

Sidwell Friends
Upper School Curriculum Guide
2022/23



Table of Contents

REQUIREMENTS FOR GRADUATION	2
COMMUNITY SERVICE	4
ADDING/DROPPING COURSES	6
PASS/FAIL OPTION	6
EXAMINATIONS	7
GRADES AND REPORT CARDS	7
INTERIMS	7
TRANSCRIPT REQUESTS	8
LEARNING SUPPORT	8
ACADEMIC PROBATION	8
ARTS	10
COMPUTER SCIENCE AND ENGINEERING	20
ENGLISH	25
HISTORY	30
MATHEMATICS	43
MODERN AND CLASSICAL LANGUAGES	49
SCHOOL YEAR ABROAD	59
SCIENCE	60

REQUIREMENTS FOR GRADUATION

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

In order to earn a Sidwell Friends School diploma, students must successfully complete a minimum of 20 credits as well as physical education, work program, community service, and senior projects.

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 assistant principal for academic affairs. 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.

The School requires each student 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; the School strongly encourages students to pursue one or more areas in greater depth beyond the requirements. The minimum requirements for each discipline are:

ARTS: two years of arts. Students have until the end of 10th grade to complete the first year of the requirement; students must complete the second year of arts by the end of 12th grade.

ENGLISH: four years of English

HISTORY: three years of history. All students are required to take **World History** in 9th grade, **Regional Studies** in 10th grade, and **History of the United States** or **American Studies** in 11th grade. The School only makes exceptions for students who are attending School Year Abroad and approved semester programs; those students may take **History of the United States** in 12th grade.

MATHEMATICS: three years of mathematics. All students must take math during 9th, 10th, and 11th grade. 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 to be completed in 9th and 10th grade.

PHYSICAL EDUCATION: completion of the PE requirement. The program operates on a trimester system based on the fall, winter, and spring athletic seasons. Students must complete 10 out of 12 seasons of PE and/or athletics. Grading will be based on attendance, attitude, and effort. Students must participate in a minimum of 80 percent 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: ETHICAL LEADERSHIP

This course, required of all 9th graders, uses Quaker methods and the study of Quaker themes throughout the curriculum, and it emphasizes what it means to be an ethical leader in the 21st century. The course covers topics including: social justice, community engagement, and responsible decision making. Students receive a pass/fail grade for this class.

COMMUNITY SERVICE: requirement as outlined in the next section.

COMMUNITY ENGAGEMENT

Sidwell Friends graduates students who are actively engaged in the world and who think critically about what is going on around them; who ask about the root causes of injustices; who have the tools to act on their ideas; and who are empathetic, collaborative, and reflective. These ideals can be taught by engaging responsibly with communities. The Upper School service program and graduation requirement puts Sidwell Friends' ideals into action by getting students involved in local and global communities around important social justice issues.

9th Grade Studies: Ethical Leadership

The 9th grade year serves as an introduction to community partner organizations and social issues relevant to the District, including education equity, food security, poverty, and elder care.

Graduation Requirement (10th and 11th)

As a graduation requirement, students must make a long-term commitment of at least 60 hours to one organization, though some students work beyond this. Between the end of 9th grade and the start of 12th grade, students develop individual community projects that may tie into the academic topics covered in sophomore and junior classes. Students can consult a list of organizations or issue areas to explore. Projects must involve direct and active engagement with people in the community so that Sidwell Friends students get to know and build relationships with those in the wider community who they otherwise might not meet.

To start thinking about the individual community commitment, students first identify a social issue area they would like to become involved with. Issue areas can include, but are not limited to: food security, racial justice, gender equity, literacy, education equity, income inequality, environmental justice/climate change, criminal justice reform, immigration, senior citizens, and LGBTQ rights.

Acceptable projects may fit into one of the following categories:

- **Community Service:** Students volunteer with a nonprofit community-based organization to provide service for clients.
- **Service Learning:** Students engage in community service activities with intentional academic and learning goals.
- **Activism:** students partner with community-based organizations to address the root cause of social injustice and work to dismantle systems of privilege and power.

Projects that do not fit include:

- Charity where students give money, food, or other kinds of material help to people in need.
- Animal welfare: Projects must include work with human beings.
- Sunday School teaching at one's own church, temple, or place of worship.
- Camp counselor for a conventional camp: Camp must include underserved children.
- Clerical or office work.
- Museum work.
- Environmental work that does not address community needs: Environmental justice work is acceptable.
- Work with orphanages or organizations that maintain the institutionalization of vulnerable children.
- Participating in a service trip sponsored by a for-profit travel organization.
- Medical or scientific research without immediate, direct application to individual or community needs.
- Working for a political candidate or officeholder.
- Working for groups whose programs are inconsistent with Friends' testimonies.

Students must complete this community commitment by the first day of senior year.

ADDING/DROPPING COURSES

- Students must make all adds, drops, or changes in courses through the assistant principal for academic affairs using the Drop/Add form, which can be found in the student portal.
- 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 drop a yearlong 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 assistant principal for academic affairs and the Upper School principal may allow a student to drop a course 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 department and subsequently the assistant principal for academic affairs determine that a course placement needs adjustment, the assistant principal for academic affairs can change a student's course assignment. 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 (withdrawn passing) or a WF (withdrawn failing) as appropriate.
- The School will report all changes in a course of study for 12th grade students to the colleges that student has applied to or to the colleges that student has been accepted to.
- The School reserves the right to cancel a course when the number of students registered for that course is fewer than 10.

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 courses) to exercise this option.
- Students may only take one normally graded course on a pass/fail basis per semester.
- Students may not take courses required for graduation on a pass/fail 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 School will post the schedule for examinations (during which time there are no classes) in advance. If a student has a conflict in scheduling exams, he or she should schedule a makeup exam with the assistant principal for academic affairs. Except under the most unusual circumstances, students must meet the published examination schedule. Absence for vacation travel is not an adequate reason to adjust the exam schedule. An exception can be made only with the permission of the principal or assistant principal for academic affairs. The makeup day is often used for rescheduling exams due to inclement weather. **Students must be available on this regular School day to make up exams canceled due to inclement weather.**

GRADES AND REPORT CARDS

The School posts report cards on QuakerZone 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. Teachers provide written comments at the end of the first semester, but comments are optional at the end of the academic 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

The School posts interim reports on QuakerZone 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 requests must be made one week in advance and submitted in writing to the registrar. Requests by email should be sent to *registrar@sidwell.edu*. At Sidwell Friends School, the 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.

LEARNING SUPPORT

The learning support coordinator in the Upper School is available to assist students with study skills; to work with teachers in planning appropriate academic support; and to coordinate, review, and assess diagnostic testing. If a student requires extensive assistance in English or history, the learning support coordinator, assistant principal for academic affairs, or teacher may recommend that the student work with the writing support teacher. At times, the School needs additional information about a student experiencing learning difficulties. After consultation with the Upper School psychologist, teachers, and parents, the learning support coordinator may refer the student for diagnostic testing. Sidwell Friends works with a consulting firm to conduct a limited number of evaluations at the School's expense. Parents may commission testing privately. Parents, teachers, and students discuss the results in follow-up conferences. The Upper School psychologist, 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 the *Community Handbook*).

ACADEMIC PROBATION

The School will designate academic probation for any student with an F in one or more subjects or with more than two grades below C-. The student will be on academic probation for the next quarter, and the School will notify the parents.

A student on academic probation must:

- Attend study hall, math help, etc. during free periods and sign out only during lunch.
- Meet all commitments on time, including arrival at School and attendance in classes.
- Submit all assignments and complete all academic requirements.
- Meet once a week with the student 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 re-enrollment status of the student. A student who has been removed from academic probation will, in consultation with the assistant principal for academic affairs, 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 on academic support or probation at the discretion of the principal and assistant principal for academic affairs.

COURSE OFFERINGS BY DEPARTMENT

ARTS

The Upper School Arts program, in general, emphasizes 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.

Theatre

In addition to the credited course offerings listed below, the Upper School Theatre Program includes at least three co-curricular productions during the school year; a straight play, a musical, and a set of one-act plays or other alternative format. Although no course credit is given for productions, a student who takes part in any of these productions is likely to do as much meaningful work and study as they do in the classroom. Co-curricular productions are cast from auditions, which are open to the student body.

IMPROV—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

May be repeated 1 additional semester only for credit.

This theatre course is the recommended entry point for students with no prior experience in acting. Students learn how to engage their sense of play and the discipline of acting through improvisation and theatre exploration games. The improvisations and games help the student discover and develop concentration and imagination, tap and engage the instinctive, and direct instinctive behavior toward the creative. All classwork, rehearsals, and performances occur in class. At the end of the semester, there will be a performance in front of an audience. Students receive a letter grade at the end of the semester.

