. Audition. Class size is limited to 10.

#### BRASS CHOIR

(Pickering) (3x Per Week)

The Brass Choir is an ensemble for advanced brass players. Musical and technical skills are cultivated through the study and performance of major brass ensemble compositions representing a wide variety of styles. The Brass Choir will perform in instrumental concerts during the year. Students in the Brass Choir should be enrolled in private instrumental instruction. Permission of the instructor is required. Prerequisite: see audition instructions.

## **CHAMBER PLAYERS**

(The Department)

For students interested in the challenge of chamber music performance, Chamber Players groups (including piano ensembles) are organized based on enrollment. Duos, trios, and quartets will be coached once a week. An audition is required for all students who will be participating in the chamber music program for the first time. Students presently participating will be placed at an appropriate level.

## **CHAMBER ORCHESTRA**

(The Department)

The Chamber Orchestra is a conductor-led ensemble of strings, winds, brass and percussion. This ensemble performs repertoire from the Baroque to contemporary and will participate in concerts throughout the year. Because of the strong skills required for this repertoire all participating students are required to take private lessons. Auditions are required for any student enrolling in a large ensemble for the first time.

## **CONSORT**

(Gilbert)

The Consort is a group of mixed winds and strings for advanced players. This ensemble performs without a conductor and will participate in all instrumental concerts during the year. The Consort works closely with a director in rehearsal. Students learn the art of section leading and ensemble playing through the study of repertoire that spans all periods. The Consort will rehearse for one double period and one single period each week. Permission of the instructor is required.

## **HIGH SCHOOL CHORUS**

(Asbury/Busby)(1x per week)

High School Chorus is open to anyone who loves to sing. The chorus sings repertoire from a variety of genres and styles, spanning 500 years of Western music. No previous singing experience is required.

## **JAZZ PERFORMANCE STUDY**

(Coe, Elliott)

Students combos will perform compositions from the huge jazz repertoire, spanning the major styles of jazz from swing to post-bop. Each combo will consist of a rhythm section and front line. All instrumentalists are welcome. There will be opportunities for large group arrangements as well. We will explore approaches to jazz improvisation through the study of harmony, scales, instrumental technique, and arrangement. Combos will have opportunities to perform in our jazz concerts and more informally in assemblies throughout the year. Students should demonstrate an ongoing engagement with their instruments, willingness to improvise, good reading ability, and should have taken Jazz Techniques (or the equivalent). Private lessons are encouraged. This class will consist of twice weekly rehearsals, and one theory/history session per week. **Note: formerly Jazz Ensemble/Jazz Combo.**

## **JAZZ TECHNIQUES**

(Elliott/Coe)

A class in jazz improvisation and ensemble playing. Instruction in basic scales and chords provides a vocabulary for improvisation. Students are introduced to the jazz repertoire. All instrumentalists and vocalists are welcome; interested students should prepare an audition demonstrating a grasp of major and minor scales and chords. Students in this class are strongly encouraged to enroll in private lessons.

## **JAZZ GUITAR ENSEMBLE**

(Coe)

This ensemble performs a variety of music arranged for guitars and percussion. The repertoire includes jazz standards, modern jazz compositions and original music. Ensemble members improve their reading, composing,

accompanying and rhythmic skills. Members should be very comfortable reading music and charts. Permission of the instructor is required.

## **ADVANCED GUITAR**

(Coe)

This course is designed to enhance performing skills on the guitar through the study of popular, jazz and classical pieces. This course is open to any student who has completed Guitar I, or by permission of the instructor.

## **PERCUSSION TECHNIQUES: CLASSICAL**

(Lazzara)

This course emphasizes percussion techniques for the large ensemble. Tympani, mallet technique, bass, snare, and other percussive instruments are studied. Members of this class form the percussion section for the larger instrumental ensembles, Wind Ensemble and Orchestra. **Prerequisite: Percussion I and II, or permission of the instructor.**

## **PERCUSSION: THE DRUM SET**

(Lazzara)

This class explores the role of the drummer in popular music. We study and play techniques that helped define this music, and we listen to recordings of the classic drummers.

## **PERCUSSION ENSEMBLE**

(Lazzara)

This ensemble studies and performs twentieth and twenty-first century music specifically composed for percussion instruments. Additionally, pieces transcribed from other sources are studied. This ensemble is open only to students who have completed Percussion 2 in the Middle School, or by permission of the instructor.

## **VOCAL STUDY AND ENSEMBLES**

(3x per week) (Asbury/Busby/Clark)

Vocal study at Saint Ann's is comprehensive. Our goal is to build better singers, as soloists and choristers. Proper breathing, vowel production, diction and basic singing techniques will be the foundation of our study. Art songs (in English, Italian, French and German) and repertoire from the American musical theater and opera will be studied and performed in solo concert. Additionally, singers will join together to explore the rich and broad canon of western choral music in various voice combinations. Performance opportunities include choral concerts, the spring voice recital and the musical theater workshop. There is no audition required.

## **THEORY, COMPOSITION, AND MUSIC TECHNOLOGY**

### **THEORY & COMPOSITION I**

(Elliott/Williams)

This course offers an exploration of the fundamentals of notation, rhythm, harmony and melody. Students gain a deeper understanding of all musical styles. We train our ears, develop musicianship skills, and study the evolution of the system of tonality used in most musical cultures. Computers and MIDI are used in composition projects.

### **ADVANCED COMPOSITION**

(Elliott)

This course covers the study of harmony and voice-leading, form, counterpoint, notation, style, and instrumentation – including ear training and musicianship skills. Students will work on composition projects

using Finale and other notation and editing software. **Prerequisites: Theory and Composition or equivalent.**

## **ELECTRONIC MUSIC COMPOSITION**

(Langol)

Open to students with advanced skills, an interest in performance/composition, and a facility with music notation, this workshop/class allows students with experience in MIDI and sound processing to realize their creative ideas using the myriad tools of the music lab. Software technology enables composers to achieve unprecedented variety and richness in manipulating recorded sound to create unique compositions. The possibilities are practically limitless. Much like Music & Multimedia, we learn to use digital audio programs, sequencing, possible notation and sampling technology with an emphasis on recording live audio.

**Prerequisites: Permission of the instructor, music lab experience, and facility on an instrument.**

## **MUSIC & COMPUTERS I**

(Langol)

We explore the use of electronic keyboards and computers to compose music for a variety of scoring situations. Our focus is the development of specific sequencing and musical notation skills as related to the fundamentals of music theory, orchestration, and composition. Knowledge of basic notation is preferable. Previous experience with composition is desirable, though not necessary.

## **MUSIC & COMPUTERS II**

(Langol)

This more advanced level continues to explore the ideas covered in Music & Computers I, while solidifying skills established through previous music lab experience. We explore the use of electronic keyboards and computers to compose music for a variety of scoring situations. Our focus is the development of specific sequencing and musical notation skills as related to the fundamentals of music theory, orchestration, and composition. **Prerequisites: permission of the instructor, and Music & Computers I or middle school music lab experience.**

## **MUSIC & MULTIMEDIA**

(Langol)

Building on skills developed in the Music & Computers class, this course focuses on using digital media such as MIDI, digital audio and video to explore contemporary musical idioms. A variety of applications are utilized concurrently to develop technical skills to be used as instruments of self-expression. **Prerequisites: permission of the instructor, and Music & Computers I and II or middle school music lab experience.**

## **MUSIC LITERATURE**

### **THE BROADWAY MUSICAL\***

(Clark)

We will get to know the seminal works of the Broadway canon, looking at the roots and development of this most American of art forms. Class work involves reading the texts, listening to show tunes, and DVD watching. Class participation will include trips, taking advantage of the rich offerings of the New York Theater scene.

