



MILTON ACADEMY

C O U R S E C A T A L O G U E 2 0 2 1 - 2 0 2 2

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The courses, requirements and information included in this catalogue were accurate at the time of publication. Any changes voted by the faculty will be updated in June 2021. The most up-to-date version of this catalogue can be found on the Milton Academy Web site at www.milton.edu.

Dear Student,

This catalogue holds within its pages myriad opportunities for you as a scholar. The courses described enrich the Milton Academy curriculum, and I encourage you to take your time as you read about and consider the offerings you'll find here.

The various disciplines will allow you to cultivate a passion, explore a new interest, and examine different perspectives. Course selection is an opportunity for you to build a program that complements your interests in the classroom, your activities on Milton's campus, and the ambitions you have for the future.

Here are a few strategies that may guide you as you make your choices.

- Outline the courses that you may want to take over your entire Milton career, keeping in mind graduation requirements. Some courses have prerequisites; many do not need to be taken in a particular year.
- Second choices can be important, as some courses may fill up and others may not run if enrollment is insufficient.
- Advisors, classroom teachers, students, and the registrar can be helpful to you as you make your decisions. Ask questions, and take advantage of their wisdom and guidance.
- Milton students are truly creative and critical thinkers, and engaged and independent learners. I encourage you to use this catalogue as a valuable tool, as it gives you the freedom to develop your own rigorous academic curriculum, which is at the core of the Milton experience. Expand your knowledge, challenge your perceptions of the world, and commit yourself to a learning experience that will inspire and transform you.

Heather Sugrue
Academic Dean

Course Levels and Expectations

Milton has a couple of designations for accelerated work: Advanced and Honors. Milton is not an AP-driven school; however, the intensity of the program does qualify students to take a number of AP exams.

Homework assignments require an average of 45 to 60 minutes of preparation for each class meeting for students in Classes I–III and 35 to 45 minutes for each class meeting for students in Class IV. Assignments in Advanced, Honors, and Accelerated courses may be more demanding than assignments in other courses. Milton Academy assumes that students who enroll in these courses will be able to complete these assignments within the normal homework time.

Diploma Course Load Requirements

Entering Class IV	18 credits
Entering Class III	13 credits
Entering Class II	9 credits

The typical course load for an Upper School student is five credits. Milton offers three types of courses: a full course, meeting all year and earning one credit; a half course, meeting all year and earning one half credit; and a semester course, meeting for one semester and earning one half credit. Students can earn the correct number of credits by taking a combination of full, half and semester courses. A student must carry at least four academic credits at all times and may never carry more than five and one half credits.

Although we hope to offer all the courses described in this catalogue, courses that do not directly fulfill a diploma requirement will be offered only if enrollment is sufficient.

Students must earn a passing grade in a course in order to receive diploma credit. To be promoted in any one year, a student must earn a minimum of four credits, one of which must be English, and earn grades of C– or better in at least three of those credits.

Departmental Diploma Requirements

Milton encourages the development of individualized programs of study and the in-depth exploration of subjects of interest. The School's departmental diploma requirements facilitate these objectives, and students typically go beyond the diploma requirements in many academic disciplines. Below are the general requirements for each department. Successful completion of the courses listed below will meet these minimum requirements. Please refer to individual departments for more specific guidelines.

English

One full course each year

Mathematics

Proof & Problem Solving
Algebraic Concepts & Data Science

Languages

Level 3 (see note in Classics and Modern Language sections)

Science

Chemistry or Physics
Biology

History

Ancient Civilizations or
Modern World History
and U.S. History
or
Two-year sequence of
U.S. in the Modern World

Arts Program

One full-year course after Class IV
(see note in Arts Program section)
or
Music Package

Physical Education

Three seasons and
Project Adventure
Three seasons including
Fitness Concepts
Two seasons including CPR
Two seasons (CPR if not taken in Class II)

Current Events/Public Speaking

One ten-week course in Class III (or Class II)

Required Non-credit Courses

Introduction courses in
music, performing arts
and visual arts

Courses Requiring Departmental Permission

Enrollment in Advanced, Honors, Accelerated and AP levels in the following departments will be at the discretion of each department. Please refer any questions to the department chair.

Classics	Mr. Sawyer
Mathematics	Ms. Brash
Modern Languages	Mr. Hamel
Science	Ms. Seplaki

To enroll in any of the courses listed below, you must first obtain departmental permission from the following faculty member.

Arts Program

Music Package	Mr. Anantawan
Jazz Improvisation	Mr. Sinicrope

Arts

Adv. Visual Arts	Ms. Torney
Adv. Creative Writing	Ms. Baker
Adv. Jazz Improvisation	Mr. Sinicrope
Adv. Drama (all)	Ms. Edwards
Adv. Dance (all)	Ms. Edwards

Computer

Computer Programming 2 and up	Mr. Hales
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Music

Chamber Singers	Mr. Whalen
Chamber Orchestra	Mr. Anantawan

The Mountain School

The Mountain School of Milton Academy, a semester program open to Class II students, offers rigorous courses that allow students to fulfill Milton Academy's diploma requirements while living and learning on a working farm in Vermont. The Mountain School cultivates a diverse and interdependent community of scholars who learn to know a place and take care of it. Through collaborative learning and shared work, students emerge from their semester prepared to reach beyond the self and focus on the common good.

Students take five academic classes for a full semester credit. English and Environmental Science are required, and students choose three of the following courses based on continuity with their program at Milton: Math, Language (French, Spanish, Latin, Chinese), U.S. History, Physics, Chemistry (spring only), Humanities or Studio Art. Every student participates in our Outdoor Program which counts as a Physical Education credit. All classes are all offered at the Honors or AP level.

A full description of the Mountain School's curriculum is available at www.mountainschool.org or from the associate dean of students. Applications are due in February of the Class III year for the following fall or spring semester.

Arts Program

Arts Program courses foster creative thinking and introduce students to new ways of perceiving and interpreting ideas. All are full-credit, graded courses and students should expect to do some preparation outside of class. All students entering Milton before their Class II year must take one Arts Program course. This is normally taken during their Class II or III year. Students are welcome to take additional Arts Program courses after they have fulfilled the diploma requirement, and many advanced arts courses require a particular Arts Program course as a prerequisite. Arts Program courses do not presuppose any special talents but do require energetic participation and effort. Any one of the courses listed below satisfies the Arts Program diploma requirement. A full description of each course is on the page indicated.

NOTE: Students entering in Class II are not required to complete an Arts Program course except as a prerequisite to advanced-level elective courses.

Courses fulfilling Arts Program requirement:

- Sculpture|Ceramics + Design (See page 6)
- Drawing|Painting + Design (See page 6)
- Photography|Digital Imaging + Design (See page 6)
- Technology|Media + Design (See page 6)
- Film|Moving-Image + Design (See page 6)
- Spoken Word Performance (See page 5)
- Drama (See page 4)
- Dance (See page 4)
- Design for the Theatre (See page 5)
- Creative Writing (See page 16)
- Jazz Improvisation (See page 3)
- Music Package (See page 3)

NOTE: The courses listed above are open to Classes I–III only.

Music

Music Theory

(Half Course)
Classes I, II & III

Starting with the fundamentals of music, this course explores a wide variety of music theory topics and theoretical problems. Music is examined through harmonic and melodic analysis. Besides the written analysis, music is examined from an aural standpoint through ear training and sight-singing. No past musical experience is necessary, although it is helpful.

Chamber Singers

(Half Course)
Classes I, II & III

This is a performing organization that emphasizes tone and detail of phrasing. Students study and perform great choral literature from every period, especially literature that is written for smaller choral groups. Individuals improve their sight-reading skills, their vocal technique and their knowledge of musical styles. Membership in Glee Club and an audition are required.

Orchestra

(Half Course)
Classes I, II & III

The orchestra is open to any woodwind, brass, string, or percussion player. Besides standard, full orchestral literature, students will experience music of other ensemble types (e.g., wind band, string orchestra).

Chamber Orchestra

(Half Course)
Classes I, II & III

The orchestra is open to woodwind, brass, string, or percussion players. Besides standard, full orchestral literature, students will experience music of other ensemble types (e.g., wind band, string orchestra). Chamber Orchestra is open by audition only. Chamber Orchestra students rehearse one additional period per week.

Music Package

Satisfies Arts Program Requirement
Classes I, II & III

In place of a single Arts Program course, students with special interest in music may satisfy the arts requirement through a combination of musical activities. The Music Package, designed by and for each student, includes one of the half courses offered by the department, comprising performance experience through choral singing, chamber music, or orchestral playing. Students are

required to participate in a course-based performing ensemble each year they are at Milton. Additionally, students must complete a class in music theory or music history, either at Milton or by a faculty-approved equivalent course outside of school. Music lessons may be part of the package but, by themselves, do not fulfill the performance component. In lieu of music history or theory, students can propose an independent project, using their musical abilities to create social and civic impact in their community. A written application for the Music Package should specify the components of the package and requires the approval of both the music department chair and the academic dean. Applications must be completed by March of the Class II year.

Jazz Improvisation

Satisfies Arts Program Requirement
Classes I, II & III

This course gives students experience in ensemble playing and improvisation in the jazz and jazz/rock idioms. Students learn and play tunes in a group and explore the tunes for structure and harmony. This course emphasizes listening to recordings integral to the course work. Elementary knowledge of scales is required. The focus is on the development of improvisational and ensemble skills through playing. *(Permission of the department chair is required.)*

Advanced Jazz Improvisation

Classes I, II & III

In this continuation of the introductory course, greater emphasis is placed on performing, and the music is more challenging. Students explore complex chord scales, rhythms, and structures. The course usually focuses on one artist or one style of jazz music per semester. Additional years in this course allow the advanced jazz student to continue studying and performing under the guidance of our jazz faculty. *(Prerequisite: Permission of the department chair.)*

Advanced Jazz Improvisation

(Half Course)
Classes I & II

In this continuation of the introductory course, greater emphasis is placed on performing, and the music is more challenging. Students explore complex chord scales, rhythms, and structures. Additional years in this course allow the advanced jazz student to continue studying and performing under the guidance of our jazz faculty. *(Prerequisite: Permission of the department chair.)*

Performing Arts

Private Instrumental and Vocal Lessons

(non-credit)

Milton Academy facilitates private music instruction on campus (in the Kellner Performing Arts Center) to provide individualized instruction for voice, winds, brass, and string instruments. Private music teachers hail from a variety of backgrounds, including classical, jazz, and pop style performance. The music department will assist with finding teachers for students wishing to have instruction in instruments not listed.

Session I Music lessons begin in October and end in January. Session II begins in February, and continues through the end of the school year. There are twelve 45-minute lessons in each session. Lessons are generally scheduled after school but may also be scheduled during the school day depending on a student's schedule. As such, lessons are arranged individually by the teachers and students based on mutual availability. Financial aid for private music lessons is available to Upper School students who receive financial aid for tuition.

Dance

Satisfies Arts Program Requirement

Classes I, II & III

This comprehensive course is designed both for students who have had little or no previous formal dance experience and for the intermediate level dancer. Students explore and practice the principles of dance technique, improvisation, and composition, working to develop greater awareness, freedom, and control in the use of the body as an instrument of expression. Ballet, modern, and jazz dance styles will be introduced and practiced.

Advanced Dance: Modern

(Half Course)

Classes I & II

This course is designed for students prepared to work at the advanced or intermediate level in modern dance technique. Students practice advanced warm-up exercises, center combinations, and movement patterns. Students may learn repertory from established modern dance choreographers. In addition to technique, students explore improvisation and dance composition in a more in-depth manner, culminating in a collaborative performance in the Winter Dance Concert. *(Prerequisite: Arts Program Dance or permission of the department chair.)*

Advanced Dance: Ballet

(Half Course)

Classes I & II

This course is designed for dancers prepared to work at the advanced or intermediate level in ballet technique. Students practice advanced warm-up exercises, center combinations and movement patterns. In addition to technique, students may learn repertory from choreographed ballets. *(Prerequisite: Arts Program Dance or permission of the department chair.)*

Advanced Dance: Choreography

(Half Course)

Classes I & II

This course explores the path from improvisational dancing to sophisticated dance making. In a fun and supportive atmosphere, students cultivate their natural movement resources, developing movement ideas into fully shaped dance and movement pieces.

Students also study relevant and well-established choreographers. No formal dance training is required; however, the ability and the desire to move are necessary. Students in this course will work collaboratively to create and perform a dance for the Winter Dance Concert. This course is strongly recommended for students interested in choreographing as individuals for the Winter Dance Concert. *(Prerequisite: Permission of the department chair.)*

Drama

Satisfies Arts Program Requirement

Classes I, II & III

This course teaches basic skills for the beginning actor. Exercises and scene work aim at developing concentration, freedom and power of expression, connection with a text and with acting partners, and a process for approaching characterization. The emphasis is on representational acting techniques and contemporary, realistic texts. Attendance at all Upper School performances is required. Excursions to professional productions may be required.

Advanced Drama: Directing

(Half Course)

Classes I & II

This course introduces students to the principles and practices of directing for the stage. The course is project-based and emphasizes hands-on instruction and exploration in the directing of scenes and short plays. Students learn the basics of concept development, actor coaching, and blocking. The course is highlighted with a public presentation of student directed work in the spring. Students will also shadow faculty directors and may act as assistant directors for current season productions. *(Prerequisite: Arts Program Drama or equivalent experience and permission from the department chair.)*

Advanced Drama: Musical Theatre

(Half Course)

Classes I & II

This course focuses on developing skills in acting, singing, and dancing for musical theatre. The course is team-taught by members of the performing arts and music departments and combines exercises and scene work from contemporary Broadway musical theatre. The course culminates in a public performance by members of the class. *(Prerequisite: Arts Program Drama or equivalent experience and permission of the department chair.)*

Advanced Drama: Improvisation

(Half Course)

Classes I & II

This course covers the many aspects of improvisation such as quick and thorough thinking on one's feet; creating believable characters; the use of subtext, concentration, imagination and observation in short and long-form non-scripted scenes; working cooperatively with an ensemble and audience; creating truthful relationships; and the use of the body and voice as communicative instruments. Through participating in class activities, attending two off-campus shows, and performing in public, students will become more spontaneous, trusting and cooperative performers. *(Prerequisite: Permission of the department chair.)*

Spoken Word Performance

Satisfies Arts Program Requirement

Classes I, II & III

This course introduces students to the interactive power of literature and performance. Using the written and spoken word including short stories, plays, spoken word poetry, podcasts, and TED talks as inspiration, students will jump into stories that connect with each of them in unique and current ways. They will develop skills to become exciting and effective performers and story-tellers by exploring the use of voice, physicality, and interpretation. The emphasis is on finding fun and meaningful ways to make stories come to life. Students will present their work to the community at open mics and other performance venues and may attend performances off campus.

Spoken Word Poetry

(Half Course)

Classes I, II & III

Students will immerse themselves in the world of spoken word poetry by reading, listening to, and watching the work of accomplished poets, and engaging in the daily practice of writing and performing their own original poems. Through a variety of approaches, students will craft their words and use their voices and bodies to create meaningful group and individual live performances. They will perform their work, as well as the work of others, in the forms of spoken word, slam, and hip hop.

Design for the Theatre

Satisfies Arts Program Requirement

Classes I, II & III

This course introduces students to the collaborative art of scenic design, lighting design, and costume design. In the first semester, students will explore the elements and principles of design through hands-on projects in perspective drawing, technical drafting, watercolor rendering, and scale model construction. Two-dimensional work will be explored using Vectorworks and other digital design tools along with free-hand drawing and drafting techniques. In the second semester, students will form a design team for a spring production. Through play analysis, hands-on projects, and collaboration, each student will create a complete design for an actualized project. These projects may include a full design or specific projects within a design. The course culminates in a presentation of a design portfolio comprised of drafting, renderings and models illustrating growth throughout the year.

Advanced Drama: Costume Design

(Half Course)

Classes I & II

This course explores costume design and construction through theoretical and practical projects. Students will learn basic sketching, hand and machine sewing techniques, pattern reading and adaptation, millinery techniques, and costume jewelry making. In addition, through play reading and analysis, as well as historical research, students will develop and present costume plots, individual character costume sketches, and design concepts.

Advanced Drama: The Female Role in Theatre

(Half Course)

Classes I & II

This advanced acting course focuses on how the female experience has been represented in theatre over time. We will look at texts that range from classic to contemporary. We will also examine work created by female playwrights and theatre artists. Students will perform scenes and monologues from these plays, interact with working playwrights, and write about their discoveries throughout the course. *(Prerequisite: Arts Program Drama or Oral Interpretation or equivalent experience and permission from the department chair.)*

Hamlet

(Half Course)

Classes I & II

This course is team-taught by a member of the English department and a member of the performing arts department. Please see the full course description in the English section on page 15.

Project Story: Narrative Journalism and Performance

(Half Course)

Classes I, II & III

From competitive story slams performed for packed venues to storytelling courses designed to empower workplace professionals, sharing narrative with live audiences has never felt more current or relevant. In this course, students will study the art of storytelling through moving their own and others' stories from page to stage. During the first half of the semester, students will learn narrative journalism skills, performance skills, and peer workshop practice, to collect and shape stories of our School. They will work collaboratively during the second half of the semester to identify, research, write, and perform a story that originates beyond Milton Academy. Throughout the year, students will read and view storytelling models, attend performances, and hear from visiting artists and activists who promote storytelling around the country, believing that shared stories strengthen and sustain human connection. *(This course is listed under both the English and performing arts departments.)*

Visual Arts

The following courses satisfy the Arts Program graduation requirement. Each course is an intensive foundation course designed to give students a thorough introduction to basic techniques, principles of design thinking and visual communication, and the artistic expression of ideas. After completing a foundations level course, students are encouraged to pursue areas in greater depth in the program's advanced elective courses.