ACTING I—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

The student actor develops performance discipline through the basic techniques of acting (playing): self-discipline, tension release, concentration, imagination development, and belief in given circumstances. These techniques are discussed and experienced through theatre games and exploration exercises, assigned readings, script analysis, and in-class demonstrations and

performances. As a result, the student actor begins to appreciate the complexities of the craft and to discover and gain confidence. At the end of the semester, there will be a performance in front of an audience. Students receive a letter grade at the end of the semester.

ACTING II—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: Acting I, or by permission of instructor

May be repeated for credit.

This course allows students to build on performance skills acquired throughout their Sidwell career and immerse themselves in a rigorous, thoughtful ensemble process. The class will analyze and rehearse a significant playwright's work or a body of work with a unifying theme (such as cultural experience, time period, or style). It may culminate in a series of fully explored scenes or a full-length production. At the end of the semester, students will perform work in front of an invited audience. Students receive a letter grade at the end of the semester.

PUBLIC SPEAKING—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

This course introduces students to the interactive power of literature and performance. Using the written and spoken word including short stories, plays, spoken word poetry, podcasts, and TED talks as inspiration, students will jump into stories that connect with each of them in unique and current ways. They will develop skills to become exciting and effective performers and story-tellers by exploring the use of voice, physicality, and interpretation. The emphasis is on finding fun and meaningful ways to make stories come to life. By the end of this course, students should have: (1) Improved their voice, diction, and articulation, (2) Become aware of personal speech habits, (3) Cultivated poise and self-confidence. Students receive a letter grade at the end of the semester.

INTRODUCTION TO TECHNICAL THEATER—1 credit; year course

Open to: 9, 10, 11, 12

Prerequisites: none

This is a mostly hands-on, practical approach to the production process for dramatic stage productions and other theatrical events. The course places emphasis on the practical work needed to produce the season of plays and other theatrical events in the two theaters in the Kogod Arts

Center. Topics include the interpretation of design and technical drawings, set construction, basic stage lighting, rigging, theater organization, and the production process. The course also places major emphasis on basic carpentry and the use of hand and power tools for set construction. Class time is divided between formal study and practical work on stage productions. The teacher may assign a demonstration project in lighting, set construction, or painting 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 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—.5 credit; semester course

Open to: 10, 11, 12

Prerequisite: permission of the instructor

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

This course continues the study of various topics of technical theater, with an emphasis on design and production of theatrical events. The production of Sidwell Friends’ theater and performance program is central to this course. Under supervision of the instructor, each student completes individual and small-group projects in stage management, lighting, set design and construction, and projects to enhance the technical facilities of the theater. Class time is primarily devoted to preparations for the next production on the calendar. Each student must 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.

Vocal Music

CHORUS—1 credit; year course

Open to: 9, 10, 11, 12

Prerequisites: none

May be repeated for credit.

The Sidwell Friends School Chorus has a rich tradition in the School’s history, one that 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, Founder’s 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 pass/fail grade at the end of each semester.

CHAMBER CHORUS—1 credit; year course

Open to: 10, 11, 12

Prerequisites: placement by audition

May be repeated for credit.

The Sidwell Friends School Chamber Chorus is a select group of approximately 30 students 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 and throughout the Washington area. Members of the Chamber Chorus may also sing in additional small ensembles. Students receive a letter grade at the end of each semester.

Instrumental Music

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 students learn 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 that enables 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 Sidwell Friends 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

Prerequisites: basic ability on instrument with preliminary assessment by instructor

May be repeated for credit.

The Sidwell Friends Chamber Orchestra studies, rehearses, and ultimately performs music in a variety of styles. Repertoire ranges from the baroque through the contemporary. The class often arranges repertoire 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. Teachers notify students of any additional performances at the beginning of each semester. Students receive a pass/fail grade at the end of each semester.

JAZZ ENSEMBLE I—1 credit; year course

Open to: 9, 10, 11, 12

Prerequisites: basic ability on instrument with preliminary assessment by instructor

May be repeated for credit.

The Jazz Ensemble I course is an introduction to and the 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 study, rehearse, and ultimately perform a variety of music from the wide spectrum of jazz. 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. The teacher notifies students of any additional performances at the beginning of each semester. Students receive a pass/fail grade at the end of the semester.

JAZZ ENSEMBLE II—1 credit; year course

Open to: 10, 11, 12

Prerequisites: Jazz Ensemble I and permission of instructor

May be repeated for credit.

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 junior- and senior-year students will become self-sufficient enough to generate music opportunities for themselves at the collegiate level. New content includes: standard jazz repertoire, Afro-Cuban and fusion styles, continuing improvisation/jazz theory, and minor key and advanced chord progressions/harmony. Required performances include the annual Winter Concert, Spring Concert, Homecoming, ArtRageous, HS Invitational Jazz Fest @ GDS, and Founder's Day. Some select students participate in the Advanced Jazz Combo. The combo performs at additional School functions throughout the year (Admissions Open House, Sidwell Friends School Auction, etc.). The teacher notifies students of

all performances at the beginning of each semester. Students receive a pass/fail at the end of the semester.

Visual Arts

CERAMICS I—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

This course introduces students to the fundamental techniques and material issues in the ceramic medium. Technical proficiency, problem-solving, and creativity are the most important components in this course. The class emphasizes learning the proper techniques and processes necessary for forming functional and sculptural objects in clay, and critical problem-solving in joining these techniques with original ideas. Students learn different processes of manipulating clay to create both functional and sculptural objects, including coiling/pinching, wheel-throwing, and slab construction. This course covers utilitarian ceramic vessels, sculptural objects, and new approaches to creating with clay.

CERAMICS II—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: Ceramics I

Ceramics II is a continuation of the study of and work done in Ceramics I (see above).

CERAMICS III—.5 credit; semester course

Open to: 10, 11, 12

Prerequisites: Ceramics II

Ceramics III is an extension of both the technical and conceptual investigation that the student began in Ceramics I and II. Students learn through slide lectures, demonstrations, and a lot of practice. This course continues to focus on both ceramic utilitarian vessels and sculptural objects. Though the course heavily emphasizes technical proficiency and learned hand skills, it also places importance on the exploration of the boundaries of the utilitarian vessel, ceramic sculpture, and of how design and concept can influence and challenge form. Successful projects in this course are those that combine technique, craftsmanship, and invention to realize a student's original idea or expression.

CERAMICS IV—.5 credit; semester course

Open to: 10, 11, 12

Prerequisites: Ceramics III

Ceramics IV is a continuation of the study of and work done in Ceramics III (see above).

ADVANCED CERAMICS—.5 credit; semester course

Open to: 11, 12

Prerequisites: Ceramics IV

May be repeated for credit.

This course is for the student whose interest and experience in ceramics is advanced. The Advanced Ceramics student proposes and outlines a focused course of study to follow and realize over the semester. The student must choose to focus on one method of creating work, the materials and firing temperatures to be used, and the themes involved in their projects. A goal of Advanced Ceramics is for the student to begin to build an original body of ceramic work that is at an advanced level. Students learn how to properly photograph and document their work, as well as how to write a well-developed artist statement. Advanced Ceramics requires the student to be focused, self-directed, and ambitious in the pursuit of realizing their original ideas in the ceramic medium.

DRAWING—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

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. Students explore various media, including graphite, charcoal, pastel, colored pencils, and ink. Sketchbook homework, critiques, and slide lectures supplement classroom assignments. Students receive a letter grade at the end of each semester.

ADVANCED DRAWING—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: Drawing

May be repeated for credit.

This course is an advanced-drawing concepts course that focuses on expanding an understanding of mark-making. Through the introduction of new materials and techniques, students grow their knowledge of drawing methods and artistic practice. Projects include self-portraits, color-pencil illustrations, digital drawing, and mixed-media compositions. This course encourages 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—.5 credit; semester course

Open to: 9, 10, 11, 12

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. Sketchbook homework, critiques, and slide lectures supplement classroom assignments. Students receive a letter grade at the end of each semester.

DIGITAL ART I—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: none

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 use 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.

DIGITAL ART II—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: Digital Art I

May be repeated for credit.

This course continues to use technology as a means to create visual art. Students 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 their 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 + IMAGING I: DARKROOM AND DIGITAL*—.5 credit; semester course

Open to: 9, 10, 11, 12

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 35mm 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 35mm 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.

Note: For the past two years the dark room has not been available. Students in Photography I have worked exclusively with digital photography. A decision about the 2022/23 school year is forthcoming.