### **JAZZ HISTORY**

(1x per week) (Schelle-Herring)

Jazz and blues are among America's greatest cultural achievements, exports to the world community that give powerful voice to the American experience. Born of multi-hued society, this music unites people across the divides of race, religion and region. Jazz history explores freedom, creativity, and the American identity at home and abroad. In this course, we will learn about the development of jazz since its origins at the turn of the twentieth century. We will encounter colorful personalities and amazing artists, taking a look at their specific

contributions to the music, in an effort to understand the stylistic evolution of jazz. Trips to major cultural institutions will complement our extensive listening and learning activities.

## **OPERA\***

(Clark)

The extravagant art. We will look at opera from the ground up, from Monteverdi through contemporary works. Class work involves libretto reading, audio listening and DVD watching. Occasional forays into the scandalous lives of the great composers and opera stars. Class participation includes three daytime trips to the Metropolitan Opera and some written work. Maybe even some HD Broadcasts... no need to be afraid of opera anymore...

\*These classes are not redundant for students who have previously taken History of Opera and Broadway Musical.

## **HISTORY OF WESTERN MUSIC**

(Elliott)

Through its evolution since the medieval period, western art music has established the language of all familiar musical genres from plainchant to popular song. A style emerges, grows more complex, and finally topples, rendered obsolete by the genius of new revolutionaries. We will hear incredible music, find the reflection of the past in the present, and explore new ways to understand musical language. We will take advantage of the vast and exciting musical life of New York City to inspire our journey.

(twice weekly, full year)

## **RECREATIONAL ARTS**

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Courses meet for a full year unless otherwise noted. Classes meet one period per week.

### **AM WORKOUT**

(The Department)

Start the day with something good for your body and brain. Research shows that a morning cardiovascular workout helps to prepare the brain for learning. Come workout in the fitness room from 7:30-8:15AM.

### **AQUATICS**

(First semester) (Howard)

A class for novice and veteran swimmers alike. Basic and advanced stroke and turn technique are covered, along with water conditioning and aspects of water safety, although no lifeguard certificate is awarded. **Note:** One double period per week.

### **BADMINTON**

(The Department)

Badminton is a course for all skill levels. Beginners learn the game by working on fundamental stroke technique; more advanced players polish their skills while improving game strategy. All students participate in exciting singles and doubles matches.

### **RECREATIONAL BASKETBALL**

(The Department)

This class is for the novice and experienced ballplayer alike. Early on, drills and skill work are emphasized, with students receiving both group and individual instruction. As offensive and defensive skills improve, half court and full court games are offered at varying levels of competitiveness.

## **CLIMBING**

(Davis/Madsen)

Students explore vertical and horizontal climbs on our apparatus room climbing wall, learning various climbing techniques—crossover, jump toe, etc.—and belaying techniques.

## **EXERCISE & FITNESS**

(The Department)

This course in conditioning utilizes a variety of fitness and exercise forms, both aerobic and anaerobic. Depending on student interests and teacher's specialties the activities may include yoga, muscle toning, fitness walks, group games, and sport skills. The utilization of weight machines and cardiovascular equipment enhances overall understanding of fitness and its importance.

## **FENCING I**

(Balboa)

This class, covering the fundamentals of fencing, is open to beginners and those with a limited background in fencing. Students learn basic fencing movements and strategies.

## **FENCING II**

(Balboa)

Limited to students with at least one year of fencing, and permission of the instructor. The class stresses conditioning, competitive bouts, and advanced techniques.

## **FENCING III**

(Balboa)

This course continues with the use of advanced fencing tactics and compound actions. There will be an introduction of third and fourth intention and the psychology of the fencer during all the stages of a bout. Students will be required to have their own fencing pants, masks, and gloves.

## **FLOOR HOCKEY**

(Paszke)

This is an enjoyable and exciting class for all skill levels. Students improve hand-eye coordination and knowledge of the game through drills and games. All hockey fans will enjoy this course.

## **INTRODUCTION TO FREESTYLE SPARRING**

(Casanova)

This course is designed to develop physical potential through the introduction of a variety of martial arts styles from kickboxing to submission grappling. Students are introduced to technique training, conditioning exercises, and freestyle sparring. No previous martial arts training is necessary. **Note:** One double period per week.

## **FREESTYLE SPARRING II**

(Casanova)

For students who have completed the Introduction to Freestyle Sparring, this course will help students refine their skills and will emphasize more advanced sparring techniques. **Note:** One double period per week.

## **INWARD BOUND CHALLENGE COURSE I**

(The Department)

This course challenges body, mind and spirit through group games, conditioning, and individual and collective goals. Students set goals and attempt to reach them by working together and offering group support. The year ends with a three-day camping trip that includes climbing and a ropes course.

## **INWARD BOUND CHALLENGE COURSE II**

(Davis)

This course continues in the same vein as Inward Bound 1. Emphasis is on student leadership: leading the class and organizing activities. New activities stressing initiative are introduced, as are rope and belay techniques.

**Prerequisite: Inward Bound I.**

## **KARATE I**

(Campanella)

Students learn the basic punches, kicks and blocks of traditional martial arts; combining these techniques in the practice of forms and freestyle sparring. Some self defense applications are covered, although the primary emphasis of the course is on karate as a sport and martial art. A *gi* (karate uniform) is supplied by the school.

## **KARATE II**

(Campanella)

For students who have completed at least one year's training in the Saint Ann's martial arts program. We cover material for the color belt ranks, with increased emphasis on free fighting and street defense.

## **PHYSIOBALL FITNESS**

(The Department)

Using exercise balls of various sizes, this class teaches different exercises designed to increase flexibility, improve coordination, and develop strength. The emphasis is on core (abdominal and back) strengthening and conditioning.

## **PILATES CONDITIONING**

(Lattimer)

The Pilates method of body conditioning is a unique system of stretching and strengthening exercises developed over ninety years ago by Joseph Pilates. It strengthens and tones muscles, improves posture, enhances flexibility and balance, and unites body and mind.

## **RUNNING**

(The Department)

A course to help people with little or no running experience; experienced runners are also welcome. Stretching and cooling down exercises are taught, along with techniques to improve form and increase speed. Weekly runs vary in distance and intensity. Running routes change from week to week.

## **SOCCER**

(The Department)

This course is a combination of skill development and scrimmaging that is open to all levels of ability. Small-sided games, both indoors and outdoors, are fun and competitive and also serve as an effective way to gauge progress. Come and see why soccer is the world's most popular game.

## **SOFTBALL**

(The Department)

A course for the beginner as well as the experienced softball player. Within the context of games, students have the opportunity to learn new skills and share in the enjoyment of this popular sport.

## **SPORT DANCE**

(Benney)

This class combines elements of modern dance technique with the sheer physicality of athletics. Students learn a fun and challenging warm-up, create their own choreography inspired by photographs from sports magazines and newspapers, and get a good workout. All levels of dancers and athletes are welcome.

## **TABLE TENNIS**

(Carr/Guo)

Table tennis is one of the fastest growing sports in the United States. Join this class to speed up your hand-eye coordination and to learn how to play this enjoyable game.

## **TAP**

(Howard)

This class teaches rhythmic tap technique, working with complex foot rhythms that lead to improvisation. The body attitude is grounded (closer to the ground), like African dance, as opposed to the lifted attitude of the Broadway tap style. Traditional and contemporary works are learned.

## **ULTIMATE FRISBEE**

(The Department)

Ultimate offers a fun, exciting alternative to traditional sports. Students incorporate throwing, catching and teamwork into a framework of speed and finesse.

## **VOLLEYBALL**

(The Department)

This class incorporates both instruction and game playing, including the skills of serving, bumping, setting, spiking and, most important, teamwork.

## **WEIGHT & FITNESS TRAINING**

(The Department)

This course introduces the student to the merits of weight and fitness training. Both free-weight and machine work are incorporated into each personally designed workout. Other areas to be explored include flexibility (through stretching), proper nutrition, and the value of aerobic training.