Notes:

- These courses require no previous experience. Students with little experience will be supported in their learning in a step-by-step process. Students who have had some experience with the material will be challenged by more advanced options within each project area as the course progresses.
- Students with definite interest in visual art are strongly encouraged to take their first course in Class III so that they may take advanced elective courses in Classes I or II, in time to complete a college portfolio. Each of these Arts Program courses will give students opportunities to produce some of the work necessary to begin a college portfolio should they choose to do so.
- In lieu of textbook charges, and to cover the cost of supplies, a visual arts fee will apply each semester, with amounts varying per course.

Drawing|Painting + Design

*Satisfies Arts Program Requirement
Classes I, II & III*

In this intensive, year-long foundations course, students will be introduced to the foundations of drawing and painting in the fall semester. In the spring semester, they will apply those techniques with design thinking in printmaking, digital imaging, and composition, and new media. This course, for students who like making and creating, allows beginners to succeed and experienced students to be challenged. All assignments are hands-on and studio-based, with basic exercises culminating in major projects. Students will learn visual language, apply techniques, and solve problems by means of a creative process, all supplemented by a broad introduction to art history, aesthetics and criticism, and the most contemporary modes of art-making. Each student will be urged to explore ideas, experiment with an open mind, and make expressions

personal, dramatic, and original. The course will include field trips to art museums and contact with professional artists.

Photography|Digital Imaging + Design

*Satisfies Arts Program Requirement
Classes I, II & III*

This course introduces students to the art of seeing and picture-making from its analog origins to today's digital contemporary practices. In the first semester, students will learn the concepts of exposure with a digital camera before shifting to a 35mm film camera where the techniques of film development and wet darkroom printing will be taught. Students will develop their eye and composition skills through hands-on projects that also provide exposure to the great canon of photographic masters; deepen their own expressive ability; and gain an understanding of how photography was developed from the late 19th century through the first half of the 20th century. In the second semester, students will shift into the digital realm, working with DSLRs and becoming fluent with industry standard programs such as Adobe Bridge, Photoshop and CameraRaw, all through application tutorials and project-based learning. All projects will introduce contemporary photographers and address the growth of this medium, with the advent of color and digital technology. Students will feel confident in their understanding of the medium both technically and artistically, and with their ability to access the visual language to express their ideas.

Sculpture|Ceramics + 3-D Design

*Satisfies Arts Program Requirement
Classes I, II & III*

This course introduces students to the foundations of three-dimensional design and the construction of functional and artistic objects. Students solve a series of design problems with hands-on projects, acquire skill in the use of hand and power tools, and learn design principles that inform both industrial and fine arts. Projects will be designed to explore a variety of techniques in diverse sculptural media such as wood, metal, clay, plaster and plastics. Students will address design challenges through creative processes, while learning about underlying concepts of art through discussions of art history, aesthetics and criticism. Digital processes including 3-D printing will also be explored. Students will be encouraged to investigate ideas, experiment with an open mind, and produce original and personal expressions.

Technology|Media + Design

*Satisfies Arts Program Requirement
Classes I, II & III*

This course introduces the basic principles and practices of design using contemporary, new and rising technologies. The course is project-based, emphasizing hands-on instruction, experimentation and exploration in new media, including digital imaging and graphic design, animation, industrial design with 3-D modeling and printing, and environmental/installation art. Particular emphasis will be placed on imaginative innovation and critical thinking, and the exploration of both existing and new interpretations of design in contemporary art. Students will be expected to reach beyond current definitions and boundaries of traditional art forms and applications in a collaborative spirit of discovery.

Film|Moving-Image + Design

*Satisfies Arts Program Requirement
Classes I, II & III*

This course introduces students to the basic principles and practices of digital movie making, visual storytelling, and cinematography. The course is project-based, emphasizing hands-on instruction and exploration in the creation of short films. Students learn the basics of pre-production, effective camera technique, the editing process, and production management.

Semester and Half Course Electives

The department offers advanced level courses in art and design for students who wish to study specific areas in depth. Students will develop higher-level skills, interpret more sophisticated ideas, and create work on a more ambitious scale. Although these courses are structured with themes and assignments, students will work in an increasingly independent way.

The department recommends (but does not require) that a student who elects a first semester course take a second semester course as well.

The prerequisite for semester and half course electives is a full-year arts program course or the equivalent. The visual arts department recommends that students take Drawing|Painting + Design, Sculpture|Ceramics + 3-D Design, Photography|Digital Imaging + Design, Technology|Media + Design or

Film|Moving-Image + Design before taking an elective. Preference may be given to students who have taken these courses. Permission to take an advanced course may be denied if a student's preparation or experience is insufficient. Such permission must be obtained from the department chair before registering for these courses.

Advanced Drawing

(Semester 1)

Classes I & II

In this course, students will explore major genres of drawing in both black and white and in color. After an intensive review of line, volume, space and light, students will focus on how to see and draw in “relational” terms. Both collaborative and individual projects will guide students in drawing the human face and figure, the landscape, architecture, abstraction or the use of alternative materials (including sculptural drawing and printmaking). The class will take drawing excursions around campus and to other nearby areas, including Boston museums. The culmination of the course is a large-scale drawing project blending realistic observational drawing with drawing from imagination, fantasy and abstraction. *(Prerequisite: Drawing|Painting + Design or permission of the department chair.)*

Advanced Photography: Digital Imaging

(Semester 1)

Classes I & II

This course builds upon foundational skills to explore photography in the digital age. In a hands-on, project-based curriculum, students work exclusively with DSLRs and push their understanding of the medium and their own personal creativity. Projects will introduce some of today's most revolutionary photographers, and will ask students to reimagine how photography can be manipulated as a mode for personal and artistic expression. Students will increase their fluency in programs such as Adobe Bridge, Photoshop and CameraRaw, learning advanced editing techniques through supplemental tutorials and projects. Throughout the semester, students will explore studio lighting, still life photography, advanced compositing and retouching, and printing with large format printers. A portfolio of finished and mounted prints will be expected, including large format display prints. Support for the creation of portfolios for college admission will be integral to early work. *(Prerequisite: Photography|Digital-Imaging + Design or permission of the department chair.)*

Advanced Sculpture

(Semester 1)

Classes I & II

Advanced Sculpture builds upon foundational skills to explore a range of ideas and possibilities through a variety of three-dimensional projects. Students will be introduced to more advanced sculptural techniques involving additive and subtractive processes in materials such as wood, metal, plaster and stone. Students will be able to communicate concepts and intentions through the manipulation of subject matter, organizational components, media and processes. Projects will include both figurative and abstract creations and will explore design applications through contemporary modes of production. Working together in a classroom structure, students will benefit from dialogue with each other, critiques and field trips. *(Prerequisite: Sculpture|Ceramics + Design or permission of the department chair.)*

Advanced Technology: Graphic Design

(Semester 1)

Classes I & II

Building upon the technology foundations course that surveys many design genres, this class delves into a semester-long study of graphic design. Otherwise known as communication design, this art form focuses on how to effectively express ideas through visual art and textual content. Students will study art and images, typography, and layout for both the physical and virtual world (print versus digital content). Projects will emphasize originality and hands-on experimentation of advanced applications in technology. Two dimensional work will be primarily composed in Adobe Illustrator, InDesign and Photoshop but may also include animation with Flash and 3-D modeling and printing. *(Prerequisite: Technology|Media + Design or permission of the department chair.)*

Advanced Filmmaking

(Semester 1)

Classes I & II

Building on the foundation of knowledge, skills, and techniques learned in the Film|Moving-Image + Design course, this course seeks to strengthen students' mastery of story writing, production management, directing, camera use, and editing. Students will study and create short films using digital video. *(Prerequisite: Film|Moving-Image + Design or permission of the department chair.)*

History of Western Art

(Semester 1)

Classes I, II & III

This course traces the trajectory of European and Western Art from roots in ancient cultures to the 19th Century and include examples of contemporary art for comparison. Art can reveal to its audience the morals and priorities of a culture or simply allow us a glimpse into their fantasies. Onlookers may feel understood, inspired or excluded. We will contextualize works of art and artists in social and political context to better understand the tensions or harmonies therein, incorporating in-depth coverage of select artworks, periods, and artistic movements. The focus of our study is to critically engage with works of art with considerations of material, historical context, artist, and audience. Students will hone skills of visual analysis through close observation of artworks. In support, readings in art theory and art historical analysis from primary sources will be shared and students will be asked to synthesize ideas in essay writing. Insight into processes of various disciplines of artmaking will be gained through short hands-on studio assignments, as well as local field trips to Boston-area museums and galleries; and the course will also include an introduction to curatorial and editorial practice in Milton's Nesto Gallery. Recommended in conjunction with Contemporary and Global Art Studies.

Advanced Painting

(Semester 2)

Classes I & II

In this course, students will explore painting technique across a variety of media, primarily using water-soluble oils, but also acrylic or watercolor. Students will be challenged to “think in color” and to “see the light” in relation to form and space; they will paint both from “life” and from their imaginations. Subjects may range from abstract works, still life, the human face and figure, and the landscape, to stories and fantasies of surrealistic and invented worlds. Each student will work to develop his or her own personal vision through an experience of different styles and techniques. Field trips may be part of this course, intended to expose students to the contemporary art scene. *(Prerequisite: Drawing|Painting + Design or permission of the department chair.)*

Advanced Photography: Alternative Processes

*(Semester 2)
Classes I & II*

This course builds upon foundational techniques in digital and analog photography, working both in the digital/technical design realm and returning to the darkroom to explore alternative processes in photography. In a hands-on, project-based curriculum, students experiment with new kinds of cameras such as medium format Holgas, camera obscuras, pinhole cameras, and others. Darkroom skills will be refined and different printing techniques, such as multiple exposures, solarizations, photo transfers, and cyanotypes will be explored. Digital processes and alternative image manipulation in Photoshop will also be an integral part of this exploratory course. Students will study photographic masters from the past and present who have challenged the traditional uses of the medium, pushing both the technical and expressive boundaries of creativity. A portfolio of finished and mounted prints will be expected, including large format display prints. Support for the creation of portfolios for college admission will be integral to early work. *(Prerequisite: Photography|Digital-Imaging + Design or permission of the department chair.)*

Advanced Ceramics

*(Semester 2)
Classes I & II*

This course builds upon the foundational techniques of working with clay: sculptural hand-building, slab and coil construction, wheel throwing, mold-making, and glazing. Individual expression in clay, whether artistic or functional, will be emphasized. Students will be able to communicate concepts and intentions through the manipulation of subject matter, organizational components, and surface treatments. Projects will include traditional functional objects such as teapots and bowls, repetitive casting, and large abstract sculptural expressions. Students will gain a deeper understanding of both the historical and contemporary significance of ceramics through class discussions, critiques, and field trips. *(Prerequisite: Sculpture|Ceramics + Design or permission of the department chair.)*

Advanced Technology: Industrial Design

*(Semester 2)
Classes I & II*

This course introduces industrial design and the practice of creating products, devices, objects, and services that are used every day in the real world. Students build off their visual foundation and delve into a human-centered design process from the initial development to the refined stages that consider the appearance, functionality, and manufacturability. Coursework will be project-centered with an emphasis on experimentation, expression, and collaboration. Students will practice analog drawing, digital renderings, and 3D modeling to create original well-executed design pieces. A hybrid of advanced applications including the Adobe application suite, Rhino, and Makerbot software will be utilized. *(Prerequisite: Technology|Media + Design or permission of the department chair.)*

Advanced Documentary Film

*(Semester 2)
Classes I & II*

This course is an exploration of the research techniques, methods and skills associated with creating documentaries. In the course students will produce a documentary from exploration, to implementation, to execution and presentation. With room for creativity and invention, students will explore the “raw material of reality” and endeavor to construct an account that is visually engaging and conceptually appealing to a broad audience. After selecting topics and finding mentors in their area of interest, students will shoot and edit their documentaries, then present their work publicly. *(Prerequisite: Film|Moving-Image + Design or permission of the department chair.)*

Contemporary and Global Art Studies

*(Semester 2)
Classes I, II & III*

This class will provide an introduction to global and contemporary art in terms of cultural, social, and political values from ancient civilizations to the present. The focus is on exposure to works of art from different times and diverse cultures. Art can reveal to its audience the morals and priorities of a culture or simply allow us a glimpse into their fantasies. Art may be state sponsored propaganda or personal dissent, and has the power to change the course of history. Viewers may feel understood, inspired, or excluded. We will seek to better understand the inclusion and exclusion of artists in the

traditional canon of Western Art. We will read recent scholarship and scientific analysis that call into question the foundations of the traditional art historical timeline and hierarchy. We will contextualize works of art and artists in social and political context to better understand the tensions or harmonies. We will critically engage in looking at and reading works of art with considerations of material, historical context, artist, and audience. Students will discuss select works from different periods and cultures using comparative analysis and appropriate terminology. Through close observation of artworks, we will hone skills of visual analysis. Readings in art theory and art historical context from primary sources will be assigned and students will synthesize ideas and observations in essay writing. Students will gain insight into processes of various disciplines of artmaking through short hands-on studio assignments, a field trip to New York City museums and galleries, and practice of curatorial and editorial skills in Milton's Nesto Gallery. *Recommended in conjunction with History of Western Art.*

Architecture

*(Half Course)
Classes I, II & III*

This course offers a project-based introduction to the concepts and processes of architectural design through the lens of the local community around us. Students will explore both two-dimensional and three-dimensional design through drawing formats of sketching, orthographic plan views, conceptual renderings of form, building structural studies, model making, Google Sketch-Up, and photography. Architectural styles and conceptual studies of form will also be reviewed and integrated within each project. *(Prerequisite: permission of the department chair.)*

Printmaking

*(Half Course)
Classes I, II & III*

In this course, students will explore the basics of four major forms of printmaking: monoprint, intaglio, woodcut and silkscreen. The course begins with understanding image making, using a matrix or indirect source, and then investigating drawing, line, shape and tone through black and white imagery. Students will learn to create small editions of prints, multiple-color images, and large poster-size prints. Both traditional and contemporary techniques will be emphasized, using hand printing methods as well as incorporating digital media. The course

will also speak to the historical development of printmaking and its role and influence on today's society. Field trips and guest speakers may be a part of the course, to introduce students to movements in contemporary printmaking, from journalism to poster art. *(Prerequisite: permission of the department chair.)*

Textile Design

(Half Course)

Classes I, II & III

In this course, students will explore the endless possibilities of fabric art with projects that push the boundaries of their technical skills and expand their creative thought. Students will learn the principles of textile design and the elements associated, including color, texture, and form. While using this adaptable medium students will encounter the themes of community that have brought many groups of fabric artists together throughout history. There will be a wide scope of assignments in this class, from apparel design, embroidery, sculpture, quilt making, and more, all with an emphasis on individual growth and portfolio development. Both traditional and contemporary techniques will be taught. Field trips and guest speakers may be utilized to introduce students to contemporary artists in the area. *(Prerequisite: permission of the department chair.)*

UX Design

(Half Course)

Classes I, II & III

This project-based introduction to the user interface design process is oriented toward practical methods for approaching a design problem for web-based and app design. The focus of the course is to develop conceptual designs based on the needs of users. Students will receive grounding in the following topics: Digital Design Principles, User Research Methods, Design Sketching, and Design Validation Aims. Students will cultivate and develop an appreciation for concepts and sensibilities of user experience design, and develop skills in the use and application of specific methods in user experience design. Lessons on design will include color theory, typography, and layout principles. Sketch and InVision will be used for wireframing and prototyping. Students will incorporate and improve individual and

collaborative skills in design problem solving. *(Prerequisite: permission of the department chair.)*

Film Production

(Half Course)

Class I, II & III

During this year-long, half-credit course students will work closely together and with a faculty director to produce a film. Students will be intently involved in each aspect of production, from scripting in pre-production in the fall, to casting, designing and shooting in production in the winter, to final edits in post production and screening in the spring. Individual interests can be explored throughout the process, allowing students to hone their filmmaking skills. Students in this course must commit to spending the winter season in production after school as a co-curricular afternoon option, when other students will join the production during the winter as the cast and as additional crew. A school-wide viewing will take place late in the spring. *(Prerequisite: prior experience in film production and editing, and permission of the department chair.)*

Advanced Portfolio: Drawing|Painting

(Semester 1)

Class I

This is a seminar-based course for Class I students, designed to meet the individual needs of students with visual ideas they wish to explore in-depth in drawing, painting and/or printmaking, through an extended series of works around a particular theme or concept. Most students will use this class to complete work for their college portfolios. Interested students could also complete the requirements for the Advanced Placement Studio Art: Drawing portfolio with continued study in the spring semester through the Advanced Portfolio: Independent Studio Seminar class. Working together in a classroom format, students will benefit from dialogue with each other, critiques and field trips. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

Advanced Portfolio: Sculpture|Ceramics

(Semester 1)

Class I

This is a seminar-based course for Class I students, designed to meet the individual needs of students with visual ideas they wish to explore in-depth in sculpture and/or ceramics, through an extended series of works around a particular theme or concept.