PHOTOGRAPHY + IMAGING II: CONCEPTS IN VISUAL THINKING—.5 credit; semester course

Open to: 9, 10, 11, 12

Prerequisites: Photography + Imaging I

This course is intermediate level. Students have completed one semester of Photography + Imaging I and have a secure foundation in traditional wet processes and digital techniques. The course introduces a broad range of new skills, such as the Camera RAW workflow, scanning negatives, medium format film, more advanced digital editing and darkroom skills, and larger format printing. An increased facility for the language of photography is a critical component of this course, and students engage in regular peer-review sessions, class discussions, and “Looking Days” to advance critical-thinking skills.

PHOTOGRAPHY + IMAGING III: ALTERNATIVE PROCESSES—.5 credit; semester course

Open to: 10, 11, 12

Prerequisites: Photography + Imaging II

This course is advanced-intermediate level. Students have a comprehensive foundation of photographic processes (wet darkroom and digital) as well as a command of the technical and aesthetic language of 2D image making. The course introduces new skills and broader conceptual themes, including advanced metering, studio lighting, scanning, and more advanced digital editing. The class encourages and emphasizes interdisciplinary work, unconventional processes, and collaborative projects. Students working at an advanced-intermediate level should be self-motivated and able to maintain a consistent studio practice. In addition, critiques, discussions, and field trips are important aspects of this course.

ADVANCED PHOTOGRAPHY + IMAGING—.5 credit; semester course

Open to: 11, 12

Prerequisites: Photography + Imaging III

May be repeated for credit.

This course is open to juniors and seniors interested in expanding their artistic voice and deepening their studio practice. This course refines established technical and aesthetic skills, and it introduces new practices such as designing and maintaining a website, writing an artist statement, curating small exhibitions for the community, self-publishing, and creating an advanced-level portfolio among others. The class also emphasizes mixed media and other interdisciplinary work (video, collage, 3D). Advanced Photography + Imaging has a combination of self-designed, collaborative, and instructor-led projects. Instructors highly encourage students to submit their work to colleges, internships, jobs, workshops, competitions, and summer programs. Students enrolled in this course are expected to work outside of class.

ADVANCED STUDIO ART—1 credit; year course

Open to: 11, 12

Prerequisites: one year of any visual art class, or permission of instructor in consultation with Arts Department chair

May be repeated for credit.

This course is 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.

COMPUTER SCIENCE AND ENGINEERING

The CS and Engineering Program offers three types of courses: (1) sequence, (2) projects, and (3) topics. The sequence covers general computer science and programming from introductory through advanced levels. Project courses center 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.

CS & Engineering Sequence

Sequence courses cover general computer science and programming from introductory through advanced levels.

CS1: FOUNDATIONS—.5 credit; first-semester course

Open to: 9, 10, 11, 12

Prerequisites: none

CS1: Foundations 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. The course emphasizes good program design, testing, and algorithmic thinking. Programs are implemented in Python and Java.

CS2: OBJECT-ORIENTED DESIGN—.5 credit; second-semester course

Open to: 9, 10, 11, 12

Prerequisites: CS1

CS2: Object-Oriented Design is a continuation of CS1. The course introduces the object-oriented programming style and explores challenging problems. The instructor reinforces and expands on topics and concepts introduced in CS1. Students tackle larger software design problems, using data abstraction, inheritance, encapsulation, and polymorphism. The course also introduces interfaces, I/O, and event-driven programming. Students use these techniques to develop games, simulations, and data-visualization programs. Programs are implemented in Java.

CS3: ALGORITHMS & DATA STRUCTURES—.5 credit; first-semester course

Open to: 10, 11, 12

Prerequisites: CS2

CS3 covers both classic data structures and 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. The course introduces standard design techniques (e.g., the greedy approach, divide and conquer, dynamic programming, linear programming) through a variety of problems in algebra, graph theory, and optimization. The instructor emphasizes object-oriented design throughout.

CS & Engineering Projects

CS & E PROJECTS: ARTIFICIAL INTELLIGENCE AND GAME DEVELOPMENT—.5 credit; second-semester course

Open to: 10, 11, 12

Prerequisites: CS3

In Artificial Intelligence and Game Development, students create games 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—.5 credit; first-semester course

Open to: 10, 11, 12

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. In addition to learning the principles of user-interface design and animation, students study timing, use of a storyboard, modeling, motion, rendering, and editing.

CS & E PROJECTS: DYNAMIC WEB DESIGN—.5 credit; second-semester course

Open to: 10, 11, 12

Prerequisites: CS1 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 that 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: ENGINEERING—.5 credit; first- or second-semester course

Open to: 11, 12

Prerequisites: none

This course is 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 such as environmental impacts and needs, historical and recent engineering disasters, and artificial intelligence) are discussed.

CS & E TOPICS: Mobile App Design—.5 credit; first- or second-semester course

Open to: 9, 10, 11, 12

Prerequisites: none

Mobile App Design is a project-based introduction to mobile application development that covers development phases, terminologies, application design, and blocks-based coding within a visual-programming environment. Students experience the design process step by step to create mock-ups and wireframes for proposed apps. They then use MIT’s App Inventor to build these apps for Android mobile devices. Students build increasingly complex apps using device features such as location sensor, orientation sensor, accelerometer, proximity sensor, text to speech and speech to text, camera, sound recorder, texting, clock, video player, and more. Students also learn how these apps can access web databases to store and retrieve information from the cloud. This course is designed for students with no CS experience.

CS & E TOPICS: PROGRAMMING & PROBABILITY I—.5 credit; first-semester course

Open to: 10, 11, 12

Prerequisites: enrollment in or completion of Math III, or permission of instructor in consultation with the assistant principal for academic affairs

Programming & Probability I introduces students to 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 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—.5 credit; second-semester course

Open to: 10, 11, 12

Prerequisites: Programming & Probability I

Programming & Probability II introduces students to 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 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—.5 credit; first- or second-semester course

Open to: 9, 10, 11, 12

Prerequisites: none

Robotics introduces students to programming 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. Students explore mechanical-engineering concepts, including transmissions, pulleys, winches, belts and cables, wheels, steering, and suspensions. Students then 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—.5 credit; first- and/or second-semester course

Open to: 10, 11, 12

Prerequisites: CS3

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.

ENGLISH

Throughout four years of English, the department's goal is to share the beauty and power of language and literature. Courses challenge students to read critically, think logically, and write persuasively. Through class discussions, analytical writing assignments, informal journal writing, and creative projects, instructors encourage students to take risks and refine their critical voices, both in writing and in class discussion.

ENGLISH 9—1 credit; year course

Open to: 9

Prerequisites: none

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

BRITISH & ANGLOPHONE LITERATURE—1 credit; year course

Open to: 10

Prerequisites: English 9 or equivalent

Beginning with the epic poem *Beowulf*, students study British and Anglophone literature through the contemporary period. Students continue to write analytical essays and develop their interpretive powers.

LITERATURE OF THE UNITED STATES—1 credit; year course

Open to: 11

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. The course places particular emphasis on analytical essays, with the opportunity for a few inventive and reflective personal compositions.

12th Grade English Courses

In 12th grade, English courses are semester-long offerings that explore a range of national literatures, historical periods, literary genres, and themes. Seniors must take one course each semester.

CLASSICAL AND HEROIC LITERATURE—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the United States or equivalent

In this course, students study myths and stories from ancient and medieval cultures—ranging from tales of the Trojan War to Greek tragedies to myths of the Vikings. The class considers how these literary works depict the human condition and particularly the separation between the average person and a hero or a god. Despite the strangeness and distance of the cultures represented in these texts, students may find some universal truths in them. Readings include selections from Greek and Norse mythology, Homer, Sophocles, Euripides, Virgil, and Ovid.

CONTEMPORARY LITERATURE—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the 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. Recent authors have included Tayari Jones, Margaret Atwood, Haruki Murakami, Junot Diaz, John Patrick Shanley, and Jhumpa Lahiri.

FAMILY STORIES—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the United States or equivalent

This course explores various stories that focus on family life. Students 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, including poetry and film, in addition to fictional prose. Recent texts have included Colson Whitehead's *Sag Harbor*, Gabriel García Márquez's *One Hundred Years of Solitude*, Vivek Shanbhag's *Ghachar Ghochar*, Jamaica Kincaid's *Annie John*, and Mira Nair's *Monsoon Wedding*.

FANTASY LITERATURE—.5 credit; semester course

Open to: 12

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, students explore fantasy stories as intricately wrought literary works of the human imagination, worth reading at any age. The course also delves into the attraction to fantasy as readers: Why are we drawn to myths and fairy tales, as opposed to other kinds of stories? C.S. Lewis writes, “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, and Ursula K. LeGuin.

