



Upper School Curriculum Guide
2017-18

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REQUIREMENTS FOR GRADUATION

The curriculum at Sidwell Friends School is designed to provide all students with the education essential to their intellectual and personal development. While all students fulfill the same requirements, individual differences and the pursuit of specific interests are incorporated into the program.

A completion of a minimum of 20 credits and successful completion of the physical education, work program, community service, and senior projects requirements are necessary for a Sidwell Friends School diploma.

Students may take a maximum of six courses, provided that the sixth course is in the arts or computer science. Each student must be enrolled in at least four credit courses each semester to be considered a full-time student. Students enrolled in two or more courses from any one discipline need the approval of the department and the Academic Dean. A Sidwell Friends School transcript represents work completed at or under the auspices of the School; credit is not awarded for courses in programs not sanctioned by the School. In 9th and 10th grades, all students must enroll in the following five course subjects: English, Modern and Classical Languages, Mathematics, Science and History.

Each student is required to complete *minimum* proficiency levels in the following disciplines: Arts, English, Mathematics, Modern and Classical Languages, Science and History. The requirements within the disciplines represent a minimum level of work; students are strongly encouraged to pursue one or more areas in greater depth beyond the requirements. The minimum requirements for each discipline are as follows:

ARTS: Two years of Arts.

Students have until the end of 10th grade to complete the first year of the requirement; the second year of Arts must be completed by the end of the 12th grade.

ENGLISH: Four years of English.

HISTORY: Three years of History.

All students are required to take The West and the World in the 9th grade, Regional Studies in the 10th grade, and History of the United States or American Studies in the 11th grade. Exceptions are only made for students who are attending School Year Abroad and approved semester programs, who may take History of the United States in the 12th Grade or in Summer Studies. Any rising 11th grader may take History of the United States in Summer Studies in the summer preceding 11th grade with approval from the Academic Dean in consultation with the History Department Head.

MATHEMATICS: Three years of Mathematics.

All students must take math during the 9th, 10th and 11th grade years. The classes that satisfy this requirement may not be taken pass/fail.

MODERN AND CLASSICAL LANGUAGES: Two years of a Modern or Classical language.

Students are required to take two sequential years of the same language in the Upper School.

SCIENCE: Two years of Science.

Two years required, to be completed in the 9th and 10th grade.

PHYSICAL EDUCATION: Completion of the PE requirement as described here.

The program operates on a trimester system based on the fall, winter and spring athletic seasons. Ninth, tenth, and eleventh grade students must pass all three seasons each year. Twelfth grade students must pass two seasons. Grading will be based on attendance, attitude, and effort. A student must participate in a minimum of 80% of all classes to receive credit for the season. Any 12th grade students with more than two F's to make up during their 12th grade year will not receive a diploma until the completion of the physical education requirements the summer following graduation. A fuller explanation of physical education and athletic requirements may be obtained from the athletic department.

9th GRADE STUDIES:

This course, required of all 9th graders, meets once a week throughout the school year. It is graded Pass/Fail and requires occasional work outside of class. The course covers issues related to the following topics: transition to Upper School, stress management, social justice, economic diversity, drugs, alcohol, sex and sexuality, and responsible decision-making. The use of Quaker methods and the study of Quaker themes are interwoven throughout the curriculum as well as the emphasis on listening skills and group work.

COMMUNITY SERVICE: Requirement as outlined in the next section.

COMMUNITY SERVICE

Every Sidwell Friends Upper School student is expected to have significant exposure to community service opportunities as a requirement for graduation. To build camaraderie around service, there are group community service obligations for 9th grade students. All 9th grade students participate in three service activities in small groups for which transportation and faculty supervision are provided. Students who fail to fulfill these expectations must complete 10 hours of independent service over the summer before beginning their next school year.

In addition to the group projects, every student is expected to perform an individualized, off-campus service internship. The project should involve our student working directly with an individual or a group of people that are disabled or disadvantaged in some way. This service may be performed during free periods of the school day, after school, on weekends, during school year vacations, or during the summer. This service must:

- be performed outside of the Sidwell Friends School community;
- be a steady involvement in one activity, or participation in more than one work camp;
- be a minimum of 60 hours during one calendar year, or over two consecutive summers, up to 10 hours of which can be necessary training and preparation.
- be performed during the 9th, 10th, or 11th grade year (completed before Opening Day of the 12th grade year, but not before the start of the 9th grade);
- be completed by all new students entering after 9th grade who have not met the requirement during their tenure at another school;
- offer no academic credit;
- be non-paying, volunteer work;
- be performed for an individual or a community whose culture/circumstances is/are different from the student's;
- provide regular, direct interaction with the disadvantaged individual or population being served;
- be approved by the Director of Community Service, and subject to review by the Community Service Advisory Committee as necessary BEFORE the project is begun;
- be evaluated by the student and the project supervisor at the conclusion of the project using the proper forms.

In addition, students must return their Community Service Contract, which outlines and describes their service project, by the end of 10th grade. Examples of volunteer work that might be quite worthwhile but do NOT meet these guidelines include: Sunday School teaching at your own church; Camp Counselor for "mainstream" children; clerical or office work; museum work; animal protection; environmental work without personal application to individual or community needs; medical or scientific research without immediate, direct application to individual or community needs; working for a political candidate or office-holder; working for

groups whose programs are inconsistent with Friends' Testimonies. Occasional exceptions are made to certain of the above guidelines when a worthwhile project requires it. Requests for exceptions are reviewed by the Director of the Service Learning Program and the Community Service Advisory Committee.

ADDING/DROPPING COURSES

- All adds, drops, or changes in courses must be made through the Academic Dean using the Drop/Add Form that can be downloaded from the website.
- Students may not add a new course to their program after the end of the first week of the year (or of the semester, for a semester course).
- Students may not choose to drop a year-long course after the first two weeks of the year or a semester-long course after the first two weeks of the term. (In some rare and extreme circumstances such as a documented health emergency, the Academic Dean and Upper School Principal may allow a course to be dropped after this two-week period. In such cases, a WP - withdrawn passing or a WF - withdrawn failing - as appropriate will be entered on the student's transcript and no credit for the course will be granted.
- If the course placement, as determined by the department, is subsequently deemed by the department and the Academic Dean to need adjustment, a student's course assignment can be changed by the Academic Dean. Any such changes made through the first quarter will not appear on the transcript. Such changes made thereafter will appear on the transcript as a WP or a WF as appropriate.
- All changes in a course of study for 12th grade students will be reported to the colleges to which that student has applied or at which that student has been accepted.
- The School reserves the right to cancel a course when the number of students registered for that course is fewer than ten.

PASS/FAIL OPTION

- Pass/Fail Option: In order to encourage students to take courses in areas of study that are new to them, or in which they may feel uncertain, there is a pass/fail option.
- The student must declare his/her intention of using the pass/fail option by the deadline for dropping courses in each semester.
- A student must be enrolled in a minimum of four classes (excluding Arts and Computer Science) to exercise this option.
- Only one normally graded course may be taken on a pass/fail basis per semester.
- Courses required for graduation may not be taken on a pass/fail option basis with the exception of those courses designated as pass/fail in the Curriculum Guide.

- Once a student declares the pass/fail option for a course, the student may not subsequently rescind that option in that semester.

EXAMINATIONS

In most instances, students will take examinations in their major subjects at the end of each semester. In the spring, 12th grade students will have a separate examination time. Exams are scheduled for two hours. The schedule for examinations (during which time there are no classes) will be posted in advance. If a student has a conflict in scheduling exams, he or she should schedule a make-up exam with the Academic Dean. Except under the most unusual circumstances, students must meet the published examination schedule. Absence for vacation travel is not considered an adequate reason to adjust the exam schedule. An exception can be made only with the permission of the Principal or Academic Dean. The make-up day is often used for rescheduling exams due to inclement weather. Students must be available on this regular school day to make-up exams cancelled due to inclement weather.

GRADES AND REPORT CARDS

Report cards are posted on Educator Online via the Parent and Student Portals approximately two weeks after the marking period ends. Reports at the end of the first and third quarters contain a grade range with a comment and indicate whether or not a student's performance and effort are satisfactory. Report cards for first and second semester will include letter grades (A-F) earned in all major subjects, reflecting the teacher's evaluation of the student's written and oral work throughout the semester and his/her work on the semester examination, if one is given. Comments are written at the end of the first semester but are optional at the end of the school year in June unless the student earns a grade of C- or below in the course and/or a C- or below on the final exam.

Semester grades are recorded separately on the transcript and are not averaged to create a final grade for the year.

INTERIMS

Interim reports are posted on Educator Online when a teacher believes that communication beyond the quarterly report card is appropriate. An email notification is sent to the student and parents when an interim is posted.

TRANSCRIPT REQUESTS

Official Transcript - Official transcript requests must be made one week in advance and in writing to the registrar. Requests by email should be sent to registrar@sidwell.edu. A Sidwell Friends School official transcript represents a complete record of work completed at or under the auspices of the School. Only full and complete transcripts will be issued. Official transcripts

will not be given to the student but sent directly to the receiving institution. Official transcripts will be issued only when accounts are paid in full.

Unofficial Transcript - Unofficial transcripts are available on Educator Online via the Parent and Student Portals.

LEARNING ISSUES

The Learning Specialist in the Upper School is the Learning Support Coordinator who is available to assist students with study skills, work with teachers in planning appropriate academic support, and coordinate, review and assess diagnostic testing. If a student requires extensive assistance in English or history, the Learning Support Coordinator or the teacher may recommend that the student work with the writing support teacher. At times, additional information about a student experiencing learning difficulties is needed. After consultation with classroom teachers and parents, the Learning Support Coordinator may refer the student for diagnostic testing. The School works with a consulting firm to conduct a limited number of evaluations at School expense. The results are discussed in follow-up conferences with parents, teachers and students. Parents may commission testing privately. The Psychological Consultant, Learning Support Coordinator and classroom teachers determine appropriate supports. If disabilities are diagnosed in the testing, each division follows the School's policy on learning disabilities (see the general information section of **Handbook for Parents and Students**).

ACADEMIC PROBATION

Academic Probation will be designated for any student with an "F" in one or more subjects or with more than one grade below "C-". The student will be placed on academic probation for the next quarter and parents will be notified.

A student on academic probation must do the following:

- attend study hall, math help, etc., during free periods and sign out only during lunch
- meet all commitments on time, including arrival at school, attendance in classes, submission of all assignments and completion of all academic requirements
- meet once a week with student's advisor or a member of the Upper School staff to review progress; a missed, unexcused appointment will result in points

If a student has not improved to a satisfactory level by the end of the probationary quarter, academic probation will continue for another quarter. If, after being on academic probation for two quarters, a student receives grades at the end of a quarter or semester that warrant a third probationary period, the administration, in consultation with the student's teachers and advisor, will review the reenrollment status of the student. A student who has been removed from academic probation will, in consultation with the Academic Dean, be encouraged to continue regular attendance in study hall. A student whose academic averages do not fit the guidelines,

but who is experiencing academic difficulty, may be placed on academic support or probation at the discretion of the Principal and Academic Dean.

COURSE OFFERINGS BY DEPARTMENT

ARTS

The Upper School Arts program, in general, continues to emphasize “hands-on” experience, both in its curricular and co-curricular offerings. Students with a variety of arts experiences in Middle School who have discovered a particular interest, such as in music, visual arts or theater, may choose to concentrate on that interest in Upper School. Unless otherwise noted, courses are open to all students.

Theater

The theater program includes two full length plays, a musical and a set of one act plays as well as the offerings listed below. Although no course credit is given, a student who takes part in any of these productions is likely to do as much profitable work and study as he or she does in the classroom. These productions are cast from auditions which are open to the Upper School student body.

ACTING I—1 credit; year course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

The student actor develops performance discipline through the basic techniques of acting (playing), that is, self-discipline, tension release, concentration, imagination development and belief in given circumstances. These techniques are discussed and experienced through theater games and exploration exercises, assigned readings, script analysis, and in-class demonstrations and performances. The student actor begins to appreciate the complexities of the craft and to discover and to gain confidence. There is a moderate amount of written work required for the Journal, the performance assignments, and script analysis. Students receive a letter grade at the end of each semester for their work in this ensemble.

ACTING II – 1 credit; year course

Open to: 10, 11, 12 Meets 4 times a week Prerequisites: Acting I

The Acting II student actor practices the basic techniques learned in Acting I by doing classical and contemporary scene study. One or two modern or contemporary realistic scenes and two comedy scenes (one classical and one contemporary) are analyzed and performed. (Scene study requires written character and script analyses, memorizing lines, working with a scene partner and rehearsal in and outside of class.) Students earn a letter grade at the end of each semester.

NO ACTING PLEASE – ½ credit; second semester course

Open to: 9, 10, 11, 12

Meets 3 times a week

Prerequisites: None

Heraclitus, a fifth century philosopher, noted “Man is most nearly himself when he achieves the seriousness of a child at play.” This course introduces the student to the discipline of acting (playing) for the stage through improvisation and theatre exploration games. The improvisations and games help the student to discover and develop concentration and imagination, to tap and engage the instinctive and to direct said instinctive behavior toward the creative. According to Albert Einstein, games are the most elevated form of investigation. The student actor maintains a Journal (in class) that contains written support work for performance assignments and self-assessments of assignments. All written work, rehearsals and performances are done in class; there is no outside-of-class work. Students earn a Pass/Fail grade at the end of the semester.