Most students will use this class to complete work for their college portfolios. Interested students could also complete the requirements for the Advanced Placement Studio Art: 3-D Design portfolio with continued study in the spring semester through the Advanced Portfolio: Independent Studio Seminar class. Working together in a classroom format, students will benefit from dialogue with each other, critiques and field trips. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

Advanced Portfolio: Photography|Digital Imaging

(Semester 1)

Class I

This is a seminar-based course for Class I students, designed to meet the individual needs of students with visual ideas they wish to explore in-depth in photography and/or digital imaging, through an extended series of works around a particular theme or concept. Most students will use this class to complete work for their college portfolios. Interested students could also complete the requirements for the Advanced Placement Studio Art: 2-D Design portfolio with continued study in the spring semester through the Advanced Portfolio: Independent Studio Seminar class. Working together in a classroom format, students will benefit from dialogue with each other, critiques and field trips. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

Advanced Portfolio: Technology|Media

(Semester 1)

Class I

This is a seminar-based course for Class I students, designed to meet the individual needs of students with visual ideas they wish to explore in-depth the creation of art with technology, through an extended series of works around a particular theme or concept. Most students will use this class to complete work for their college portfolios. Interested students could also complete the requirements for the Advanced Placement Studio Art: 2-D or 3-D Design portfolio with continued study in the spring semester through the Advanced Portfolio: Independent Studio Seminar class. Working together in a classroom format, students will benefit from

Classics

dialogue with each other, critiques and field trips. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

Advanced Portfolio: Filmmaking

(Semester 1)

Class I

This is a seminar-based course for Class I students, designed to meet the individual needs of students with visual ideas they wish to explore in-depth in film, through an extended series of works around a particular theme or concept. Most students will use this class to complete work for their college portfolios. Interested students could also complete the requirements for the Advanced Placement Studio Art: 2-D Design portfolio with continued study in the spring semester through the Advanced Portfolio: Independent Studio Seminar class. Working together in a classroom format, students will benefit from dialogue with each other, critiques and field trips. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

Advanced Portfolio: Independent Studio Seminar

(Semester 2)

Class I

This seminar is a capstone course offering Class I students the opportunity to explore subjects beyond the traditional studio art curriculum, either as a series of independent works or as class projects. Assignments will span contemporary art modes and will include a variety of media and ideas. Genres may include digital imaging, traditional or alternative processes of photography/digital-imaging, film/moving-image, printmaking, installation art, ceramics, sculpture, painting or drawing. Students may also explore cross-disciplinary connections, particularly regarding the use of technology in creating art, or with the sciences or humanities. Interested students could also complete the requirements for the Advanced Placement Studio Art portfolio in Drawing, 2-D or 3-D Design. Projects may be inspired by work with professional artists, including Nesto Gallery exhibitors. The course culminates in a major independent project that may precede or extend into a senior project. *(Prerequisite: At least one, and preferably more than one, related advanced semester elective, or permission of the department chair.)*

The study of Greek and Roman works, in their original languages, gives students a unique window into understanding two ancient cultures and identifying their ripples, reflections, and distinctions in the modern world. Starting from a linguistic-based study of Latin and classical Greek, students become independent thinkers, cultivating strong habits of mind and intellectual discipline. Students learn to be precise and logical readers—skilled in close, textual analysis—and interpreters. Because students develop the skills of close textual analysis with works that have been debated for centuries, they begin to understand both the scholarly value of their own interpretations and how the lenses of different eras affect the way a work is viewed. Class discussions are far-ranging, drawing connections across various disciplines such as English, history, mythology, archaeology, and philosophy. Students who choose to study Latin and Greek become more than just masters of vocabulary, language and syntax—they gain a centuries-long perspective on modern civilization and languages, and develop a strong foundation for future study in many fields. Completion of level 3 or 2/3 in Latin satisfies the language diploma requirement. The advanced Latin course, Latin Literature (AP), prepares students for the Advanced Placement Latin examination. Advanced courses in Latin authors are equivalent to intermediate level college courses.

Note: A student who enters in Class II and does not qualify to enter at least Level 2 in a language offered at Milton will be placed in a

Intensive Language Courses

These are accelerated courses designed for Class I students (and students in Class II with special permission). Each is the equivalent in difficulty and pace to a first-year college language course and is open only to students who have completed the language requirement through study of another language. Chinese Intensive may be combined with students from Chinese 1P in the same section. *(Offered subject to sufficient demand.)*

Intensive Chinese

Intensive French

Intensive Classical Greek

Intensive Latin

Intensive Spanish

foreign language at the level that is most appropriate for the student's growth and development and will be expected to take two years of that language (ancient or modern).

Latin 1

This introduction to the Latin language presents the basics of grammar and vocabulary, as well as background in Roman history, culture and mythology. Because students start Latin with different backgrounds in English grammar, we devote considerable time to examining the way English works. In addition, students learn to look for English cognates of the Latin words they study, thus strengthening their vocabulary in both languages. Students are introduced to all five declensions; the six indicative tenses and the infinitives (active and passive) of all conjugations; relative, personal, demonstrative and reflexive pronouns, the indirect statement, and the comparative system of adjectives and adverbs. Successful completion of this course qualifies students for Latin 2. Highly motivated and proficient students may request permission to enroll in the accelerated course, Latin 2/3.

Latin 2

Following a systematic review of Latin morphology and sentence structure, students in Latin 2 complete their study of forms and syntax while developing reading skills using adapted selections, primarily from Cicero. Starting in the spring, the course provides students with their first opportunity to read, in the native language, words written two millennia ago by authors who have influenced the development of Western literature and history. Some original Latin texts may serve as a starting point for exploring Greco-Roman mythology, culture and important periods of Latin history. This course prepares students to read Latin prose.

Latin 3

A reading course with some grammar and composition, Latin 3 focuses on developing students' reading skills. Students build vocabulary by identifying learned roots, prefixes and English derivatives. Prose readings include selections from Caesar's commentaries and the works of Cicero, which we examine for rhetorical literary style as well as for content and political implications. Excerpts from Ovid's *Metamorphoses* and *Amores* introduce meter and familiarize students with mythological stories. Successful completion of this course qualifies students

for Latin 4. Highly motivated and proficient students may request permission to enroll in the Advanced Placement course, Latin Literature.

Latin 2/3 (Accelerated)

This course combines all the grammar and authors studied in Latin 2 and 3. The class meets five times per week and assumes a solid foundation in level 1 Latin. Successful completion of this course qualifies students for Latin 4. Highly motivated and proficient students may request permission to enroll in the Advanced Placement course, Latin Literature. *(Enrollment by permission of the department chair.)*

Latin 4: Literature of the Golden Age

Students in this course develop their reading skills as they translate and engage with selections from first century B.C.E. authors. Readings are drawn from Cicero's speeches and/or letters, Ovid's *Metamorphoses*, Vergil's *Aeneid* and other works of prose and poetry that are representative of the late Republican and Augustan age. These works introduce students to some of the most popular classical myths, to themes of love and the hero, and to the historical context that shaped the works. Students strengthen grammar skills, and increase reading speed and comprehension. They learn to scan dactylic hexameter and elegiac verse. This course introduces students to great works of Latin literature and prepares students for the Advanced Placement course, Latin Literature.

Latin Literature (AP)

This reading course focuses on Vergil's *Aeneid* and the selections of Caesar's Commentaries on the Gallic War that are included on the Advanced Placement examination. Students consider the major themes of the works within their literary and historical contexts. Designed for highly motivated students, this rigorous course presents elements of Roman history, politics, mythology and the classical literary tradition. Through close textual study, students encounter literary criticism as a tool for understanding classical literature. *(Permission of the department chair required; prepares students for the AP Latin examination.)*

Advanced Classics

Roman Elegy and Lyric, and Roman History are both half courses. Each meets twice per week throughout the year and may be taken independently or concurrently. Roman Philosophical Writings and Selected Readings are semester courses, meeting four times per week for half the year. Unless permission is given by the department, students must complete Latin Literature (AP) before enrolling in other advanced Latin courses with the exception of Intensive Classical Greek, for which a level 4 language is co-requisite. Note: When there is a need, and staffing permits, Roman Philosophical Writings or Selected Readings may be offered as a half course.

Advanced Latin: Roman Elegy and Lyric

(Half Course)

This course focuses on reading and understanding Latin poetry in its literary and historical contexts. Reading works by poets such as Catullus, Horace, Sulpicia and Ovid, students trace the development of meter, diction and poetic motifs. The class also explores how Roman poets adapted the conventions of love poetry to present an image of the Roman state under Augustus that is more personal than Vergil's vision. Some important topics studied are first person narrative, gender and poetic allusion. *(Prerequisite: Latin Literature (AP) or permission of the department chair.)*

Advanced Latin: Roman Historians

(Half Course)

How did the Romans view their history? How did they want to be remembered? This course provides a look at Roman history through the eyes of some of Rome's better-known historians. A close reading of selected texts in Latin serves as a basis for examining questions of historiography and prose style. Principal selections are drawn from Livy, Tacitus and Sallust. *(Prerequisite: Latin Literature (AP) or permission of the department chair.)*

Advanced Latin: Roman Philosophical Writings

(Semester 1)

What role did the Roman gods have in shaping the world around us? What does it mean to live "a good life"? In this course, students read selections from Lucretius, Cicero, Horace and Seneca and examine their works for philosophical insight and poetic craft in their historical context. Students are introduced to important Greek influences on Roman philosophy. *(Prerequisite: Latin Literature (AP) or permission of the department chair.)*

Advanced Latin: Selected Readings

(Semester 2)

This course permits students to pursue their own interests in Latin and Greek literature at an advanced level. Working together with members of the department, students select authors and texts to read. Past classes have read comedy, satire, oratory and history. *(Prerequisite: Latin Literature (AP) and one other Advanced Latin course or permission of the department chair.)*

Intensive Classical Greek

This course covers the basic grammar and vocabulary of Attic Greek. Adapted texts from Homer, Plato, Herodotus, and Aristophanes serve as a basis for the study of Greek culture and its legacy. Students also choose particular aspects of the Greek world to explore in independent and collaborative projects in the fall and spring. Some topics include: democracy, art, drama, law, history and philosophy. *(Prerequisite: current enrollment in or completion of level 4 of a language at Milton.)*

Advanced Greek: Plato

In this course, we continue the study of Greek grammar and syntax while reviewing the foundation built in the previous year. Students are introduced to Greek prose through a careful reading of selections from Plato's *Symposium*, a text that serves as a basis for students' study of 5th century Athenian culture and identity. In addition to the *Symposium*, students study related passages from other Platonic works and from other authors and poets. Over the course of the year, students explore topics in mythology, history, philosophy, drama, gender and sexuality.

Advanced Greek: Selected Readings

This course covers selected readings from Classical Greek writers such as Euripides, Herodotus, Homer and Xenophon. Students also choose particular aspects of the Greek world to explore in independent and collaborative projects in the fall and spring. *(Prerequisite: Advanced Greek: Plato.)*

Computer Science

Computer Science courses vary to reflect the fast pace of change in computing languages and our desire to relate coursework to student interests. Computer Science courses are open to all students, Classes I–III, whether novice or experienced. The sequence begins with the introductory course, Computer Programming 1. *The advanced courses require permission of the department chair.*

Computer Programming 1

(Half Course)

This project-based course is an introduction to computer programming. No prior knowledge of computing is needed. Using the development of video games, students learn the basic concepts of programming and the fundamentals of the Java programming language. Game topics covered include user control, decision-making, graphics, sound, character artificial intelligence, and animation. Students develop problem solving and logical thinking skills through object oriented programming and algorithm design.

Second semester projects allow students to explore more advanced topics and work on larger projects of their own choice. Past projects include writing multilevel video games, music composition software, and optical character recognition software. The design and implementation of this course is unique, allowing students to master many basic concepts in programming while also developing compelling projects.

Computer Programming 2

(Half Course)

This course is intended for students who have completed Computer Programming 1 or who have learned equivalent material and received permission to enroll. It includes topics such as data structures, database programming, recursion, pathfinding algorithms, game AI programming, networking, graphical user interfaces, web programming, and control systems. The content and emphasis of the course are adapted each year to the interests and experience of the students. The course is taught using Java, PHP, and other languages. In recent years, students have written Internet network programs, studied

artificial intelligence to fly a quad-copter (also built by students), created projects around Arduino and Raspberry Pi single board computers and written games based on harvested Twitter data. *(Permission of the department chair is required.)*

Computer Programming 2 & 3: Computer Programming and Applications

(Full course)

This course is intended for students who have completed Computer Programming 1 or who have learned equivalent material and received permission to enroll. The course begins with topics such as data structures, database programming, recursion, pathfinding algorithms, game AI programming, networking, graphical user interfaces, web programming, and control systems. The content and emphasis of the course are adapted each year to the interests and experience of the students. After learning the above concepts, students apply them to handheld app development (iPhone and Android). Students will design applications for Android and then for iOS, using a variety of programming languages, including Swift, Java, SQL, and PHP. Recent class projects include the Milton Academy Students application (available at Google Play and iTunes for free), Internet network programs, a study of artificial intelligence to fly a quad-copter (also built by the students) and games based on harvested Twitter data. *(Permission of the department chair is required.)*

Computer Programming 3: Programming Applications

(Half Course)

This course exposes students to practical applications of programming. The focus is on developing applications for handheld devices (iPhone and Android). Other topics covered are based on student interest and emerging technologies. Students design applications for Android and then for iOS, learning the relevant material to do so. The coursework will use a variety of programming languages, including Swift, Java, SQL, and PHP. A recent class project is the Milton Academy Students application (available at Google Play and iTunes for free). *(Permission of the department chair and prior programming experience are required. With departmental permission, this course may be taken concurrently with Computer Programming 2.)*

Computer Programming 4: Artificial Intelligence and Data Science

(Half Course)

This project-based course will introduce students to the basics of Artificial Intelligence and Data Science. We will cover many different types of applications in AI and AI concepts. Topics in the curriculum include k-mean square, logistic regression, perceptron, feed forward network, and convolutional neural networks. The class will do projects that cover clustering, binary classifiers, categorical classification, image classification, and natural language processing. Through all these projects students will get practice with curating and cleaning datasets. While students may choose to explore the mathematical depths of the AI concepts we discuss, they are not expected to learn more than just the most basic concepts within linear algebra necessary to understand machine learning models.

Applied Engineering & Design

(Half Course)

This project-based course focuses on learning to design and create solutions for real world problems using programming, electronics and mechanical systems.

Through investigation of how everyday machines, toys, and devices work, students are introduced to basic engineering concepts, electronics circuits and systems design. Using Arduino and Raspberry Pi single board computers, students design and program embedded systems and interface them with the physical world. Students will go through the full product design cycle including writing proposals; designing with CAD software, and electronic and mechanical simulation software; fabricating and testing; and giving final presentations.

Topics will vary with student interest and include robotics, electro-mechanical systems, audio systems, wearable technology, assistive technology, and sustainable energy systems. *(Permission of the department chair and prior programming experience required.)*

English

After Class IV, in which all students take the same English course, students may choose from among several electives offered in each of the remaining three years. Students new to Milton make this choice shortly after they decide to matriculate, in consultation with the registrar's office. Returning students make a choice for the following year in consultation with their current English teacher.

Class IV English

This course emphasizes basic skills in reading and interpreting major literary genres; in writing clear, coherent exposition; and in developing a shared vocabulary for talking about writing and about literature. Texts include a Shakespeare play, anthologies of short fiction and poetry, and examples of personal narrative. In addition to four class meetings per week, students attend a weekly workshop developing grammar and writing skills.

Class III Electives

The department offers four courses: Perspectives, Founding Voices, Performing Literature and Seeing Literature. Each of these courses is of comparable difficulty with similar amounts of writing. All students in Class III read Sophocles's *Oedipus Rex* and Shakespeare's *Macbeth*. The following descriptions illustrate the content of each course in more detail.

Perspectives: Genre and Culture

Examining texts grouped by genre—short story, novel, play, and poem—to create a basis for comparison, students will explore how different cultural contexts treat major literary themes such as coming of age, tragedy, love, and the individual versus society. At the forefront of essays and class discussions will be the question of how a broad spectrum of cultures, eras and traditions shape universal human stories. A typical unit, for example, may examine short stories about coming of age from three distinct countries, or love poetry from three different centuries. Texts might include titles such as *The Nick Adams Stories*, *Drown*, *The Things They Carried*, and *The Dew Breaker*.

Founding Voices: Literature from the Ancient World through the Renaissance

This course will explore texts that have shaped the world's literature and influenced writers and readers from early times to the present. Through units on epic heroes, drama, short-form poetry, and storytelling, we will discuss themes such as the hero's journey,

the ethical implications of cultural values, and the role of the individual in the world. After summer reading, the course will begin with *Gilgamesh*, the oldest story in the world, and will likely include texts such as Homer's *Odyssey*, *The Ramayana*, *The Sundiata*, Dante's *Inferno*, Tang Dynasty poetry, and *The One Thousand and One Arabian Nights*.

Performing Literature

The readings in this course present a mixture of classical and modern works from the major literary genres. The course covers the same writing curriculum as the other Class III electives; what distinguishes it is the addition of oral interpretation. In addition to writing about the literature, students will perform it by conducting poetry readings, staging scenes, and writing and speaking in the voice of individual characters. When possible, students will read the plays being presented on the Milton Academy stage or in Boston theaters and analyze those performances.

Seeing Literature

From the imagery of a poem to the point of view of a short story or novel, literature often encodes in words important visual messages and commentary on human perspective. This course examines a diverse raft of literary works with special attention to the perspectival project within literature. With traditional books at the forefront, the course will also use paintings, films, and graphic novels to deepen understanding of the human complexities of seeing at the heart of each text, as well as to embrace the reading and writing goals of the Class III curriculum. Titles may include *The Handmaid's Tale*, *Maus*, and *Persepolis*.

Class II Electives

Contemporary Literature in Context

This course guides students in approaching literature from a number of analytical perspectives. Beginning with close reading—the detailed examination of a variety of texts for what the language will yield—the course moves to grouping texts by genre, by common theme, by historical period, and by a single author. In the late spring, the class applies all of these approaches to a single work, studying the text closely while also considering its form and theme, the period from which it came, and the influence of events in the author's life. Past units include Hemingway, Civil Rights, the Feminist Movement, and the Vietnam War.