LGBTQ+ LITERATURE—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the United States or equivalent

In this course, students will read works by and/or about LGBTQ+ individuals from the turn of the 20th century to the present. Central to the course are questions of sexuality, gender, sex, desire, and identity; we will consider how these topics intersect with a broad range of other themes specific to each text. Course material will also be contextualized with student research presentations on major historical figures/events in LGBTQ+ history, allowing us to consider what has changed and remained constant about LGBTQ+ experiences over the last century. Potential authors include Oscar Wilde, E.M. Forster, Radclyffe Hall, Patricia Highsmith, Tennessee Williams, Alice Walker, Edmund White, Monique Truong, Tony Kushner, Alison Bechdel, Craig Womack, Akwaeke Emezi, Shyam Selvadurai, and Ocean Vuong. Novels will be supplemented with films such as *Paris is Burning*, *Moonlight*, *Carol*, *Tangerine*, *Happy Together*, *Pariah*, *My Own Private Idaho*, and others.

LIFE, LITERATURE, AND THE PURSUIT OF HAPPINESS—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the 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 on 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?

NORTH AMERICAN INDIGENOUS LITERATURE—.5 credit; semester course

This course begins with the roots of North American Indigenous storytelling in oral traditions and leads to contemporary literature. Our selected texts explore the ways in which Indigenous cultural identity is impacted by modernity, and in what ways our selected authors are interrogating contemporary Indigenous experience through the lens of colonialism and other historical forces. There will also be opportunities to interrogate the many facets of intersectionality in the experiences of the characters, as we consider gender, sexuality, age, geography, and the ways in which these identifiers complicate and inform the Indigenous experience within the texts. These complex works offer students both a chance to engage with challenging authorial choices (discontinuous narrative, surrealism, etc.) and the opportunity to consider the particular literary elements of these works, like the use of humor in storytelling. The selected texts also offer perspective on how these authors may celebrate and aim to preserve ritual and tradition through their poetry, short stories, memoir, and novels, and create space for students to attend to this perspective critically and analytically. Potential authors may include Sherman Alexie, Leslie Marmon Silko, Ernestine Hayes, Tommy Orange, Louise Erdrich, and Simon Ortiz.

OUTSIDERS—.5 credit; semester course

Open to: 12

Prerequisites: Literature of United the States or equivalent

Students in this course encounter works concerned with the role, perspective, and voice of “the outsider.” Outsiders—those on the margins—have been some of the most memorable characters in literature. As observers and witnesses, outsiders often provide insightful observations about the communities from which they are excluded. Placing importance on this perspective, students consider questions regarding the nature, worth, and qualifications of being an outsider. Authors read in this course may include Kazuo Ishiguro, Colson Whitehead, Edith Wharton, Yaa Gyasi, Kevin Wilson, and Celeste Ng among others.

POSTCOLONIAL LITERATURE—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the United States or equivalent

In this senior English seminar, students read 20th and 21st century works of fiction that represent a colonial encounter. These works may raise questions about power dynamics between colonist and colonized, hybridity in culture and language, or the legacy of colonialism and the progress of decolonization, among others. Recent authors have included Tayeb Salih, Jamaica Kincaid, NoViolet Bulawayo, Simone Schwarz-Bart and J.M. Coetzee.

SHAKESPEARE—.5 credit; semester course

Open to: 12

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. The course involves analytical writing, tests, journal work, and, sometimes, performance work.

WORLD NOVELLA—.5 credit; semester course

Open to: 12

Prerequisites: Literature of the 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 to 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 have included Fuentes (Mexico), García Márquez (Colombia), Hedayat (Iran), Kafka (Prague), Mahfouz (Egypt), Mann (Germany), Okuizumi (Japan), Rostand (France), Rushdie (India), Tolstoy (Russia), and Head (Botswana).

HISTORY

The Upper School history curriculum includes an examination of world history, regional studies, and U.S. History. Three years of history—to be taken in 9th, 10th, and 11th grade—are required. In 9th grade, students are required to take World History. In 10th-grade, all students must complete a year-long requirement devoted to regional studies. In 11th 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 during their senior year. Students attending 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 comprises both Chinese-language and Chinese/East Asian history courses. In addition to these curricular offerings, the program includes a library resource center devoted to China and East Asia, frequent speakers, trips to China, and the opportunity from the School to apply for a fellowship to study in China after graduation. The objectives of the program are to not only expose students to China but to 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.

9th Grade

World History—I credit; year course

Open to: 9

Meets four times per week (45/45/45/45 format)

Prerequisites: none

In 9th grade, students at Sidwell Friends School begin their careers as historians with World History—a yearlong survey that explores the birth of the modern world. The course is, by design, a survey of the major developments of contemporary history, from the 1500s to the late 20th century. Through the study of existing narratives around topics in World History, students critically examine the meaning of “progress” and the forces that have shaped the world in which we live: tradition, individualism, nationalism, revolution, war, capitalism, modernization, democracy, and globalization. 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.

10th Grade

By the end of 9th grade, students have a strong understanding of key events in World History, with touchpoints in Africa, East Asia, South Asia, Latin America, and the Middle East. The 10th-grade history curriculum provides students an opportunity for focused study of one of those five 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 five year-long courses 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.

AFRICAN HISTORY—1 credit; year course

Open to: 10

Prerequisites: none

What is the shape of political, economic, and cultural Africa at the turn of the 21st century? In this course, students explore Africa's religious and ethnic diversity, geography, and natural resources, among other topics. The first quarter focuses on African conceptions of self and an Africanist understanding of space, land, and time. Thereafter, students begin exploring a more in-depth history of West Africa. The class then examines colonial rule, the rise of nationalism, and the restoration of independence, with a focus on the social-cultural, political, and economic transformations that occurred in Africa during the era of European colonization in the 19th and 20th centuries. During the second semester, the class studies the Swahili coast and North Africa. A few essential questions for the course include: What is the relationship between ethnicity, language, and power? How has foreign intervention influenced African development? What role does religion, music, and culture play in African development and the formation of African identities? Students write a research paper in the second semester on a topic of their choice.

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

Open to: 10

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 the course also looks at Korea and Vietnam. The first semester covers the broad period from the Bronze Age to the 19th 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 the 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

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 comprises a heterogeneous population with deeply rooted cultures, identities, and traditions. Though similar legacies of Spanish and Portuguese conquest and colonization unite the region, unique national identities have evolved based on each country's individual history and particular political, economic, and social structures, institutions, and societies. This class explores the commonalities as well as the distinctions found throughout Latin America and the Caribbean. In doing so, students examine issues such as economic stratification, dictatorship and democracy, social movements and revolution, identity (race, ethnicity, and gender), human rights, and globalization. Moreover, the class works toward understanding these issues from a Latin American perspective, using sources that represent a cross-section of voices from different countries and sub-regions in the hemisphere. Students write a research paper in the second semester on a topic of their choice, using a regional studies approach to connect key concepts with pivotal historical phenomena.

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

Open to: 10

Prerequisites: none

This course focuses on the history of the Middle East in the 19th and 20th centuries. In the first weeks of the course, the class begins by reviewing the civilizations and empires that existed in the region in the ancient and pre-modern period, such as the early Caliphates, and the Ottoman Empire. The class also discusses the foundation of Islam. Then the class slows down and investigates the modern period in more depth, focusing on specific case studies and conflicts such as the Great 19th century transformation, 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.

THE HISTORY OF SOUTH ASIA: FOUNDATIONS AND DEVELOPMENT—1 credit; year course

Open to: 10

Prerequisites: none

The History of South Asia is a yearlong course that traces the story of India and her neighbors, from prehistory to the modern era. The class begins with the roots of Hinduism in the Indus River Valley and then examine the rise of Hindu philosophy, literature, and art. Over the course of the fall, students study the major political, social, and cultural developments of the Indian subcontinent, with reference to the great empires, the dawn of global trade, and the effects of colonialism. In the spring semester, the class shifts to a study of South Asia's path to democracy, including units about Indian independence and the partition, regional conflicts, and modern development. Students also write a research paper in the spring.

11th Grade

AMERICAN STUDIES—1 credit; year course

Open to: 11, 12

Prerequisites: permission of the assistant principal for academic affairs

American Studies is an interdisciplinary survey course that uses a variety of sources, including theory, literature, television, art, poetry, architecture, advertisement, music, food, and fashion to explore what it means to be “American.” The course bases the study of American history, people, and society on a basic set of questions: What are the stories we (Americans) tell ourselves about ourselves? Who gets to tell these stories? How do different texts, artifacts, images, events, spaces, or places tell stories? And how are American stories challenged and changed over time? By examining closely not only historical events, but also how meaning and self-definition are conveyed and continually reconstructed through culture, students analyze American identities in conjunction with ever-changing political, social, and economic realities. Independent research on a topic of the student's choice is a key component of the course. Course requirements may also include take-home essays, unit tests, and semester exams.