SPEAKING OF WORDS—1/2 credit; first semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

Through both oral and written application the student demonstrates an understanding of the basic concepts of speech communication. The major areas of study are the communication process (intra and interpersonal communication), self-assessment skills and public communication. Public communication is explored and discovered through five speeches: an impromptu speech, a vocal diagnostic, a nonverbal (body language and para-language) practicum, an explanatory speech and a persuasive speech. The final project is a self-assessment monograph; its focus is the identification of effective and ineffective strategies practiced in the persuasive speech. Students receive a letter grade at the end of the semester for their work in the course.

INTRODUCTION TO TECHNICAL THEATER—1 credit; year course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

A mostly hands-on, practical approach to the production process for dramatic stage productions and other theatrical events. Emphasis is placed on the practical work needed to produce our season of plays and other theatrical events in the two theaters in the Kogod Art Center. Topics include the interpretation of design and technical drawings, set construction, basic stage lighting, rigging, theater organization and the production process. Major emphasis is placed on basic carpentry and use of hand and power tools as used for set construction. Class time is divided between formal study and practical work on stage productions. A demonstration project in lighting, set construction or painting may be assigned to students individually or in groups as time permits. Students are encouraged to volunteer for positions on the tech crew

for at least one production. During “production week” a significant amount of time outside of class is required for crew members. Students will also learn how to maintain the scenery shop, the stage and its equipment, the control booth, and lighting equipment. The course is geared to varying levels of prior experience. Students receive a letter grade at the end of each semester.

ADVANCED TECHNICAL THEATER—1/2 credit; semester course

Open to: 10, 11, 12

Meets 5 times a week

Prerequisite: permission of the Instructor

May be repeated for additional credit up to a total of 3 credits

Continuing study of various topics of technical theater, with emphasis on design and production of theatrical events. The production of Sidwell’s theater and performance program is central to this course. Individual and small-group projects in stage management, lighting, set design and construction, and projects to enhance the technical facilities of the theater will be completed by each student under supervision of the instructor. Class time is primarily devoted to preparations for the next production on the calendar. Each student is expected to undertake major crew positions for at least one production per semester, involving significant time outside of class during production week. Students receive a letter grade at the end of each semester.

Music

CHORUS—1 credit; year course

Open to: 9, 10, 11, 12

Meets 3 times a week

Prerequisites: None

May be repeated for credit

The Sidwell Friends School Chorus has a rich tradition in the school’s history, one which continues to thrive and grow along with the school. Students rehearse three times a week, sing works from multiple genres and languages, and perform in four required concerts, including the annual Winter Concert, the Spring Concert, Founders Day, and the Independent Schools Choral Festival held at the National Cathedral. No prior musical experience is required. Members of the Chorus may also sing in additional small ensembles. Students receive a grade of Pass or Fail at the end of each semester.

CHAMBER CHORUS—1 credit; year course

Open to: 10, 11, 12

Meets 5 times a week

Prerequisites: Placement in this ensemble is by audition

May be repeated for credit

The Sidwell Friends School Chamber Chorus is a select group of approximately thirty students who are chosen on the basis of a rigorous audition. Auditions are held annually in May and

placements are determined at that time for the coming fall semester. The Chamber Chorus meets twice a week in addition to the three meetings of the Chorus. In addition to the four concerts listed for the Chorus, the singers in Chamber Chorus perform additional concerts within the Sidwell Friends School community, throughout the Washington area, and occasionally travel to perform in other cities and countries. Members of the Chamber Chorus may also sing in additional small ensembles. Students receive a letter grade at the end of each semester for their work in this ensemble.

MUSIC THEORY—1 credit; year course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: None

In this course, students will become familiar with the building blocks of music: scales, keys, rhythms, and harmony. Ear training exercises will help the students learn to transfer music from the written page into sound. No experience is necessary, but an ability to match pitch is required. The second semester of Music Theory will build upon the work done in the first semester. Students will take the building blocks they have acquired and use them to construct larger musical units and analyze music in larger forms. Ear training exercises become more challenging and elaborate; students will learn to hear harmonic progressions and more complicated musical forms. While not required, students who take this course are encouraged and prepared to take the Advanced Placement Exam offered during the spring semester. Students receive a letter grade for their work in this course.

Instrumental Music Ensembles

Ensemble participation and the integration of music into school life are the primary features of the Sidwell Friends School Instrumental Music Program. Playing with other people demands collaboration and is the single best way to develop one's listening skills. Performing, whether for assemblies, special programs or in the classes of other subjects is an immediate and real way for students to learn about the various social functions of music while contributing to school life. The concentration and sustained effort one learns through practicing and performing is useful in virtually all other disciplines. Students are expected to acquire an understanding of and to be able to explain the functions of their respective instruments in a variety of musical idioms. Students are also expected to prepare and participate at a level which will enable them to contribute their best to any ensemble in which they participate.

The upper school instrumental music program is an inclusive, performance-based ensemble program. It allows students to share their musical abilities with each other and the SFS community while individual study continues at their own pace. All music is arranged to accommodate the different needs of each student. The goal is to make mature-sounding music together, while being accountable to each other in the process.

CHAMBER ORCHESTRA—1 credit; year course

Open to: 9, 10, 11, 12

Meets 3–5 times a week

Prerequisites: Basic ability on instrument with preliminary assessment by instructor

The Chamber Orchestra will study, rehearse, and ultimately, perform music in a variety of styles. Repertoire ranges from the baroque through the contemporary. Repertoire is often arranged to accommodate the varying ability levels of each student. Some students might rehearse in smaller groups, such as duos, trios, and quartets, as needed, depending on the instrumental makeup of the group as a whole. Required performances include the annual Winter Concert and Spring Concert. Students will be notified of any additional performances at the beginning of each semester. Students receive a grade of Pass or Fail at the end of the semester.

JAZZ ENSEMBLE I—1 credit; year course

Open to: 9, 10, 11, 12

Meets 3 times a week

Prerequisites: Basic ability on instrument with preliminary assessment by instructor

The Jazz Ensemble I course is an introduction and grooming of student musicians in the performance and language of jazz/contemporary music. Class occurs in a performance-based, workshop format, with jazz combo instrumentation. Students will study, rehearse, and, ultimately, perform a variety of music from the wide jazz spectrum. Topics covered include instrument roles in rock, funk and jazz/swing styles, 12-bar blues, beginning improvisation/jazz theory, major key chord progressions/harmony, lead sheet interpretation, etc. Required performances include the annual Winter Concert and Spring Concert. Students will be notified of any additional performances at the beginning of each semester. Students receive a grade of Pass or Fail at the end of the semester.

JAZZ ENSEMBLE II—1 credit; year course

Open to: 10, 11, 12

Meets 3 times a week

Prerequisites: Jazz Ensemble I and permission and/or assessment by instructor

The Jazz Ensemble II course is a continuation of the Jazz Ensemble I curriculum (see above). This course continues grooming student musicians/groups in the authentic performance and diverse language of jazz/contemporary music. Ideally, most 3rd/4th year students will become self-sufficient enough to generate music opportunities for themselves at the collegiate level. New content included: Standard jazz repertoire, AfroCuban and fusion styles, continuing improvisation/jazz theory, minor key and advanced chord progressions/harmony. Required performances include the annual Winter Concert, Spring Concert, Homecoming, ArtRageous, HS Invitational Jazz Fest @ GDS, and Founders Day. Some select students will participate in the Advanced Jazz Combo. The combo will perform at additional school functions throughout the year (Admissions Open House, SFS Auction, etc.). All students will be notified of all

performances at the beginning of each semester. Students receive a grade of Pass or Fail at the end of the semester.

Visual Arts

CERAMICS I — ½ credit; semester course

Open to: 9, 10, 11, 12

Meets 3 times a week

Prerequisites: None

May be repeated for credit

Ceramics I is an intensive introduction to the 10,000 year old ceramic arts. Art history, glaze chemistry, the geologic sources of refractory materials, and aesthetic considerations of proportion, texture, color and line are consistently emphasized in the acquisition of wheel thrown pottery skills. Each student is expected to gain control of centering, forming and finishing a complete, fired pot, with all the attendant technical knowledge and skills required of this endeavor. Relief tiles and hand built or cast sculpture of whatever definition are all potential projects and have a history in the class, but the emphasis remains on acquiring a decent grasp of the potter's wheel and what it means to complete a work of ceramic art. Students receive a grade of Pass or Fail at the end of the semester.

CERAMICS II—½ credit; semester course

Open to: 10, 11, 12

Meets 3 times a week

Prerequisites: two semesters of Ceramics I

May be repeated for credit

Ceramics II is a continuation of the study of and work done in Ceramics I. Art history, glaze chemistry, the geologic sources of refractory materials, and aesthetic considerations of proportion, texture, color and line continue to be emphasized in the acquisition of more developed skills. In addition, sculpture and an architectural approach to ceramic art as a painted, built environment will increasingly dominate student development of complex works which exhibit greater technical and emotional depth than work completed in Ceramics I. Students receive a grade of Pass or Fail at the end of the semester.

CERAMICS III—½ credit; semester course

Open to: 11 & 12

Meets 3 times a week

Prerequisites: two semesters of Ceramics II

May be repeated for credit

Ceramics III is for the exceptional student with the ability to work consistently towards the refinement of a complex, expressive and intensely focused personal style. Initiative and focus on the individual work of art is central to every level in the ceramics curriculum, but in Ceramics III the realization of a self-directed, self-discovered, emotionally charged body of work is

expected and is the basis for student assessment. These students may be asked to teach less experienced students and to help with general studio production, materials processing, and kiln loading and firing. Most importantly, the Ceramics III student will be expected to work with a level of inquisitive freedom consistent with high skill and broad technical knowledge. Students receive a grade of Pass or Fail at the end of the semester.

DRAWING I —1/2 credit; semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

May be repeated for credit

This course is an introduction to the basic techniques of drawing and focuses on observing, interpreting and rendering visual relationships between objects. The semester begins with fundamental projects that deal with contour, negative space and composition and advances to more sophisticated projects such as still life, landscape and portrait drawing. Various media are explored, including graphite, charcoal, pastel, colored pencils and ink. Class assignments will be supplemented by sketchbook homework, critiques and slide lectures. Students receive a letter grade at the end of each semester for their work.

DRAWING II—1/2 credit; semester course

Open to: 9, 10, 11, 12

Meet 4 times per week

Prerequisites: Drawing I

May be repeated for credit

Drawing II is an advanced drawing course that focuses on expanding understanding of mark-making. Through the introduction of new materials and techniques, students will grow their knowledge of drawing methods and artistic practice. Projects include self-portraits, color pencil illustrations, digital drawing and mixed media compositions. This course is structured to encourage personal voice through idea generation, material investigation, technical refinement and research. Students are encouraged to push the boundaries as they investigate materials, subject matter, process and interpretation related to image making. Students keep a sketchbook and receive occasional homework assignments for the sketchbook.

PAINTING—1/2 credit; semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: Drawing

May be repeated for credit

This course provides a comprehensive exploration of painting techniques and concepts. Students learn basic color theory in addition to painting styles from different artistic movements. Through assignments and class discussion, students continue to refine their

observational skills and compositional understanding to create cohesive and creative paintings. Projects include the use of collage, ink, watercolor and acrylic paints. Class assignments will be supplemented by sketchbook homework, critiques and slide lectures. Students receive a letter grade at the end of each semester for their work.

DIGITAL ART I —1/2 credit; semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

May be repeated for credit

This course presents technology as a means to create visual art. Basic artistic concepts such as color theory, composition, the elements of art, and principles of design are used to explore techniques and issues specific to graphic design and digital art. Projects include photo manipulation and transformation, digital illustration, digital painting, and simple animation and utilization of applications such as Adobe Photoshop, Illustrator, and Final Cut Pro X. While self-expression is the focus of this course, students also learn about the real-world applications of the digital arts. Slide presentations, critiques, and class discussion are integral parts of the course. Students receive a letter grade at the end of each semester for their work.

DIGITAL ART II—1/2 credit; semester course

Open to: 9, 10, 11, 12

Meet 4 times per week

Prerequisites: DIGITAL ART I

May be repeated for credit

This course continues to use technology as a means to create visual art. Students will increase their understanding of the context of digital imaging as it relates to contemporary art, achieve a level of comfort with the tools and techniques needed to create digital artwork and experiment with new ways to connect digital technologies to one's own creative practice. While the overarching goals of the course are conceptually based, projects are independent and student driven. Project examples include digital and analog drawing combinations, vector-based digital illustration and graphic design layouts. The applications used in class are Adobe Photoshop, Illustrator, Adobe Draw and Final Cut Pro X with an introduction to Dreamweaver. Slide presentations, critiques, and class discussion are integral parts of the course.

PHOTOGRAPHY I (Wet Darkroom and Digital)—1/2 credit; semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

This course introduces students to the core elements of photography --light, form, contrast and tone-- using traditional and contemporary media. Students learn basic manual controls for both 35 mm film and digital cameras including ISO settings, shutter speed, aperture, depth of field, exposure modes, and resolution. Students also learn how to process and print 35 mm negatives

in a darkroom, how to process digital images using a computer and how to create high quality black-and-white and/or color digital photographs using inkjet printers. Students learn how to critically examine their work through regular in-class critique sessions, study the work of both historical and contemporary photographers, and attend one field trip per semester. Students receive a letter grade at the end of each semester for their work.