Literature and the Human Condition

Pursuing a broad inquiry into what it means to be a person, to form relationships, to make decisions, and to live with their consequences, students examine literature from multiple traditions and genres. This discussion-based class delves into topics such as heroism and villainy; self and other; and innocence, guilt, and redemption. Students explore their ideas about the course's themes in critical essays, personal essays, and creative responses. Much of the fall encompasses a student of John Milton's epic poem *Paradise Lost*. Other writers in recent years have included Toni Morrison, Arundati Roy, Charlotte Bronte, William Shakespeare, and Haruki Murakami.

American Literature

This course is a survey of American literature, presenting an overview of American culture through its literary figures. The form and content of the readings offer great variety, and students' written responses range from straightforward literary criticism to creative imitations of styles. Texts may include *The Scarlet Letter*, *Love Medicine*, and *Their Eyes Were Watching God*. Students who take United States History in the Class II year find that the two courses complement each other.

People and the Natural World

This course explores varied human responses to the natural world through literature selected for its provocative response to nature and the ways in which mankind marks their presence on the land. The tension between urban and rural visions will help students understand ideas of the wilderness and of the city in the human imagination and the ways in which memory and imagination help define place in the world. Literature ranges from novels, poetry, and essays to explorers' journals and diaries. The course includes contemporary authors such as Leslie Marmon Silko and Annie Dillard as well as older writers such as Thoreau and Faulkner. Writing assignments will range from nature journals to essays of literary analysis and response papers.

Studies in English and American Literature

(Two-Year Sequence)

This course introduces students to major English and American writers and demonstrates the connections between English and American literary traditions. Structured chronologically, it begins with the major writers in England who form the basis for all

subsequent developments. The second and third semesters of the sequence emphasize the similarities and dissimilarities of British and American writers and some ways in which they influenced each other and were influenced by their cultures. In scope, the course studies works of some 30 writers, from Chaucer through Virginia Woolf, in a year and a half. In the second semester of the Class I year, students study some modern and post-modern dramas, and then subdivide into specialized groups to study 20th-century texts by a limited number of writers.

Reading Consciousness

What makes us Human? Is it our body, our soul, our consciousness? Through an interdisciplinary study of literature, philosophy, and religion, this course will investigate and interrogate our notions of humanity from antiquity to the contemporary era. By exploring topics such as the institution of slavery, the struggle for human rights, and the nature of spiritual transcendence, students will develop an understanding of the evolving definition of the human and insert their own voices into the current debate. Assessments may include critical essays, personal reflections, student-led discussions, and creative work. Readings will come from a diverse range of authors and thinkers, including Ralph Ellison, Charlotte Brontë, Harriet Jacobs, Kazuo Ishiguro and Plato.

Class I Electives

The Craft of Non-Fiction

This course is designed for students interested in the craft of writing and who wish to write about ideas, personal experience, and the sort of general interest topics (e.g., the arts, medicine, sports, nature, science, education) that appear in magazines such as *and*. It addresses three different genres of non-fiction: the feature article, a 4,000-word piece of investigative reporting; the essay of ideas, a 1,500-word reflective essay; and the memoir, a 4,000-word personal narrative. In each genre, students first read models and complete short, experimental writing assignments. The course differs from other Class I English courses in its high ratio of writing to reading and in its requirement that students revise each major piece of work to a high standard of professionalism. Critique by peers is an essential part of the writing process; students should expect to share their work with the class and to read and comment on the work of their classmates.

Fictions

We begin our philosophical journey with *The Magus*, the course's required summer reading. On the island of Phraxos in 1953, the mysteries of Bourani become the thematic and artistic questions of the course. Exploring the myths, creeds, and psychological and scientific principles that we live by in the Western world, we move from our encounters with freedom and truth to 19th- and 20th-century fiction. Continuing our historical and thematic exploration, we examine the fictions that man lives by as we study modern and contemporary literature. Reading selections vary from year to year. The following is a sample of works taught recently: *American Pastoral*, *Oryx and Crake*, *The Road*, *Beloved*, *Body and Soul*, *Kafka on the Shore*, and *A Farewell to Arms*.

Intersectionality: Womanhood in American Culture

In the early 1980s, two key texts confronted our nation with a powerful question: If all the women are white, and all of the people of color are men, who is left out? The anthologies *This Bridge Called My Back* (1981) and *Some of Us Are Brave* (1982) highlighted the need for voices from women of color in feminist dialogue and inspired legal scholar Kimberlé Crenshaw to coin the term intersectionality: a position at the cross-section of gender and race, occupied by Black women in particular and, in more contemporary application, women of color in general. This interdisciplinary course in literature and feminist theory examines the interventions of American women who identify as Black, Latina, Native, and Asian into a discourse that excluded them through identity and class. It also considers how those interventions redefine American feminism for not only women of color but also their white counterparts. Assessments will include critical essays, personal reflections, and creative work. In addition to the anthologies and the writing of Crenshaw, readings may also include works from Audre Lorde, Yuri Kochiyama, Gloria Anzaldúa, Adrienne Rich, and Louise Erdrich.

Literature and the Nature of Reality

This course looks at a variety of texts that explore, question, and prod at the boundaries of the nature of reality. In studying novels, plays, movies, short stories, and poems, we look not only at ideas in literature, but also at theories in psychology, science, morality, language theory, and art. The class is divided into thematic units, though many texts will cross from one theme into others. Central to

the class are the big questions: What is real? How do we judge reality? How and why does literature explore it? Possible authors include Albee, Beckett, Borges, Fadiman, Frayn, Kushner, Pirandello, Sacks, Stoppard, Twain and Woolf.

Modern Comparative Literature

The course begins with summer reading of Dickens and Dostoevsky, two writers who were contemporaries but wrote in very different styles. Dostoevsky anticipates much of what is thought to be “modern” in the arts. From his example, students move to Kafka—who casts the longest shadow over modern literature—Joyce, Woolf, and Camus. The last three writers of the fall term, García Márquez, Coetzee, and Morrison, writing in the post-modern era, face the question of what artists do to distinguish their work when earlier authors seem to have tried everything. In the spring semester, students trace the same evolution of style and content in drama, immersing themselves in sixteen plays ranging from Ibsen and Strindberg in the late-19th century to contemporary playwrights Suzan Lori Parks and Caryl Churchill; the class meets in King Theatre so that students can see plays in performance rather than on the page. During the spring project period, students will study film; in past years, subjects have included film noir, the changing image of women in film, five great directors, great examples of five film genres, and five autobiographical films.

Philosophy and Literature

This course investigates theories about the nature of humanity and moral philosophy, emphasizing a reasoned approach to thinking about complex and abstract problems. Topics include the basis of human knowledge, questions of freedom and determinism, the nature of evil, the nature of moral and aesthetic judgment, and the definition of social and political justice. Each unit takes its form around a main literary text and complementary philosophical readings. Students read traditional philosophers such as Plato, Aristotle, Descartes, and Kant as well as more modern thinkers such as Marx, Nietzsche, and Freud. Titles may include Lightman's *Einstein's Dreams*, Levi's *The Drowned and the Saved*, McCarthy's *No Country for Old Men*, Greene's *The Heart of the Matter*, and Shakespeare's *Measure for Measure*.

Shakespeare

In this course, students read a dozen of Shakespeare's plays, including comedies, tragedies and histories, excluding those normally studied in previous years at Milton. Though the course touches on historical context and linguistic development, its main emphasis is on the plays as theater—the creativity they continue to stimulate in actors and directors and the response they continue to evoke from audiences. In addition to reading and writing (both critical and creative), the class compares movie versions, engages in impromptu performances, and may attend live theater as the opportunity presents itself. A self-designed project each semester gives students the chance to pursue in depth their interests in scholarship, art, photography, video production, music, theater design, and other fields.

Themes in Contemporary World Literature

In this course, we read twenty-first century texts that pose challenging questions about the global context in which we live today. Themes we explore include: globalization, citizenship, the climate crisis, immigration, colonization, and identity. Because of the contemporary nature of this course, readings change frequently. Students may expect to read texts from at least four different regions within the year. Regions include but are not limited to: the Caribbean, South Asia, East Asia, West Africa, South America, Native American nations, and the Middle East. Assessments in this course offer students choice in their style of writing and self-expression and will focus on developing skills in voice, revision, and self-directed work.

Three Writers in Depth

By limiting the number of writers we study, this course allows students to examine each writer longer and more intensively than is possible in other courses. Opportunities presented by the course include following the evolution of an author's style and choice of subject matter and theme; exploring one author's approach to different literary genres; and placing an author in historical and biographical context. Written work consists of both critical essays and creative pieces, perhaps using as inspiration the style or thematic content of the works being studied. The teacher selects the first two writers; after the school year has begun, teacher and students together will select the

third. The following list suggests the stature of the writers likely to be chosen: Auden, Austen, Baldwin, Beckett, Conrad, Dante, Eliot, Faulkner, Frost, García Márquez, Hemingway, Ibsen, James, Joyce, Morrison, O'Neill, Swift, Thoreau, Tolstoy, Williams, Woolf, and Yeats.

We Are What We Read

"You must write, and read, as if your life depended on it" (Adrienne Rich). In this course, students will read fiction and write several personal, creative, and analytical essays examining the intersection of the literature and the reader reading and how literature works when we feel, as Dickinson has said, "as if the top of [our] head were taken off." We will ask how we read the texts, and how the texts read us. The work includes a rereading of a resonant novel of the student's choice, fiction (shorter and longer), possibly including Woolf, Adichie, Hemingway, Senna, Amis, Austen, Ondaatje, and Murakami, and poetry, contemporary and not. Additionally, we will read essayists writing about reading, including Rich, Calvino, Gay, Oates, Yardley, Dubus, Baldwin, Lorde, and others. A final project will involve students' examinations of a small body of work by a single author of each student's choice.

The English electives that follow do not fulfill the diploma requirement in English and must be taken in addition to a full English course.

Hamlet

(Half Course)
Classes I & II

By devoting a full year to the play that is widely regarded as the greatest in English, this course, team-taught by a member of the English department and a member of the performing arts department, offers students several unique opportunities:

- to enjoy the in-depth study of a single text, with no pressure to move on; and to experience fully the richness that a very complex literary text provides;
- to approach a Shakespeare play actively by performing, directing and designing parts of the text, and in doing so discover a full range of possible interpretation;
- to join the literate world in knowledge and appreciation of a classic work;
- to explore the deep personal resonances that this work, perhaps more than any other, always seems to evoke;
- to gain familiarity with the problems and processes of literary scholarship.

Most class time is spent reading and discussing *Hamlet* and comparing different film versions. Students, individually or in groups, formulate long-term projects that they complete during homework time. Projects, which may be critical or creative, have covered a broad range, including theatre design, film-making, creative writing, textual analysis, memorization and performance, graphic art, psychology, music, and research into the play's historical and literary background.

Journalism

(Half Course)
Classes II & III

In today's digital and highly saturated media environment, students need to learn media literacy early; they need to understand the role of journalists and the role a free press plays in a democracy. In this course, students will learn how to gather facts, conduct interviews, research background material, and craft and edit news stories. We will examine the differences between hard news coverage, feature pieces, and opinion pieces and write in all three styles. We will also learn how today's newsrooms work; they aim for noble purposes, but most are for-profit businesses, so we will discuss that balance. We will cover the basics of communication law, exploring questions such as: What is freedom of speech? Freedom of press? Libel? We will examine media in all its forms -- print, television/video, radio/podcasts, and social media channels -- comparing and contrasting how current events are covered, looking at what's effective and what's not. Working journalists will visit class periodically to discuss their work.

"It was all a dream...": The Power of Poetry through Close Reading and Analysis

(Half Course)
Classes I, II & III

This course is geared towards students who have a deep interest in poetry and its many forms and want to expand their repertoire of rhetorical devices. This course will push students to dig deep into the text through close reading strategies that refine their analytical writing. We will also explore the ways in which poetry both captures and transcends time through its influence on popular culture.

Project Story: Narrative Journalism and Performance

(Half Course)

Classes I, II & III

From competitive story slams performed for packed venues to storytelling courses designed to empower workplace professionals, sharing narrative with live audiences has never felt more current or relevant. In this course, students will study the art of storytelling through moving their own and others' stories from page to stage. During the first half of the semester, students will learn narrative journalism skills, performance skills, and peer workshop practice, to collect and shape stories of our School. They will work collaboratively during the second half of the semester to identify, research, write, and perform a story that originates beyond Milton Academy. Throughout the year, students will read and view storytelling models, attend performances, and hear from visiting artists and activists who promote storytelling around the country, believing that shared stories strengthen and sustain human connection. *(This course is listed under both the English and performing arts departments.)*

Creative Writing

Satisfies Arts Program Requirement

Classes I, II & III

This course offers workshops in shaping ideas, personal observations, and memories into fiction and poetry. It teaches techniques of each genre and employs frequent reading and discussion of student works within the class.

Advanced Creative Writing

(Half Course)

Meeting twice a week in a format that consists of a writers' workshop and individual conferences, this course provides the student-writer the opportunity to continue to develop talents. *(Prerequisites: Creative Writing and permission of the creative writing teachers.)*

Advanced Creative Writing 2

(Half Course)

This course allows those who have successfully completed Advanced Creative Writing to continue working in the same format. *(Prerequisites: Advanced Creative Writing and permission of the creative writing teachers.)*

Note: Advanced Creative Writing and Advanced Creative Writing 2 may be offered as semester courses should there be sufficient interest and with permission of the department chair.

Language Skills

Exposition

Classes III & IV

The English department offers a diploma-credit course for students in Classes III and IV who desire intensive instruction for improvement of verbal skills. The course focuses on developing the skills necessary for clear, correct, and forceful expository writing of the sort required by all disciplines at Milton. This course includes a thorough study of grammar; an introduction to key concepts about writing; and a series of essays and longer projects aimed at helping students learn to write in a step-by-step process that includes planning, drafting, revising, and editing.

The history and social science program is designed to provide students with a curriculum that will allow them to think imaginatively and critically about the world. Department offerings include a core of required global and American history courses, as well as history and social science electives that examine a broad range of cultures, civilizations, and elements of the human condition. To fulfill Milton Academy's diploma requirements, students must take two history courses: Ancient Civilizations or Modern World History (in Class III or IV) and United States History (in Class I, or II or III). The history requirement may also be met by the two-year course, The United States in the Modern World. Students who have already taken Modern World History (in Class III or IV) may not take the two-year course.

Ancient Civilizations

Class IV

This course serves as an introduction to the study of history. It examines a wide range of societies across the ancient world from East Asia to Western Europe to sub-Saharan Africa. Readings focus on the effects of geography on the growth of civilization, the interaction of cultures, and the evolution of social and political institutions, religion, and philosophy. Students read a significant number of primary sources as well as secondary accounts and interpretations. The course emphasizes building analytical thinking and reading and writing skills. In the spring semester, students conduct a major project in library research.

Modern World History: Class IV

Class IV

This course serves as an introduction to the study of history. It examines the chaotic and fragmented world of Eurasia after the Mongol imperium; out of this general chaos, the Chinese and Islamic empires established their preeminence in an already long-interconnected Asia. At the same time, European states—through exploration, exploitation, colonization, and revolution—created the beginnings of a globally connected modern world. Hence, we will trace the world from the 1500s to the end of the 20th century, and we will examine closely the ideas, individuals, and events that shaped this new world. Students read a significant number of primary sources, as well as secondary accounts and interpretations. The course emphasizes developing analytical thinking, reading and writing skills. In the spring semester, students will conduct a major project in library research.

Modern World History

Classes II & III

This course begins with an intensive study of the early modern world—a period characterized by increasing global contact and parallel evolution of economies, states and cultures. We compare Confucianism in Ming China, Islam in the Ottoman and Mughal Empires, and Christianity in Reformation Europe. We will consider the developments and repercussions of the French and Haitian revolutions, triangle trade, the Industrial Revolution and the onset of nationalism, Marxism and feminism. Our study will conclude with an examination of power and supremacy in the 20th century. We will emphasize the skills of close reading, interpretation of primary and secondary documents, and essay writing. Students will complete a major library research project in the second semester.

The United States in the Modern World 1 and 2 The United States in the Modern World 1

Classes II & III

The story of economic and political revolution—where its origins lie in the 15th and 16th centuries, how it is carried out in the 17th and 18th centuries, and how it re-shapes the world in the 19th century—is the story of this course. Students will study the modern history of the great empires of Eurasia, encounters between the peoples of Europe and the Americas, expansion of trade and technology, and the development of political ideologies. The American experience, from the voyages of Columbus to the Civil War, will be placed within the larger context of the modern world. Students will complete a major library research project in the spring semester.

The United States in the Modern World 2

Classes I & II

The United States takes a central role in the second year of this course, beginning with the impact of the Civil War and industrialization on both domestic and foreign policies. Questions of new thought in social relations, in the application of science and technology, and in governmental roles and responsibilities in the United States and in selected other nations will be studied, so that the discussion of revolutionary change begun in the first year continues and broadens. A close consideration of several Cold War topics in the second semester will enable students

to reach a greater understanding of the problems faced by the 21st-century world, in particular the impact of human history on the natural world. Students will complete a major library research project early in the second semester.

United States History

Classes I, II & III

Conceptual and interpretive in nature, this course examines both the important documents (e.g., Declaration of Independence, United States Constitution, Gettysburg Address, and speeches of Frederick Douglass, Susan B. Anthony, Martin Luther King, Jr. and John Kennedy) and the multiple historical interpretations of an event or personality in the American past. Looking at the tension between freedom and order, democracy and slavery, urbanization and populism, gender and politics, localism and nationalism, students begin to see and understand that the principles and ideas fought for at the time of the American Revolution are unresolved in the later 19th and 20th centuries. Students will complete a major library research project in the spring semester.