## **YOGA**

(Busby, DiFiore)

An introduction to one of the oldest existing forms of physical exercise. Increases body awareness, flexibility, and concentration.

## **ADVANCED YOGA**

(DiFiore)

In this class we explore advanced yoga postures, breathing techniques, and beginning meditation. Prerequisite: One year of yoga or permission of the instructor.

## **INTERSCHOLASTIC SPORTS**

(The Department)

All students may try out for interscholastic teams. Emphasis is placed on developing and fostering athletic standards of excellence through participation and competition. All team sports require a significant commitment to practice and game schedules. Saint Ann's is a member of the Athletic Conference of Independent School (ACIS), and the girls' teams also belong to the Athletic Association of Independent Schools (AAIS). Our baseball and track teams are members of the Private Schools Athletic Association (PSAA). Our fencing teams are members of the Independent School Fencing League (ISFL). Teams include baseball, basketball, cross country, fencing, gymnastics, soccer, softball, squash, track, and volleyball.

# SCIENCE

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All courses meet for a full year unless otherwise noted.

## BIOLOGY COURSES

### BIOLOGY

(Required) (The Department)

Biology is the scientific extension of the human tendency to feel connected to and curious about all forms of life. It takes us to the wet, wild world inside a cell, and nudges us to take a close look at the stripes of a zebra or to plunge down to the dark regions at the bottom of the sea where albino crabs move with unhurried pace over the soft, cold mud. This course covers vital topics in this field such as cytology, genetics, biochemistry, taxonomy, evolution, botany, and ecology. This is a dense, grand tour of the most definitive aspect of this planet.

**Prerequisite: none.**

### ANIMAL BEHAVIOR

(Zayas)

In this course you will be introduced to Ethology, the branch of biology concerned with the mechanisms and evolution of behavior in wild animals, and Comparative Psychology, the study of general behavior patterns across species. Students will investigate how complex behaviors such as communication, aggression, learning and mating are organized. By examining multiple types of behavior across species, we will explore both *how* and *why* animals behave the way they do. As a student in this course, you will learn a variety of observational methods and data analysis techniques and will practice various methods of collecting data in the field and in the lab.

This course will be presented through a combination of lectures, discussion, and an occasional field trip. Though there will be few formal labs, be prepared to interact with some live (and sometimes creepy crawly) animals in class. A significant amount of reading will be assigned. During the second semester, students will work on an independent project exploring a question in animal behavior which will result in a research paper and/or presentation to the class at the end of the year.

Although no specific background is assumed, students with an elementary knowledge of Darwinian evolution are at an advantage. **Prerequisite: Biology.**

### HUMAN HEALTH AND DISEASE

(2x per week) (P. Theodosopoulos)

Explore the boundaries between human health and disease- when does a disruption of homeostasis constitute a disease state and in what context is that state significant for the patient? In this course, we will learn the essential techniques that physicians have historically relied upon for diagnosis, such as being an excellent observer, creating a detailed history and performing a thorough physical exam. By integrating knowledge of the anatomy of the organ systems and their physiology, we will work through clinical case studies to formulate a differential diagnosis, or list of potential diagnoses for the patient. We will then discuss the use and utility of standard imaging and laboratory tests as well as more sophisticated imaging and molecular techniques for making diagnoses, treatment decisions and prognoses. **Prerequisite: None. May be taken with The Secret of Life.**

### THE SECRET OF LIFE: AN INTRODUCTION TO THERMODYNAMICS, BIOENERGETICS, AND METABOLISM

(2x per week) (Okeson)

Here's the thing: We tend not to think about the 'secret of life' in terms of biochemistry. (Well, I do.) But, truth be told, life hinges on the existence of gradients: pressure gradients, concentration gradients, energy gradients, and the like. In this course, we will describe the energy requirements, the energy in and energy out, necessary for human beings to live, grow, and reproduce. We will discuss how our body responds to particular energy

demands when we are at rest or play, when we are healthy or ill.

We begin with a brief study of thermodynamics (systems, enthalpy changes, entropy, and Gibbs' Free Energy), and move forward to bioenergetics and metabolism. After reviewing some of the old favorites of biochemistry (ATP, aerobic and anaerobic energy processing), we will venture into the world of metabolism to consider energy expenditures of rest (including sleep, eating, pregnancy), as compared to energy expenditures of work, activity, exercise, and exercise recovery.

Energy in; energy out: that's what this is all about!

**Prerequisites: Biology and Chemistry;** Advanced Biology or Advanced Chemistry recommended. **May be taken with Human Health and Disease**

## **MARINE BIOLOGY**

(Richards)

Come explore life under the sea in this comprehensive full-year course! We'll consider a range of marine ecosystems - such as salt marshes, coral reefs, hydrothermal vent communities and kelp forests - and discuss the environmental pressures that have influenced the organisms that have evolved to live there. The emphasis during the first semester will be on seaweeds, marine plants and invertebrate sea creatures. During the second semester we'll turn our attention to marine vertebrates - bony fish, reptiles, birds, and mammals. Participants have the option of immersing themselves in a week-long expedition to the Newfound Harbor Marine Institute in Florida during the spring break. **Prerequisite: Biology.**

## **PHARMACOLOGY**

(Second semester) (Connolly)

Human health, culture, and in some cases survival have become irreversibly infused with pharmacological compounds: drugs, ancient and modern, save and end lives, promote and degrade health, and enrich and impoverish individuals, companies and nations. The process of drug discovery itself is fascinating, requiring millions of dollars, thousands of willing subjects, and spotless science to bring safe drugs to market. Predictably, when dollars and politics enter the mix, the science, economics and politics surrounding biomedical and recreational drugs that fuel modern society across countless cultures quickly become tainted, complicated and controversial.

Aspirin, penicillin, caffeine, Prozac, morphine, nicotine, Viagra, hormonal birth control, vaccines, alcohol, Lipitor, insulin, marijuana, Tylenol, lithium, Cipro: all of these drugs and many others have had deep, lasting cultural impacts through the ages. In this class, we will explore the pharmacological actions of selected compounds (how they work on the brain and/or tissues to bring about their effects), in addition to examining the science that lies behind the process of drug discovery, synthesis and large-scale manufacturing. Additionally, we will closely examine the economics of drug promotion, sales and research, as well the politics and societal characterizations surrounding different compounds. This class will be primarily lecture and discussion, with occasional labs. **Prerequisite: none.**

## **ADVANCED BIOLOGY**

(Kaplan)

This is an intense and rigorous immersion in a comprehensive study of biochemistry, cell biology, genetics, botany, evolution, and anatomy and physiology. Lectures and discussions are supplemented with occasional in-depth labs, and articles from journals such as *Nature*, *Science*, and *Scientific American*. The only way to cross the ocean of information, enjoying the fast pace and laboratory work, is to be a bonafide biophile! The class meets one seminar period each week in addition to regular class time. Students are expected to have a thorough grasp of ninth grade biology topics. **Prerequisites: Biology, Chemistry.**

## CHEMISTRY COURSES

### CHEMISTRY I

(The Department)

This is a broad, sweeping, fast-paced survey course introducing students to the fundamental principles of chemistry, and to the basic techniques a chemist uses. Topics include stoichiometry, atomic and molecular theory, basic atomic and molecular structure, and gas laws, and may also include thermodynamics, chemical equilibrium, and acid-base chemistry. Students develop facility working with calculators and become intimate with the Periodic Table. Laboratory work is an integral part of the course, both in illustrating principles presented in lectures and in providing experience conducting qualitative analysis. **Prerequisite: Algebra I.**

### APPLIED TOPICS IN CHEMISTRY: FORENSICS

(Zmuidzinias)

*Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibers from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. All of these and more, bear mute witness against him. – Professor Edmond Locard (1877-1966)*