PHOTOGRAPHY II (Wet darkroom and Digital)—1/2 credit; semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Photography I

May be repeated for credit

This course is for students with a basic understanding of photographic processes who wish to deepen their technical skills while developing a personal vision. Photo II has a darkroom and digital component to highlight the fluidity between media, covers advanced printing techniques (particularly large-scale printing), and engages students in higher level editing and processing skills. Class time is dedicated to learning about historical and contemporary photographers, demonstrations and class critiques. Cross-media projects involving film, digital negatives and alternative processes are introduced and encouraged. Students create a small portfolio of work demonstrating a breadth of knowledge and an exploration of a coherent personal voice.

PHOTOGRAPHY III (Wet darkroom and Digital)—1/2 credit; semester course

Prerequisites: Photography II May be repeated for credit

Students who have successfully completed intermediate level work in Photography II for two (or more) semesters will be considered advanced level students and are eligible for enrollment in Photography III. These students should be highly motivated and prepared to do long-term individual and/or collaborative projects. A mastery of basic photographic techniques is assumed for students working at this level. Students learn advanced exposure and printing techniques to express their ideas as clearly and powerfully as possible, produce a book project and/or portfolio of high quality prints and engage in reading, writing, and discussions about photography and its influence. This course demands dedication outside of class, as class time will be used mainly for demonstrations, critiques and discussions.

There will be one field trip and a visit by a guest artist/curator, pending availability and approval.

AP STUDIO ART—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: One year of any visual art classes, or permission of instructor in consultation with Arts Department Chair.

May be repeated for credit

This course is intended for highly motivated students interested in the advanced study of art, both two- and three-dimensional. Satisfying the requirements of the Advanced Placement art portfolio requires that a significant amount of work must be completed outside of class. In addition to developing work in a wide range of media and approaches, students design and complete a substantial independent project. Students have the opportunity to prepare digital slide portfolios for college applications as well as for Advanced Placement consideration. Students receive a letter grade at the end of each semester for their work.

ENGLISH

Throughout the four years of English, our goal is to share the beauty and power of language and literature. Our courses challenge students to read critically, think logically, and write persuasively. Through class discussions, analytical writing assignments, informal journal writing, and performance work, students are encouraged to take risks and refine their critical voices, both in writing and in class discussion.

ENGLISH 9—1 credit; year course

Open to: 9

Meets 5 times a week

Prerequisites: None

This course introduces student to the genres of literature, including poetry, drama, the short story, and the novel, and emphasizes the development of critical thinking and writing skills.

ENGLISH 10—1 credit; year course

Open to: 10

Meets 5 times a week

Prerequisites: English 9 or equivalent

Beginning with the epic poem Beowulf, students study British Literature through the centuries. Students continue to write analytical essays and develop their interpretive powers.

LITERATURE OF THE UNITED STATES—1 credit; year course

Open to: 11

Meets 4 times a week

Prerequisites: English 10 or equivalent.

This course explores the literature of the United States from the Puritans to the contemporary period. Through careful study of prose, poetry, and drama, students examine works of American romanticism, realism, and modernism. Emphasis is placed primarily on analytical essays with the opportunity for a few inventive and reflective personal compositions.

TWELFTH GRADE ENGLISH COURSES

Twelfth Grade English courses are semester-long offerings that explore a range of national literatures, historical periods, literary genres, and themes. Seniors will take one course each semester.

THE ART OF THE STORY—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

Recognizing creative writing as a valuable tool for expression, this course offers students the opportunity to hone their analytical writing skills and write creatively while participating in a creative writing workshop. By looking closely at the craft of contemporary fiction and poetry, students develop an understanding of the tools essential to good writing. They use those tools to produce original compositions and develop the communication skills necessary to participate effectively in a productive creative writing workshop.

CONTEMPORARY LITERATURE—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

Students enrolled in Contemporary Literature spend a semester exploring a wide spectrum of literary works published within the last two decades. The reading list includes works from various genres (short stories, poetry, essays, novels). Students examine the ways in which contemporary authors—of varying nationalities--represent the experience of living in the world today. Authors studied may include Edward P. Jones, Emma Donoghue, Margaret Atwood, Haruki Murakami, Junot Diaz, Kazuo Ishiguro, and Jhumpa Lahiri.

FAMILY STORIES: THE TIES THAT BIND—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

This course will explore various stories that focus on family life. Students will consider the complexity of family and address various questions, such as: how do different forms tell the story of a family, in addition to a character? How do families restrict or enhance individual characters' freedom? How do family relationships shape identity? How does gender influence the relationships in the narrative? What particular details come into view when the scope of a story is restricted to a household? The course may explore several genres and may include a culminating creative project. Possible texts include Shakespeare's *King Lear*, Austen's *Sense and Sensibility*, Forster's *Howard's End*, poems from Brooks's *A Street in Bronzeville*, and Baldwin's "Notes of a Native Son."

FANTASY LITERATURE—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of the United States or equivalent

In this course students take seriously the delights and challenges of reading fantasy literature. Rather than regarding them as merely childish diversions, we explore fantasy stories as intricately wrought literary works of the human imagination, worth reading at any age. We also delve into our attraction to fantasy as readers: Why are we drawn to myths and fairy tales, as opposed to other kinds of stories? C.S. Lewis has written, "To construct plausible and moving (other worlds) you must draw on the only real "other world" we know, that of the spirit." What

does fantasy reveal about the human spirit? Readings are from J.R.R. Tolkien, C.S. Lewis, Ovid, Andrew Lang, Philip Pullman, Ursula K. LeGuin.

LIFE, LITERATURE, AND THE PURSUIT OF HAPPINESS—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

Students enrolled in this course spend a semester exploring what it might mean to have a good life and to find happiness. Drawing upon literature primarily, but also philosophy, psychology, and film, students examine how one might define happiness and fulfillment and how and where one might imagine and create such things. How much is the individual responsible and how much might depend on other people and other forces? How do virtue, imagination, and love matter in the pursuit of a good and happy life?

MYTHS, GODS, MORTALS, MONSTERS: CLASSICAL AND HEROIC LITERATURE—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

In this course we will study myths and stories from ancient and medieval cultures—ranging from tales of the Trojan War to Greek tragedies to Viking sagas to legends of King Arthur. We will consider how these literary works depict the human condition and what separates the average person from a hero or a god. Despite the strangeness and distance of the cultures represented in these texts, we might find in them some universal truths. Readings include selections from Greek and Norse mythology, Ovid, Homer, Virgil, and Sophocles.

POSTCOLONIAL LITERATURE—1/2 credit; first semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of the United States or equivalent

In this senior English seminar, students read the works of a range of twentieth- and twenty-first-century postcolonial writers from around the world, including selections from the works of Wole Soyinka, Kiran Desai, Salman Rushdie, Jamaica Kincaid, and Michael Ondaatje. Through exploration of various literary genres (poetry, drama, essay, novel, short story) and different geo-political regions, students examine the efforts of postcolonial writers to resist colonial influence and generate unique forms of creative expression.

SHAKESPEARE —1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisite: Literature of the United States or equivalent

The goal of this course is for students to understand and enjoy selected works of William Shakespeare through careful close reading of the texts. Students read much of the works in class, and the course involves analytical writing, tests, journal work and, sometimes, performance work.

WORLD NOVELLA—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: Literature of United States or equivalent

This course offers students the opportunity to study and enjoy literature from outside the United States and Britain. The novella, a story of 60-100 pages, offers an intensive exploration of theme and character at a length that can be read in one or two sittings. As such, students are able to study nine of the world's most meaningful and widely read stories of the past 125 years. Along the way students further develop and refine writing skills and speaking voices. Writers include Fuentes (Mexico), Garcia Marquez (Colombia), Hedayat (Iran), Kafka (Prague), Mann (Germany), Okuizumi (Japan), Rostand (France), Rushdie (India), and Tolstoy (Russia).

HISTORY

The Upper School history curriculum includes an examination of European history, non-western societies, and U.S. history. Three years of history—to be taken in the 9th, 10th, and 11th grades—are required. Ninth grade students are required to take The West and the World. As tenth grade students, all students must complete a year-long requirement devoted to area studies. Eleventh grade students must take History of the United States or American Studies. Exceptions are only made for students attending School Year Abroad and approved semester programs who may take U.S. History in the summer before junior year, after junior year or during their senior year. Students who will attend a semester program in the spring of 11th grade may select a 12th grade elective in the fall semester of 11th grade.

Chinese Studies Program

In honor of the memory of John Fisher Zeidman ('79), Sidwell Friends School founded a Chinese Studies Program in 1983. The Program consists of both Chinese language and Chinese/East Asian history courses. In addition to these curricular offerings, programmatic components include a library resource center devoted to China and East Asia, frequent speakers, trips to China, and the opportunity to apply for a fellowship to study in China after graduation from the School. The objectives of the Program are to not only expose students to China but build a strong foundation in the study of Chinese language, history, and culture. For information on Chinese language offerings, refer to the Modern and Classical Languages section of this guide, and for information on Chinese and East Asian history offerings, refer to the History course offerings listed below.

Ninth Grade

THE WEST AND THE WORLD—I credit; year course

Open to: 9

Meets 4 times a week

Prerequisites: None

Ninth grade students at Sidwell Friends School begin their career as historians with *The West and The World*—a year-long survey that explores the birth of the modern world. The course provides historical perspective on the contemporary world and devotes special attention to Europe as an engine of change. The course is, by design, a survey of the major developments in European History from the Renaissance to the Cold War. *The West and the World* constructs a narrative for students, but it also exposes them to the forces that have shaped the world in which we live: tradition, individualism, nationalism, revolution, war, capitalism, modernization, democracy, globalization, and the meaning of progress. Much like United States history in the 11th grade, this course is a survey that does not merely stress content. Rather, this course offers opportunities for students to contemplate the beauty of, and challenges offered by, Europe as it assumed its place in the world during the first global age. The course makes significant use of primary sources and students are expected to write a research paper that analyzes a substantive primary source of their choice.

Tenth Grade

By the end of the 9th grade year, students will have a strong understanding of Europe's place in the world as well as the relations it forged with Africa, Asia, Latin America, and the Middle East. The 10th grade history curriculum provides students an opportunity for focused study of one of those four non-European regions in its own right. This area studies curriculum is designed to provide historical depth while continuing to develop the critical reading and writing skills introduced in 9th grade. These four year-long courses will provide students an opportunity to develop expertise in a region of the non-Western world and expand their understanding of the various ways its people have shaped history.

20th CENTURY AFRICA: DEMOCRACY AND DEVELOPMENT—1 credit; year course

Open to: 10

Meets 4 times a week

Prerequisites: None

What is the shape of political, economic, and cultural Africa at the turn of the 21st century? In this course, students explore contemporary Africa with a heavy emphasis on democratization and economic development. The first quarter focuses on wildlife conservation and the conflict over land and water rights in southern Africa. Then students begin exploring democracy in Africa by looking at the creation of modern South Africa. First semester concludes with a collaborative project focused on HIV/AIDS and grassroots approaches to preventing transmission and spreading awareness. Second semester, students study the Great Lakes region (Congo and Rwanda) and the triple heritage of East Africa, returning to the issues of land

and its relation to development with an in-depth look at modern Kenya. Second semester concludes with a second collaborative project, this one focused on finding and articulating solutions to specific development challenges. Course materials include a reader, a novel, and films. Students write a research paper in the second semester on a topic of their choice. Additional assessments include essays and other writing assignments that grow organically from the material.

HISTORY OF EAST ASIA: TRADITION AND MODERNITY—1 credit; year course

Open to: 10

Meets 4 times a week

Prerequisites: None

This course explores, in the first semester, the philosophical, religious, social, political and economic foundations of East Asian civilization from a historical perspective and through literature and art. The geographical focus is primarily on China and Japan, but we also look at Korea and Vietnam. The first semester covers the broad period from the Bronze Age to the nineteenth century. In the second semester, the course explores the development of modern East Asia through the impact of Western imperialism and the rise of nationalism and revolution in the twentieth century. The course is designed to help students encounter a historical tradition outside the Western experience, to expose students to primary sources in translation, to introduce different approaches to the study of history, and to help students better understand our world today and the historical forces that have shaped it. Students write a research paper in the second semester on a topic of their choice.

SOCIAL & POLITICAL CHANGE IN LATIN AMERICA 1 credit; year course

Open to: 10

Meets 4 times a week

Prerequisites: None

Latin America is a complex region, filled with contrasts, failures and possibilities. With an intersection of indigenous, African and Iberian heritages, the region consists of a heterogeneous population with deeply rooted layers of culture, identity and traditions. Though similar legacies of Spanish and Portuguese conquest and colonization unite the region, unique national identities have evolved based on a country's individual history and its particular political, economic, and social circumstances. This class will explore the commonalities as well as the distinctions found throughout Latin America. In doing so, we will examine issues including economic stratification, dictatorship and democracy, social movements and revolution, identity (race, ethnicity and gender), human rights, and globalization. Moreover, we work toward understanding these issues from a Latin American perspective, utilizing sources that represent a cross-section of voices from the region. Students write a research paper in the second semester on a topic of their choice.

