



2023-2024

COURSE CATALOG

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SPRINGSIDE CHESTNUT HILL ACADEMY ACADEMIC GRADUATION REQUIREMENTS

Below are the four-year academic graduation requirements:

20 Credits (one full-year course equals 1 credit; one-semester course equals ½ credit)

- English – 4 years
- Math – 4 years
- Language – 3 levels of a foreign language
- Science – 3 years (Physics, Chemistry, Biology)
- History – 3 years
- Arts – 4 semesters – two of which are in 9th grade
- Center for Entrepreneurial Leadership Seminars – 9th grade
- Center for Entrepreneurial Leadership Capstone – 10th grade
- Health and Wellness – 1 semester required for 9th grade
- Senior Projects – During the month of May, seniors must participate and complete approved projects of their choices away from the school campus
- Athletics – 9th, 10th, 11th grades: 2 athletic requirements each year; 12th grade: 1 athletic requirement

Of Note:

- In order to earn a Springside Chestnut Hill Academy diploma, students must earn a minimum of 20 core credits.
- Students must take a minimum of five credits each year in the disciplines of English, math, language, science, history, or engineering, or other designated courses, and students must carry a minimum of five courses from these disciplines each semester. Arts courses do not count toward the minimum 5 courses.
- A student earns one-half academic credit upon the successful completion of one semester of work and a full credit upon completion of each full-year course.
- All electives vary year to year based on faculty availability and student sign-ups.

EXPLANATION OF COURSE DESIGNATIONS

All courses offered in the Upper School at Springside Chestnut Hill Academy are college preparatory courses. Because this is the standard, no special designation is placed next to the course title. In most departments, a few courses are marked “Honors.” These courses require proven facility in the discipline as well as the student’s willingness to do more work at a more demanding level than in the usual college preparatory course. Many Honors courses lead to the Advanced Placement Program in the 11th and 12th grades. Students take Honors courses only with the permission of the department concerned. Advanced Placement (AP) courses are offered in English, history, language, math, and science. To take Honors and AP courses, students must meet published criteria as well as receive departmental approval. These are our most demanding courses, covering at least a semester of college-level work. Students must be independent learners with proven facility in the discipline and willing to undertake substantial academic responsibility. AP courses culminate in the College Board’s Advanced Placement testing program, and students who do well on these tests may earn the equivalent of a college credit. Admission to an AP course is dependent upon the permission of the department.

COURSE OFFERINGS: THE ARTS AND NEW MEDIA

GENERAL INFORMATION

Dept. Chair: Megan Monaghan - mmonaghan@sch.org

Arts Mission Statement

The Arts Department at Springside Chestnut Hill Academy uniquely challenges our students to think creatively and critically. As an essential part of the school day and through the use of creative tools in the classroom, the Arts empower students to discover their individual and collective voices and to be active makers of their own media. The Arts curriculum provides diverse opportunities for students to invent and practice the artistic process while also developing their expressive voices through engagement with the works of others. Students advance their skills while cultivating an appreciation for the rich legacy of artistic expression throughout the world.

The Arts and New Media Department at Springside Chestnut Hill Academy offers a wealth of electives in the Upper School. Students may choose from a variety of classes or choose to pursue mastery of one medium through a sequence of classes that becomes increasingly individualized as students get older. In music, students may begin by taking an ensemble and then work toward Honors-level work and pursue leadership positions in Honors Orchestra, Honors Chamber Ensemble, Honors Jazz Ensemble, or Chamber Singers. In addition, students interested in music composition and music production may begin study in the Songwriting course and take additional semesters that result in individualized instruction. In Visual Arts, students may take a variety of classes or progress to portfolio-building classes in Woodworking, Photography, Drawing and Painting, Ceramics, or Printmaking in their junior and senior years. In New Media, students may choose from progressions in Video Production, Digital Art, Gaming, 3D Modeling and Animation, and Coding.

9TH GRADE

Ninth grade students have the opportunity to choose between many options to fulfill their yearlong Arts credit in 9th grade. They may choose between a year in Upper School Orchestra, (and opt to audition for membership in the Honors Chamber Ensemble or Honors Jazz Ensemble), or Chorus or they may choose to select two classes from the following list. Students should be aware that many more Arts electives are available to them throughout their Upper School years.

9th grade Arts Options (descriptions below in each Arts and New Media Category):

Orchestra (Jazz and Chamber Ensemble by audition) (FULL YEAR CLASS)

Vocal Workshop (FULL and SEMESTER options)

Introduction to Drawing and Painting

Introduction to Sculpture and Ceramics

Introduction to Digital Photography and PhotoShop

Introduction to Woodworking

Introduction to Video and Animation

Introduction to Songwriting

Theater Production (Acting or Technical Theater)

MUSIC

(Grades 9–12)

9TH-10TH VOCAL WORKSHOP

Grades 9, 10; semester or full-year course; .5/1 credit, meets 3 times per 7 day cycle