HISTORY OF THE UNITED STATES—1 credit; year course

Open to: 11, 12

Prerequisites: permission of the assistant principal for academic affairs

This year-long course offers a survey of U.S. 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.

12th Grade

These classes are open to all 12th graders and to those 11th graders participating in a Sidwell Friends–approved semester-away program second semester of junior year. Some of the electives listed below may not be offered in a given year.

AFRICAN AMERICAN HISTORY—.5 credit; semester course

Open to: 12

Meets four times a week

Prerequisites: History of the United States or American Studies

This senior seminar explores African American History from the colonial times through the present. The readings are almost exclusively primary sources so that students can interrogate and interpret them in a discussion-based format. This semester-long course begins with an initial analysis of colonial cases, statutes, and customs and their enduring impact; it concludes with an extended examination of the Civil Rights and Black Power movements. However, the bulk of the course focuses on the cultural variety of African American communities during different eras and the demands on leadership over those same periods. Students will write in-class and traditional essays and lead class discussions to deepen their understanding of Black lives in the United States. .

ANTHROPOLOGY—.5 credit; semester course

Open to: 12

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 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—.5 credit; semester course

Open to: 12

Prerequisites: none

In this topical survey of art history, the class begins 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, students 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 they study. As part of the experience, the class visits 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—.5 credit; semester course

Open to: 12

Prerequisites: none

Is freedom a byproduct of oppression? Can it exist without a counterforce? Is freedom the ability to generate wealth? Does freedom coincide with equality and equity? How is freedom measured? Can freedom be granted? Is there a such thing as ultimate liberation? What good is freedom if it is not recognized or respected? What tools do people use to exercise freedom? This multimodal course empowers students to use textual, aural, linguistic, spatial, and visual resources to better understand and communicate their understanding of Black Liberation. The class examines spiritual, economic, artistic, and sociological implications and expressions of Black Liberation. Students can expect to read scholarly articles and primary sources as well as analyze artistic expressions of freedom (monumental, portraiture, film, and music). Graded work includes class discussion, essays, and a final project in the form of a podcast.

COMPARATIVE GOVERNMENT—.5 credit; Semester course

Open to: 12

Prerequisites: none

The field of Comparative Politics studies governments around the world and includes the study of political institutions and regimes; electoral behavior and procedures; social movements and organizations; and protest and revolution. Looking to understand relationships that explain socio-economic and political phenomena, comparative studies investigate both the contemporary political frameworks around the world as well as the historical developments that have created

modern systems. To get a sense of the varied approaches used to study political developments in different countries, in this course, we will read diverse social science works. While our case studies will take us around the globe, there will be a heavy emphasis on comparative political analysis of Latin America, as this region offers opportunities for deep dives into questions concerning legacies of colonialism and slavery, for example. As a reading and discussion seminar, we will rely on primary and secondary sources to engage in case studies. In doing so, students can come away with an understanding of the contextual challenges to democracy and democratization around the world as they learn to access new tools to analyze puzzles and pressing questions surrounding authoritarianism and justice.

COMPARATIVE RELIGION—.5 credit; semester course

Open to: 12

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 the 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.

METROPOLITAN POLICY AND THE DMV—.5 credit; semester course

Open to: 12

Prerequisite: none

The DMV introduces students to the DC metropolitan area where we live and to the tools to understand, analyze, and problem-solve the region's issues. Students examine the central areas of challenge facing U.S. metropolitan areas and past and present approaches to addressing them. Major areas of focus include education, housing, transportation, criminal justice and public safety, public health, and economic development. Students have the opportunity, as part of the class, to work in partnership with local organizations on solving problems in the DMV. Course materials range from scholarly journal articles and think tank policy proposals to local experts on metropolitan policy.

HISTORY LAB: EXPLORING ARCHIVES AND DESIGNING PUBLIC EXHIBITS—.5 credit; semester course

Open to: 12

Meets three times per week (45/70/70 format)

Prerequisite: none

Doing History is a course about doing history and telling history. Students research, study, and produce local histories for public consumption (public history)—the histories of the past peoples of Sidwell Friends and the histories of the past peoples who occupied Tenleytown. The class’s primary tools are the archives at Sidwell Friends School, and each class decides on a research topic, develops a plan for conducting the research, and then figures out how best to present the research to the public—at Sidwell Friends and beyond. The work is collaborative and creative, and can include podcasts, websites, museum exhibits, wayside markers on campus, art displays, documentary films, oral histories, and any number of other means of sharing findings and allowing the community to learn more about the micro-histories on “top of the hill.” This course deepens students’ research, project-management, analytical, communication, and design skills; it enriches students’ understanding of the local area; and it is a ton of fun!

HISTORY OF SCIENCE AND TECHNOLOGY—.5 credit; semester course

Open to: 12

Prerequisite: History of the United States or American Studies

Questions about the natural world have existed since the beginning of written history. This course considers those questions—considering not only what people “knew” but *how* they knew it—by examining the major moments in the history of science and determining how both knowledge of the natural world and methods of inquiry come to change. Students also consider the tension between technical practice and intellectual theorizing, which have been the hallmark of the practice of science from the ancient world to the present. After establishing a theoretical framework, the class investigates key points of change in five different units: (1) The Ancient World, (2) The Islamic World and China, (3) The Scientific Revolution, (4) The Industrial Revolution, and (5) The Atomic Age. In addition to an examination and discussion of key primary and secondary sources related to the history of science, students also use class time for hands-on, experiential activities; group-based projects and problem-solving; and individual research.

HUMAN BEHAVIOR AND MENTAL PROCESSES—.5 credit; semester course

Open to: 12

Prerequisites: none

This course is designed to help students understand and apply psychological concepts to real-world situations. Students are exposed to the range of perspectives that make up modern academic psychology: historical and theoretical perspectives; psychological development; and social, cultural, clinical, cognitive, and biological approaches. Students are asked to question deeply held beliefs, unearth unsettling truths, and provide startling insights and solutions to complex questions. They explore the mysterious world of the human mind and discover how it informs many decisions made in government, business, industry, advertising, and the mass media. They discover how psychology affects us as groups and as individuals, contributing as much to the public debate about how societies are, or might be, structured as it does to diagnosing and treating mental disorders. The course is designed to leave students with a better understanding of the way humans think and a deeper understanding of themselves, other people, and the world in which they live. The course uses a textbook and accompanying readings; there are assessments as well as a final paper and project.

MODERN CHINA THROUGH FILM—.5 credit; semester course

Open to: 12

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, students also consider how to view films as historical texts, how historical context influences historical interpretation, and how cinema creates national and transnational identities. The course has three main goals: (1) to gain a broad understanding of modern China's historical development, from the mid-19th century to the present; (2) to focus more closely on the post-Mao period (1976–present) and on the historical constructions created during that period; (3) to reflect critically on historical interpretations of modern China, especially those using film as text. In other words, the class looks 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.

MODERN AMERICAN POPULAR CULTURE—.5 credit; semester course

Open to: 12

Prerequisites: History of the United States

This course studies topics related to the histories of rock ‘n’ roll, television, rap, film, commercial radio, music videos, Netflix, magazines, and the home computer by looking at the dialectic relationships among culture, business, and politics. The class pays special attention to histories of gender, race, sexuality, class, and environment embedded in pop culture. In 1941, Henry Luce called on American officials to usher in “the first great American century” by abandoning its isolationism and engaging in a nationalistic missionary campaign he hoped would usher in an era of global peace and prosperity. American participation in World War II did, in fact, revolutionize the nation’s place in world politics, economics, and culture. The dizzying pace and evolutions of artistic production track major developments in U.S. history: World War II, the Cold War, the urban crises, suburbanization, the Vietnam War, Watergate, the Rights Revolutions, Stagflation, Black Power, the AIDS epidemic, and the crack crisis to name a few. Cultural developments also followed the profit-making interests of the companies that mass-produced culture and entertainment during the second half of the century. This course thus investigates the roles of mass consumer culture in U.S. developments domestically and globally.

PERSPECTIVES ON GLOBAL ECONOMICS—.5 credit; semester course

Open to: 12

Prerequisites: none

Welcome to Global Economics! This course is designed to provide exposure to microeconomic analysis, which facilitates 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, we will assess the reliability of basic economic models, the effectiveness of specific government policies, and the significance of particular macroeconomic issues. Students will also analyze individual decision making with regard to personal finance. The class uses discussions, papers, team problem-solving, presentations, and tests 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—.5 credit; semester course

Open to: 12

Prerequisites: none

For millennia, intellectuals and philosophers have posed a number of fundamental questions: What is the purpose of humankind'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 discussions, the class touches not only on political theory and philosophy, but also on economic and scientific theory, theology, and ethics. Readings center on western Europe (although are not 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 focuses almost entirely on discussion of the assigned texts. Written assignments include two essays, weekly reading assignments, and an exam.