A basic principle of forensic science is that every contact leaves a trace. The goal of this course as well as that of a forensic chemist is to isolate microscopic trace materials in hopes of identifying their chemical make-up and origin. This lab heavy course will dive into exploring the techniques and topics of forensic science through the perspective of chemical analysis. We will characterize the "evidence" left behind at crime scenes which includes fingerprints, hair fiber, fabrics, skin cells, blood, fire accelerants, gunpowder, drugs, food, poisons and much more. Organic macromolecules (DNA, lipids, proteins and sugars) extracted from biological specimens (blood, urine, saliva, bacterial cadavers) will be subjected to molecular analysis. We will use chromatography, spectrophotometry, microscopy, PCR and electrophoresis techniques. Contemporary and historical crimes dating back to 1900, will illustrate the advances of forensic science and keep us amused with their intrigue, insights and ethics. Squeamish scientists need not apply. **Prerequisite: Chemistry I.**

### ORGANIC CHEMISTRY

(K. Fiori)

Organic molecules are everywhere. They make up our bodies, our clothing, the medicine we take, and the food we eat. This course is an introduction to the astounding complexity of these molecules and the diverse chemistry they participate in. We will focus primarily on the basic principles necessary to understand the structure and reactivity of these ubiquitous organic molecules. Students will learn to think like organic chemists. We will explore how differences in electronegativity, the presence of lone electron pairs, and resonance structures influence reactivity. We will analyze the symmetry of molecules and learn how to see molecules in three-dimensions. Additionally, we will learn to use our chemical knowledge to design routes to make complex molecules from simple starting materials. Throughout this course, we will draw on examples from daily life to illustrate the important chemical concepts we are studying. Weekly labs will introduce common laboratory separation and purification techniques and allow students to have first hand experience performing the reactions they study in class. **Prerequisite: Chemistry I.**

### ADVANCED CHEMISTRY

(Cross, Velikonja)

This course is designed to give students the experience of an intensive college level course in which they will hone their ability to think critically about chemical phenomena. We will discover why some chemical reactions happen while others don't, how quickly reactions happen and how far they will proceed (thermodynamics, kinetics and equilibrium). We will also revisit, and explore in greater depth, some of the topics from first year

Chemistry including stoichiometry, gas laws and bonding. Additionally, we will discuss applications of chemistry such as electrochemistry, buffer systems and solubility. The rapid pace of the course requires independent learning and preparation on the part of the students and weekly seminar period labs add to the time commitment. Advanced Chemistry is for those who seek a deeper understanding of matter, relish wrestling with equations and who find chemical reactions exocharmic.

**Prerequisite: Chemistry I.**

## PHYSICS COURSES

### PHYSICS I

(The Department)

This course provides a systematic introduction to the main principles of classical physics such as motion, forces, fields, electricity, and magnetism. We emphasize the development of conceptual understanding and problem solving abilities using algebra and trigonometry. Familiarity with trigonometry is highly helpful, but not required. The class includes a laboratory component. **Prerequisite: Open to 10<sup>th</sup>-12<sup>th</sup> graders, or with permission of the teacher.**

### CLASSICAL MECHANICS, RELATIVITY, AND QUANTUM THEORY

(Kandel)

This course is a study of motion. The depth with which we examine motion, however, is such that by June we may no longer know what the term “motion” means. Motion of what? A particle? A field? Motion in which reference frame? Is the motion inertial or accelerated? Jerked or whipped? Eternally differentiable? By solving numerous and subtle problems in mechanics and exploring the mind-blowing developments of the twentieth century, we begin to see patterns, sense, and harmony in the laws of nature. **Prerequisite: none.**

### ROBOTICS

(Benadiba)

This is an engineering-based class with an emphasis on teamwork, creativity, and problem solving. Working in teams, students use Lego-Mindstorm and Robolab software to design and program gradually more advanced robots, from simple cars to cranes and crawlers. We cover various scientific concepts ranging from the mechanics of motion and gravity to the depths of artificial intelligence, where autonomous machines are capable of interpreting their environment and adapting to it. Robotics is an extremely hands-on course requiring a high level of independent motivation. **Prerequisite: none.**

### ANALYTICAL PHYSICS

(Benadiba)

This second year, college-level physics course offers a comprehensive review of the material from the first course with an emphasis on deeper, more complex problems and covers new topics such as fluid dynamics, optics, atomic and modern physics. The course focuses on problem solving and mathematical methods. **Prerequisite: Physics I.**

## OTHER COURSES

### DREAM, SLEEP, AND CONSCIOUSNESS

(Kandel)

We spend nearly a third of our lives sleeping, yet we seldom bring scholarly discipline, much less scientific scrutiny, to these hours. We'll identify the states of consciousness passed through every night, from the onset of hypnagogic images to the rushing in of dream memories upon awakening. The class will examine theories of lucid dreaming in contemporary and traditional Eastern philosophies. We'll also explore theories behind

methods of improving sleep and dream recall. In the course of this study, we'll wonder about the workings of our brains and the evolutionary purpose of the bizarre yet universal experience of dreaming. We'll discuss current theories from cognitive science, and we'll look at examples from the animal kingdom. The role of dreaming among the Iroquois, Australian Aborigines, and modern civilizations will be examined. Readings will range from Freud, Jung, Pinker, and Dawkins to esoteric, mystical texts from the ancient world. **Prerequisite: none.**

### **GAME THEORY 101**

(Kandel)

How do hawks coordinate their hunt? How does a stallion decide when to fight and when to back down? How do apes decide when to share, whom to trust, whom to deceive? How do entire lineages decide how much energy to expend on nurturing the young?

When we sit down at the poker table, how do we formulate a betting strategy? Does it change fluidly in response to the behavior of others at the table? Is there any way to model such a thing, or are we stuck with our "gut" intuition? When we allow contractors to bid for that prestigious linoleum-countertop contract, when we decline the steroids even as we suspect others are benefiting from them, when we consider evolving a new limb over the next million years, when we form alliances with countries (or species) we can't entirely trust... WHAT ARE WE GETTING OURSELVES INTO?!?

There's no better way to develop a deep understanding of these multifarious scenarios than to actually PLAY the GAMES! We will spend our time developing game-theoretic models for everything from card games to ecosystems, from financial markets to dating strategies, and testing them in the lab of our own classroom. While we will be dealing on a deep level with very complex systems, there won't be too much formalism ("math") -- We'll evaluate our games according to how well they model real-world scenarios, and how simple, fun, and enlightening they are to play. **Prerequisite: none.**

### **MATHEMATICS OF LIFE**

(P. Theodosopoulos/T. Theodosopoulos)

We explore the use of mathematical models to understand biological processes. In the process, we investigate a diverse set of biological dynamics, including the genetic code, the relationship between structure and function of proteins, the forces that guide evolution in viruses, bacteria and eukaryotes, population dynamics, competition and cooperation among species, metabolism and catalysis, neural excitation and inhibition, immunological memory, origins and detection of life. The modelling process plays a central role in this class, offering opportunities to study various mathematical concepts in context, including dynamical systems, Markov chains, random walks and optimization.

Our method of inquiry begins with gathering data and organizing our observations using graphs, and moves to conjecturing models of the apparent relationships, calibrating the models to the data and finally simulating the models computationally to make predictions, both quantitative and qualitative. The readings will include excerpts from E. Schroedinger, *What is Life*, F. Dyson, *Origins of Life*, S. Kaufmann, *Origins of Order and At Home in the Universe*, M. Eigen and R. Winkler, *Laws of the Game*, G. Rowe, *Theoretical Models in Biology*, and A. Wagner, *Robustness and Evolvability in Living Systems*. The class includes a weekly computer lab, culminating in a set of group projects, to be presented at the end of the year. **Prerequisites: Biology and Algebra II, or permission of instructor.**

### **PROBABILITY AND STATISTICS**

(Cross)

My backpack is filled with 600 red poker chips and 300 blue poker chips and your otherwise identical backpack is filled with 300 red chips and 600 blue chips. You select one of the bags, remove 13 chips and find that 8 of them are red and 5 of them are blue. Where's your homework?