THE MODERN MIDDLE EAST: A POLITICAL HISTORY—1 credit; year course

Open to: 10

Meets 4 times a week

Prerequisites: None

This course focuses on the history of the Middle East in the nineteenth and twentieth centuries. In the first weeks of the course, we begin by reviewing the civilizations and empires that existed in the region in the ancient and pre-modern period, such as the Canaanites and ancient Israel, the early Caliphates and the Ottoman Empire. We will also discuss the religions of the region and the foundation of Islam. We then slow down and investigate the modern period in more depth, focusing on specific case studies and conflicts such as the Arab-Israeli conflict, the watershed events of 1979, and recent conflicts (up to the Gaza War of 2008-2009). Students write a research paper in the second semester on a topic of their choice.

Eleventh Grade

HISTORY OF THE UNITED STATES—1 credit; year course

Open to: 11, 12 (by permission of the Academic Dean)

Meets 4 times a week

Prerequisites: None

This full-year course offers a survey of United States history from colonial times to the present. The class places emphasis on political, social, economic, diplomatic, and military events that have shaped the nation's development. Independent research on a topic of the student's choice is a key component of the course, and considerable class time is devoted to the analysis of primary materials. Course requirements also include take-home essays, unit tests, and semester exams.

AMERICAN STUDIES—1 credit; year course

Open to: 11, 12 (by permission of the Academic Dean)

Meets 4 times a week

Prerequisites: None

American Studies is an interdisciplinary survey course that explores the culture of the United States through political events, social movements, architecture and the built environment, and the arts. Emphasis is placed on the analysis of primary materials and understanding the construction of American national identity through pop culture. Independent research on a topic of the student's choice is an important component of the first semester; in the second semester, the research focus shifts to material culture and the study of American ideas and beliefs through the interpretation of historical artifacts.

Twelfth Grade

These classes are open to all 12th graders and those 11th graders who will participate in a Sidwell Friends School approved semester-away program second semester of junior year.

AFRICAN-AMERICAN HISTORY, THOUGHT, AND CULTURE—1/2 credit; semester course

Open to:12
Meets 4 times a week
Prerequisites: None

This course explores the social, political, and economic history of the African-American experience from the period of slavery to the present. Special emphasis will be given to the origins of British colonial slavery; the evolving definition of liberty in the American republic; the triumphs and challenges of the post-Reconstruction era; and the modern Civil Rights Movement. The reading list includes a textbook. This seminar emphasizes discussion and writing.

ANTHROPOLOGY—1/2 credit; FIRST semester course

Open to: 12
Meets 4 times a week
Prerequisites: None

Studies in Anthropology explores the meanings of culture through case studies drawn from classic ethnographies from the seminal scholars in the field: Malinowski, Evans-Pritchard, Levi-Strauss, Boas, Geertz. Students will learn about different approaches to the study of human societies, from functionalism and structuralism in the European tradition, to “thick description” and the post-structuralist turn in American cultural anthropology, to recent studies in social anthropology framing local societies in a broader global context of political economy. Rather than attempt a systematic survey of the discipline, Studies in Anthropology exposes students to a wide range of the most thought-provoking and fascinating stories in the study of culture.

TOPICS IN ART HISTORY—1/2 credit; semester course

Open to: 12
Meets 4 times a week
Prerequisites: None

In this topical survey of Art History, we begin with several scholarly inquiries into the nature of artwork: What is art? How do we study it? How and what does artwork communicate? Approaching the subject as a reflection of its time and as a projection of the human experience, we move from the ancient cave paintings of the Paleolithic era to the diverse compositions of modern art. Over the course of the semester, students become familiar with artistic styles and trace how these develop and change in different periods; just as important, they also gain an understanding of the social and historical contexts of the works we study. As part of the experience, we visit local collections and galleries to experience the artwork firsthand. Students can expect to write several thematic essays in addition to regular in-class assessments, short presentations, and a final exam.

BLACK LIBERATION IN THE AMERICAS—1/2 credit; semester course

Open to: 12
Meets 4 times a week
Prerequisites: None

From the world of Temne witchcraft to the wild style of the Bronx in 1970s America, this course explores in great depth the historical forces that created an unbound nation--The Black Atlantic. We trace the movement of African peoples, traditions, and ways of being across the sea during the slave trade. We examine critically the economic, intellectual, artistic, spiritual, and political forces that have shaped the western hemisphere and our place as citizens in it. The class also devotes serious attention to race, race theory, and contemporary manifestations of structural racism. This course has no prerequisites, is open to seniors (or juniors who will be away second semester), and represents a major departure from the material covered in History of Africa. Students can expect to read scholarly articles and primary sources as well as analyze artistic expressions of freedom (monumental portraiture, film, and music, with a heavy emphasis on rap music). Graded work includes class discussion, essays, and a final project about race and justice.

COMPARATIVE RELIGION—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

Students in this course explore the beliefs and practices of the world's major religions: Hinduism, Buddhism, Judaism, Christianity and Islam. To ground the study, the course begins with an introduction to religious theory and method, sampling works from such thinkers as Emile Durkheim, William James, and Mircea Eliade. Students then spend the majority of the course examining the major traditions' formative texts and contemporary movements, tracing the evolution of each tradition into the modern era. During our study of Hinduism, for example, students read selections from *The Bhagavad-Gita* and *Upanisads*, later relating these key works to the life of Gandhi and his satyagraha movement. Over the course of the semester, students can expect to write several comparative thematic essays in addition to focused in-class assessments and a final exam. This seminar is best suited to those students who are prepared for a high level of analysis and eager to discuss the role of religion not only in history, but in the overall human experience.

CONFLICT IN THE MODERN WORLD—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

During the past 100 years, a number of rational and intelligent governments have faced the decision of whether or not to go to war. These governments have responded to the issue in different ways, and with different degrees of success. Some have chosen war and lived to regret that decision; others have avoided war and lived to regret that decision; others have had success with the decision they made. What can we learn from these episodes? Is there a right or wrong way to approach crisis decision-making? How do the responsibilities of a government relate to the issues of morality, ethics, international law and military strategy that are inevitably presented in a crisis? Why do things sometimes go wrong?

The course will focus on four events and the ensuing developments: (1) the outbreak of the Great War in August 1914; (2) The Rhineland Crisis of March 1936; (3) the Japanese decision to attack Pearl Harbor in December 1941; (4) the Cuban Missile Crisis of October 1962.

Approximately three weeks are spent on each event, examining the factors considered in each case as well as the reasons why the decision did (or did not) produce the desired consequences. The principal events of World War I, World War II, and the Cold War are part of the course, but we focus on the decisions made at the highest levels rather than on the tactical choices made on the battlefields. The course is best suited to students who enjoy political, diplomatic, and military history. Assessments include three papers and a final project.

MODERN CHINA THROUGH FILM—1/2 credit; semester

Open to: 12

Meets 4 times a week

Prerequisites: None

This course explores the various and competing ways in which China has been constructed in feature films and documentaries produced in China and in Western countries. In addition to focusing on the history of Modern China, we will also consider how to view films as historical texts, how historical context influences historical interpretation, and how cinema creates national and trans-national identities. The course has three main goals: First, to gain a broad understanding of modern China's historical development, from the mid-nineteenth century to the present; second, to focus more closely on the post-Mao period (1976-present) and on the historical constructions created during that period; third, to reflect critically on historical interpretations of modern China, especially those using film as text. In other words, we will look at representations of modern Chinese history presented in films, at the historical context in which the films were made, and at the special characteristics and forces at play within the films that make them powerful and symbolically rich media for writing history.

PERSPECTIVES ON GLOBAL ECONOMICS—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

This course is designed to provide exposure to microeconomic analysis, which will facilitate a more thorough understanding of basic macroeconomic theory and its relevance to the decision-making of individuals, corporations and governments. Through observation and discussion of current world events, political discourse, and economic theory, students will assess the reliability of basic economic models, the effectiveness of specific government policies, and the significance of particular macroeconomic issues. Participation in an investment competition will enable the student to learn about the stock market and the forces that influence it. Students will also analyze decision making with regards to personal finance. The class will utilize debates, position papers, and team problem-solving to consider critical questions relating to the

government's role in managing the economy, the effect of individual values on economic points of view, and the relationship between economics and politics.

POLITICAL AND PHILOSOPHICAL THOUGHT I: FOUNDATIONS—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

For millennia, intellectuals and philosophers have posed a number of fundamental questions: what is the purpose of mankind's existence? How can one live the ideal life? What is the role of human reason? What is the ideal relationship between the individual and society? What is the ideal political structure? What is the nature of the relationship between the citizen and the state? How should humanity ultimately govern itself?

This course addresses these questions by examining a number of key texts that illustrate the various ways that men and women have attempted to explain the universe and their own place within it. In our discussions, we touch not only on political theory and philosophy, but also on theology, economic and scientific theory, ethics, and historiography. Our readings center on western Europe (although not be fully limited to it) and proceed chronologically, beginning in the ancient world and concluding in the 18th century.

The course is conducted as a seminar, and class time is focused almost entirely on discussion of the assigned texts. Written assignments include two essays, weekly reading assignments, and an exam. The reading includes works by Plato, Aristotle, Cicero, Lucretius, Marcus Aurelius, St. Augustine, Machiavelli, Thomas More, Francis Bacon, Rene Descartes, Thomas Hobbes, John Locke, and Adam Smith.

POLITICAL AND PHILOSOPHICAL THOUGHT II: MODERNITY—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

This course is a continuation of Political and Philosophical Thought I: Foundations – although students may take the second course without having taken the first – and explores the same themes and ideas, with a focus on texts from the 18th century to the mid-20th century. The course is conducted as a seminar, and class time is focused almost entirely on discussion of the assigned texts. Written assignments include two essays, weekly reading assignments, and an exam. The readings include works by Voltaire, Montesquieu, Jean-Jacques Rousseau, Edmund Burke, John Stuart Mill, Karl Marx, Mikhail Bakunin, Friedrich Nietzsche, Sigmund Freud, Hannah Arendt, Jean-Paul Sartre, Albert Camus, Simone de Beauvoir, and Mohandas Gandhi.

PERSPECTIVES ON AMERICAN GOVERNMENT—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisite: History of the United States or American Studies

This course studies the structure and workings of the government of the United States. After beginning with a review of the Constitution, students will examine in detail: the three branches of the national government and their powers and interaction; federalism and states' rights; the role of elections, political parties, interest groups, and the media in influencing public policy; and various civil rights, civil liberties, due process, and privacy limitations on governmental action. An important objective of the course is to discuss each of these institutions and issues in light of: (i) specific historical ideas and events; and (ii) specific contemporary political issues and disputes. The course will include two case studies on Watergate and the "national security state."

This course is best suited to students who are committed to extensive reading from a wide variety of sources. In addition to the Constitution, generous use is made of historical documents, speeches, public reports, and judicial decisions, as well as more recent articles by scholars and journalists. In addition to several take-home essays, students prepare and present a paper on a public policy dispute of their choosing.

THE SCHOOL AND THE CITY—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisite: History of the United States or American Studies

The School and the City explores the relationship between education and its urban contexts. Students examine the history of education in the United States, and the political, economic, and social forces that have shaped urban education. Particular attention is given to the history of Washington, D.C., including the ways in which urban history has affected Sidwell Friends School. To that end, course readings may range from scholarly journal articles to original materials held in the school's archives.

SOCIETY AND NATURE: TOPICS IN GLOBAL ENVIRONMENTAL HISTORY—1/2 credit; semester course

Open to: 12

Meets 4 times a week

Prerequisites: None

The personal computer, high-speed internet, the internal combustion engine, industrial capitalism, Global Warming, deforestation, pollution, airplanes, spaceships, lasers. We currently live in a world in which human-made technology affects all corners of the Earth, where human footprints exist in almost equally prolific geographic reach, and where many humans daily reckon with the material and moral implications of human activity. The task of the environmental historian is to explore and explain how and why life on Earth exists in its current form. We begin with the assumption that modern society is related to the accumulation of past developments (though not in a linear progression) with a particular emphasis on the importance of historical relationships between humans and the nonhuman world. What does that mean? It means we look at the ways ecosystems and nonhuman

species affected the course of human history, and the ways human societies have affected the course of nonhuman history. In other words, Environmental History asks how mosquitoes, disease, water, trees, vermin, predators, climate, terrain changed the course of global human history and vice versa, from ancient Mesopotamia to modern America. For example: was the *Aedes aegypti* mosquito responsible for the domination of what is now Central and South America by Spain until the end of the eighteenth century? Why did humans develop fossil fuel technology – because of the species' innate curiosity, or because ecologic/economic forces drove them to it? This is a seminar readings course, and students are evaluated based on a combination of classroom participation, presentations, and essays.