POLITICAL AND PHILOSOPHICAL THOUGHT II: MODERNITY—.5 credit; semester course

Open to: 12

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 it 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 focuses almost entirely on discussion of the assigned texts. Written assignments include two essays, weekly reading assignments, and an exam.

PERSPECTIVES ON AMERICAN GOVERNMENT—.5 credit; semester course

Open to: 12

Meets four times per week (45/45/45/45 format)

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 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: (1) specific historical ideas and events; and (2) specific contemporary political issues and disputes. The course includes 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, the course makes generous use 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.

SOCIETY AND NATURE: TOPICS IN GLOBAL ENVIRONMENTAL HISTORY—.5

credit; semester course

Open to: 12

Meets three times per week (45/70/70 format)

Prerequisites: none

The personal computer, high-speed internet, the internal combustion engine, industrial capitalism, global warming, deforestation, pollution, airplanes, spaceships, lasers. Humanity currently lives 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. The course begins 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 students look at the ways ecosystems and nonhuman species have 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 18th 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—5 credit; semester course**

Open to: 12

Meets three times per week (45/70/70 format)

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. Students also closely examine the intersection of gender with other social identifiers including sexual orientation, race, ethnicity, class, religion, and age. Together, the class builds 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 on the experiences of people in the United States. However, the course also draws on cross-cultural examples to deepen an understanding of gender in a broader context. Students can expect to write in-class and traditional essays and lead class discussions.

MATHEMATICS

The Upper School math curriculum is a continuation of the logical sequence of courses introduced in the Middle School. Three years of math are required, and a student must be enrolled in a math class during the 9th, 10th, and 11th grade academic years. The math courses that satisfy this requirement may not be taken pass/fail. Typical three-year sequences include:

1. Geometry with Integrated Algebra, Algebra 2(B), and Precalculus(B)
2. Geometry, Algebra 2, and Precalculus
3. Math I, Math II, and Math III.

Math Sequence

The diagram below shows the possible progression through the courses in the Sidwell Friends math program. Please note that a change in sequence requires departmental approval and may require supplemental work.

<u>9th</u>	<u>10th</u>	<u>11th</u>	<u>12th</u>	
Math I	Math II	Math III	Math IV	Linear Algebra
Geometry	Algebra 2	Precalculus	Calculus I	Calculus II
Geometry with Integrated Algebra	Algebra 2 (B)	Precalculus (B)	Statistics I	

Members of the Upper School Mathematics Department can provide an outline of specific topics for each course.

Placement for Mathematics Courses in Upper School: Guidelines

For 9th grade: Students who are new to Sidwell Friends School in 9th grade meet with the assistant principal for academic affairs and the department head for placement. In some cases, a placement test may be required and may, along with the judgment of the department head and assistant principal for academic affairs, determine the appropriate placement in Upper School math. Math placement decisions for rising 9th-grade students from Sidwell Friends Middle School will be made by their current Middle School math teacher and Middle School Math Department chair.

For other grades: Each year, members of the Math Department place current 9th, 10th, and 11th grade students in subsequent courses for the next academic year. Generally speaking, the department places a student who has done B-level work or better 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 being considered for a move to a more demanding course have demonstrated a high level of capability and interest, and A-level work throughout the current course is expected. Supplemental or summer work may be necessary to make such a change in sequence. Any student who wishes to take a credit math course over the summer (and such courses must be taken at Sidwell Friends School), requires the permission of the department.

Other Departmental Policies

A student who earns a C- or below in a course that is part of a continuing sequence (e.g., Geometry, Algebra 2, and Precalculus) may need to retake the course or complete supplementary work in order to enroll in the next course in the sequence. The department chair in consultation with the student's teacher makes this judgment.

The Math Help Room (Room 226) is open daily for students who have questions pertaining to their math class. Most periods, either a member of the Math Department or an upper-level student staffs the help room.

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 on both the SAT and SAT subject tests, and these topics are typically part of 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 postgraduate 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.

GEOMETRY WITH INTEGRATED ALGEBRA—1 credit; year course

Open to: 9

Prerequisites: Algebra 1

Geometry with Integrated Algebra provides students an opportunity to study Euclidean geometry and apply algebra principles covered in Middle School mathematics courses. Areas of study include real numbers, lines in the plane, coordinate geometry, congruence, parallelism, similarity, and right triangle trigonometry.

GEOMETRY—1 credit; year course

Open to: 9

Prerequisites: Algebra 1

Geometry provides students an opportunity to study Euclidean geometry and apply algebra principles covered in Middle School mathematics courses. Areas of study include real numbers, lines in the plane, coordinate geometry, congruence, parallelism, similarity, and right triangle trigonometry. Geometry emphasizes the writing of deductive proof, versus the review of principles of algebra.

MATH I—1 credit; year course

Open to: 9

Prerequisites: Algebra 1

Math I is an intensive and accelerated course in geometry and algebra. The class covers topics from the other geometry courses with greater attention to rigorous proof and the deduction of results from a small number of postulates. The course may also include additional topics beyond the scope of the other geometry courses. Emphasis on the writing of mathematical proof, as required in Math II and Math III begins in Math I. The course emphasizes methods of proof other than simple deductive reasoning.

ALGEBRA 2 (B)—1 credit; year course

Open to: 10

Prerequisites: Geometry with Integrated Algebra or Geometry

Algebra 2(B) builds on the material of previous algebra courses. Topics include linear, quadratic, and rational functions. Students also study exponents, logarithms, sequences, and series. The course places an emphasis on problem-solving, the proper writing of mathematics, and the acquisition of skills needed to handle a variety of equations and inequalities.

ALGEBRA 2—1 credit; year course

Open to: 10

Prerequisites: Geometry with Integrated Algebra, Geometry, or Math I

Algebra 2 builds on the material of previous algebra courses. Topics include linear, quadratic, and rational functions. Students also study exponents, logarithms, sequences, and series. The course places an emphasis on problem-solving, the proper writing of mathematics, and the acquisition of skills needed to handle a variety of equations and inequalities. Algebra 2 covers topics in Algebra 2(B), but generally with greater rigor.

MATH II—1 credit; year course

Open to: 10

Prerequisites: Geometry or Math I

Math II is an intensive and accelerated course covering topics in Algebra 2 and Precalculus courses.

PRECALCULUS (B)—1 credit; year course

Open to: 11, 12

Prerequisites: Algebra 2 and Geometry

Students in Precalculus (B) study topics such as coordinate geometry, quadratic equations, circles, triangle trigonometry, exponents and logs, statistics, and probability.

PRECALCULUS—1 credit; year course

Open to: 10, 11, 12

Prerequisites: Geometry and Algebra 2

In Precalculus, students study polynomial functions, exponential functions, logarithmic functions, trigonometric functions, and inverse trigonometric functions. Students examine solar functions and their graphs in the second semester along with basic probability and statistics. The class emphasizes graphing techniques and applications, and students use graphing calculators 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

Prerequisites: Math II

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

STATISTICS I—1 credit; year course

Open to: 11, 12

Prerequisites: Precalculus, Precalculus(B), or departmental approval

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

This 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. Students use a TI-83 or 84 calculator 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

Prerequisites: Precalculus or Math II

This is a course in basic differential and integral calculus of one variable. Topics include limits, continuity, and 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. The course makes extensive use of graphing calculators. Students must not only understand but 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

Prerequisites: Calculus I, departmental approval

This course is a continuation of Calculus I. Topics include techniques of integration; applications of the definite integral; improper integrals; Newton's method and numerical integration; sequences and series, including Taylor's theorem and power series; and elementary separable and first- and second-order linear differential equations. Students must not only understand but prove many of the basic theorems in calculus. Students who complete the course successfully should be well prepared to take the calculus BC AP examination.

MATH IV—1 credit; year course

Open to: 12

Prerequisites: Math III, departmental approval

Math IV 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, and 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 must not only understand but prove many of the basic theorems in calculus. Students who complete this course successfully should be well prepared to take the calculus BC AP examination.

LINEAR ALGEBRA—year course for 1 credit, or first-semester course for .5 credit

Open to: 11, 12

Prerequisites: Math III

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

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 the School's dream of turning students into world explorers. The courses are multifaceted and rich in the myriad techniques and materials used to bring 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 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 9th grade meet with a member of the Language Department for placement. A placement test may be necessary and may, along with the judgment of the department chair and assistant principal for academic affairs, 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 who shows a particular weakness in certain areas of language study must take a placement exam in the fall before the start of the academic 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 comprises both Chinese-language and Chinese/East Asian history courses. In addition to these curricular offerings, the program includes a library resource center devoted to China and East Asia, frequent speakers, regular summer trips to China, and the opportunity from the School to apply for a fellowship to study in China after graduation. The objectives of the program are to not only expose students to China but to 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, instructors weave Chinese culture into 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

Prerequisite: none

This introductory language course immediately immerses students in the spoken language through the use of stories. Teacher and students work together to create a variety of stories that they act out in class, with gestures, props, and acting used to make the language comprehensible. Students receive abundant input from listening and reading, which helps 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 establishing a solid foundation, 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 comes into play as students begin to write their own stories, many of which become the basis for class activities. The class uses a variety of games to reinforce and consolidate students' grasp of the language.