(Prerequisite: Ancient Civilizations or Modern World History.)

Advanced Topics in History

Class I & II: Completed Milton's History graduation requirement OR Permission of the department chair.

Class III: Completed Milton's History graduation requirement AND Permission of the department chair.

African-American History

(Semester 1)

In this course, students examine the African-American experience with an emphasis on individual and collective agency, political protest, and efforts to initiate social change. The course is organized chronologically. Students begin their study in 15th century Africa before moving quickly to the trans-Atlantic slave trade, and the historical foundations of Black life in the antebellum and postbellum periods. The second half of the course stresses more contemporary issues of the 20th and 21st centuries. Throughout, students will grapple with questions that pertain to isolation and identity; individualism and collectivity; race and struggle; resistance and joy; and African-American history as United States history.

History of Modern China

(Semester 1)

Since the late 20th century, China has been the most dynamic country. After suffering national decline, famines, foreign invasions, and domestic chaos, China has re-emerged as a confident, powerful, and influential country. Boasting the world's second largest economy, China is beefing up its military, buying up natural resources and influence worldwide, and staking its flag in faraway places like the South Pole and closer to home in the South China Sea. Foreign governments eagerly accept Chinese investments across a wide range of industries, but they also complain about Chinese trade practices and attitudes. The *Belt and Road Initiative* (BRI), a signature Chinese global project under the Xi government worth approximately \$6 trillion, is both an example of China's vision and a testament to its ambition. The initiative is designed to tie China's economy to the rest of the world by developing a series of multinational railway systems, airports and deep water ports that stretch from China all the way to Western Europe. With trade, China hopes to bring about mutual economic development and prosperity. All this sounds wonderful, but critics of BRI point to a series of problems ranging from unfair Chinese trade practices and environmental degradation to corruption. So what is the real picture of today's China? Is it a benign and rapidly developing power who is ready to take on the mantle as a defender of the global economic order? Or is it a neo-colonial upstart with a mercantile streak ready to exploit others for its own benefit? The truth lies somewhere in between, and we will use this course to uncover some of the major issues at stake. We will examine them critically using a historical lens so that China's position, perspective, and motivation can be better understood.

History of the Middle East

(Semester 1)

This course examines the history of the Middle East from 1900 to the present. The geographic focus will be Egypt, Iraq, Iran, Israel, Saudi Arabia, and Turkey. We will keep two broad questions in mind as we follow the current political and social developments in the region: 1) What impact did Western imperialism and the process of decolonization have on society and politics in the Middle East? and 2) How did the U.S. invasion of Iraq in 2003 start a process that has led to a reordering of the modern Middle

East? Students will conduct individual research on the topics of their choice at the end of the semester. For students wanting to continue their study of the contemporary Middle East, the course of Globalization and Islam in the second semester builds on themes covered in this course.

Topics in Modern World History: In the Aftermath: Case Studies in Transitional Justice

(Semester 1)

What should happen after a government's violence against its citizens? Who should decide? The class will focus on specific case studies to explore three kinds of responses to government crimes against citizens: the policies of official forgetting (e.g., post-Franco Spain; Argentina); truth telling and reconciliation movements (e.g., post-apartheid South Africa; Australia); international prosecutions (e.g., Khmer Rouge in Cambodia); and reparations (e.g., Canada/First Nation Peoples; U.S. government/slavery). We will also explore responses from artists, filmmakers, theologians, psychologists, and survivors to understand the challenges and promise of transitional justice. Projects will include persuasive and analytical writing along with training for and practice of interviews, mediation, and mock trials.

Asian American History

(Semester 2)

Asian Americans constitute the fastest growing population in the United States. Students will explore the history of this diverse community from 1850 to the present. Throughout this period, Asian Americans have been characterized as either the "model minority" or the "yellow peril." By focusing on the experiences of Chinese, Japanese, Korean, Filipino, Asian Indian, and Vietnamese Americans, students will develop a dynamic understanding of the documentation and interpretation of this history. Documentary films and readings about immigration policy, international relations, labor history, community development, and political empowerment will be the focus of our studies. Students will conduct an oral history project at the end of the semester.

The Aztecs to High-Tech: A History of Latin America and the Caribbean in the World

(Semester 2)

Drug trafficking, poverty, political revolution. These are just a few of the images that the mention of Latin America and the

Caribbean conjures. Not inaccurate, these images are also easy generalizations that obscure the realities of a region rich in history, and social and cultural complexities that have profoundly contributed to the entire pageant of humanity. This course examines that complicated, historical process. Arranged chronologically and thematically, it begins with the earliest indigenous communities and concludes with an exploration of the region's role as a provider of cheap labor for technologically sophisticated multinational corporations like Ford and Motorola. The course deliberately integrates a global perspective that challenges participants to consider the ways the people of Latin America and the broader world have shared mutually constituted historical experiences.

Globalization and Islam

(Semester 2)

This course will explore the relationship between globalization and the Middle East in the post-9/11 world. Using readings from current scholarship, we will examine ways in which the Arab world has been shaped by economic, political, and social realities created by globalization. The first part of the course will introduce students to broad topics in globalization. Then we will apply these theories to our case studies of Egypt and Jordan. The third part of the course will focus on the complex relationship between globalization, American foreign policy, and the rise of religious extremism in Europe and the Middle East. To better connect our classroom learning to the Middle East, students will work with an NGO in Jordan to create a final project that helps raise awareness of issues related to the Syrian Refugee crisis. This course offers an optional trip to Jordan during the March vacation.

History of Civil Rights

(Semester 2)

In this course, we will examine a number of questions about the struggle for justice and equality in the United States. What did the Civil Rights workers of the 1960s hope to accomplish? What were they able to achieve? How did American society respond to this movement for social change? The first half of the course is devoted to understanding the relationship between oppression and resistance, focusing on the legacy of segregation. Students will then look at the events that shaped the modern civil rights movement. Course work includes journal writing,

reaction papers, and a final research project about a contemporary Civil Rights issue. This course challenges students to develop a clear historical perspective about one of the most revolutionary periods in U.S. history.

Social Sciences

Classes I & II

American Government and Politics

(Semester 1)

The heart of this course is an examination of the interactions between the policy-making institutions of the United States government (Congress, the presidency and the executive branch, and the Supreme Court) and the nature of American political parties, interest groups, the media, and the American electoral practices. With a focus on current events, we will begin to see how the United States' constitutional underpinnings are enforced and complicated by political culture. Through this course, students will be engaged in following political events in and out of the class, as well as partaking in independent research as a way to understand and contribute to political processes. Ultimately, this course will equip students with the foundational understandings to engage thoughtfully and purposefully in politics, while also allowing for the practice of political communication and discourse—all of which are incredibly important in our increasingly polarized political climate. *(Note: To enroll in this course, students must have taken or be taking United States History or U.S. in the Modern World.)*

Comparative Government

(Semester 2)

In this course, we will develop the skills and habits of mind required to study and thoughtfully participate in our global political landscape. Through concrete historical and present day examples, we will analyze the current literature and theoretical basics of comparative politics, and question why governments and institutions around the world take the form they do. We will ground our conversations in case studies from states around the world. In doing so, we will address two essential questions: What defines and complicates democracy? And how does change occur and endure? By questioning the legitimacy of governments, the distribution of power, and the roles of culture, leaders, and institutions, we will use history to explain current trends and make future predictions. Ultimately, every aspect

of the course will culminate in project-based assessments that apply comparative politics to the case of the Arab Spring.

Microeconomics: The Power of Markets

(Semester 1 or 2)

This course studies the behavior of individual firms and households within specific markets, like health care, the automotive industry, and retailing. It covers such economic concepts as scarcity, opportunity cost, supply and demand, elasticity, price, and economic efficiency. Focused on the interactions within different markets, the course examines both competitive and non-competitive structures and explores the consequences of market failures. As we explore how markets operate, we will pay particular attention to a company's costs, labor markets, capital markets and government regulation. *(This course will prepare students for both Macroeconomics and Behavioral Economics. Students may not take this course if they have taken, or are planning on taking Calculus and Applied Economics.)*

Macroeconomics: The Federal Government and the National Economy

(Semester 1 or 2)

This course focuses on the whole U.S. economy. It covers such economic concepts as gross domestic product, economic growth, unemployment, inflation, and trade. Economic models for a market-based national economy are examined; topics of discussion include GDP growth, fiscal policy, monetary policy, the Federal Reserve, and taxation. We will also spend some time discussing the U.S. economy in the context of the global marketplace and tackle issues of international trade, trade policy, and sustainable development. *(This course will prepare students for Behavioral Economics.)*

Global Economics: Inequality, Capitalism, and Sustainable Development

(Semester 2)

This course aims to explore the relationship between inequality, globalization, and economic growth. More specifically, the course is designed to answer the question of why certain nations are able to adopt institutions and policies that promote equality and under what conditions, economic, social, and political capital fosters growth and a sustainable future. How can global poverty be eradicated? What are some of the structural transformations, shifting modes of thought, dynamics of class, race, gender, ethnicity, and geographic stratification that shape the

debate around global inequality? This course relies on basic principles of economic theory to analyze economic realities and policies in the U.S. and abroad with a particular focus on the impact of inequality on social justice and democracy.

Behavioral Economics: The Burdens of Decision-Making

(Semester 2)

This course explores the relatively new field of behavioral economics and works to revise standard economic models of human behavior by integrating psychology and economic thought. We will quickly discuss and dissect conventional economic theory and use that as a jumping off point to answer questions of behavior such as: How do people make decisions on what cereal to eat? Why do people feel more comfortable paying a dinner bill with a credit card instead of cash? What is the role of altruism, equity and fairness in our society and world? We will discuss these questions and many others throughout the semester. This course relies on the basic principles of economics to understand human decision making. *(Prerequisite, one of the following: Microeconomics, Macroeconomics, Calculus and Applied Economics, Psychology Seminar or Topics in Psychology.)*

Psychology Seminar

(Full Course)

This college-level course introduces students to the field of psychology, the scientific study of the mind and behavior, through hands-on experiences with research design, projects, discussion, and lessons. In addition to learning about major areas within the field of psychology—including cognition, neurobiology, development, behaviorism, socioculturalism, and mental health—students will often be required to work in teams and expected to improve their observation, leadership, collaboration, and presentation skills. Students will work towards thinking like a psychologist where they reflect critically about the theories and research presented and thoughtfully consider the human experience and the carrying influences on it. Although it is not required, students may find it helpful to have taken or be taking biology and statistics. *(Topics in Psychology is NOT a prerequisite for this course.)*

Topics in Psychology

(Half Course)

This course explores topics within the discipline of psychology, including development, personality theory, abnormal psychology,

social psychology, and learning. Through these topics, students also study the thought of foundational and contemporary theorists within the field of psychology. Course content integrates reading from the textbook and primary sources, as well as watching film from a psychological perspective. Students are encouraged to reflect on the material in both personal and academic ways and are evaluated through interactive learning projects, analytical essays, and classroom discussions.

Religions of the Middle East

(Semester 1)

The Middle East is the birthplace of three of the world's great religious traditions—Judaism, Christianity, and Islam. It is also a center of conflict, often stemming from religious differences. In our shrinking and pluralistic world, having knowledge of religion has become increasingly important in order to be an informed citizen. Taking a global and historical view, this course examines the development of each of the Middle Eastern religions, analyzes their connections, and contemplates the source of their tension. Students will study each religion on its own terms through class discussion, primary texts, film, and inquiry into the spiritual and religious practices of each tradition.

Religions of Asia

(Semester 2)

Modern historical events such as the liberation movement in India, the Chinese invasion of Tibet, and globalization have resulted in a closer association between the Western world and Asia. Throughout the 20th century, the West's intrigue with Asian beliefs, philosophy and practices has intensified. This course explores the growing interest in Asian culture by focusing on the religions of the region—Hinduism, Buddhism, Taoism and Zen—and charting their histories and influence in the global community. Students will study each religion on its own terms through class discussion, primary texts, film, and inquiry into the spiritual and religious practices of each tradition.

Activism for Justice in a Digital World

(Half Course)

Classes I, II & III

How do activists work to create a more just society in the United States and in the world? How are they combining new social media tools and traditional service activities to address problems of poverty, homelessness, hunger, educational inequity, healthcare,

Independent Courses

the environment, and immigration? How can you make a difference? This course will explore current issues through readings by contemporary authors and news sources, as well as historical documents, speakers, and field trips into Boston. An integral component of this exploration will be students' firsthand experiences through weekly service commitments to local sites (with homework time allocated to this hands-on work). Course work includes journal writing, short papers, and action projects.

See the Visual Arts course descriptions for History of Western Art and Global and Contemporary Art Studies.

Students in Classes I through IV whose interests go beyond regular curricular offerings may petition to pursue an independent course for academic credit with an appropriate faculty sponsor in any academic field. A student may make arrangements to work with a qualified outside mentor/teacher provided that a Milton Academy faculty member in a related field assumes sponsorship of the course and agrees to oversee the course through regular conversations with both mentor and student. Occasionally a student, at his or her expense, enrolls at a neighboring college or university for an independent course. Regular meetings with the Milton faculty sponsor are required. If the course ends before the close of Milton's semester, students are expected to continue study with his or her faculty sponsor until the end of our term. In all cases, the faculty sponsor will be responsible for assigning and submitting grades and for making sure comments are submitted on time. Credit will not be granted for courses that duplicate those offered by the Academy. Independent courses may be full, half or semester courses depending on the depth and breadth of the study.

Application forms are available in the registrar's office. Students should submit the form with all required signatures to the registrar's office and email completed course proposals to the chair of the Independent Course Committee by May 2 for the following school year, or by December 2 for the second semester. Course proposals must include a course description including an outline of topics with objectives, a bibliography, meeting times, and evaluation methods and criteria. Applications will be accepted late (by the end of the first full week of school) only from students who show good reason for being unable to apply the previous spring (e.g., a scheduling conflict). A Class I student who intends to pursue a second-semester independent course must apply the previous spring if he or she wishes the course to appear on the School transcript submitted to colleges in the winter.

Note: For Class I students, any second semester independent course must continue to year's end in June either as a course or as a senior project.

Note: Students will normally be limited to one independent course at any given time.

Mathematics

Milton's mathematics curriculum is designed to encourage students to develop their understanding of a rich variety of mathematical concepts, to recognize the spatial and quantitative dimensions of the world in which they live, to appreciate the logical principles that inform those concepts, and to develop their skills in critical thinking, reasoning, and communication.

Beginning in the 2019–2020 school year, the mathematics department deleveled Geometry. Every student taking this course will engage in a differentiated classroom. Leveled courses require the permission of the department for placement in a given level. Math classes at Milton all have an expectation of depth, extension, abstraction, problem-solving, and communication. Student exploration builds connections across topics, and allows time to consider many concepts in a real-world context. Successful completion of Proof & Problem Solving and Algebraic Concepts & Data Science fulfills the diploma requirement.

Algebra 1 with Geometry

This course is designed for students who have not taken a full-year algebra course, or who need to strengthen their algebra skills. The course also helps students to learn the fundamentals of geometry. This course will use geometric and graphing software to explore the key concepts, which include: linear, quadratic, and absolute value functions and equations; parallel lines, triangles, polygons, congruent and similar figures; and circles, area and volume. Upon successful completion of this course, students will proceed to Algebraic Concepts.

Proof & Problem Solving

Students come to this course with a substantial store of information about geometric and mathematical relationships gained in previous coursework and through informal experiences. This course formalizes and extends their knowledge by emphasizing an axiomatic development of these relationships, builds problem solving and mathematical writing skills, and includes introductory work in computer programming. Topics covered in this course include parallel lines, triangles, polygons, congruent and similar figures, circles, triangle trigonometry, coordinate geometry, area and volume, and an introduction to computer programming in Java. Upon completion of this course, students will have embarked on the process of communicating mathematics and formal reasoning, positioning them for success in further mathematics courses.