We will discuss the nature of chance and learn how to tackle problems of chance. We will develop our methods while performing simple experiments, rolling dice, plucking playing cards from decks and receiving imaginary lab results. We will discuss topics as varied as strategies for the craps table, whether evolution really tends towards more complex life forms, why salts dissolve, the role of luck on the SAT, the odds of a lousy hitter batting .300 and evidence of crooked dice. We will learn to describe and analyze data, first with a paper and pencil and then using statistical software. We will design experiments, run simulations and forecast future events. As a final project, students will thoroughly analyze a set of data that is of particular interest to them. **Prerequisite:** none.

### **INDEPENDENT SCIENCE RESEARCH**

(One half credit per year) (The Department)

The Independent Science Research Program grants students the opportunity to design experimental strategies to explore personally perplexing questions of science: *What would happen if...? Why is it that...? How does...?* Research objectives are as unique and varied as the investigator. Topics are multidisciplinary, ranging from biology and chemistry to the physical fields.

Independent Science Research is a cooperative endeavor between a student or several students and their chosen mentor. Saint Ann's science teachers, as well as auxiliary research investigators, serve as advisers. Students meet with the research coordinator in September to discuss potential exploration topics and to make a productive mentor match. Research work proceeds at a pace stipulated by the project as well as the ambition of the research team. Research groups are expected to meet regularly every week. In addition, research students are required to gather as a group for one scheduled class period per week. This class will be used to discuss scientific literature, investigate science research methods, and conduct peer review presentations. After completing a year of exploration, students summarize their projects in a formal research paper. In the spring, discoveries are made public through a poster and oral symposium. **Prerequisite: none.**

### **SEMINARS**

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The high school seminar program is a unique series of offerings presented by teachers in addition to their regular teaching load. Our seminars are intense double periods in which students follow out shared intellectual and creative interests. They usually happen at the end of the school day because, in the busy schedules of the students and instructor, no other time is available.

#### **AMERICA IN THE 1920s**

(First semester) (Tompkins)

This seminar will explore the peculiar hold that the 1920s have exercised on the American imagination, and the ways in which the images and myths of that era—gangsters and gamblers, jazz musicians and expatriate writers, flappers and Klansmen—both reflect and distort the realities of a decade bookended by war and depression. We will consider the end of the Progressive era and the impact of the First World War, the continued emergence of a self-consciously modernist aesthetic in literature, poetry, architecture, and the arts in an era of conservative politics, the role of public intellectuals in shaping the self-consciousness of the era, the impact of urbanization and suburbanization on American society, the shifting place of race and gender, and the broader question of how historians define, and systematically employ, the concept of culture to understand the past. Our windows onto the 1920s will include novels, poems, historical monographs, films, advertising and other sources. Seminar participants will be expected to take an active and informed role in our weekly discussions and to complete several written assignments, including a brief research essay.

#### **ANCIENT GREEK LITERATURE IN TRANSLATION: EPIC AND TRAGEDY**

(Mason)

We will read the *Iliad* and the *Odyssey* in translation, and, if time permits, we will read selected Greek Tragedies. We will read these works carefully and slowly, with an eye towards understanding them in the cultures that

produced them. Students who do not currently take Classics courses are encouraged to register.

## **THE ART OF DEBATE AND RHETORIC**

(Kingsley/Mason)

The Debate and Rhetoric seminar meets as a single House once a week in the late afternoon seminar period. We break up into smaller committees to debate and vote on resolutions, practice speaking in various formats, arrange impromptu and prepared intramural debates in both large and small houses; and participate as individuals and as a team in the Princeton Model Congress in November and other Model Congresses. We also plan to host a Saint Ann's Model Congress. The House is largely self governing, on the premise that the secret of free speech is respect for difference of opinion, and rule by majorities—democracy—depends on the assent of minorities. **Note:** Students who elect this seminar should not commit to more than one extramural season sport with practices or games that conflict with class meetings.

## **A SELECTION OF UTOPIAS**

(Everdell)

We will read Plato's Republic (part 1), More's Utopia, Bacon's New Atlantis, Bellamy's Looking Backward, Huxley's Brave New World, and others, with a view toward constructing the history of philosophy from them.

## **COMMUNITY SERVICE: MORE THAN JUST BOOK DRIVES**

(First semester) (Gnagnarelli)

In the late 1960s, someone came up with the notion of “random acts of kindness.” For instance, what if when you were going through a tollbooth, you paid for the car behind yours even if you didn't know who was in it? How does this alter society? This seminar discusses the concepts of philanthropy and volunteerism, and also primes the real life skills needed to help organizations achieve their goals of improving both our local and our global society. While some people are driven by humanitarian motives, others seem to act out of enlightened self-interest. What is the benefit to each individual who participates in a service-related project or activity?

Students choose from an array of educational, social, political or environmental issues and plans and execute community service initiatives. Projects may be individual or involve a number of students. As a class, we visit community service programs around the city, model a large project for the class, and offer feedback for each project designed by class members. Some current projects involve offsetting the climate crisis, recycling, homelessness, and children's health and nutrition.

While we surf the net and scan *The New York Times* looking for new possibilities, we also help connect other students with organizations with which we have formerly partnered, including the Brooklyn DA's office, Brooklyn Parents for Peace, Heifer International, Brooklyn Heights Synagogue Shelter, Chung Pak Day Care Center, Project Reach Youth, L.I. College Hospital, Legal Outreach, P.S.8, Helen Keller Services for the Blind, Spence-Chapin Services to Family and Children, the Prospect Park Alliance, Project Cicero, Brooklyn Historical Society, The Jubilee Center, Lighthouse for the Blind, 78th Precinct Sports, and the Arab-American Family Support Center.

## **ENVIRONMENTALISM AND SUSTAINABILITY FROM THE LOCAL TO THE GLOBAL: A CALL TO ACTION**

(P. Theodosopoulos)

Come and explore the history and scope of the environmental movement in America since Thoreau, and how the issue of sustainability has evolved in the economic, social and political spheres. We will explore current “green” technologies and conservation initiatives. The students will have the opportunity to create and participate in local sustainability projects from building awareness in the community to more “hands-on” activities at Saint Ann's and beyond.

## FACETS OF CHILDHOOD: SEMINAR AT THE PRESCHOOL

(Fuerst/Stevens)

In a letter Vincent Van Gogh write to his friend Emile Bernard (from 1888), Van Gogh acknowledged that science incontrovertibly has proved that the earth is round; why then do people persist in thinking that "*life is flat* and runs from birth to death"? At the preschool, we all meet in a dance that suggests Van Gogh's geography: "But life, too, is probably round, and much greater in scope and possibilities than the hemisphere we now know." Children at this age can allow many realities to exist at the same time, in this roundness. We will explore the ever-expanding hemisphere of childhood through different themes, from play and playgrounds, to portraiture and pretend, to fairy tales, favorite children's books and collaborative art-making, as we meet in a seminar setting, and through each high schooler's involvement in a preschool classroom.

## FILM ADAPTATIONS

(Tirado)

Did you know that *Psycho* was based on a novel that chronicled the exploits of a real-life serial killer from Wisconsin? Or that *Clueless* is a loose adaptation of Jane Austen's *Emma*? This course will examine what exactly happens when a written work is translated into a cinematic one. Which characters don't make the cut? Which "critical" moments of a book's narrative are left out of a film? Does it still manage to tell the story successfully? Can a film (dare we even say it?) be "better than the book"? Through the analysis of both visual devices and narrative elements, students will begin to understand the unique problems posed by film adaptation. We will read selected plays, novels, and short stories and watch their cinematic counterparts as we explore the world of derivative work. Works to be read/screened will include but not be limited to: *Out of Africa* (written by Isak Dinesen, directed by Sydney Pollack), *Sense and Sensibility* (written by Jane Austen, directed by Ang Lee), and *Psycho* (written by Robert Bloch, directed by Alfred Hitchcock).