CHINESE II—1 credit; year course

Open to: 9, 10, 11, 12

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

In this course, students continue to work with stories, building on the foundation they 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 the course introduces more elements of Chinese culture. At this level, students are able to produce a greater volume of written and spoken work, and they create a storybook project each semester.

CHINESE III—1 credit; year course

Open to: 9, 10, 11, 12

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. The class uses Chinese video clips and songs 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

Prerequisites: Chinese III or equivalent

At this level, students go beyond the discussions of their daily life and touch on various topics related to their community. The course uses pictures, news stories, online video clips, blogs, and micro-blogs to facilitate the narration and to initiate discussions on different topics. Students also compare and contrast how China deals with those issues. Chinese video clips and songs supplement the 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

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 teacher supplements the main text 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 class, students engage in discussions, role-plays, and presentations, and they 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

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 teacher supplements the main text with authentic materials, such as online news articles, video clips, television shows, and short stories that all reflect Chinese culture and give students the opportunity to strengthen both their comprehension and analytical skills. Students devote their class time 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 study 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 percent of Quebec's population. Moreover, la Francophonie, a movement and an Institution headquartered in Paris, was created to form a bridge linking diverse groups of peoples, cultures, and traditions in the French-speaking world and to facilitate increased communication between the diverse cultures in a shared language. The French program at Sidwell Friends immerses students in some of the world's most vibrant 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, socioeconomic, and cultural wealth and diversity of the French-speaking world. Oral practice in the basic and intermediate courses uses an audio-visual program designed to develop natural speech patterns, pronunciation, and intonation. Students use a myriad of electronic tools in the classroom to support their growing skills.

Teachers select the books for each level carefully 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, DVDs, and CDs on current events and points of grammar and culture complement the 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

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, D'Accord Level 1, is supplemented by the online Supersite audio video program and a writing activity workbook. The video segment for each unit, about a group of students living in Aix-en-Provence, Southern France, exposes students to the vocabulary of daily life and covers a variety of socioeconomic and cultural features of France and the Francophone world. 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 II—1 credit; year course

Open to: 9, 10, 11, 12

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

This course is in continuity with D'Accord Level 1. Students expand and deepen their four language skills and broaden their vocabulary. The textbook, D'Accord Level 2, is supplemented by the online Supersite audio video program and a writing activity workbook. The video segment for each unit, about a group of students living in Aix-en-Provence, Southern France, exposes students to the vocabulary of daily life and covers a variety of socioeconomic and cultural features of France and the Francophone world. 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

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. Students use *Le Français essentiel* grammar book throughout the year to gain a more in-depth presentation of the grammar. The teacher also introduces literature at this level. Students read *Un billet pour le commissaire*, a mystery, in the first semester. This book is well suited for this level as the structures increase in complexity as the story develops. The text is tangible, and the story builds based on facts. It prepares the students for reading *Le Petit Prince* in the second semester and introduces a philosophical

dimension to 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

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. The teacher introduces a variety of Francophone authors in *Moments Littéraires* followed by the in-depth study of a play, *Huis Clos* by Jean-Paul Sartre. This leads to the writing and performance of a play. 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. On 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

Prerequisites: French IV or equivalent

In this advanced course, the students study novels and a play by Francophone authors such as Albert Camus (Algeria), Simone Schwartz-Bart (Guadeloupe), Camara Laye (Guinea), and Jean Paul Sartre (France). The second semester emphasizes drama. The authors reflect a variety of literary trends and backgrounds. The works of authors such as Anouilh, Sartre, Ionesco, Césaire, and Diop (the list may vary) enrich the course. The study of each work includes in-class discussions led by the students or the teacher, essays, and oral work. 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, grounding in Latin and an introduction to the Greco-Roman world still have relevance and 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 trove of Latin literature, which 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

Prerequisites: none

This course provides students with a working knowledge of Latin grammar and vocabulary through oral and written work. The emphasis is on the reading skills and inflected forms that a student needs for success at all levels. The instructor supplements Latin-language instruction with the study of ancient mythology, culture, and history. In addition, the class emphasizes the improvement of English vocabulary through recognition of Latin roots and derivatives.

LATIN II—1 credit; year course

Open to: 9, 10, 11, 12

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 teacher uses the early weeks of the year to review the previous year's work. The course continues to introduce additional inflected forms and grammatical constructions with an emphasis on subordinate clauses. Students encounter authentic excerpts from Roman authors for the first time. The history and culture of the Roman Empire serve as a backdrop for the readings. As in the first year, the class emphasizes improving English vocabulary and recognizing derivatives from Latin.

LATIN III—1 credit; year course

Open to: 10, 11, 12

Prerequisites: Latin II or equivalent

This course concludes the introduction of new grammar and syntax. Students focus on reading authentic Latin literature in the second half of the year and pay special attention to precise translation and literary analysis. The readings introduce students 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

Prerequisites: Latin III or equivalent and departmental approval

This course builds on the previous year's introduction of *The Aeneid* and Caesar's *De Bello Gallico*. The class devotes time 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

Prerequisites: Latin IV or equivalent and departmental approval

Students improve their facility with Latin vocabulary and syntax while reading poetry and/or prose selections. The course emphasizes an understanding of and appreciation for the literature and culture of Ancient Rome. Students engage 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 graduate from Sidwell Friends School with both an 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

Sidwell Friends' 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, the interdisciplinary program begins in prekindergarten and continues 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. At all levels, classes use a custom-designed, interactive application (called *¡Grábame!*) to allow students to listen to Spanish and record their own responses at home.

SPANISH I—1 credit; year course

Open to: 9, 10, 11, 12

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—using the textbook *Dos Mundos en breve*, online resources, and the *¡Grábame!* App—promotes 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, the class gives more attention to reading and writing.

SPANISH II—1 credit; year course

Open to: 9, 10, 11, 12

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

The Upper School and Middle School Modern and Classical Languages Departments will determine placements.

This course is designed for students who have mastered their foundational writing skills and are ready to focus on speaking. It uses an exclusively communicative approach, with a heavy emphasis on listening comprehension and oral production. The primary emphasis is on building and developing conversational skills in an immersion setting. The teacher uses repetition to help students expand their vocabulary and basic grammar skills in everyday situations. The class also give its attention to proper spelling, use of accent marks, and agreement. Students who complete the course should be able to carry on conversations about themselves, their future plans, and past actions. They should also be able to ask questions of others and decrease their dependence on English thought and speech patterns.

SPANISH III—1 credit; year course

Open to: 9, 10, 11, 12

Prerequisite: Spanish II or equivalent

The Upper School and Middle School Modern and Classical Languages Departments will determine placements.

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

SPANISH IV—1 credit; year course

Open to: 9, 10, 11, 12

Prerequisite: Spanish III or equivalent

The Upper School and Middle School Modern and Classical Languages Departments will determine placements.

This course continues the communicative approach and is offered to students who have mastered their foundational skills (in speaking, reading, and writing) and who are ready to expand their

grammatical scope. The course presents all verb conjugations and moods, and a series of cultural and literary units provide a context for learning grammatical structures.

SPANISH V—1 credit; year course

Open to: 10, 11, 12

Prerequisites: Spanish IV or equivalent

This course emphasizes 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. In the second semester, students explore how these themes have played out in the 21st century.

SPANISH VI—1 credit; year course

Open to: 11, 12

Prerequisites: Spanish V or equivalent

Spanish VI continues to develop the linguistic skills (listening, speaking, reading, writing) learned in previous courses. The course offers a multidisciplinary approach to the study of the Spanish language and expands knowledge of Hispanic cultures through films, literary texts, articles, podcasts, and music that address current events and cultural topics related to the Spanish-speaking world. The course reinforces grammar learned in previous courses and expands vocabulary to continue improving communicative abilities in Spanish.

ADVANCED SPANISH SEMINARS—1 credit; year course

Open to: 11, 12

Prerequisites: Spanish VI or departmental approval

Advanced Spanish Seminars are discussion-based classes that explore a variety of topics, such as cultural identity, literature, religion, film, human rights, linguistics, philosophy, and history. Students must have a demonstrated command of grammar in both conversational settings and analytical writing. The class requires a high level of meaningful participation from all students enrolled.