Algebraic Concepts and Data Science (Honors, Regular, Foundations)

This course builds upon the foundation developed in Algebra 1 and Proof & Problem Solving, extending students' knowledge and understanding of algebraic concepts, and introducing them to work in data science. The course includes visual and symbolic analyses of linear, quadratic and exponential functions, as well as exponents, logarithms, sequences and series, optimization, transformations and triangle trigonometry. Other topics may include introductions to conic sections and the properties of real and complex numbers. Students will continue to develop their ability to communicate mathematically, with a more directed focus on identifying and representing mathematical ideas in equivalent yet different ways by exploring the algebraic, graphical, numerical, and verbal representations of concepts. *(Prerequisite: Proof & Problem Solving)*

Advanced Functions (Honors, Regular)

This course examines the structure, application, and connections between polynomial, exponential, logarithmic and trigonometric functions, along with rational functions and limits. The course also considers some discrete math topics, including combinatorics, probability, and an introduction to statistics. Projects will allow students to pursue particular interests and see real-world connections. Goals of this course include building critical thinking and mathematical communication skills. *(Prerequisite: Algebraic Concepts)*

Calculus (Honors, Regular)

In this course students use limits of infinite processes to develop differential and integral calculus; they then use these concepts to create mathematical models. The abstract properties of elementary functions are re-examined in light of these new techniques; problems drawn from the natural and social sciences provide opportunities to apply these new concepts. *(Prerequisite: Advanced Functions)*

Calculus and Applied Economics (Honors)

This class will introduce students to the essentials of single variable calculus and the principles of economics. Students will explore the central concepts of calculus: limits, derivatives, integrals, and the Fundamental Theorem while emphasizing applications to economics. The course will also illuminate the central concepts of economics, particularly microeconomics. Economics is the study of the way consumers

and producers interact in markets, and the economic way of thinking centers on cost-benefit analysis. The course will use the tools of calculus to model consumer and producer behavior and to analyze the social welfare effects of government policies. *(Prerequisite: Advanced Functions. Students may not take this course if they have taken, or are planning on taking Microeconomics.)*

Calculus (Accelerated)

This course uses limits of infinite processes to study rates of change and areas under curves. We will then reexamine abstract properties of elementary functions in light of these new techniques. Problems drawn from the natural and social sciences provide opportunities to apply these concepts. Additional topics include infinite series, parametric equations, vector analysis, and an introduction to differential equations. In this course, students complete the study of a year and a half of Calculus in one year. *(Prerequisite: Advanced Functions Honors and permission of the department chair.)*

Statistics (Honors, Regular)

Statistics is the science of collecting, organizing, and interpreting data. Students in this course learn how to analyze data from existing data sources as well as data collected from student-designed surveys and experiments. Students will also learn the importance of randomization in the collection of data and critique the validity of third-party data. This course investigates the underpinnings of probability theory, random variables and probability distributions as the basis for inferential statistics. Finally, students will apply all of these techniques to real-world and self-designed studies. Students gain mastery using a variety of technologies. *(Prerequisite: Algebraic Concepts and Advanced Functions, which may be taken concurrently.)*

Advanced Statistical Methods (Honors)

This course will begin with a brief review of the four stages of the statistical process that are learned in Statistics: producing data, exploratory data analysis, probability theory, and statistical inference. From there, students will explore more advanced statistical topics, including: linear regression, multiple regression (including inference and variable selection), logistic regression, one-way and multi-factor ANOVA, non-parametric methods, bootstrapping, and time series analysis. The learning of these concepts will be accompanied by hands-on exploration, including

using the free statistical software program: R. Throughout the year, students will conduct a variety of research projects and will be encouraged to engage in cross-curricular exploration and utilize real-world data in their analysis. Students should be interested in collaborating with their peers, working on long-term projects, and grappling with serious inquiries about the world around them. *(Prerequisite: Statistics and Calculus, which may be taken concurrently.)*

Advanced Calculus and Mathematical Statistics (Honors)

This course is a calculus-based introduction to mathematical statistics. The course will cover basic probability, random variables, probability distributions, the central limit theorem and statistical inference, including parameter estimation and hypothesis testing. There are three main goals of this course: to learn the language of probability, to improve statistical intuition, and to use calculus to express and prove random concepts. Set theory, limits, sequences and series, additional methods of integration, multiple integrals and elementary differential equations will be covered. *(Prerequisite: Calculus)*

Multivariable Calculus

This course will cover topics in multivariable calculus, including vectors, vector functions, partial derivatives, multiple integrals and vector calculus. Additional advanced topics may be included, at the discretion of the instructor. *(Enrollment by permission of the department chair. With departmental permission, this course may be taken concurrently with Advanced Calculus and Mathematical Statistics (Honors) or Abstract Algebra and Group Theory.)*

Abstract Algebra and Group Theory

This course is a proof-oriented introduction to the study of concrete categories such as sets, groups, abelian groups, fields, and vector spaces, focusing on the morphisms (functions), sub-structures, quotients, and actions within each category. Within Group Theory, topics include Lagrange's Theorem, Cayley's Theorem, The Isomorphism Theorems, and possibly Sylow's Theorems. Within Linear Algebra, the course will focus on coordinate vectors, dimension, matrix representations of linear transformations, change of basis, determinants, and possibly eigenvectors. Specific attention will be given to the interplay between categories, which may involve the study of diagrams and functors. Linear Algebra will be applied to the study of Linear Differential Equations. Nonlinear

Differential Equations may also be pursued, based upon student choice. (*Enrollment by permission of the department chair. With departmental permission, this course may be taken concurrently with any course beyond Advanced Functions.*)

Advanced Topics in Mathematics

(Semester 1, Semester 2)

This course permits students to pursue explorations in the field of mathematics at an advanced level, for students who have already studied calculus and statistics. Topics may include number theory, topology, combinatorics, field theory, game theory or graph theory. Designed to meet the needs of the students with mathematical ideas they wish to explore in depth, this course is a seminar-style exploration of a particular field. Note: When there is a need, and staffing permits, this course may be offered as a half course. (*Prerequisite: Calculus and Statistics and permission of the department chair.*)

Discrete Mathematics Seminar

(Half course)

Students will study introductory graph theory and combinatorics, which are the foundations for understanding a wide range of problems in probability, computer programming and discrete applied mathematics. Students will use specific motivating questions to direct topic exploration. Motivating questions include: What is the fewest number of colors necessary to color a map of the United States so that any pair of neighboring states are different colors? If a five-card poker hand is chosen at random, what is the probability of obtaining a flush? Can a knight move around a chessboard, landing on every square exactly once? These questions are limited to the use of discrete number systems (i.e., the counting numbers and the integers). Specific topics may include: Planar Graphs, Euler Cycles, Hamilton Circuits, Coloring Theorems, Trees, Permutations, Combinations and Recursion. Classwork will include numerical problems as well as introductory logical proofs. (*This course may be taken concurrently with Algebraic Concepts or Advanced Functions only.*)

Mathematics and Art

(Semester 1)

Classes I, II & III

Art and mathematics do not intersect so much as overlap. From Penrose tiling and M.C. Escher's work to Mandelbrot and Julia sets to Margaret Wertheim's crocheted coral reef and Frank Gehry's oeuvre, mathematical art and artistic mathematics both transform our world and help us make sense of it. Students will work in a range of media from digital design and 3D printing to fiber arts. In this course, students will spend the first part providing a foundation for the work through readings, discussions, and virtual (and actual, as logistics permit) field trips, and develop an introductory project designed by individual students and the instructor at mid-semester. Then, students will work to develop independent projects incorporating the structures and concepts studied earlier in the semester.

Mathematics and Social Justice

(Semester 2)

Classes I, II & III

This course will encourage students to explore issues of equity and justice through a mathematical lens. We will discuss our intersecting identities, learn to question our assumptions, and think critically about how bias influences the presentation of information. Students will then work with the instructor to design and complete mathematical analyses of social issues that interest them. The specific topics and mathematical tools used by an individual will depend on that student's interests and knowledge. For example, one student might use geometry to investigate gerrymandering, while another might use calculus to analyze mass incarceration.

The study of modern languages opens doors to a greater understanding of the world and its cultures. Language study can broaden students' global view and provide unique opportunities at Milton and beyond. We hope students will achieve a level of proficiency that enables them to use the language to communicate and to appreciate different ways of seeing the world. The diploma requirement is met by successful completion of a Milton Academy level 3 course. We encourage students to continue their studies beyond the level 3 requirement. The courses offered at level 4 and above provide special opportunities to examine the culture in depth through literature, art, film, history, and current events.

The modern language department offers classes that support a wide variety of students' abilities and areas of interest. To merit placement in Honors or Accelerated levels, students must have an exceptional ability, a record of outstanding performance, and a demonstrated passion for language learning.

French

French 1

This course provides an introduction to French through essential grammatical structures, idiomatic expressions and everyday vocabulary. Students use French in skits, dialogues, and oral and written presentations. Students learn to express themselves in real

Intensive Language Courses

These are accelerated courses designed for Class I students (and students in Class II with special permission). Each is the equivalent in difficulty and pace to a first-year college language course and is open only to students who have completed the language requirement through study of another language. Chinese Intensive may be combined with students from Chinese 1P in the same section. (*Offered subject to sufficient demand.*)

Intensive Chinese

Intensive French

Intensive Classical Greek

Intensive Latin

Intensive Spanish

life situations. They also learn about various French-speaking cultures through activities, songs, art and short stories.

French 1P (Prior Study)

This course is intended for students who have previously studied French but who need to strengthen their foundational language skills before taking French 2. This course has the same objectives as French 1 but allows for a greater depth and variety of activities, given the students' previous experience with the language and culture.

French 2

This course continues to develop oral and written command of all basic structures in French and introduces the reading of short books such as *Le Petit Nicolas* and *Le Petit Prince*. Many other cultural readings, projects and audio-visual materials connect students to various aspects of daily life in France and in the French-speaking world.

French 2 (Honors)

The goal of French 2 Honors is to continue to develop oral and written command beyond basic structures in French and to inspire integrated and creative use of the language. Students continue to acquire grammar skills and vocabulary through readings such as *Le Petit Prince* and short stories by Le Clezio and Anne Gavalda. In this course students will start with an introduction to reading to advance to literary analysis. Great emphasis will be placed upon communicating accurately and effectively in the four modalities: listening, speaking, reading, and writing. Students will expand their knowledge and deepen their cultural understanding and sensitivity. Placement is at the discretion of the department.

French 3

This course continues to develop the requisite skills of this level in speaking, listening, reading, and writing. It makes use of authentic sources such as film, art, songs and media. Literature is introduced through readings by francophone authors. French 3 includes a systematic review of grammar and practice of the language through frequent writing assignments, speaking practice, and discussion of cultural and current events.

French 3 (Honors)

This course provides a rapid expansion of vocabulary and grammar through reading and writing. Students will be asked to write compositions of increasing complexity. Students continue to strengthen oral

skills through activities ranging from review of current events to literary discussions.

Reading skills are developed through an introduction to classical and modern authors such as Molière, La Fontaine, Maupassant and Pagnol. (*Placement is at the discretion of the department chair.*)

French 4: Topics in Contemporary Culture and Literature

In French 4, students embark on a journey into contemporary French culture and literature while strengthening their language skills. Students will study grammar and vocabulary in context and practice using French through a variety of oral and written activities. French 4 gives students all the necessary linguistic tools to analyze works of literature, to articulate their opinion on current events, and to review films. Among the materials included in this course are the play *Huis Clos* by Jean-Paul Sartre, *No et Moi* by Delphine de Vigan, and several short stories from contemporary French authors. These works are the base of a much broader exploration of the French culture through the use of different media.

French 4 (Honors)

French 4 Honors "French language, literature and culture," the continuation of French 3 Honors, is an advanced class that allows French students to continue to develop fluency in the four language skills: listening comprehension, reading comprehension, writing, and speaking. French 4 honors provides extensive grammar review and exposes students to the key events and concepts of French culture and history. Our study in French literature is not limited to, and will range from the classical literature of Sartre to the contemporary work of Delphine de Vigan. Students enrolled in this course will be expected to read extensively. In addition, students will regularly write analytical, critical, and comparative essays. Students must be able to express themselves at a written level appropriate to honors-level study. (*Open to students who have completed French 3 (Honors) and French 3 with permission from the department chair.*)

French 5 (Honors): A Further Exploration of Literature

This course is intended for students who have completed French 4 Honors and who have expressed an appreciation of French literature in previous courses. Covering classic writings—from the poetry of Baudelaire to contemporary works of French speaking authors from Africa and the Caribbean—this

course aims to refine the skills that are essential to enjoying and studying literature at an advanced level. This course prepares students for the study of French at the college level and, specifically, the college-level technique of close literary analysis. This course requires intensive reading and writing in French. (*Placement is at the discretion of the department chair.*)

French 5: The Francophone World

(Semester 1)

This multimedia and multi-disciplinary course introduces students to the diversity of the French-speaking world. Through the study of films, documentaries, novels, visual art, poetry, and music, students will learn about French culture outside of France and will become familiar with the following concepts: colonial history and postcolonial identity, oral tradition, acculturation, bilingualism, race, and identity. Students will complete projects in multiple forms, but the focus is on oral communication in French.

French 5: Twentieth-Century France Through Its Cinema

(Semester 2)

This course focuses on the issues of coming of age and living in French society as seen through the eyes of major French and Francophone directors ranging from Francois Truffaut to Cédric Klapisch. The course also looks at cinema as a language of its own, starting with early silent movies by the Lumière Brothers and culminating with the experimental technique of directors such as Claire Denis. Students taking this course will become familiar with the French attitude toward what is called the "Seventh Art." They will also learn to write creatively about film the way the French "cinéphiles" do, using both technical and analytical perspectives. Students will complete projects in multiple forms, but the focus is on oral communication in French.

French 6: Advanced Studies

(Half Course)

French 6 explores French civilization through its national symbolism and iconic figures. Class time is dedicated to exploring different aspects of French culture in its historical context. Students will work independently on a variety of projects to deepen their knowledge of modern France. Students will complete projects in multiple forms, but the focus is on oral communication in French. (*Open to students who have completed at least one semester of French 5, French 5 (Honors) or with permission from the department chair.*)

Spanish

Spanish 1

This course provides an introduction to Spanish including everyday vocabulary, idiomatic expressions, and essential structures of grammar. Special focus is placed on present and past tense conjugations, pronunciation and the use of pronouns. Students develop competence and confidence in Spanish as they learn to express themselves, writing and speaking in real-life situations. They learn about the Spanish-speaking world through readings, presentations and projects.

Spanish 1P (Prior Study)

This course focuses on developing a solid foundation in essential language skills. It is intended for students who have previously studied Spanish but have not mastered the skills or grammar required for Spanish 2, particularly the past tenses. Considering the student's previous experience with the language, they will develop their Spanish proficiency through readings, compositions, projects, and presentations.

Spanish 2

This course is a continuation of the development of essential language skills. It completes the foundation of Spanish grammar, including the indicative, imperative, and present subjunctive. Students hone their skills through a variety of activities: paired and small-group speaking practice, skits, projects, and presentations. Through short stories and cultural readings, students explore various aspects of life in the Spanish-speaking world.

Spanish 2 (Honors)

This course covers the same content as Spanish 2, but with more extensive readings, more frequent writing assignments, and a greater variety of projects. Spanish 2 (Honors) develops critical reading and writing as well as creative writing skills that prepare students for work in upper level courses. (*Placement is at the discretion of the department.*)

Spanish 2/3 (Accelerated)

The goal of Spanish 2/3 is to inspire integrated and creative use of the language. The course takes a contextualized approach to language learning, using authentic content and context as a way to improve and inspire language learning. Students master grammar and vocabulary through readings,

discussions, and essays on selected topics. Spanish 2/3 also introduces students to the study of literature through short stories and poetry. The course meets five times per week. Placement is at the discretion of the department and enrollment is normally limited to 12 students. Students who take this course are expected to continue their study of Spanish at level 4. (Note: Class I students taking this course to complete their foreign language requirement must remain throughout the spring semester.)

Spanish 3

In this course, students review and study grammatical structures in depth, paying careful attention to the more complex aspects of the language through activities and practice. The course takes a contextualized approach to language learning. The units and readings are centered on current, compelling themes. Upon completing this course, students will be able to express themselves not only in everyday situations, but also in social and literary discussions. This course introduces the study of art and literature from Spain and Latin America.

Spanish 3 (Honors)

This course covers the same content as Spanish 3, but with a more extensive reading list, more frequent writing assignments, and a greater variety of projects. Spanish 3 (Honors) develops critical reading and writing as well as creative writing skills that prepare students for work in upper level courses. (*Placement is at the discretion of the department.*)

Spanish 4: Topics in Hispanic Culture and Literature

This course examines themes in Latin American history, literature, art, and society from pre-Columbian times to the present. The course considers how the past continues to shape current issues related to identity, religion, and sociopolitical structures in our hemisphere. Students explore these issues in creative and critical writing to advance their mastery of Spanish.

Spanish 4 (Honors)

This course is an introduction to the formal study of Hispanic literature. The focus of the course is the "Boom" in Latin American literature and the cultural, political, and social factors that contributed to it. Students will read, analyze, and discuss the works of authors such as Jorge Luis Borges, Gabriel García Márquez, Carlos Fuentes and Julio

Cortázar. Through the study of these authors, students will gain understanding of their impact on world literature and their influence on Post Boom authors such as Isabel Allende, Ángeles Mastretta and Laura Esquivel. Students enrolled in this course will be expected to read extensively. In addition, students will regularly write analytical, critical, and comparative essays. Students must be able to express themselves at a written level appropriate to honors-level study. (*Open to students who have completed Spanish 2/3, Spanish 3, Spanish 3 (Honors) with permission from the department chair.*)

Spanish 5: Inside Latin America

(Semester 1)

This course will guide students through some of Latin America's most significant historical, political, and social changes. These topics will be explored through both literature and film. In this semester course students will examine countries in Central and South America, considering their shared histories and their unique position in the modern world. (*Open to students who have completed Spanish 4 or Spanish 4 (Honors).*)

Spanish 5: Discovering El Caribe

(Semester 2)

This course will provide students with a more comprehensive understanding of the culture, history, and unique geographic importance of El Caribe. Students will examine the Caribbean islands of Cuba, the Dominican Republic or Puerto Rico through literature, art, and film. Students will come to understand the individuality and interconnectedness of the islands of the Caribbean while studying concepts of ethnic, racial, cultural, and sexual identity. (*Open to students who have completed Spanish 4, Spanish 4 (Honors) or Spanish 5 fall semester.*)

Spanish 5 (Honors)

This course expands on the works and themes of Spanish 4 (Honors). Through a close, contextualized reading of a variety of works by Spanish and Latin American writers, students will continue to build analytical skills and expand their global awareness. Students will explore all literary genres and respond to the works with critical, analytical and comparative essays as well as creative projects. Students will explore works and ideas in a cultural, contextual framework appropriate for honors-level study. (*Open to students who have completed Spanish 4 (Honors), and who receive permission from the department chair.*)

Advanced Topics in Spanish

(Half Course)

This half course provides students an opportunity to develop their advanced composition and rhetorical skills while they take a deeper, more self-directed look at renowned texts and relevant topics. This course will be devoted to a close study of a chosen body of literary works. Students will consider these works for their literary and historical significance. Emphasis will be on conversation and essay writing. (Open to students in Class I or II who have completed Spanish 5 or 5 (Honors), or with permission from the department chair.)