## HIGH SCHOOL LITERARY MAGAZINE

(The English Department)

The High School Literary Magazine is created by a board of students and faculty advisors whose goal is to find and publish excellent high school writing. The Board (about eighteen students selected by the English Department and the Heads of the High School) meets once a week during a seminar period to discuss and select poetry and prose. In addition, board members prepare all selections for layout and, in April, help compose the magazine. Because the work is heaviest in February, March and April, students must give several extra hours a week during this period.

## LATIN DANCE

(Davila)

This seminar is offered to all students who want to explore Latin dance, rhythms and space. Students will listen to, differentiate between, and learn different styles of salsa, merengue, saya, and joropos. They will also be able to socialize and develop a sensibility that will make it easier for them to assimilate the Latino language and culture. **Note:** everyone can dance without any exception; if you think you cannot dance, just try and start with us, you will see the results. **Requirement:** All participants must bring their own partner.



## MATHEMATICAL ART

(Second Semester) (Lanier/Neeseemann/Salomon/Weltman)

We'll take mathematical structures as raw materials, tools, and inspiration for creating artwork. Our creations—drawings, sculptures, computer-aided designs, video, pieces of music—will in turn help us to better understand mathematical structures. This class will involve reading, examining work by other artists, posing and solving problems, and, above all, creating works of art.

## **MOCK TRIAL SEMINAR**

(Hill)

The Mock Trial Seminar is designed to teach students about the legal trial process and the skills needed to be effective courtroom advocates. The seminar operates on a "learn by doing" principle, whereby students actively practice techniques of effective persuasion. The skills of thinking on one's feet, preparing arguments and analyzing cases are emphasized. The first semester is devoted to learning and perfecting courtroom skills in order to prepare the students for the New York State Bar Association Mock Trial Competition against other city schools in the spring. Students work on practice cases to gain facility with preparing direct and cross examinations, making objections, introducing evidence, and learning trial procedure. Attendance and interest are critical to forming a cohesive team for going to trial. Extra meeting times in January and February will be necessary as the competition approaches.

## **MODELS OF GROUP DECISIONS: THE POLITICAL AND BEHAVIORAL SPHERES IN THE ECONOMY**

(T. Theodosopoulos)

We will read widely to familiarize ourselves with elements of Political Economy and the role of institutional arrangements for aggregating preferences in a historical and global context. We will explore modeling paradigms, from game theory and auctions to voting schemes, in an attempt to disentangle the non-market forces that shape the economy. Limits to rationality and a host of behavioral norms and biases will challenge us to develop rich enough models to accommodate them. This seminar probes the interface between social science and mathematics, both in substance and in modes of inquiry, involving readings and debate, as well as computer modeling of interacting economic agents.

## **NIETZSCHE**

(Aronson)

Here then, in a mood of agitation we are heard to knock at the gates of the present and the future: will that 'transforming' lead to ever-new configurations of genius, and especially of the music-practicing Socrates? Will the net of art which is spread over the whole of existence, whether under the name of religion or science, be knit ever more closely and delicately, or is it destined to be torn to shreds under the restlessly barbaric activity and whirl which calls itself 'the present'? Anxious, yet not despairing, we stand apart for a brief space, like spectators allowed to be witnesses of these tremendous struggles and transitions. Alas! It is the magic effect of these struggles that he who beholds them must participate in them! -from *The Birth of Tragedy*

Friedrich Nietzsche is one of the most misunderstood, one of the most ill used, and also one of the most important philosophers of the modern era. Through his provocative, indirect and often poetic style of communication, he challenges his readers to "practice reading as art" and to take a fresh and serious look at the foundation of Western culture. Nietzsche's philosophical investigations relate in one way or another to almost every important branch of philosophy—from ethics and epistemology to metaphysics to philosophy of art and literature to philosophy of science to philosophy of language. And whether you agree with him or not—and in many cases it will be that you do not—his influence on the world of philosophy, the world of psychology, and the world of literature is unquestionable. In line with this we will also look at Freud, some modern philosophy of language, and talk about modern and post-modern literature. The reading list includes: *The Birth of Tragedy*; *On the Genealogy of Morals*; selections from *Beyond Good and Evil*; *The Gay Science*; and *The Twilight of the Idols*; selections from *Ecce Homo* (such as "Why I Am So Clever" and "Why I Write Such Good Books"); and *Thus Spoke Zarathustra*. There are no prerequisites for this course other than a willingness to think hard and a desire to "practice reading as an art."

## **POETRY WRITING WORKSHOP**

(Skoble)

Poetry is a craft as well as an art. Poems don't *happen*, they are *made*. In this workshop we learn how to use the

tools of poets. We take poems apart to see how they work, and we put things together to see *if* they work. Construction and experimentation, exploration and imitation are the processes we use to help us create poems. The poetry workshop is open to all, including dancers, thespians, musicians, athletes and astrophysicists. We meet one double period each week to share our efforts, to read and discuss, and, of course, to write.

### **RACY, SEXY, CLASSY: DIFFERENCE AND DISTINCTION IN THE 21ST CENTURY**

(Bertram/Friedrichs/Kang )

Gender, race, sexual orientation, class, national origin, age, religion, ethnicity: all of these qualifiers define us as people and as communities, but which are real and which are artificial distinctions? How do they impact us positively or negatively on a daily basis both individually and in our communities? Are we immune from them in the hallowed halls of our school or do they color our vision here as in the rest of the world? In this class we will attempt to address these questions and many more through reading, film, discussion, and our own experience. Previous ideology is not required, but welcome.

### **READING DOUGLAS HOFSTADTER AS FOREGROUND DELIGHTS A TAD**

(First Semester) (Lanier/Neeseemann/Salomon/Weltman)

...but reading *Gödel Escher Bach, Metamagical Themas, and I Am a Strange Loop* with background, or as figure and ground at once, or (in Zen fashion) neither, or just with other people, delights even more. Tangled hierarchies, formal systems, strange loops, artificial intelligences, termination testers, recursive statements, meta-recursive statements, recursive meta-recursive statements – mathematics, computer science, linguistics, logic, music, and art – and on and on. Join us in exploring it all!

### **SPACE COLONIES**

(Roam)

Could some of that limitless solar energy in outer space be safely beamed down to Earth, making us less hungry for oil and less reliant on gas-burning cars and coal-burning power plants? Couldn't this be a boost for health, environment, prosperity, you name it, if it worked? Since the 1970s, some physicists have been suggesting that colonies floating in space could build huge solar collectors, using minerals from the moon, and using microwaves to send down cheap (?) energy. This seminar asks whether space colonies are a possible, desirable investment in the future, and how they might realistically work. Issues include safety and health and life in space (artificial gravity, radiation), energy, cost, basic physics, and even political philosophy (Colonialization? Independence? Weapons in space?). We study models (simulations) of life support, ecosystems, financial investments, and world population vs. hunger vs. resource trends. The "Civilization IV" game, with its "manage a country" role-playing, might give us a way to design a "civ in space" scenario. We read works by technology philanthropist Buckminster Fuller and works by Ray Kurzweil, who is forecasting a rapidly approaching technological "singularity"—an escalating collection of breakthroughs in everything from genomics to artificial intelligence, robotics, nanotechnology and energy. This is also a chance to participate in NASA's annual space colony design contest for high school students. See <http://gargoyle.saintannsny.org> for more information.

**Prerequisite:** No programming experience necessary.

### **TRUE STORIES**

(Donohue)

How do you write a story about a weird guy who lives in your neighborhood? (Start by reading Joseph Mitchell.) How do you write about politics? (You first read Joan Didion.) How do you write a celebrity profile without sounding like a twit? (Read Ian Parker.) How do you write about a sports star? (John Updike, John McPhee.) How do you write about subjects that don't *want* to be written about? (Janet Reitman on Scientology, Gay Talese on Frank Sinatra.) How do you write about war? (Michael Herr, Dexter Filkins.) About travel? (Paul Theroux.) How do you reconstruct an event of extreme complexity? (C.J. Chivers on the massacre in Beslan, Russia; David Grann on a wrongly convicted Texan.) How do you write about your own experiences? How do you shape your material? How do you tell a true story?