**WOMEN'S AND GENDER STUDIES: AN INTERDISCIPLINARY INTRODUCTION — 1/2 credit;
semester course**

Open to: 12

Meets 4 times a week

Prerequisites: None

This course offers an introduction to Women's and Gender Studies, an interdisciplinary academic field that asks critical questions about the meaning of gender in society. The primary goal of this course is to help students develop a critical framework for thinking about gender as both an identity and a category of analysis. We also examine closely the intersection of gender with other social identifiers including sexual orientation, race, ethnicity, class, religion and age. Together, we build a dialogue around topics including women's history and feminist foundations, gender/culture and socialization, the body politic (physical and sexual), gendered performance and relationships of power, economic structures and their effect on women, and the global context of gender. The course is conducted largely as a seminar and requires students to take an active role in leading class discussion and presenting material. The texts and readings used in this course focus primarily upon the experiences of people in the United States. However, we also draw upon cross-cultural examples to deepen our understanding of gender in a broader context. Students can expect to write response essays and complete several projects

For other grades: Each year, members of the Math Department place current 9th-11th grade students in subsequent courses for the next academic year. Generally speaking, a student who has done B-level work or better will be placed in the course that most commonly follows the current one. If a student has had difficulty maintaining B-level work, a student's teacher may instead recommend a different, more suitable course. On the other hand, if a student has done exceedingly well, his or her teacher may recommend a more challenging next course. Students who are considered for a move to a more demanding course will have demonstrated a high level of capability and interest, and it is expected that he or she will have done A-level work throughout the current course. Supplemental or summer work may be required to make such a change in sequence. Permission of the department is required for any student who wishes to take a credit math course over the summer, and such courses must be taken at Sidwell Friends School.

Other Departmental Policies

A student who earns a 'C-' or below in a course that is part of a continuing sequence (e.g. Algebra 1, Algebra 2, Precalculus) may be required to retake the course or complete supplementary work in order to enroll in the next course in the sequence. This judgment is made by the Department Chair in consultation with the student's teacher.

The Math Help Room (Room 226) is open daily for students who have questions pertaining to their math class. It is staffed most periods with either a member of the Math Department or an upper level student.

All courses require a TI-83 or TI-84 calculator.

The Math Department integrates topics in probability and statistics into the three-year sequence. These topics are included on both the SAT and SAT subject tests, and these topics are typically included in the standard curricula for the three-year sequence courses and provide a more comprehensive overview of topics that students may choose to pursue later in their education. As an increasing number of post-graduate pursuits require a good understanding of basic statistics and data analysis, the inclusion of these topics better prepares students for related courses both at Sidwell Friends and in later years of study. Discussing these topics also provides an additional opportunity for students to make cross-disciplinary connections between their math courses and courses in other departments at Sidwell Friends.

ALGEBRA 1—1 credit; year course

Open to: 9

Meets 5 times per week

Prerequisites: None

In Algebra 1 students study operations involving integers, rational numbers, real numbers, monomials, polynomials, rational expressions, exponents, absolute value, and radicals. Techniques for solving and graphing linear and quadratic equations are studied extensively, and linear inequalities and systems of linear equations receive significant attention. There is a strong emphasis on ensuring secure skills and producing clearly organized written work.

GEOMETRY—1 credit; year course

Open to: 9, 10

Meets 5 times per week

Prerequisites: Algebra 1 or equivalent

Geometry covers Euclidean plane and solid geometry. Emphasis is on orderly and logical thinking, on the ability to develop a sound, precise, logical argument, and on the theoretical derivation and practical application of theorems and propositions. Proof is an integral part of the course. Specific topics in geometry include line segments, lines, rays, planes, congruence, triangles, quadrilaterals, regular polygons, inequalities, perpendicular and parallel lines, similarity, and circles including tangent and secant lines and chords. Throughout the year, algebra review is a regular aspect of class work. Coordinate geometry is used both as a way to introduce and provide a different perspective on geometric topics and also as one way in which topics of Algebra 1 will be thoroughly reviewed. Additionally, basic constructions are introduced and right triangle trigonometry is covered.

MATH I —1 credit; year course

Open to: 9

Meets 5 times per week

Prerequisites: Algebra 1 and departmental approval

Math I is an intensive and accelerated course in geometry recommended for very able math students. The topics of geometry and algebra are covered with greater attention to rigorous proof and the deduction of results from a small number of postulates. Additional topics include advanced constructions, loci, proof by contradiction, and a more intensive study of trigonometry. This rigorous course is inquiry based, and students must be prepared to take responsibility for their own progress. Additional topics beyond the scope of the standard geometry course may be taught.

GEOMETRY, AN INDUCTIVE APPROACH—1 credit; year course

Open to: 10, 11

Meets 5 times per week

Prerequisites: Algebra 1

Students in Geometry, An Inductive Approach study both plane and solid geometry. The inductive approach of the class requires students to explore problems by hand and using Geometer's Sketchpad. On the basis of that work, students make generalizations which are formalized into the standard postulates and theorems encountered in Geometry. Throughout the year, algebra review is a regular aspect of class work.

ALGEBRA 2—1 credit; year course

Open to: 9, 10, 11

Meets 5 times per week

Prerequisites: Algebra 1

In Algebra 2 students study the algebraic properties and graphs of real-valued functions and specific skills needed for working with applications. Previous work with linear relationships and systems is expanded, and, in addition, students study direct and inverse variation, quadratic and higher degree polynomial functions, exponential and logarithmic functions, inverses of functions, conic sections, and basic probability and data interpretation.

MATH II—1 credit; year course

Open to: 10

Meets 5 times per week

Prerequisites: Math I or equivalent

Math II is an intensive and accelerated course for very able and independent math students who have completed Math I or its equivalent. The course covers the topics of the Algebra 2 and Precalculus courses, but a greater emphasis is placed on abstraction and proof-writing.

INTERMEDIATE ALGEBRA—1 credit; year course

Open to: 11

Meets 5 times per week

Prerequisites: Algebra 1 and Geometry (or Geometry an Inductive Approach)

Students in this course will study the topics covered in the Algebra 2 course, with more emphasis on basic skills needed for solving a variety of types of equations and inequalities, and creating and interpreting the graphs of relations.

PRECALCULUS—1 credit; year course

Open to: 10, 11, 12

Meets 5 times per week

Prerequisites: Geometry and Algebra 2

In Precalculus students study polynomial functions, exponential functions, logarithmic functions, trigonometric functions, and inverse trigonometric functions. Polar functions and their graphs are examined in the second semester as are basic probability and statistics. Graphing techniques and applications are emphasized, and graphing calculators are used throughout the course. The study of trigonometry includes the graphs of trigonometric functions and their inverses, the Laws of Sines and Cosines, equations, identities, multiple-angle formulas and radian measure.

MATH III—1 credit; year course

Open to: 11
Meets 5 times per week
Prerequisites: Math II

Students cover many topics including Mathematical Induction, sequences, series, and limits. The foundations for differential calculus are laid. The emphasis in Math III is on rigorous work and independent responsibility for the mastery of proofs and an understanding of mathematical ideas.

ALGEBRA 3 AND TRIGONOMETRY—1 credit; year course

Open to: 11, 12
Meets 5 times per week
Prerequisites: Algebra 2 (or Intermediate Algebra) and Geometry

Students in Algebra 3 and Trigonometry study topics such as coordinate geometry, quadratic equations, circles, triangle trigonometry, exponents and logs, statistics and probability.

STATISTICS—1 credit; year course

Open to: 12
Meets 5 times per week
Prerequisites: Intermediate Algebra, Algebra 2, Algebra 3, or Precalculus

This course may not be taken to satisfy the three-year Math requirement.

This course is an introduction to the study of Statistics. Students use real data throughout the course. The course begins with an introduction to presenting and interpreting data, along with interpreting data from published results. The main focus of the course is to discover methods of basic inference using various methods by working with simulations, probability, and real data. Topics include basic probability, graphing and interpreting data, basic linear regression, estimators, simulations, experimental design, and statistical inference. Throughout, students discuss the scope of inference from a given study, experiment, or statistical analysis.

AP STATISTICS —1 credit; year course

Open to: 11, 12
Meets 5 times per week
Prerequisites: Precalculus, Algebra 3, or departmental approval

This course may not be taken to satisfy the three-year Math requirement.

The course is an intensive first-year-college level statistics course. Topics covered include: exploratory data analysis using graphical and numerical techniques, planning experiments and studies, sampling techniques, probability theory including the normal and binomial distributions, producing statistical models, and statistical inference including confidence intervals and tests of significance. A TI-83 or 84 calculator is used on a regular basis. Students

who complete the course successfully should be well prepared to take the Advanced Placement examination.

CALCULUS I—1 credit; year course

Open to: 11, 12

Meets 5 times per week

Prerequisites: Precalculus or Math II

This is a course in basic differential and integral calculus of one variable. Topics include: limits; maximum/minimum problems; Rolle's Theorem; the Mean Value Theorem; L'Hopital's Rule; Fundamental Theorem of Calculus; exponential and logarithmic functions; and an introduction to differential equations. Extensive use is made of graphing calculators. Students are asked not only to understand, but to prove many of the basic theorems in Calculus. Students who complete the course successfully should be well prepared to take the Calculus AB AP examination.

CALCULUS II—1 credit; year course

Open to: 11, 12

Meets 5 times per week

Prerequisites: Math III, departmental approval

Calculus II is an intensive and accelerated course in differential and integral calculus of one variable. It is for able and independent 12th grade students who have completed Math III. Areas covered in this course include: limits, continuity, maximum/minimum problems; Rolle's Theorem; the Mean Value Theorem; L'Hopital's Rule; Fundamental Theorem of Calculus; infinite series; differential equations; vector valued functions; and polar functions. Students are asked not only to understand, but to prove many of the basic theorems in Calculus. Students who complete this course successfully should be qualified to take the Calculus BC AP Examination.

LINEAR ALGEBRA— May be taken as a full year course for 1 credit or the first semester for ½ credit

Open to: 11, 12

Meets 5 times a week

Prerequisites: Math III

Linear Algebra is a course for able 12th grade students who have taken or are currently enrolled in Calculus II. Topics include: matrices, vector spaces, linear transformations, characteristic (Eigen) values. Additional areas of study such as dynamical systems may be taken up during the second semester.

CHINA FIELDWORK MATH PROGRAM

Students participating in the China Fieldwork Semester-Away Program will continue to learn math remotely with the help of the on-site math tutor who will work with them regularly over the semester.

On the China Fieldwork transcript, the math course CFS students take will have a CFS notation added (e.g. Precalculus CFS, Algebra II CFS, etc.).

Students enrolled in Calculus I first semester senior year who attend CFS may choose to drop Calculus I after the first semester to earn .5 credit.

Not all SFS math courses will be available to students enrolled in the CFS program. For instance, students enrolled in Math III first semester will need to take Calculus I CFS for the second semester. In this case, students enrolled in the CFS program will receive .5 credit for the first semester math course and .5 credit for the second semester course as part of the CFS program.

Finally, the Math Department will make placement decisions for all students, including those who participate in study-away programs, to determine appropriate placement for the following year.

MODERN AND CLASSICAL LANGUAGES

Ancient to Modern, East to West, the Department of Modern and Classical Languages offers a sequence of beginning, intermediate, and advanced classes in Chinese, French, Latin, and Spanish that actively and successfully fulfill our dream of turning students into world explorers. Our courses are multifaceted and rich in the myriad techniques and materials we use to bring our language learners to increasingly greater levels of speaking, listening, reading, and writing proficiency. Added to an array of video, audio, and computer programs that open up distant cultures to the classroom is our membership in the School Year Abroad program, under whose auspices Sidwell Friends School students may spend a year in France, Italy, Spain, or China.

Students who are new to Sidwell Friends School in the 9th grade will meet with a member of the Language Department for placement. A placement test may be required and may, along with the judgment of the Department Chair and Academic Dean, determine the appropriate placement in an upper school language course.

A student who earns a "C-" or below in a course that is part of a continuing sequence (e.g. French I, French II, etc.) or shows a particular weakness in certain areas of language study will be required to take a placement exam in the Fall before the start of the school year in order to advance to the next level.

If a student receives a grade below "C" on the placement exam, he or she will have to switch to a new language or drop languages altogether, provided that he or she has fulfilled the two year requirement for graduation.

Chinese Studies Program

In honor of the memory of John Fisher Zeidman ('79), Sidwell Friends School founded a Chinese Studies Program in 1983. The Program consists of both Chinese language and Chinese/East Asian history courses. In addition to these curricular offerings, programmatic components include a library resource center devoted to China and East Asia, frequent speakers, regular summer trips to China, and the opportunity to apply for a fellowship to study in China after graduation from the School. The objectives of the Program are to not only expose students to China but build a strong foundation in the study of Chinese language, history, and culture. For information on Chinese language offerings, please refer to the Modern and Classical Languages Department curriculum listed below, and for information on Chinese and East Asian history offerings, refer to the History Department curriculum.

Chinese

The 21st century has been described as “the Chinese century”, making Chinese an essential language for Americans to learn. But just as important as China’s recent rapid rise is its rich, ancient culture and contributions to global civilization. The significant differences between Chinese and Western languages and cultures offer students the challenge of learning to think in new ways. The Chinese program offers a rigorous series of courses. The program begins by using stories to teach high-frequency vocabulary and structures that allow students to rapidly build proficiency in the language. In the beginning years, the focus is on topics related to daily life; as students progress, topics include cultural and societal issues. Throughout the program, Chinese culture is interwoven with the course topics to give students a rich picture of this complex culture. Over the course of the program, students build an inventory of vocabulary, grammatical structures, cultural knowledge, and communicative strategies; enact a variety of real-life scenarios; and interact with a diversity of materials, from songs, movies and podcasts to traditional stories and newspaper articles. The Chinese program is designed to help students build a strong foundation in Chinese, inspire them in their pursuit of future learning, and enable them to become true global citizens.