Chinese

With the tremendous economic growth that has taken place in China, the country and its language have become integral to any discussion of the world's future. Milton Academy's Chinese language program gives students access to that discussion by providing the cultural and historical background and linguistic pragmatics to incorporate what they have learned into real life situations.

Chinese 1

This course is an introduction to Mandarin Chinese, the official language of China. The course emphasizes spoken Mandarin and written characters, paying particular attention to the tones and proficiency in handling everyday situations in the language. Reading and listening skills are also introduced so that students can begin to feel comfortable expressing themselves verbally and in writing. By the end of the first year, students will have mastered more than 350 characters.

Chinese 1P (Prior Study)

This course is intended for students who have previously studied or been exposed to Chinese but have not mastered the skills, the grammar or characters required for Chinese 2. This course may be combined with Intensive Chinese.

Chinese 2

Chinese 2 continues to build on the foundation of Chinese 1 or Chinese 1P, presenting additional vocabulary that allows students to handle increasingly complicated situations in the language. Through both writing and speaking, students will master most of the basic grammatical structures of the Chinese language. By the end of the year, students can expect to have mastered around 800 characters.

Chinese 2 (Honors)

This course continues to focus on proficiency in daily situations. Its goal is to enable the integrated and creative use of the language with limited vocabulary and language structures. Through mimicking, parroting back, and generating simple sentences, students will communicate in very familiar and everyday topics. This course covers the same content as Chinese II, but with a more extensive reading list, more frequent writing assignments, and a greater variety of projects such as skits and short presentations. This course requires strong self-motivation and much more assignment time outside the classroom. This course is for (1) incoming students from other schools who have learned more than the first ten lessons of the textbook Integrated Chinese (Level I, Part I) but have not yet reached the level of Chinese III, (2) students who have completed 1P at Milton and wish to challenge themselves, and (3) students who have produced an outstanding performance in Chinese 1 and are recommended for 2 Honors by the Chinese department chair.

Chinese 3

Chinese 3 prepares students to handle more complex situations in Mandarin. The length of written work increases as students learn characters and gain confidence. The course also continues to stress listening comprehension and speaking about Chinese culture in the target language. By the end of the year, students can expect to have mastered around 1,250 characters.

Chinese 4

Chinese 4 covers a wide range of topics related to current events, social sciences, and Chinese culture. Students reinforce fluency through written work and oral presentations. By the end of the year, students can expect to have mastered around 1,750 characters.

Chinese 5

Chinese 5 deals with topics related to history, culture, and current events. Students will increase their vocabulary by discussing topics in the language, giving oral presentations, and writing summaries and essays about what they have read. Much of this course is content driven, and language becomes the tool rather than the objective.

Chinese 5 (Honors)

This honors course is designed for students who already possess native or near-native written and oral Chinese language skills and will explore in depth Chinese

language, culture, and literature with a focus on contemporary China in the past century. Placement is at the discretion of the department.

Advanced Topics in Chinese

(Half Course)

The teacher will determine course materials based on students' interests and abilities. In the past, topics have included modern short stories, Chinese history, and other historical, social, and cultural issues. Reading level in Chinese must be sufficient to allow students to read several pages of Chinese in a short period of time. (Open to students who have completed Chinese 5 or higher, rising seniors who have completed Chinese 4, or with permission from the department)

Courses for students with native or near-native like language skills.

The following two courses are offered to students from the Chinese speaking world. The level of these two courses is equivalent to courses taught in Chinese high schools. One of these courses may be offered based on enrollment. They do not need to be taken in sequence.

Chinese Literature

This course is an introduction to Chinese literature designed for students with native or near-native level Chinese and a strong familiarity with Chinese culture. This course offers an overview of major themes of Chinese literature from different historical periods of China and an introduction to China's most representative literary works. Students will examine representative literary selections from various time periods in Chinese history, such as The Analects, Tang Poetry, novels in Ming and Qing Dynasty, and modern and contemporary writings. Through reading these selected works of traditional Chinese literature, we will examine some of the major features of traditional Chinese society: religious and philosophical beliefs, the imperial system and dynastic change, gender relations, notions of class and ethnicity, family, romance, and sexuality.

Chinese: Major Issues in 20th Century China

This course is taught in Chinese. Students will develop their Chinese language skills through close reading and interpretation of

Non-Credit Required Courses

primary sources and original documents in Chinese. This course focuses on Chinese history since 1912. Through the study of major historical events and tensions like feudalism and modernization, colonialism and independence, communism and capitalism, dictatorship and democracy, and separation and unification, we will examine how the Chinese people have been searching for a “new” China that they envision. Since 1949, China has evolved into two testing grounds, and both societies have been developing in parallel. After examining the development of two societies culturally, politically, and economically, students will be able to understand and analyze some current issues in the Chinese world through the historical perspective.

Introduction to the Arts

Class IV

All students in Class IV are required to take the Introduction to the Arts course in Visual Arts for one semester in one or two meetings a week, in Performing Arts for the alternate semester in one or two meetings a week, and Music all year long for one or two meetings a week. All Class IV students take the same Performing Arts and Visual Arts courses, and choose between several course options in Music. All courses are studio- or performance-based classes and graded on a satisfactory/unsatisfactory basis. After the Class IV Introduction to the Arts, students may take any Arts Program course, normally in Class III or II, in the Visual Arts, Performing Arts, Music, or Creative Writing to fulfill their graduation requirement regardless of the course taken in Class IV.

Introductory Performing Arts

Class IV

Students explore their creativity in the contexts of movement, speech, role-playing, and dramatic imagination. Participation in a range of activities and exercises is aimed at developing focus and concentration, physical fluency, vocal variety, spontaneity, collaborative skills, and the confidence that allows students to take creative risks. This course meets weekly for a semester and is graded on a satisfactory/unsatisfactory basis. It provides a preview of the Arts Program offerings in the performing arts, which are available in Classes III, II and I.

Introductory Visual Arts

Class IV

Students explore the foundations of two-dimensional design, three-dimensional design, and digital design in studio-based coursework, about making and creating, challenging students to develop traditional skills for artistic expression, and to develop creative problem-solving and design-thinking skills. The courses provide a preview of the year-long Arts Program graduation-requirement offerings in Visual Arts, normally taken in Class III or II. Each course meets weekly for a semester and is graded on a satisfactory/unsatisfactory basis.

Introductory Music Options:

Class IV Glee Club

Orchestra

Jazz Combo

General Music

Fundamentals of Guitar

Class IV

Students in Class IV may elect one course to fulfill their requirement in music.

Students may elect to sing in the Class IV Glee Club, play in the Orchestra, play in the Class IV Jazz Combo, learn Fundamentals of Guitar, or enroll in Class IV General Music. All classes will continue for both semesters. All are performance-based classes and graded on a satisfactory/unsatisfactory basis. A short description of each offering is below.

In Fundamentals of Guitar, students will learn the fundamentals of guitar playing, with no prior experience of instrumental music learning required. Students will learn basic notation, chord symbols, songwriting, and ensemble playing, culminating in end-of-semester performances for the School community. Emphasis will be placed on learning basic skills through classic and modern pop songs. Guitar ownership is encouraged, however, a guitar will be provided, if needed.

Students electing Class IV Glee Club will perform a wide variety of pieces, including Western and non-Western pieces from various historical periods. There will be two major performances a year. No prior experience is needed.

Students electing Orchestra will also perform two concerts each year, playing orchestral music from a wide range of historical periods. Students electing Orchestra typically will have their own instruments and experience in playing them.

Class IV Jazz Combo offers an introductory experience in improvisation skills and small-ensemble playing. Students electing Jazz Combo typically will have their own instruments and experience in playing them.

General Music surveys musical cultures and includes a performance and music technology element. No prior experience is needed.

Students electing either Orchestra or Jazz Combo typically will have their own instruments and experience in playing them. Please contact Adrian Anantawan with any questions.

Physical Education & Athletics

Affective Education

Starting in 2021–2022, with the exception of Health and Project Adventure, Affective Education will shift from holding single-section classes to collaborating with teachers across the academic program to embed the curriculum in courses and co-curricular activities school-wide. The curriculum will highlight the following topics: Health & Wellness; Identity; Diversity, Equity, Inclusion, & Justice; Morality & Character; Community; and Leadership.

Class IV students will attend Health and Project Adventure each week, where they will focus on physical, mental, and emotional wellness in the context of team-building and social-emotional learning.

Current Events/ Public Speaking (CE/PS)

Fall
Winter
Spring

Classes II & III

Current Events/Public Speaking introduces students to the fundamentals of public speaking and to research and argumentation about issues in the contemporary world. This graded, 10-week course helps students become more knowledgeable about national and international concerns and to be more confident in their ability to speak well. Research, analysis, organized writing, and argumentation skills are refined in this exciting course that is normally taken during the Class III year. Entering Class II students should enroll during their Class II year.

The physical education and athletics department strives to develop physically educated students. In the pursuit of this goal, the department helps students set fitness and activity goals and guides them through the process of attaining those goals. Through courses required for graduation and through direct instruction, we help students to understand their bodies and attain a level of fitness that is healthy and promotes self-esteem and confidence. Our goal is to provide information, in a fun and safe environment, that helps individual students make healthy life choices. Milton expects students to be physically active throughout their educational career.

To facilitate this philosophy, all students in Class IV participate in Project Adventure, a year-long course focused on team-building, trust and social emotional learning, and also participate in three seasons of an interscholastic sport, intramural sport, or a PE course. All students in Class III participate in Fitness Concepts, a seasonal course focused on foundations of nutrition, cardiovascular health and weight-training, and also participate in three seasons of interscholastic sports, intramural sports, or a PE course. Class I and II students must participate for two of the three seasons. Opportunities also exist for managing a team, or seeking an independent course in athletics.

To graduate, a student must take a series of physical education classes. These classes have been arranged to best develop the skills and knowledge that is at the core of the physical education department. We believe, as a department, that students should be challenged to think and achieve collaboratively. They should gain a better understanding of their bodies, know the benefits and risks inherent in life/fitness choices, be physically active, and be able to give of themselves for the betterment of others.

Course Requirements:

Class IV: Students must successfully complete the Project Adventure course.

Students must successfully complete a Fitness Concepts course.

Students must successfully complete a CPR course at Milton or provide valid certification cards in Adult & Pediatric CPR with AED by the end of the winter season of their Class I year. This course may be taken at Milton as part of a PE season for Class I and II students. Online certifications are not acceptable.

The interscholastic athletic program is designed to challenge athletes at a variety of levels in a myriad of sports. The opportunity for excellence, regardless of the domain, is central to the mission of the School. We expect that athletics, whether interscholastic or intramural, will offer the opportunity to work collaboratively, develop skills, and have fun on the field, court, rink, slopes or in the pool. Please see the list below for interscholastic and intramural offerings.

An alternative sports program is available to students who wish to pursue an athletic interest not offered at Milton Academy. To be eligible for consideration, a request must meet the following criteria:

- The program must be in a sport or activity not offered at Milton Academy in any season.
- The proposed enterprise is sufficiently physical to coincide with the School's physical education philosophy.
- The request is for no more than one season per year.

Students wishing to pursue an alternative sports program must submit the request to the athletic department. Deadlines for such requests are May 21 for the following fall season (excluding students who are new to Milton, whose deadline is September 14); October 19 for the following winter season; and February 18 for the following spring season. Applications are available from the athletic department.

Where staffing, student interest, and scheduling permit, students can pursue the following activities at Milton. An asterisk (*) indicates an activity for which the opportunity for interscholastic competition exists. A pound sign (#) indicates an activity for which

Science

there is an intramural opportunity. All other offerings are a part of the physical education curriculum.

Fall

CPR (Adult & Pediatric CPR w/ AED)
Cross-Country*
Field Hockey*
Fitness Concepts
Football*
Outdoor Education#
R.A.D. Rape Aggression Defense#
Soccer*#
Strength Training and Conditioning#
Tennis#
Volleyball*
Weight Training#
Yoga#

Winter

Alpine Skiing*
Basketball*
CPR (Adult & Pediatric CPR w/ AED)
Fitness Concepts
Ice Hockey*
Outdoor Education#
Pilates#
Squash*
Strength Training and Conditioning#
Swimming*
Weight Training#
Wrestling*

Spring

Baseball*
CPR (Adult & Pediatric CPR w/AED)
Fitness Concepts
Golf*
Lacrosse*
Outdoor Education#
Sailing*
Softball*
Strength Training and Conditioning#
Tennis*
Track & Field*
Ultimate Frisbee#

Students must take one full-year laboratory course in a physical science (satisfied by a full-year physics or chemistry course), and they must take one full-year laboratory course in biology. The science department strongly recommends that all students take three full-year laboratory courses; one each in physics, chemistry, and biology (in this sequence) so that they are well educated in the three major sciences. The department urges this sequence for students planning to take all three because physics will lead to a more thorough understanding of chemistry and both of these will lead to a better understanding of biology. Students taking semester courses and half courses may be in the Class I or II year. In addition, they must have received credit for at least two full-year laboratory courses, or be enrolled in a second full-year laboratory course concurrently with the semester course. Advanced courses in science are open to Class I students who have taken laboratory courses in physics, chemistry, and biology.

Class IV Physics

Class IV

In Class IV Physics, students are introduced to the fundamental concepts of physics as well as basic methods of scientific investigation. Many of the exercises and experiments are inquiry-based, which allows students to experience the physics phenomena first hand and learn to draw conclusions from data. Topics covered will include Newton's Laws of Motion, momentum, energy, electricity and magnetism. These topics, taught in combination with fundamental science skills, will prepare Class IV students for higher level science courses. The double-period class meetings allow students to investigate topics in depth with guidance from the instructor, research a topic of interest to them, develop questions, and create an experiment to test their hypotheses. Students culminate their work in Class IV Physics by conducting an independent, self-designed experiment.

Physics

Classes I, II & III

The course covers many of the major topics in the discipline with an emphasis on qualitative understanding of concepts as well as problem solving techniques. Topics covered in the first semester include: Kinematics, Newton's Laws of Motion, Momentum, Energy, Circular Motion, and Gravitation. The term will culminate with a comprehensive exam. The second semester includes the study of Waves, Sound, Light, Electricity,

and Magnetism. The weekly lab activities reinforce and/or expand on the concepts discussed in class and stress the experimental procedures of science. Many of these labs use an inquiry-based approach. Students will complete their physics experience by conducting a Design-Your-Own experimental project in place of a final exam.. This course provides solid preparation for students to move on to other science courses.

Chemistry

Classes I, II & III

Chemistry is a full-year survey course in general chemistry. Topics include an introduction of the study of matter, measurement, atomic theory, stoichiometry, gas laws, nomenclature, and equilibria. The curriculum is skills centered, emphasizing student mastery of problem solving methods in the laboratory and the classroom. Moreover, the symbiosis of applying qualitative and quantitative analysis facilitates proficiency in the laboratory through the inquiry method. Students will find that formal lab investigations become progressively more inquiry driven. Laboratory work culminates in the "design your own" independent lab project.

Chemistry (Honors)

Classes I, II & III

Chemistry (Honors) is a rigorous course in which students study the properties and behavior of matter and the laws governing chemical reactions. Among others, the course covers the following topics: quantum atomic theory, molecular structure, stoichiometry, gas laws, thermochemistry, electrochemistry, acids and bases, equilibrium systems, and reaction kinetics. The laboratory work emphasizes an inquiry process by requiring students to design independent investigations based on the formulation of open-ended questions, while also stressing the process involved in real-world scientific research. Both the class work and the laboratory work of this course build on a lab-based physics course. (*Prerequisite: a course in physics and permission of the department chair.*)

Biology

Class I & Class II,

or permission of the department chair

Biology is the study of life. Designed to follow a course in chemistry, this course will explore the evolutionary and ecological diversity of life through an inquiry-teaching model. Broad themes in Biology include ecology and energetics, cell structure and function, genetics, heredity, and molecular

biology. As the year progresses, we emphasize connections between broad biological concepts—ecology and human biology, for example.

Biology (Honors)

Class I & Class II,

or permission of the department chair

Designed to follow a course in chemistry, this accelerated course will explore molecular, cellular, organismal, and ecological biology through an inquiry-teaching model. Broad themes in Biology (Honors) include biochemistry, ecology and energetics, cell structure and function, molecular biology, genetics, and heredity. Students will explore the material through class discussions, review of scientific literature and work in the laboratory; they will practice critical thinking and writing as well as designing, conducting and analyzing experiments. There is a substantial out-of-class lab component in Biology (Honors) that students will need to coordinate with their lab partner(s). (*Prerequisite: a course in chemistry and permission of the department chair.*)

Advanced Courses in Science

Class I or permission

The goal of these courses is to give our most capable, motivated science students an opportunity to further explore topics in each individual subject area. These courses include a significant amount of inquiry-based laboratory work. Through these explorations, students will broaden their understanding of the natural world. These courses may include readings of primary research, other scientific literature, and scientific textbooks, along with class discussions and inquiry-based lab work (both independent from and in concert with the instructor).

To register for any of these courses, students must have completed laboratory courses in physics, chemistry, and biology and have permission from the department chair. Students may take Advanced Physics or Advanced Chemistry concurrently with Biology (Honors) with permission from the department chair. If a student chooses to move out of Biology (Honors) for any reason, they will be required to drop the Advanced course being taken concurrently. All full-year survey courses at Milton Academy qualify as laboratory courses. If students have taken courses at other institutions, they should contact the department chair, who will determine

whether they can receive credit for that work. All students in Advanced Courses in Science will be required to present at our end-of-year Science Symposium.