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 France, Italy, or 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 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 Italy, students receive intensive instruction in Italian, but the other courses are taught in English. Therefore, the program in Italy can accept students with no previous experience in Italian, 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, because participation requires relevant curricular choices—especially in math, lab sciences, and history. At a minimum, interested students and parents should speak to the SYA 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 Sidwell Friends tuition and that of School Year Abroad. Sidwell Friends School limits the number of students granted a leave of absence to participate in School Year Abroad to 12 per year. Further information may be found at www.sya.org.

SCIENCE

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

Students entering 9th grade should consult with their current science teachers or the Science Department chair about the two options for biology: Biology I or Biology IA. Both are survey courses, with Biology IA moving at a faster pace and going deeper into topics. Biology IA also incorporates more experimental design and inquiry-driven projects. Students electing to take Biology IA should demonstrate enhanced academic stewardship and strong reading comprehension skills.

For grades 10 through 12, the Science Department provides students with a list of course options in February, before course sign-ups, based on science-faculty discussions about the most appropriate courses for each student. Faculty approve courses for students based on the level of difficulty of a course, the prior knowledge deemed necessary to take full advantage of the course, and a candid assessment of the quality of the student's work—especially the demonstrated ability to keep up with coursework and the student's level of maturity, independence, and responsibility. The science faculty may consult with a student's adviser and the assistant principal for academic affairs 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

Prerequisites: none

Biology I is an introductory course in which students work with concepts in select topics, such as basic chemistry, cell structure, genetics, evolution, and ecology, as well as animal and plant structure and function. Laboratory work and homework incorporate 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 course

Open to: 9

Prerequisites: none

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. Laboratory work and homework incorporate technology, including electronic assessment tools and data loggers. Assessments emphasize critical thinking and application of principles in addition to recall of concepts. The course is designed for students who thrive in a student-centered environment focused on active learning, who enjoy working in groups, and who do not need a lot of reflection and practice to understand concepts.

CHEMISTRY I—1 credit; year course

Open to: 10, 11, 12

Prerequisites: none

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; and solutions. The course emphasizes building a cohesive and accurate foundational understanding of matter and energy such that students can reason independently, explain observations, and make predictions. Measurement, problem-solving, and the practical application of chemical ideas in the lab and in the real world are also important emphases. 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

Prerequisites: none

Chemistry IA is an accelerated version of Chemistry I. Both are survey courses that introduce the topics of measurement, stoichiometry, aqueous reactions, gases, atomic and electronic structure, chemical bonding, thermochemistry, liquids and solids, and solutions. In Chemistry IA students also work with concepts such as equilibrium, reaction rates, and acids and bases. The course introduces topics with more sophisticated math and lab work and in greater depth than in Chemistry I. In turn, students should be very comfortable with algebra, as it is used almost daily in class. The course especially emphasizes collaborative learning through problem-solving. The course is designed for students who thrive in a student-centered environment focused on active learning, who enjoy working in groups, and who do not need a lot of reflection and practice to understand concepts.

INTRODUCTION TO ORGANIC AND BIOORGANIC CHEMISTRY--1 credit; year course

Open to: 11, 12

Prerequisite: Chemistry 1 or Chemistry 1A

Introduction to Organic and Bioorganic Chemistry is an advanced science elective that introduces students to the unique chemistry of carbon-containing molecules. Carbon is a special atom because it is exceedingly average. Its middling size and electronegativity make it an infinitely tunable atom capable of undergoing thousands of distinct reactions. Because of its versatility, carbon forms the core of the most complex molecules known and is the basic element of life. In this course, which includes a laboratory component, students will explore standard topics in the field of organic chemistry, including the structure and nomenclature of organic molecules, reaction mechanisms, and synthesis, with an emphasis on conceptual understanding over memorization of reactions. A class in organic chemistry is a distinct experience from one in general chemistry. It has its own vocabulary and leans heavily on spatial reasoning. Students will have the opportunity to draw upon their prior knowledge in chemistry as they look at molecules and reactions from an entirely new perspective. They will also apply their newly learned concepts in organic chemistry to understanding the mechanistic details of enzymatic reactions and metabolic pathways that they previously encountered in biology class.

PHYSICS I—1 credit; year course

Open to: 10, 11, 12

Prerequisites: none

This introductory course uses an approach to the subject that puts an emphasis on both *comprehension* and *computation*. Using a conceptual approach to topics such as motion, energy, and momentum, 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 are then 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. Small group and class laboratory exercises as well as daily demonstrations complement collaborative problem-solving and are a catalyst for further inquiry. The course uses the computer as a tool for data gathering, analysis, and presentation as well as for the display of visual information.

PHYSICS I—.5 credit; first-semester course

Open to: 11, 12

Prerequisites: none

This first-semester Physics I course is open to juniors enrolled in second-semester immersion programs away from campus and to 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

Prerequisites: Math II, Precalculus, and/or concurrent enrollment in Calculus

Physics IA covers most major areas of introductory physics, including motion and mechanics, electrostatics and circuits, waves, optics, and magnetism. The course stresses the concepts that are necessary to go on to more sophisticated science courses (including conservation laws and graphical representations of data). The course covers most topics quantitatively. It's essential that students have a demonstrated mastery of algebraic and trigonometric topics and a high level of comfort with mathematical abstractions. The class includes laboratory activities and demonstrations where appropriate to give students direct experience dealing with force, energy, waves, etc. The course is designed for students who thrive in a student-centered environment focused on active learning, who enjoy working in groups, and who do not need a lot of reflection and practice to understand concepts.

PHYSICS I Accelerated—.5 credit; first-semester course

Open to: 11, 12

Prerequisites: Math II, Precalculus, and/or concurrent enrollment in Calculus

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

Prerequisites: Biology 1 or 1A, and Chemistry I or IA

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 on 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.

CHEMISTRY II—1 credit; year course

Open to: 11, 12

Prerequisites: Chemistry I or 1A

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 in 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.

PHYSICS II—1 credit; year course

Open to: 11, 12

Prerequisite: Physics 1A

Physics II follows the syllabus required for the Advanced Placement “C” Exams (both Mechanics and Electricity & Magnetism). This course builds on most of the topics introduced in Physics IA. Physics II also includes many topics that were not covered in Physics IA, including rotation and momentum in the first semester, and electric potential, capacitance, and inductance in the second. The level of mathematics assumes the student has taken or is currently enrolled in Calculus II or Math IV. Laboratory work also builds on Physics IA labs but becomes more student-driven with respect to procedure and analysis. As the year progresses, the course presents more applications that require differential and integral calculus, in keeping with the students’ progress in math. This course is designed for students who are motivated to learn, genuinely interested in the topics, resilient, able to self-assess their learning, and use learning support if needed

ENVIRONMENTAL SCIENCE—1 credit; year course

Open to: 11, 12

Prerequisites: none

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.

MOLECULAR TECHNIQUES —1 credit as a year course or .5 credit as a semester course

Open to: 11, 12

Prerequisites: strong understanding of biology and chemistry

Molecular Techniques provides the opportunity for students to conduct scientific investigations while mastering concepts from molecular biology. 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 genetic 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, as well as molecular biology tools, including GFP transgenics and selective gene inactivation. Students must have a strong understanding of biology and chemistry. This course promotes critical thinking, problem-solving, and data analysis via statistical methods. Students actively engage in designing and refining protocols for their research and in collaborating to complete their projects, after which the students produce and present scientific posters.

ASTROPHYSICS—1 credit; year course

Open to: 11, 12

Prerequisites: none

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. The course emphasizes the tools (mathematical, scientific, and technological) scientists have used to develop their current understanding of the universe and those that are helping scientists make strides toward an even deeper understanding. Those without a background in physics learn the fundamentals, and those with previous physics experience have various opportunities (particularly in research projects) to use and expand their knowledge. Students should be comfortable with algebra and geometry.

ASTROPHYSICS—.5 credit; first-semester course

Open to: 11 and 12

Prerequisites: none

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

FORENSIC SCIENCE A, B—1 credit as a year course or .5 credit as a semester course

Open to: 11, 12

Prerequisites: none

Forensic science is an interdisciplinary exploration of topics in criminalistics, such as crime-scene reconstruction, DNA analysis, spectroscopy, and microscopy. Students discuss research, examine cases and/or scenarios, collect and analyze data, and investigate mock crime scenes (physical and simulation-based). This course helps students make connections among scientific disciplines and develop their argumentation, evidence-based reasoning, lab technique, and critical-thinking skills. Students who enjoy hands-on learning and who are collaborative, curious, creative, self-directed, and analytical benefit the most from this course. This course may be taken for one semester (first or second) or for the whole year for a full credit.