CHINESE I— 1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisite: None

This introductory language course immediately immerses students in the spoken language through the use of stories. Teacher and students work together create a variety of stories that are acted out in class, with gestures, props, and acting used to make the language comprehensible. Students are provided with abundant input in the form of listening and reading to help them acquire high-frequency vocabulary and the fundamental structures of the language. At the beginning of the year, students learn to read and write common radicals and then, after a solid foundation is established, learn to read, write, and type characters. Students learn to narrate events, describe people and places, and express their own opinions on topics related to daily life. Student creativity is brought into play as students begin to write their own

stories, many of which become the basis for class activities. A variety of games are used in class to reinforce and consolidate students' grasp of the language.

CHINESE II — 1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: 7th and 8th Grade Chinese, Chinese I or equivalent

In this course, students continue to work with stories, building on the foundation they have created in Chinese I. They expand their vocabulary and learn more complex grammatical structures, improving their ability to describe, narrate, compare, and explain. The stories take on greater depth, sometimes drawing from classic Chinese and familiar Western tales, and more elements of Chinese culture are introduced. At this level, students are able to produce a greater volume of written and spoken work, and they create a story book project at the end of each semester.

CHINESE III — 1 credit; year course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: Chinese II or equivalent

In this intermediate course, students explore a variety of topics related to their school life through stories. The main goal of this course is to expand students' vocabulary in order to enable them to talk about their daily life with more details and complexity. Chinese video clips and songs are used as supplementary listening materials. To improve reading comprehension skills, students finish the year by reading a level-appropriate Chinese novella.

CHINESE IV — 1 credit; year course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Chinese III or equivalent

At this level, students go beyond the discussions of their daily life and touch upon various topics related to their community. Pictures, news stories, online video clips, blogs, and micro-blogs will be used to facilitate the narration and discussions on different topics. Students will also compare and contrast how those issues are dealt with in China. Chinese video clips and songs will be used as supplementary listening materials. To improve reading comprehension skills, students finish the year by reading a level-appropriate Chinese novella.

CHINESE V — 1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: Chinese IV or equivalent and Departmental approval

In this course, students use the Chinese language as a tool to explore and investigate Chinese cultural practices and perspectives. The main text is supplemented with podcasts, stories, news articles, and movies that illustrate cultural issues and serve as a basis for discussion and reflection. While developing an understanding of contemporary Chinese society, students expand their vocabulary, strengthen their grasp of key grammar patterns, refine their listening and reading comprehension skills, and improve their ability to communicate in paragraph-level discourse. Throughout the course, students engage in discussions, role plays, and presentations, and write emails, stories, and essays. At the completion of the course, students may take the Chinese Language and Culture AP exam.

CHINESE SEMINAR — 1 credit; year course

Open to: 12

Meets 4 times a week

Prerequisites: Chinese V or equivalent and Departmental approval

This multidisciplinary course is designed for students who have studied abroad in China for a year or who have completed Chinese V or the equivalent. In this course, students use their

Chinese language skills to explore contemporary issues in Chinese society. The main text is supplemented with authentic materials such as online news articles, video clips, television shows, and short stories, reflecting Chinese culture and giving students the opportunity to strengthen both their comprehension and analytical skills. Class time is devoted to discussing the texts and addressing linguistic difficulties that arise. Outside of class, students write persuasive essays in which they present their own point of view on related issues. In addition, students learn to apply the vocabulary to current events, giving regular oral presentations on topics of their choice and facilitating class discussions. At the completion of the course, students may take the Chinese Language and Culture AP exam.

French

In a world that has become more connected than ever, the learning of French becomes a must for any cultured person. French, like English, is deeply rooted in five continents. In Europe, not only is French spoken in France, but in Belgium, Luxemburg, and Switzerland. It is also spoken in Latin America (French Guyana) and Asia (Vietnam and Pondicherry, India). In Africa alone, French is the official or co-official language in over 20 countries. French is the native language of over 80% of Quebec's population. Moreover, 'la Francophonie' as a movement and an Institution, with its headquarters in Paris, was created to form a bridge linking diverse groups of peoples, cultures, and traditions in the French speaking world and facilitate increased communication between the diverse cultures in a shared language. The French program immerses our students in some of the world's most diverse cultures and traditions.

Through a natural progression of courses, the French program's main goal is to teach students how to understand, speak, read and write French as well as to appreciate the geographic, historical, socio-economic and cultural wealth and diversity of the French speaking world. Oral practice in the basic and intermediate courses is guided by means of an audio-visual program designed to develop natural speech patterns, pronunciation and intonation. Diverse electronic tools are used in the classroom to support the students' skills.

The books chosen at each level are carefully selected to discourage translation and to encourage reading and thinking in the target language as it is done in one's own language. The Internet, French video clips, DVD's, CD's on current events and/or points of grammar and culture/s are used to complement classroom experience, especially in the more advanced levels of French study.

All classes are conducted in French.

FRENCH I—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: None

This course covers the fundamentals of elementary French through contextual presentation of vocabulary, grammar and verb conjugations. Students start learning French with an integrated

approach to listening comprehension, reading, writing, speaking and culture. The textbook, *“Bon voyage level I,”* is supplemented by an audio program and student manual, a writing activity workbook, and online exercises and games (www.french.glencoe.com). The video segment for each chapter helps students to become totally immersed in the target language. A second audio-visual program, *C'est-à-toi*, draws the class into the daily lives of a group of French students from La Rochelle in western France. Teen romance, intra-family disagreements and generational, cultural issues are the springboard to valuable language and culture lessons. The course is designed to give students useful, everyday expressions that they can use immediately in real life situations and prepare them for future literary studies.

FRENCH II—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: 7th and 8th grade French, French I or equivalent

This course completes the basic level of French study. Basic conversational, grammatical, writing and reading skills are expanded, and vocabulary is broadened. The textbook, *“Bon voyage level II,”* is supplemented by an audio-video program with student manual, a writing activity workbook, exercises, and online games and quizzes (www.french.glencoe.com). The video segment for each chapter exposes students to the vocabulary of daily life and covers a variety of socio-economic and cultural features of France and the Francophone world. Additional support is available through a continuation of *C'est-à-toi*, which was introduced in French I. The course is designed to give students useful, everyday expressions that they can use immediately in real life situations and prepare for future literary studies.

FRENCH III—1 credit; year course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: French II or equivalent

This intermediate course covers most of the verb tenses as well as the grammatical structures needed to move beyond the intermediate level. *“Le Français essentiel”* grammar book is used throughout the year to give the students a more in-depth presentation of the grammar. Literature is also introduced at this level. *“Un billet pour le commissaire,”* a mystery, is read in the first semester. This text is well suited for this level as the structures increase in complexities as the story develops. The text is concrete, and the story builds based upon facts. It prepares the students for reading *“Le Petit Prince”* in the second semester and introduces a philosophical dimension of French literature. The emphasis of this course is on oral and written work that becomes increasingly more challenging.

FRENCH IV—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: French III or equivalent

In the first semester, this advanced course exposes students to the culture, geography, and history of France and French-speaking countries. The second semester focuses on Francophone literature. A variety of Francophone authors are introduced in “*Moments Littéraires*” followed by the in-depth study of a play, “*Huis Clos*,” by Jean-Paul Sartre. This course further develops the students’ skills to read, analyze, discuss, and write in French about the literary work of a variety of authors as well as the literary movements that they represent. It also provides a more nuanced and complex study of both grammar and conjugation and its applications in verbal and written works. Upon completion of this course, students should be well prepared to continue their French Studies at an advanced level. Students who complete this course may take the Advanced Placement Examination in French Language at the end of the year.

FRENCH V- ADVANCED FRANCOPHONE LITERATURE—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: French IV or equivalent

In this advanced course, the first semester focuses on the novels of the French-speaking world. We read a variety of works from authors such as Albert Camus (Algeria), Maryse Condé (Guadeloupe), and Camara Laye (Guinea). The emphasis of the second semester is on drama. The authors are selected to reflect a variety of literary trends and backgrounds. The works of authors such as Anouilh, Sartre, Ionesco, Césaire and Diop are studied (the list may vary). The study of each work includes in-class discussions led by the students or the teacher, writing of essays and, in the case of a play, presentations of scenes, sometimes leading to the presentation of the entire play. Students who have completed this course may take the Advanced Placement Examination in French Language at the end of the year.

Latin

The study of classical languages and literature was once the centerpiece of the liberal arts education. Although times have changed, it is our belief that grounding in Latin and an introduction to the Greco-Roman world still have their rewards. The Latin program, therefore, is designed to 1) acquaint students with the principles of an ancient, inflected language, 2) teach the fundamentals of Latin grammar and vocabulary, 3) enable students to read from the treasure house of Latin literature that includes such authors as Vergil, Cicero, Ovid, Caesar, and Catullus, and 4) introduce Greco-Roman life and culture.

LATIN I—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: None

This course provides students with a working knowledge of Latin grammar and vocabulary through oral and written work. The emphasis is on reading skills and inflected forms that will be needed by the student for success at all levels. Latin language instruction is supplemented by

the study of ancient mythology, culture, and history. In addition, emphasis is placed on the improvement of English vocabulary through recognition of Latin roots and derivatives.

LATIN II—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: 7th and 8th Grade Latin, Latin I or equivalent

This course is the sequel to Latin I and continues the 7th and 8th grade program. The early weeks of the year are used for review of the previous year's work. The course continues to introduce additional inflected forms and grammatical constructions with an emphasis on subordinate clauses. Authentic excerpts from Roman authors are presented for the first time. The history and culture of the Roman Empire serve as a backdrop for the readings. As in the first year, an emphasis is placed on improving English vocabulary and recognizing derivatives from Latin.

LATIN III—1 credit; year course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Latin II or equivalent

The course concludes the introduction of new grammar and syntax. Students focus on reading authentic Latin literature in the second half of the year, and special attention is paid to precise translation and literary analysis. Through the readings, students are introduced to a variety of topics, such as Roman philosophy, the impacts of imperialism, and rhetoric. Readings include prose from writers such as Seneca, Sallust, and Cicero. The last part of the course focuses on Caesar's prose and the poetry of Vergil.

LATIN IV, AP—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: Latin III or equivalent, and department approval

This course builds on the previous year's introduction of *The Aeneid* and *Caesar's De Bello Gallico*. Time is devoted to accuracy and growing fluency of translations and metrical readings, as well as to discussions of style, themes, and literary devices. Students explore the social, political, and literary contexts for the works of Caesar and Vergil. The amount of material in this course demands an intensive full-year commitment to work at an accelerated level. Students are prepared to take the Advanced Placement Examination in Latin at the end of the year.

ADVANCED LATIN LITERATURE—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: Latin IV or equivalent, and Departmental approval

Students improve their facility with Latin vocabulary and syntax while reading poetry and/or prose selections. Emphasis is on understanding of and appreciation for the literature and culture of Ancient Rome. Students are engaged with the tasks of not only translating, but understanding the contemporary history and culture of Rome as influences on the selected authors. Classical literature has endured because of its ability to speak to each generation anew while reminding us that the human condition has persisted for thousands of years. The goal is that students who have taken this course will graduate from Sidwell Friends School with both the ability to discuss Latin literature within the appropriate historical context, and an understanding of the influence of Latin and Roman civilization on Western literature and art.

Spanish

Our Spanish curriculum offers a sequence of courses that use the language as a tool for exploring culture, history, and literature. Given the importance of the Spanish language in the United States and in the world, we begin our interdisciplinary program in Pre-Kindergarten and continue through the advanced levels in the Upper School.

The Upper School program follows a communicative method, stressing at all levels the development of natural speech pattern, pronunciation and intonation. All materials promote the development of communicative skills in understanding, speaking, writing, and reading Spanish. In the immersion environment, teachers and students communicate in Spanish, avoiding any form of translation into English.

SPANISH I—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: None

This is a beginning course for students who have not studied Spanish before. The course uses an exclusively communicative approach and concentrates on both aural comprehension and oral production. The course, with its textbook *Dos Mundos en breve* and online resources, is organized to promote natural language acquisition through constant exposure to and repetition of the protocol, vocabulary, and basic grammar of everyday situations. Initially, the primary emphasis is on listening, repeating and speaking. As the year progresses more attention is given to reading and writing.

SPANISH II—1 credit; year course

Open to: 9, 10, 11, 12

Meets 5 times a week

Prerequisites: 7th & 8th Grade Spanish; Spanish I or equivalent. Placement to be made by the US and MS Depts. of Modern and Classical Languages

This course is designed to refine further students' listening, speaking, writing, and study skills in a communicative classroom. Students master and expand upon foundational skills by focusing on more detailed accuracy in their language acquisition, as well as decreasing their dependence on English thought and speech patterns. The course material includes the textbook *Panorama* and ancillary materials.

SPANISH III—1 credit; year course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisite: Spanish II or equivalent. Placement to be made by the MS and US Depts. of Modern and Classical Languages

This course continues the communicative approach and is offered to students who have mastered their foundational skills (in speaking, reading and writing) and are ready to expand their grammatical scope. All verb conjugations and moods will be presented in this course. In lieu of a textbook, a series of cultural and literary units provide a context for learning grammatical structures.