Advanced Biology

This course allows students to deepen their understanding of biological concepts and hone their laboratory technique, skills and writing. Much of the work in class will integrate molecular biology techniques to elucidate principles studied. In the first semester students will study cell signaling and prokaryotic gene expression. In the second semester students will study evolutionary biology. Studying evolution will allow students to integrate all areas of biology with understanding the process and outcome of evolution. Possible explorations include analysis and synthesis of synthetic DNA devices; assay of gene function in bacteria; analysis of mcr1 sequence and mitochondrial DNA in the student's genome; tissue regeneration in flatworms; sexual development of c-ferns, and behavior of c. elegans. Students will practice laboratory techniques necessary in the study of the organisms, and they will further their understanding of the concepts and protocols of molecular biology. Students should enjoy working in the lab and want to push themselves in studying biological sciences. We will use primary scientific articles as models of research and as a means of learning the material.

Advanced Chemistry

The goal of this course is to provide students with the knowledge and skills to investigate chemistry as it relates to their own scientific interests. Students will be introduced to advanced laboratory equipment and will more deeply study technology used in previous classes. Mini "DYO" labs are incorporated into the class every six to eight weeks to enable students to design and execute projects that apply the skills we have mastered to areas of personal interest in science. Topics of study include qualitative and quantitative analysis, kinetics, equilibrium, and electrochemistry, as well as more innovative fields such as nanotechnology, polymers, and molecular gastronomy. Assessment in this class is laboratory based and includes a wide range of reporting formats, as well as creative projects. A successful student must be able to work well independently and in close partnerships; demonstrate a strong commitment to safe lab work; and be willing to take intellectual risks in pursuit of creative research.

Advanced Environmental Science

The study of Environmental Science is driven by the relationship between humans and the natural environment. In this class, students will explore this relationship using an interdisciplinary approach that builds on students' science backgrounds with new material from Earth system science. Our focus is on understanding how nature works, and on finding solutions to real environmental problems through the "doing" of real science. Coursework is heavily weighted towards fieldwork, and as such, students should be excited about frequent outdoor field activities. Our proximity to the Blue Hills, the Neponset River Estuary (the only remaining salt marsh estuary in Boston Harbor), and numerous local wetlands and streams provide an unusually rich natural laboratory learning resource. In recent years, this course has focused on a long-term ecological monitoring study of a local ecosystem in collaboration with the Neponset River Watershed Association, a local watershed authority.

Advanced Physics

In Advanced Physics, students study Newtonian mechanics in the fall and the experimental foundations of quantum mechanics in the spring. Throughout the fall, students develop a fluency in problem solving skills through weekly problem sets, and engage in weekly lab challenges that make relevant the theoretical mechanics to the actual world. Further, students engage with the real world applications through two major lab reports. In the spring semester, having constructed a solid foundation in Newtonian mechanics, students explore the classic experiments that indicated to us that Newtonian mechanics alone is not an apt description of our Universe. As they study a series of the classic experiments in modern physics, students uncover strong evidence for wave-particle duality. Finally, students end the year by designing and conducting their own physics experiments to be presented to both the other advanced science students and the science faculty.

Science Electives

Classes I & II

Students must have credit for two full-year laboratory science courses, or previous credit for one full-year laboratory science course and an additional full-year laboratory course taken concurrently with the elective

semester or half courses. Students should be aware that if a required concurrent full-year course is dropped for any reason, the elective course(s) will also have to be dropped.

Neuroscience

We will begin this course by venturing into the scientific study of the brain with a focus on the anatomical structures of the brain and their functions. We will follow with in-depth exploration of neuronal communication. We will explore concepts in neuroplasticity, learning, and memory. As we finish the course, these topics will be applied through investigation of stress and relaxation, addiction, mental health disorders, and neurodegenerative diseases. A few relevant dissections and labs will be performed. As this is an ever changing field, students will learn to read and investigate scientific literature in the latter part of the course to understand the most recent theories and latest pharmacological interventions for what we study. (*Prerequisite: A course in biology.*)

Human Anatomy and Physiology

(Semester 1 or Semester 2)

Human Anatomy and Physiology challenges students with a variety of approaches geared toward developing a strong fundamental understanding of the structure and functioning of the human body. Classroom discussions emphasize physiological concepts, with special attention to the anatomical features of the system being studied. The course begins with an overview of cellular anatomy and physiology. The systems addressed over the course of the semester typically include the skeletomuscular system, cardiovascular system, lymphatic system, respiratory system, endocrine system and excretory system. Other body systems are touched upon in the context of discussions of the previously mentioned systems. Evaluation for the class is based on participation in class discussions and in group work, in-class and take-home assessments, dissections, and one or two in-class presentations.

Marine Science

(Semester 1 or Semester 2)

This course investigates the biology, ecology, and adaptations of marine life, as well as the most recent and intriguing research in this content area. The course will emphasize independent and small-group lab work, research into current topics, and presentations of these investigations. Major topics studied will be biological oceanography, the fundamental concepts of biology that

relate to the marine environment, a survey of marine life, and important, timely issues in marine science. Lab work is a key component of this course, as students will work in the lab every week exploring the concepts of the course. Additional assignments require students to take advantage of the resources available in the area, such as the New England Aquarium and visits to local marine and estuarine habitats. Lab work includes comparative anatomy done through dissection and direct observation of live marine animals.

Issues in Environmental Science: Solutions for a Sustainable Future

(Semester 1 or Semester 2)

The world faces a number of urgent environmental issues such as human population growth, air and water pollution, and climate change. While many of these topics seem overwhelming, all can be addressed with existing or emerging technologies ranging from the obvious (e.g., renewable energy, urban farming, and electric vehicles) to the futuristic (e.g., lab grown meat, floating cities, and geoengineering). This course will begin with environmental science fundamentals and move to the development of practical solutions based on that science. By investigating changes that we can make on a personal or local level, students will gain insight into how to affect change on the national and global stage. This project-based curriculum uses current scientific literature, interaction with professionals in the environmental field, and podcasts, TED talks and other media to give students a variety of perspectives.

Observational Astronomy

(Semester 1)

In this course we study all things astronomical, from the life and death of stars to the evolution of the universe, from the solar system to the history of astronomy. Students conduct semester-long projects of their own choosing in consultation with the instructor. In the past, students have observed variable stars, sunspots, the moons of Jupiter, and the setting position of the sun. In the weekly observing sessions, students locate objects discussed in lectures using the Robert C. Ayer double-domed observatory that is equipped with permanently mounted 9- and 12-inch reflecting telescopes as well as several portable telescopes. Students also take pictures of celestial objects using the special cameras provided.

Molecular Genetics 1

(Semester 1)

This course educates students about the science and technology of the field of molecular genetics. Students briefly review the basic structure and function of DNA. For the first half of the semester students will isolate, amplify and sequence their TASR38 gene. Students will determine their haplotype and correlate it with their ability to taste a bitter tasting chemical. Students then complete a set of cloning and sequencing protocols of a plant housekeeping gene. After completion of these protocols, students will have the fundamental skills necessary to clone and sequence a gene in the laboratory. Our second major topic will be synthetic biology. Students will work with various assembly techniques to build genetic devices. Skills developed in the course include nucleic acid extraction, performance and analysis of nested polymerase chain reaction (PCR), electrophoresis, size exclusion chromatography, DNA ligation and bacterial transformation, microbial culturing, and sequencing and bioinformatics. The majority of the work in this class is laboratory-based. (*Prerequisite: A course in biology.*)

Organic Chemistry 1

(Semester 1)

Enter the world of medicines and plastics, of skunk spray and gasoline, of steroids and sugars. Enter the world of organic chemistry—the chemistry of carbon! This challenging course will focus on the fundamentals of organic chemistry and will include an introduction to molecular structure, stereochemistry, and the mechanisms of synthesis reactions. These fundamental ideas will be exemplified in discussions revolving around relevant synthetic molecules as well as important, naturally occurring biological entities. To deepen their understanding of the course material, students will be expected to participate in, and ultimately drive, laboratory experiments exploiting an inquiry-based learning approach. In total, knowledge gained from this class will equip the students with the critical rudiments in organic chemistry, a common collegiate requirement for science and engineering, pre-medicine, pre-dentistry, and pre-pharmacy majors.

Molecular Genetics 2

(Semester 2)

Molecular Genetics 2 is a laboratory course where students apply the skills, techniques and knowledge learned in Molecular Genetics 1 to explore topics including

Drosophila genetics, gene regulation by RNAi in *C. elegans* and molecular cloning of GAPDH genes and bioinformatics. Topics change periodically depending on student interest and skills. Several topics provide opportunities to engage with professional researchers in the Boston area. Students should be interested in planning and conducting long-term projects in the lab. Students are required to present their work at the Science Symposium at the conclusion of the second semester. (*Prerequisite: A course in biology and Molecular Genetics 1.*)

Cosmology and Modern Physics

(Semester 2)

Discoveries made during the last 60 years in physics have radically changed our view of the universe. Astronomers and physicists use their understanding of the very small structures of matter, such as quarks, to explain the very large structures, such as the distribution of galaxies in the universe. In this course, students learn about the wave-particle duality of matter, the quark model of matter, elementary particle discovery and classification, the grand unification of forces, the Big Bang theory, black holes, and the end of the universe. (*Prerequisites: A course in both physics and chemistry.*)

Organic Chemistry 2

(Semester 2)

This course is designed to directly follow and build upon the content from Organic Chemistry 1. Specifically, students will garner a thorough understanding of both substitution and elimination reactions and their respective mechanisms. This knowledge will then be utilized in both laboratory and thought exercises aimed at predicting product formation from a given set of reactants as well as deliberate molecular design. The semester in Organic Chemistry 2 concludes with a major project in which students will profile a complex, biologically relevant organic molecule of their choosing. (*Prerequisite: A course in chemistry and biology; biology may be taken concurrently. Students must also have completed Organic Chemistry 1.*)

Introduction to Aerodynamics

(Half Course)

In this course students will explore what makes airplanes work: from lift, thrust, and drag to control surfaces, stalls, and spins. We will cover the conceptual framework for flight as well as the theoretical basis for unconventional aircraft like the Piaggio Avanti and Burt Rutan's canard aircraft.

Students will build wing-in-ground effect models to explore the difference between pressure and lift and work toward a major project in the spring: designing a 21st-century ERCoupe, an airplane with simplified controls meant to appeal to a wider flying market. Students will evaluate their design ideas by building a flying model of their aircraft.

Engineering the Future

(Half Course)

This course introduces students to concepts in engineering, beginning with investigations into structures and the basics of structural analysis. Students will build various structures and then test them in our ADAMET load-testing machine to experimentally verify the concepts of stress, strain, shear, and moment. Using this knowledge, students will build skyscrapers as tall and thin (proportionally) as the tallest buildings in the world, then turn them horizontally to test whether they remain in one piece. This tower/cantilever project is followed by a theoretical investigation of how materials fail and an overview of other types of engineering. We conclude with team and individual projects where students evaluate a concept and design improvements.

Geology

(Half Course)

Have you ever wondered about how rocks form, and what stories can they tell us about the Earth's history? Why are there mountains, canyons, and coastlines, and how have these features formed over time? What are volcanoes and earthquakes, and how do we know if we're living in an area that might be prone to natural disaster? This course is designed to introduce students to the world of geology, including the Earth's origin, composition and structure; minerals and rocks; and the major Earth processes that have shaped and continue to shape the surface of our planet. Plate tectonic theory is a theme central to the course: mountains and rivers, geologic hazards, weather and climate, and even the evolution of life on Earth is intimately linked to this theory. Another overarching theme will be exploring the relationship between humans and geology, defined by our place in geologic time: the Anthropocene. The study of geology is, at its core, a field science. The proximity of Milton to the Blue Hills, in addition to other local resources, provides unique field opportunities to learn about major rock types, plate tectonics, weathering and erosion, and glacial

processes, as well as the human impact. As such, students should be eager to participate in regular outdoor fieldwork that promotes the learning and practice of geology.

Science in the Modern Age

(Half Course)

The need for students to be scientifically literate and able to detect bias in the media is critical. Students must not only be informed of current science topics, but they must also be able to critically examine issues at hand and consider multiple perspectives. Through a seminar-style format, Class I and II students will be encouraged to examine their basic assumptions about science and will investigate the interplay between science and society. Students may interact with the greater scientific community in a variety of ways, including interviews, guest speakers, and a field trip. Using multimodal assessment, students' learning will be measured by discussions, reading responses, debates, persuasive and journalistic writing, journaling, presentations and projects. With citizens and future voters in mind, this course promotes scientific literacy, critical analysis and good decision-making. Topics could include, but will not be limited to, bioethics, public health, epidemiology, DNA technology, genes and health, forensic science, sustainability, pharmacology, biodiversity, reproductive technology, and medical dilemmas. Students will read current science publications as their primary resource.

Making Science Visible: Field Sketching and Illustration in Science

(Half course)

Creating imagery while learning about science can be influential in students' learning. The craft of looking closely at the world and sharing those observations through illustration requires exposure to nature and the development of tools and strategies to visually represent experiences. This process can also engender responsible stewardship for our planet and a greater connection to the facts of the world around us. This course will provide opportunities for student-centered investigations utilizing active focused observation, questioning the meaning behind observed phenomena, and developing habits of nature drawing and journaling.

Half Courses

The following half courses meet all year long, but with half the meetings and/or less required preparation per week than a full course.

Classics	Classes	Page
Advanced Latin: Roman Historians	I–II	11
Advanced Latin: Roman Elegy and Lyric	I–II	11
Computer Science		
Computer Programming 1–4	I–III	12
Applied Engineering & Design	I–III	12
English		
Advanced Creative Writing	I–II	16
Advanced Creative Writing 2	I	16
<i>Hamlet</i>	I–II	15
Journalism	II–III	15
Power of Poetry	I–III	15
Project Story	I–III	16
History & Social Science		
Justice in a Digital World	I–III	19
Topics in Psychology	I–II	19
Math		
Discrete Mathematics Seminar	I–III	22
Modern Languages		
French 6: Advanced Studies	I–II	23
Advanced Topics in Chinese	I–II	25
Advanced Topics in Spanish	I–II	25
Music		
Advanced Jazz Improvisation	I–II	3
Chamber Singers	I–III	3
Music Theory	I–III	3
Orchestra/Chamber Orchestra	I–III	3
Performing Arts		
Advanced Dance: Modern	I–III	4
Advanced Dance: Ballet	I–III	4
Advanced Dance: Choreography	I–III	4
Advanced Drama: Directing	I–II	4
Advanced Drama: Improvisation	I–II	5
Advanced Drama: Musical Theatre	I–II	4
Advanced Drama: Costume Design	I–II	5
Advanced Drama: Female Role	I–II	5
Spoken Word Poetry	I–III	5
Science		
Engineering the Future	I–II	31
Geology	I–II	31
Intro to Aerodynamics	I–II	31
Science in the Modern Age	I–II	31
Field Sketching in Science	I–II	31
Visual Arts		
Architecture	I–III	8
Printmaking	I–III	8
Textile Design	I–III	9
UX Design	I–III	9
Film Production	I–III	9

Semester Courses

The following semester courses meet four times per week for half the year.

Classics	Semester	Classes	Page
Advanced Latin: Roman Philosophical Writings	1	I–II	11
Advanced Latin: Selected Readings	2	I–II	11
History & Social Sciences			
Adv Hist: African-American History	1	I–II	17
Adv Hist: History of Modern China	1	I–II	17
Adv Hist: History of the Middle East	1	I–II	17
Adv Hist: Topics in Modern World History	1	I–II	18
Adv Hist: Asian American History	2	I–II	18
Adv Hist: The Aztecs to High-Tech	2	I–II	18
Adv Hist: Globalization and Islam	2	I–II	18
Adv Hist: History of Civil Rights	2	I–II	18
American Government & Politics	1	I–II	18
Comparative Government	2	I–II	18
Global Economics	2	I–II	19
Microeconomics	1&2	I–II	19
Macroeconomics	1&2	I–II	19
Behavioral Economics	2	I–II	19
Religions of the Middle East	1	I–II	19
Religions of Asia	2	I–II	19
Math			
Advanced Topics in Mathematics	1&2	I–II	22
Mathematics and Art	1	I–III	22
Mathematics & Social Justice	2	I–III	22
Modern Languages			
The Francophone World	1	I–II	23
Twentieth-Century France Through Its Cinema	2	I–II	23
Inside Latin America	1	I–II	24
Discovering El Caribe	2	I–II	24
Science			
Human Anatomy and Physiology	1&2	I–II	30
Marine Science	1&2	I–II	30
Issues in Environmental Science	1&2	I–II	30
Molecular Genetics 1	1	I–II	30
Molecular Genetics 2	2	I–II	30
Organic Chemistry 1	1	I–II	30
Organic Chemistry 2	2	I–II	31
Observational Astronomy	1	I–II	30
Cosmology and Modern Physics	2	I–II	31
Visual Arts			
Advanced Drawing	1	I–II	7
Advanced Photography: Digital Imaging	1	I–II	7
Advanced Sculpture	1	I–II	7
Advanced Technology: Graphic Design	1	I–II	7
Advanced Filmmaking	1	I–II	7
Advanced Portfolio: Drawing Painting	1	I	9
Advanced Portfolio: Sculpture Ceramics	1	I	9
Advanced Portfolio: Photography Digital Imaging	1	I	9
Advanced Portfolio: Filmmaking	1	I	10
Advanced Portfolio: Technology Media	1	I	9
Advanced Ceramics	2	I–II	8
Advanced Documentary Film	2	I–II	8
Advanced Painting	2	I–II	7
Advanced Photography: Alternative Processes	2	I–II	8
Advanced Technology: Industrial Design	2	I–II	8
Advanced Portfolio: Independent Studio Seminar	2	I	10
History of Western Art	1	I–III	7
Contemporary & Global Art Studies	2	I–III	8

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