This seminar will explore various forms of narrative nonfiction—investigative journalism, war reporting, personal essays, feature stories, sportswriting, profiles, and travel writing. Each week we examine a classic example of long-form journalism. We read not only as literary critics but also as aspiring practitioners. We take the stories apart, and we try to figure out how to write them ourselves. We invite working journalists to come advise us on craft, and on practical matters like how to get the most from an interview. Then, in the second semester, every student in the seminar writes a 3,000-word (or longer) piece of narrative nonfiction—a profile of someone, a historical account, an investigative feature, or a personal essay.

## **20TH CENTURY THEORY AND CRITICISM**

(Flaherty)

What happened to Truth and the Author? What is La Difference? When did philosophy turn towards the text? When did literary criticism become about language itself, and the fault lines found there? How did culture and history seep into what we mean by meaning?

This course will take a look at what the French started, beginning with Structuralism, heading into the inevitable post-structuralism, and all the variety that followed from a list of mighty dense but interesting thinkers: Levi-Straus, Derrida, Foucault, Barthes, and Deleuze. We'll also examine thinkers outside of France, such as Edward Said and Homi Bhabha.

We will take on samples from these writers slowly, with patience, and humility. No prior experience necessary, no writing, just close reading and a willingness to stretch ourselves and dive deep.

## **YEARBOOK**

(Hord)

Lots of film, lots of fun. You'll be shooting many rolls of film – candid portraits of your friends, classmates, and teachers. We meet once a week, print like mad, and then edit our work; we say yes to some photographs and no to many more. We talk about what works, what doesn't, and why. And in the end, the big reward: your photographs published, in a real book. **Prerequisites: You must have had one year of B&W Photography and be a senior.**

## **THEATER**

All classes meet one double period per week unless otherwise noted.

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### **ACTING**

(Barnett, Lamazor)

This is a professional caliber acting class with emphasis on character study, acting technique, breathing, vocal, and relaxation exercises. Time is devoted to movement exercise, sense memory, and to improvisation, games and storytelling. Ensemble work is encouraged and developed. Scenes and monologues focus on discovering the individual actor's personal relationship to the role and to the text. Actors learn how to break down scripts and understand beats and actions. There are opportunities for performing scenes and monologues, geared toward the individual actor's needs and desires. Scene rehearsals with partners often take place outside class time. We may have visits from special guest artists and workshop leaders, and we take trips to see exceptional productions around town. Ibsen, Shaw, Stoppard, Mamet, Churchill, Williams, Shepard, Howe, Wilde, Shakespeare, and many more fascinating friends await you. Experience the joy of playing great roles! All Acting class students participate in the Scene Marathon, which is presented in our theater. Come, be a part of the "living theater"!

### **ACTING INTENSIVE**

(4x per week) (Lamazor)

Same description as above, except that this class may work on collaborative playwriting/performance or musical

projects or full length plays, in addition to scenes and monologues. Students may direct scenes or projects on occasion. There may be several performances at different sites over the course of the year. Imagination, empathy, humor and connection are our guiding forces. In this time period, in which technology is so heavily relied upon as the means of communication and self-expression, this class focuses on "being here" and being passionately "present" as artists, humans and authentic inter-actors! This class functions as a true, joyful "company" of actors! All Acting Intensive students participate in the Scene Marathon, which is presented in our theater. **Note:** Open only to advanced students with the permission of the instructor.

### **ACTOR'S VOICE**

(1x per week) (Osborn)

The wonderful world of dialects, speech and vocal production awaits you. Funny voices, accents and more are explored in this class in which the vocal side of acting is stressed. Poetry, improvisation, contemporary and classical texts are used, and we work on several class projects including scene and monologue work. Last year's material included *The Importance of Being Earnest*, *Cat on a Hot Tin Roof*, *Monty Python and the Holy Grail*, and several Shakespearean works. We incorporate relaxation techniques, voice building, and breathing to help actors deal with the demands of auditions and performance. There are also opportunities to work on eliminating accents and addressing individual speech problems. This dynamic and practical class is tailored to the specific needs of its students.

### **EXPERIMENTAL IMPROVISATION**

(Barnett)

In this class, we cultivate an improvisational technique that encourages personal storytelling, spontaneity and abstract thinking. There is a unit on autobiography and a unit on interactive site-specific theater (performances, 'happenings,' or installations set outside the traditional stage). Past work has taken place in a stairwell, a park, and on a street corner; pieces have taken the form of a scavenger hunts, dance parties, and games. Students work individually and in groups. Through trips and lively discussions the class learns about the role of performance in history and contemporary culture. Given the role of technology in art (and life!) today, this class is also a time to 'disconnect,' and to explore the impact that live performance can have on both the audience and the artist. This is a course for students with or without previous experience in improvisation. It is class for visual artists and dancers interested in working with text, and writers wanting to transform their ideas into physical life. The class also benefits anyone who is nervous when speaking in public.

### **BROOKLYN CITY LIMITS: LIVE IMPROV**

(Gnagnarelli)

Those who follow the wisdom of the Tao prize simplicity and spontaneity above all else, and that is precisely what we study in this course. Each section of this class creates its own structure and dynamic, building scenes with location, relationship, and action as the building blocks. After reviewing the basic rules of improvisation, we explore a wide array of styles and forms, comedic as well as dramatic. Informal performances for lower and middle school students may arise, and an evening performance is optional. In addition to learning how to create characters and interact with scene partners, you develop skills that help you in auditions, rehearsals, and performances. While you strengthen your acting abilities, your health and well being are improved by laughter—comedy is our main course!

While we focus on the process, working in the moment, we will have our eyes set on several performances during the spring semester. Fear not! We will also work on the more-common-than-you-might-think issue of STAGEFRIGHT! Come join in on the fun! Everyone has more than enough life experience to be stage-worthy in this class!

### **SHAKESPEARE WORKSHOP**

(Reardon)

Get ready for Will the Bard in all his glory... from Sonnet to soaring soliloquy. The workshop begins with

learning and performing a sonnet then proceeds to monologues and on to scenes and finally at year's end we bring it all together in a black box performance (at Manhattan's Drama Book Shop) called "Will and Friends from Brooklyn." Those friends may include some of the revenge tragedians such as Marlowe and Middleton and the later Restoration Comedians but it is mostly Shakespeare. In this workshop, you will experience the joy of playing Shakespeare and gain a trust and ease of performing the playwright's blank verse as if it were your native tongue. You will also use all your other talents from singing to musical skills on instruments both modern and old fashioned. And in our scene studies, everyone plays a leading role.

## **COSTUME PRODUCTION**

(Scott, Shand)

This class focuses on costumes for Theater Department play productions and related areas of research, design, and construction. Students learn about the design process from creating a concept and drawings to pattern making, draping, and sewing. In addition to focusing on costumes for stage and film, students will also have the chance to explore other topics such as fashion design and the intersection of art and costume. Classes alternate between working on personal designs and production-related projects. There will be some opportunities to help design and coordinate pieces for the High School Playwriting Festival, the High School Film Festival or the High School Dance Concert under the guidance of the instructor. Crew participation for a minimum of one play or dance concert is required.

## **TECHNICAL THEATER**

(Briggs/Kaluza)

An introduction to stage carpentry and other theatrical craftsmanship, Technical Theater is both a practical and a theoretical course. Carpentry, electrics, audio, and effects lectures act as groundwork for hands-on experience with power tools, lighting equipment and sound gear. Students work side-by-side with their teachers, developing basic stage construction skills, building flats and platforms, creating props, and painting. Stage etiquette is adhered to in this productive environment.