SPANISH IV—1 credit; year course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Spanish III or equivalent

In this course, emphasis is given to natural self-expression, precise written expression, reading comprehension, and an overall sensitivity to the diversity of Spanish speaking cultures. Students review all major grammatical concepts, learn complex structures, and acquire a more sophisticated and specialized vocabulary. In lieu of a textbook, students read short literary and historical pieces, and watch movies to expose them to the origins of the Spanish speaking world, and in the second semester explore how these things have played out in the 21st century.

SPANISH V—1 credit; year course

Open to: 11, 12

Meets 4 times a week

Prerequisites: Spanish IV or equivalent

This course offers a multidisciplinary approach to the study of language and contemporary culture through essays, editorials, literary pieces and short films touching on history, current events and cultural topics from the Spanish speaking world. Emphasis is on refining and

enhancing oral and written proficiency at an advanced level. The course material includes *Revista*, readings of *cuentos*, and contemporary readings on immigration, including Francisco Jiménez's *Senderos fronterizos*. At the end of this course students may take the AP Spanish Language Exam.

ADVANCED SPANISH SEMINARS- 1 credit; 2 consecutive semesters for credit

Open to: 11, 12

Meets 4 times a week

Prerequisites: Spanish V or Departmental approval

The Advanced Spanish Seminars offer the most advanced level of Spanish, following the sequence of I-II-III-IV-V. Students who successfully complete Spanish V will qualify to enroll in the Seminars. Distinguished students of Spanish IV who have earned a grade of B+ or above and heritage-Spanish-speaking students may seek departmental approval to enroll directly in the Spanish Seminars. The two-year range of Spanish Seminar offerings allow enrolled juniors to select the Seminar again for their senior year. Each seminar offers a “classical” and a “contemporary” focus to ensure that students are exposed to a range of literary and cultural movements. Each seminar includes two semester-long courses, requiring consecutive enrollment during both semesters for a full year’s credit. Each seminar meets four times per week, following the same scheduled period across the two semesters.

Spanish Seminar A

Semester 1: A History of Poetry

Semester 2: Spain’s Multiethnic Origins

Spanish Seminar B

Semesters 1 & 2: La nueva generación

A History of Poetry: Spain to the Americas

From its multicultural roots to its revolutionary role in the New World, this course follows the evolution of Spanish poetry. We study the origins of lyric poetry in the hispanoarabic “jarchas”, its unique path through Spanish mysticism, its rise to excess in the Golden Age, its diminution during the Romantic period, its boom at the turn of the 19th century, and its transition to the New World where it flourishes in the Modernist and Vanguard movements. The study of these small, complete works of art allows students to follow the historical trajectory of one of Europe’s most important superpowers, Spain, and to observe its downfall and the concurrent rise of one of the most important literary cultures in the Modern World: Post-colonial Latin America.

Spain’s Multiethnic Origins

This multidisciplinary course applies Spanish language skills to the study of the origins of Spain through history, architecture, art, geography, philosophy and literature. The course focuses on key issues regarding the Romans, Jews, Muslims and Christians in Spain from the Middle-Ages until the unification of Spain (1492), which partially set the origins for today’s Spanish speaking world. Students engage primary and secondary readings as well as multimedia sources. With a

deeper historical understanding of the Iberian Peninsulas, students are able to interpret the current condition of ethnic and religious minorities in Spain.

The New Generation: Exploring Identity in Today's U.S.

Who are we? How did we get here? What role do I play? This interdisciplinary course uses personal narrative to examine the implications of language and culture in the context of the contemporary American society. Drawing from primary sources, peer-reviewed journals, films and literature, students grapple with issues of identity that directly affect their lives. What happens when one is raised in a society whose culture fundamentally differs from that of their parents? When the "majority" becomes the new "minority"? When aspects of our identities conflict with one another? (How) can we progress as a nation when we are so divided with regard to so many issues? Where does empathy come in? These are the questions we will try to answer.

SCHOOL YEAR ABROAD

Sidwell Friends School is a member of School Year Abroad (SYA), a program that allows juniors and seniors to spend a year in China, France, Italy, and Spain.

At School Year Abroad, students pursue a full academic course of study in the framework of a foreign culture. Students take classes at School Year Abroad facilities in Beijing, China; Rennes, France; Viterbo, Italy; and Zaragoza, Spain. Students live with host families supervised by the school. Outside of school, students participate in athletic, cultural, and recreational activities with their host-country counterparts, and many students take advantage of opportunities for travel both with the school and independently with parental permission. Because of the significant independence that SYA students enjoy, prospective applicants and their parents should be aware of the additional self-discipline and good judgment required of students participating in this program. Furthermore, Sidwell Friends School supports any disciplinary and academic sanctions by School Year Abroad.

In Spain and France, only English and Math courses are taught in English. In China, the language instruction is more intensive, but Modern Chinese History and Chinese Culture are taught in English. Likewise, in Italy, students receive intensive instruction in Italian. Therefore, the programs in China and Italy can accept students with no previous experience in Mandarin and Italian, respectively, while the programs in Spain and France require a minimum of two years of study in Spanish and French, respectively.

Students should begin to consider School Year Abroad during freshman year since participation requires curricular choices especially in the areas of Mathematics and Lab Sciences. At a minimum, interested students and parents should speak to the School Year Abroad Coordinator and attend SYA orientations during the fall of Sophomore Year as applications are due in January. Then, students must undergo a selection process that considers personal, academic, and linguistic qualifications as well as the appropriateness of School Year Abroad to a student's course of study. School Year Abroad makes admissions and financial aid decisions with input from Sidwell Friends School.

Significant need-based Financial Aid is available from School Year Abroad to cover the difference between our tuition and that of SYA. Sidwell Friends School limits the number of students granted a leave of absence to participate in School Year Abroad to twelve per year. Further information may be found at www.sya.org.

SCIENCE

Science is a required course in grades 9 and 10 and optional in grades 11 and 12. The department recommends that students take a course in biology, chemistry, and physics before graduation.

Students entering ninth grade should consult with their current Science teachers or the Science Department Chair about the two options for Biology, either Biology I or Biology IA. Both are survey courses, with Biology IA moving at a faster, deeper pace. Biology IA also has an independent research component for students and meets 5 periods per week, with one double-period. Students electing to take Biology IA should demonstrate enhanced academic stewardship and strong reading comprehension skills.

For grades 10 through 12, students will receive a list of course options from the Science Department in February before course sign-ups based on the Science faculty discussions about the most appropriate courses for each student. The approval for a student to take a course is based on the level of difficulty of a course, the prior knowledge deemed necessary to take full advantage of the course as described in the course description, and a candid assessment of the quality of the student's work, especially the demonstrated ability to keep up-to-date with coursework and the student's level of maturity, independence and responsibility. The student's advisor and the Academic Dean may be consulted during this process. A student who believes that there are extenuating circumstances that should be considered for entry into other courses may seek Science Department consideration and should contact the Science Department Chair.

Any student who wishes to take two or more Science courses concurrently may do so if space is available and if the student receives department approval for the second course. The department faculty, as a group, grants approval to "double in science" using the guidelines described above.

BIOLOGY I—1 credit; year course

Open to: 9

Meets 5 times per week

Biology I is an introductory course in which students work with concepts in select topics such as basic chemistry, cell structure, genetics, evolution, ecology, as well as animal and plant structure and function. Laboratory work and homework are facilitated by technology including online assessment tools and data loggers. Assessments include lab write-ups, tests and projects that emphasize critical thinking and application of principles in addition to recall of facts and concepts.

BIOLOGY I Accelerated—1 credit; year

Open to: 9

Meets 5 times per week, with one double period

Biology IA is an accelerated survey course in which students work with all levels of biological organization – from the molecule through the cells, tissues, organs, individuals, populations, species, communities and the world biome. Students are expected to be able to guide their own learning away from class as class time is primarily used to elaborate upon topics from assigned readings. Laboratory work and homework is facilitated by technology including electronic assessment tools and data loggers. Assessments emphasize critical thinking and application of principles in addition to recall of concepts. Each student is expected to complete an Independent Research Project (IRP).

CHEMISTRY I—1 credit; year course

Open to: 10, 11, 12

Meets 5 times per week

Chemistry I is a comprehensive course in which students work with the concepts of atomic structure, stoichiometry, thermochemistry, physical behavior of gases, liquids and solids, basic, chemical bonding, solutions, equilibrium, chemical kinetics, acids and bases, redox reactions, and molecular structure. Emphasis is on measurement, problem-solving and the practical application of chemical ideas. Students are expected to carry out lab work, maintain a lab notebook and write lab reports. This course provides students with a solid introduction to chemistry, its vocabulary, and its application to natural events.

CHEMISTRY I Accelerated—1 credit; year course

Open to: 10, 11, 12

Meets 5 times per week, with one double period

Chemistry IA is an accelerated version of Chemistry I. Both are survey courses introducing the topics of measurement, stoichiometry, aqueous reactions, gases, atomic and electronic structure, chemical bonding, thermochemistry, liquids & solids, solutions, equilibrium, reaction rates, acids & bases, spontaneity and electrochemistry. Topics are introduced with more sophisticated math and lab work and in greater depth than Chemistry I. In turn, students should be very comfortable with Algebra since it is used almost daily in class. A major emphasis is placed on collaborative learning through problem-solving. The course is designed for students who thrive in a student-centered environment, who enjoy working in groups, and who do not need a lot of reflection and practice to understand concepts. If combining the ideas of the last three chapters to work a complicated, multi-step math problem, and getting the correct answer down to four significant figures makes your day, this is the course for you.

PHYSICS I—1 credit; year course

Open to: 10, 11, 12

Meets 5 times per week

This introductory course will use an approach to the subject that puts an emphasis on both *comprehension* and *computation*. Using a conceptual approach to topics, students are often able to develop a gut feeling for the physical world that they will carry with them for the rest of their lives. Students will then be able to use this conceptual understanding to develop and apply quantitative relationships between variables. Assessments emphasize scientific thinking, such as making observations, testing ideas, analyzing data sets, generating graphs, and using trends to make predictions, rather than recall of facts or definitions. Units on classical mechanics and matter are a focus in the first semester, which includes an examination of the thinking of Albert Einstein and his theory of general relativity. In the second semester units on heat, sound, electricity and magnetism, light, and quantum theory are introduced. Small group and class laboratory exercises as well as daily demonstrations complement collaborative problem-solving and are a catalyst for further inquiry. The computer is used as a tool for data gathering, analysis, and presentation as well as for the display of visual information.

PHYSICS I—1/2 credit; first semester only

Open to: 11, 12

Meets 5 times per week

This first semester Physics I course is open to juniors who will be enrolled in second semester immersion programs away from campus and seniors who wish to reduce their load after first semester or who wish to enroll in a different second semester course.

PHYSICS I Accelerated—1 credit; year course

Open to: 10, 11, 12

Meets 5 times per week, with one double period

Physics IA introduces all major areas of physics including measurement, motion and mechanics, waves, electricity and magnetism, light, modern theories of the atom and concepts of quantum theory. The course stresses the concepts which will be needed to go on to more sophisticated science courses (conservation laws, wave-particle duality, quantum states vs. continuum, etc.). Most topics are covered quantitatively. A high level of mastery of mathematics at the level of the Sidwell Friends School Precalculus course is essential. Understanding trigonometry is especially important. Also included in the course are discussions on the influence of science on the larger world and the role scientists will play in shaping the world of the future (in areas such as nuclear power, computer use, communications, etc.). Laboratory periods and demonstrations are included where appropriate to give students direct experience dealing with force, acceleration, momentum, etc. Students use the computer to simulate problems that are difficult to handle by more traditional methods.

PHYSICS I Accelerated—1/2 credit; first semester only

Open to: 11, 12

Meets 5 times per week, with one double period

This first semester Physics IA course is open to juniors and seniors who wish to enroll in an off-campus, second semester immersion program sanctioned by the school.

BIOLOGY II—1 credit; year course

Open to: 11, 12

Meets 5 times per week, with one double period

Biology II reviews, considers in significantly greater depth, and interconnects the topics studied in Biology I or Biology IA. This comprehensive survey course differs significantly from the usual first-year course in biology with respect to the kind of textbook used, the range and depth of topics covered, the type of laboratory work done by students, and the time and effort required of students. It aims to provide students with the conceptual framework, factual knowledge, and advanced analytical skills necessary to deal critically with the rapidly changing science of biology, drawing upon their previous experiences in both introductory biology and introductory chemistry classes. This course is designed for students who are self-motivated, independent learners with a keen interest in biology and advanced reading comprehension.

All members of the class will be required to take the Advanced Placement Examination in Biology in May.

CHEMISTRY II—1 credit; year course

Open to: 11, 12

Meets 5 times per week, with one double period

Chemistry II reviews, considers in significantly more depth, and interconnects the topics studied in Chemistry I or Chemistry IA. These areas of study include the more theoretical concepts of chemistry such as the structure of matter, kinetic-molecular theory, chemical equilibrium, chemical kinetics, electrochemistry, acids, bases, and thermodynamics. Mathematical problem solving is a major focus of the study of all topics. In an extension of laboratory skills acquired in previous science courses, students make observations of chemical reactions, record quantitative data, calculate and interpret results, and communicate effectively in writing the results of their experimental work. This course is designed for students who are self-motivated, independent learners who have a solid foundation in mathematics. Students with a keen interest in chemistry benefit the most from this in-depth, advanced level course.

All members of the class are required to take the Advanced Placement Examination in Chemistry in May.

PHYSICS II—1 credit; year course

Open to: 11, 12

Meets 5 times per week, with one double period

Physics II follows the syllabus required for the Advanced Placement “C” Examination. This course builds on the topics introduced in Physics IA, the introductory course. The first semester covers classical mechanics including rotation. The second semester includes electricity and magnetism. The level of mathematics assumes the student has taken or is currently enrolled in Calculus BC. Laboratory work also builds on Physics IA labs but becomes more sophisticated with respect to procedure and error analysis. As the year progresses more applications that require integrals are presented in keeping with the student’s progress in Calculus. All members of the class will be required to take the Advanced Placement Examination in Physics in May.

ENVIRONMENTAL SCIENCE—1 credit; year course

Open to: 11, 12

Meets 5 times per week, with one double period

Environmental Science is a full year advanced science course covering environmental principles and problems. The topics covered in the course include ecosystems and ecological principles, population dynamics, energy, renewable (water, soil, air, sun, ecosystems) and nonrenewable (geologic, fossil fuels, nuclear) resources and their management, conservation biology, land use, agriculture and pest control, pollution (water, air, land, solid waste, hazardous waste) and prevention, environmental health, global changes (climate, ozone depletion), restoration and remediation, environmental policy, sustainable development, and environmental planning. Given the comprehensive nature of this course, which moves at a fast pace, and the heavy reading load required for class discussion and necessary background knowledge for labs, students need to be self-motivated, independent learners with strong reading comprehension skills.

Students may elect to take the Advanced Placement Exam in May, but all are required to take a comprehensive exam of the entire year during senior exam week.

MOLECULAR TECHNIQUES AND NEUROSCIENCE RESEARCH—1 credit; year course

Open to: 11, 12

Meets 5 times per week, with one double period

Molecular Neuroscience provides the opportunity for students to conduct scientific investigations while mastering concepts from molecular biology and neuroscience. This course allows students to understand and employ the latest novel research from peer-reviewed journals. Specific topics under investigation include: molecular and biophysical analysis of signal transduction pathways and development and function of neural networks. The faculty offers an integrated approach spanning the use of molecular genetics and functional genomics along with molecular, biochemical, cell biological and anatomical methods. Techniques include computational and DNA sequence analysis, along with molecular biology tools, including GFP transgenics and selective gene inactivation. A strong understanding of Biology and Chemistry is

recommended. This course promotes critical thinking, problem solving and data analysis via statistical methods. Students are actively engaged in designing and refining protocols for their research, and collaborating to complete their projects after which the students produce and present scientific posters.

MOLECULAR TECHNIQUES AND NEUROSCIENCE RESEARCH—1/2 credit; semester course

Open to: 11, 12

Meets 5 times per week, with one double period

This course may also be taken for one semester, either first or second.

ASTROPHYSICS —1 credit; year course Open to: 11 and 12

Meets 5 times per week

Astrophysics is a scientific exploration of humanity's place in the universe. Topics range from the traditional to the exotic, including the structure of the universe, the evolution of stars, the Big Bang, black holes, and the search for extraterrestrial life. Emphasis is on the tools (mathematical, scientific, and technological) by which we have developed the understanding that we now have of our universe and continue to make strides towards a deeper understanding. Those without a background in physics learn the fundamentals, and those with previous physics learning have various opportunities (particularly in research projects) to utilize and expand their knowledge. Students should be comfortable with the concepts of Algebra I and Geometry.

ASTROPHYSICS —1/2 credit; first semester only

Open to: 11 and 12

Meets 5 times per week

This first semester Astronomy course is open to juniors who are enrolled in second semester immersion programs away from campus and seniors who wish to reduce their load after first semester or who wish to enroll in a different second semester course.

COMPUTER SCIENCE

COMPUTER SCIENCE AND ENGINEERING

The CS and Engineering Program offers 3 types of courses: Traditional Track, Projects, and Topics. The traditional track covers general Computer Science and programming from Introductory through Advanced levels. Project courses are centered around long-term projects where the focus is on independent learning and seeing a semester-long project through to completion. Topic courses are more traditional in that there is more instruction, along with a series of shorter exercises and projects throughout the semester. All courses are semester long.

TRADITIONAL TRACK

INTRODUCTION TO COMPUTER SCIENCE—1/2 credit; semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

Introduction to Computer Science focuses on fundamental concepts in computer science and programming, with an emphasis on problem solving. By working through projects in robotics and visualization, students develop computational thinking, logical reasoning, and communication skills. Specific topics include control flow, functions, variables, lists/arrays, image processing, history of computing, and computer ethics. Students are encouraged to express their creativity through graphical assignments. They also begin to investigate the ideas of artificial intelligence and computer vision. Good program design, testing, and algorithmic thinking are emphasized. Programs are implemented in Python and Java.

INTERMEDIATE COMPUTER SCIENCE: OBJECT ORIENTED PROGRAMMING—1/2 credit; second semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: Introduction to Computer Science or CS & E Topics: Robotics with permission of instructor

Intermediate Computer Science: Object Oriented Programming is a continuation of Introduction to Computer Science. The Object Oriented Programming style is introduced and challenging problems are explored. Topics and concepts introduced in Introduction to Computer Science are reinforced and expanded upon. Students tackle larger software design problems, using data abstraction, inheritance, encapsulation, and polymorphism. User interfaces, I/O, and event-driven programming are also introduced. Students use these techniques to develop games, simulations, and data visualization programs. Programs are implemented in Java.

ADVANCED COMPUTER SCIENCE—1/2 credit; first semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Intermediate Computer Science

Advanced Computer Science covers both classic data structures and also the analysis of algorithms. Data structures include arrays, queues, stacks, binary trees, graphs, dictionaries, and hash tables. Students analyze standard algorithms for sorting, searching, recursion, and backtracking. They also conduct complexity analysis using big-O notation. Standard design techniques (e.g. the greedy approach, divide and conquer, dynamic programming, linear programming) are introduced through a variety of problems in algebra, graph theory, and optimization. Object-oriented design is emphasized throughout.

CS & ENGINEERING PROJECTS

CS & E PROJECTS: ARTIFICIAL INTELLIGENCE AND GAME DEVELOPMENT—1/2 credit; second semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Advanced Computer Science or Accelerated Computer Science

In Artificial Intelligence and Game Development, students create game of their own design; using XNA and C#, students follow the life cycle of 2D and 3D game development from design through deployment on computers and the Xbox system. Throughout the semester, students investigate various Artificial Intelligence techniques within the context of game development. Methods such as backtracking, neural networks, genetic algorithms, and game theory are used to create and evaluate autonomous computer players. Throughout the course students learn the importance of version control, testing, documentation, good user-interface design, and the implementation of physics in 3D virtual environments.

CS & E PROJECTS: COMPUTER GRAPHICS AND USER INTERFACES—1/2 credit; first semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: None

Computer Graphics and User Interfaces explores 2D graphic design, 3D modeling, Computer Aided Design (CAD), basic animation, and graphical user interface design. Using a wide range of software tools including *Photoshop*, *iMovie*, *Cinema 4D*, and *SketchUp*, students create a portfolio of original work. Throughout the semester, students complete projects, illustrate how to use these tools to construct a mental image and assemble it into a digital reality. Students study the principles of user-interface design and animation, including timing, use of a storyboard, modeling, motion, rendering, and editing.

CS & E PROJECTS: DYNAMIC WEB DESIGN—1/2 credit; second semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Introduction to Computer Science or Programming & Probability (I or II)

In Dynamic Web Design, students acquire a foundation for building dynamic websites using a wide range of web development tools. Using HTML, CSS, JavaScript, PHP, and MySQL students learn how to develop a website which can interact with data stored in a database. Over the course of the semester, students design, test, and deploy a dynamic website for a “client”. The course covers an overview of networking, DNS, web server setup, website security and the client-server model.

CS & ENGINEERING TOPICS**CS & E TOPICS: AN ENGINEERING PERSPECTIVE: DESIGN, ETHICS, AND PRINCIPLES—1/2 credit; semester course**

Open to: 11, 12

Meets 4 times a week

Prerequisites: None

This course is designed as an introduction for students with an interest in Engineering. Students are introduced to the field by considering the impact of Engineering on daily life and current events. Through reverse engineering studies and some common techniques, the course introduces effective design methods. Students work on several engineering projects to experience and participate in the design process. The class also works on problems that require an Engineering approach and a collaborative process. Students explore ethics as they relate to Engineering through literature, film, and current events, where responsible practices (as they relate to issues including environmental impacts and needs, historical and recent engineering disasters, and artificial intelligence) are discussed.

CS & E TOPICS: ENGINEERING: ENERGY, ETHICS, AND ENVIRONMENT—1/2 credit; semester course

Open to: 11, 12

Meets 4 times a week

Prerequisites: None

This course is designed as an introduction for students with an interest in Engineering and its relationship to the environment. Students are introduced to the field of Environmental Engineering by considering the impact of technology and our daily life on the environment, both long- and short-term. By studying energy sources and the production, use, and disposal of many commonly used items (i.e., life cycle analyses), students will discover the many factors involved in determining the environmental impact of our daily lives and the decisions engineers must make to design and build responsibly. Students work on several engineering projects to

study energy using many different energy sources. The class also works on problems that require an Engineering approach and a collaborative process.

CS & E TOPICS: PROGRAMMING & PROBABILITY I—1/2 credit; first semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Enrollment in or completion of Math III; or permission of instructor in consultation with the Academic Dean

Programming & Probability I introduces programming and explores a wide range of problems using Monte Carlo methods. A Monte Carlo method involves the use of a computer simulation to draw conclusions about the nature of a random experiment. Specific topics covered include the following: Kolmogorov's Axioms and the definition of a probability measure; sample spaces, events, and partitions; the Inclusion/Exclusion principle; independence; conditional probability; and probability mass functions. Projects in *Mathematica* introduce programming topics including data types, control structures, functions, arrays, and polymorphism.

CS & E TOPICS: PROGRAMMING & PROBABILITY II—1/2 credit; second semester course

Open to: 10, 11, 12

Meets 4 times a week

Prerequisites: Programming & Probability I. Enrollment in or completion of Math III; or permission of instructor in consultation with the Academic Dean

Programming & Probability II introduces programming and explores a wide range of problems using Monte Carlo methods. A Monte Carlo method involves the use of a computer simulation to draw conclusions about the nature of a random experiment. Specific topics covered include the following: probability density functions; cumulative distribution functions; discrete and continuous distributions; expected value; variance; standard deviation; Law of Large Numbers; the Central Limit Theorem; and hypothesis testing. Projects in *Mathematica* introduce programming topics including data types, control structures, functions, arrays, and polymorphism.

CS & E TOPICS: ROBOTICS—1/2 credit; first or second semester course

Open to: 9, 10, 11, 12

Meets 4 times a week

Prerequisites: None

Robotics introduces programming of microcontrollers along with topics in Electrical and Mechanical Engineering. Students learn to use digital and analog signals to read and control sensors, speakers, motors and servos through an Arduino. Mechanical Engineering concepts including Transmissions, Pulleys, Winches, Belts & Cables, Wheels, Steering & Suspensions are explored. Students will apply these concepts to design and build various projects during the semester. Students learn Engineering Design Processes and practice iterative design; prototyping, testing, analyzing and refining their projects.

CS & E TOPICS: COMPUTER SCIENCE ADVANCED TOPICS—1/2 credit; first and/or second semester course

Open to: 10, 11, 12

Meets 1 time a week with additional online component

Prerequisites: Advanced Computer Science or Accelerated Computer Science

May be repeated for credit

Students who wish to sharpen their research skills by investigating a specific advanced topic in Computer Science are encouraged to take this course. Students meet once a week to present formal research papers to the group and lead a discussion. In addition they choose an area of interest and perform a semester-long research project culminating in two parts: a research paper and an implemented project relevant to the area of research. During the three unscheduled periods each week, students are required to spend time reviewing online course content, including podcasts and research resources.

Programming & Probability II introduces programming and explores a wide range of problems using Monte Carlo methods. A Monte Carlo method involves the use of a computer simulation to draw conclusions about the nature of a random experiment. Specific topics covered include the following: probability density functions; cumulative distribution functions; discrete and continuous distributions; expected value; variance; standard deviation; Law of Large Numbers; the Central Limit Theorem; and hypothesis testing. Projects in *Mathematica* introduce programming topics including data types, control structures, functions, arrays, and polymorphism.

COMPUTER SCIENCE ADVANCED TOPICS—1/2 credit; first and/or second semester course

Open to: 10, 11, 12

Meets 1 time a week with additional online component

Prerequisites: Advanced Computer Science or Accelerated Computer Science

May be repeated for credit

Students who wish to sharpen their research skills by investigating a specific advanced topic in Computer Science are encouraged to take this course. Students meet once a week to present formal research papers to the group and lead a discussion. In addition they choose an area of interest and perform a semester-long research project culminating in two parts: a research paper and an implemented project relevant to the area of research. During the three unscheduled periods each week, students are required to spend time reviewing online course content, including podcasts and research resources.