Students who wish to extend themselves further may apply for a position on a production running crew. Please note this requires time outside of class.

## **PLAY PRODUCTION**

(Briggs/Kaluza)

Each member of a production staff, from the director to the stagehand, has specific duties and skills. Students in this class learn techniques for running a smooth and professional show, taking on the responsibilities for our theatrical productions. Topics covered are construction, maintenance and set-up of props, reading and taping-out scale ground plans, writing cues, calling light and sound cues, and more. This is a course for advanced tech students committed to our theater and productions. Students with an interest in stage management, props mastering, as well as light, set, and sound design are encouraged to enroll and to deepen their experience of backstage life; the vital, unseen, component of the theater.

This course is open to students with one year of Technical Theater, by permission of the instructors. All students are required to work on at least one production; this requires time outside of class.

## **PLAYWRITING**

(Garrett)

This course explores the elements of playwriting that make it a three-dimensional living art form. Through weekly exercises, we approach a playscript as a blueprint. The course culminates in staged readings of the students' plays. In addition, each student investigates the work of a modern playwright, discussing and demonstrating scenes from that writer's work to the class.

## PLAYWRITING INTENSIVE

(Garrett)

The student is encouraged to identify and investigate his or her central imaginative concepts and to shape them into the stuff of drama. Principles of dramatic construction as set forth in Aristotle's *Poetics*, "the logic of consciousness" as described by Suzanne Langer, and "the enslavement of the attention" as recommended by Artaud are among the concepts discussed. Principles of directing are demonstrated. The class culminates in a festival of workshop productions of the students' plays. The festival requires a major commitment of time and energy during the last three weeks of school. **Prerequisites: Playwriting, OR one year of middle school Playwriting, OR one year of Acting or Acting Intensive, OR one year of Play Production or Tech Theater AND permission of instructor.**

## NINTH GRADE VIDEOGRAPHY

(Mirabella-Davis)

This two-semester workshop reflects the structure of an auteur HD video production class. Students will intensively study all aspects of filmmaking and videography including Camera Direction, Directing the Actor, Lighting for Color, Screenwriting, Interview Techniques, Editing, and Sound Design. In the second semester each crew of three will write, cast, and independently shoot an HD, color short or documentary. In this burgeoning age of technological advancement, digital filmmaking has emerged as one of our era's principle forms of expression, fiction, and broadcast. The goal of this course is to give students the skill sets to tell their own stories in a new and accessible format. **Note: Open to 9th Graders**

## MOVING IMAGE I

(Dobski)

This class concentrates on the study of film as a two-dimensional art form that moves, focusing on the dynamics of screen space and the language of cinema. Using 16mm film equipment, the class emphasizes the basics of film emulsions, lenses, light readings, and editing. Students develop ideas into well structured screen narratives, and then each student writes a one-page treatment of a short silent film. Working individually or with a production partner, students storyboard, produce, direct and edit this treatment into a 16mm black and white film project. This is a non-linear course requiring constant participation and much work outside of class. **Note: Open to 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grade students.**

## MOVING IMAGE II

(Dobski)

With continuing emphasis on two-dimensional design and the language of cinema, this class focuses on digital video production and electronic editing, producing sync-sound narrative projects. Students are introduced to sound recording technology, and the aesthetics of the sound image – writing dialogue, directing actors, recording location sound, and layering sound images during editing. Projects determined by the instructor. **Prerequisite: Moving Image I, and permission of the instructor.**

## MOVING IMAGE III

(Dobski)

This is a course in advanced film production and color cinematography. Students shoot 16mm film, transfer the images to digital video and then edit electronically, producing a 3-to-5-minute work on tape with a complete soundtrack, including an original score. **Prerequisite: Moving Image I and II, and permission of the instructor.**

## HIGH SCHOOL PUPPETRY

(1x per week) (Asbell)

This course is an extension of middle school puppetry. All skill levels are welcome. Individual projects may include rod puppets, hand puppets, marionettes, body puppets, and masks.

## **AFRICAN DANCE**

(Mackall, Jackson)

African Dance is an exciting survey of the techniques and traditions of dances from the African Diaspora with a special emphasis on the dances of West Africa. Classes are accompanied by live drumming. Please note: participation in the High School Dance Concert, an essential element of this class, requires attendance at weekend and afterschool rehearsals.

## **DANCE I**

(The Department)

The class focuses on developing students' individual choreographic voices through improvisation and the creation of short movement studies. Class begins with a warm-up that integrates different techniques from ballet to African dance to yoga. Students are exposed to different choreographic approaches through attending performances and studying videotapes; in addition they have the opportunity to work with professional choreographers, learning pieces and taking direction. Dances developed both individually and collaboratively with the class are performed during the year. Those developed in association with the instructor are eligible for performance in the student dance concert, for which original costumes may be designed or assembled by students. Both new and experienced dancers are welcome.

## **DANCE/CHOREOGRAPHY II/III**

(The Department)

This class studies dance technique, improvisation and composition to create expressive dance pieces, exploring movement and drama through solo, duet and group forms. Modern dance technique leads to improvisational work and short studies to explore movement textures and qualities. We work with directing multiple bodies in space, using partnering techniques and weight exchange to convey emotional meaning, and studying formal compositional elements such as symmetry, tension, dynamic use of space, costume and environments. Diverse dance styles, uses of rhythm, and music from many traditions are investigated, and students have the opportunity to learn pieces and take direction from professional choreographers. Dances developed in association with the instructor are eligible for performance in the student dance concert, for which original costumes may be designed or assembled by students. There are field trips to notable performances. **Prerequisite: Dance I or permission of the instructor.**

## **DANCE/CHOREOGRAPHY IV**

(The Department)

We continue our study of dance technique, improvisation and composition. Emphasis is on the development of the individual artistic voice through complex, expressive dances incorporating solo and group aspects, examination of multimedia techniques, and the use of juxtaposition and collage to expand dramatic possibilities. Each student undertakes a research project supporting the creation of his or her own dances. The Lincoln Center Library for the Performing Arts provides a resource for our study of diverse music and the integration of costuming, language, and props or sets into our dances. Students have the opportunity to learn pieces and take direction from professional choreographers. Dances developed in the class in association with the instructor are eligible for performance in the student dance concert, for which original costumes may be designed or assembled by students. There are field trips to notable performances. **Prerequisite: Dance I, Dance/Choreography II/III, and permission of the instructor.**

# Humanities Electives 2011-2012

## Period C

American Women's History (Schragger)  
Death and Life (Levin)  
Epic & Apocalypse (Rutter)  
A House Divided (Chapman)  
Legal Frameworks (Levy)  
Literature & Philosophy (Aronson)  
Macabre Marriages (Avrich)  
Modern Art History (Kapp)  
NYC History (Swacker)  
The Presidency (Mellon)

## Period D

American History w/o the U.S. (Bertram)  
Beyond the Pale (Miller)  
British Literature (Meslow)  
Cold War (Kang)  
Comparative Government (Everdell)  
Modern Middle East (Kohn)  
Monotheism (Deimling)  
Russian Fiction & Politics (Donohue)  
Tragicomedy (Khoury)  
Unhappy Families (Kantor)  
Writing (Bosworth)

# Science Courses 2011-2012

## Period A

Biology  
Chemistry  
Physics  
Advanced Biology  
Advanced Chemistry  
Animal Behavior  
Chemical Forensics  
Health & Disease (2x per week)  
Secret of Life (2x per week)

## Period B

Biology  
Chemistry  
Physics  
Advanced Biology  
Advanced Chemistry  
Analytical Physics  
Classical Mechanics  
Marine Biology  
Organic Chemistry

## **Non- A/B Courses**

Independent Science Research; Game Theory; Math of Life; Probability and Statistics

## **Period TBD**

Dream/Sleep, Pharmacology, Robotics

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