9th-10th Grade Vocal Workshop is a singing class that specializes in building personal vocal and musicianship skills that equip students to continue on in vocal music. The kind of work covered is specifically tailored to create a pertinent and valuable basis from which students may audition for Hilltones and Laurelei during the winter of each year. Students become confident singers often working one on a part. The group performs at Cabaret and annually with Chamber Singers in a combined composition at the Winter Concert and also at the Spring Concert. The music we cover includes pop a cappella as well as accompanied classic, folk and show tune arrangements. We regularly have special guest clinicians in class who are expert voice teachers to help each student with their technique in a group voice lesson. We also explore solfege and sight-singing skills to strengthen personal musicianship.. An off-campus excursion is often planned for the second semester section. *Students who are interested in applying for Chamber Singers (Hilltones and Laurelei) are required to take this course (one semester of 9th-10th Grade Vocal Workshop) or Orchestra in the Fall semester. If a student was unable to take Vocal Workshop as a prerequisite and would like to audition for Chamber Singers, please reach out to Mr. Woehr or Mrs. Rogers directly.

HONORS CHAMBER SINGERS (HILLTONES AND LAURELEI)

Grades 10–12; full-year course; 1 credit, meets 4 times per 7 day cycle

*Prerequisites: * Starting with the class of 2026, one semester of 9th-10th Grade Chorus/Vocal Workshop or Orchestra is required to audition for admittance to this course.*

Audition Level 1 is for students returning to SCH who have not been able to take a music course as a prerequisite. These auditions must be held in March and will include a choral score to prepare to sing, 1 singer per part. Students who pass this audition will be called back with Audition Level 2 students the following week.

Audition Level 2 is for students who have taken a music course in 9th grade to prepare for auditions. A choral score will be provided for students to prepare to sing, 1 singer per part. Auditions will be in March.

Chamber Singers is a select choir for the highly able and motivated vocal musician committed to a rich and demanding choral experience. Students receive instruction in choral and vocal technique and learn to build choral discipline while preparing repertoire for three concerts. As a *divisi* ensemble, Chamber Singers embraces an ensemble for men (Hilltones) and an ensemble for women (Laurelei). Chamber Singers take a "tour" once every three years.

** Students in grades 10 and 11 who maintain a cumulative average of 89.5% or higher before the Honors adjustment is made to grading, will not need to re-audition for Chamber Singers. Students who fall below that grade will need to re-audition on an equal plane with all other candidates.*

ORCHESTRA

Grades 9–12; full-year course; 1 credit, meets 4 times per 7 day cycle

Prerequisites: Private study or previous steady membership in the Middle School Instrumental Program.

Instrumentalists have the opportunity to play together in an orchestral setting and also participate in a small ensemble experience. Students will play together in the full orchestra and then will have the ability to audition for either the Jazz Ensemble or Chamber Ensemble for Honors credit. Through this instrumental study, students will develop discipline in sight reading, technique, interpretation, and musical independence. Students learn to build a cohesive ensemble while preparing repertoire for two major performances. Evaluations, both written and performance-based, are a cornerstone of the grading process for the ensembles. The Orchestra, Jazz Ensemble, and Chamber Ensemble take a performance tour together every three years. Members of the rhythm section (guitar, bass, piano, drum set) will be accepted after an audition process.

HONORS CHAMBER ENSEMBLE

Grades 9–12; full-year course in conjunction with Orchestra; 1 credit

*Prerequisites: By audition**

Chamber music has often had the connotation of being "music for friends," because of its intimate nature. Students will learn the skills necessary to weave together individual "solo" parts in order to create a tightly woven ensemble. Participation in the Chamber Ensemble will provide students with an opportunity to participate in an ensemble experience that demands a high level of technical skill and musicianship. Music from different time periods and cultural backgrounds will be studied. This advanced ensemble will be an ambassadorial instrumental ensemble. This is an auditioned, Honors-level ensemble.

** Admittance into the Honors-level instrumental ensembles will be based on an audition for new and returning members at the beginning of the year.*

HONORS JAZZ ENSEMBLE

Grades 9–12; full-year course in conjunction with Orchestra; 1 credit,

*Prerequisites: By audition**

Membership in the Jazz Ensemble will provide opportunities for motivated and musically competent instrumentalists to explore and perform different styles of jazz or jazz-influenced music. The development of improvisation technique and knowledge of jazz theory will be emphasized while cultivating the performance practices that define jazz performance. This advanced ensemble will be an ambassadorial instrumental ensemble. This is an auditioned, Honors-level ensemble.

** Admittance into the Honors-level instrumental ensembles will be based on an audition for new and returning members at the beginning of the year.*

INTRODUCTION TO SONGWRITING AND MUSIC PRODUCTION

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

Songwriting and Music Production takes the student through the complete songwriting process, from constructing a song to producing a final mix of the song. Students will become familiar with song form and lyric schemes, and become more thoughtful and appreciative listeners. In addition, class assignments will enhance knowledge of simple scales, chords, and rhythms, which will further inform composition work. This class meets in the Vidcast Studio to utilize the latest in music software and recording equipment.

SONGWRITING AND MUSIC PRODUCTION 1

Grades 10–12; spring semester; ½ credit, meets 4 times per 7 day cycle

Songwriting and Music Production 1 takes the student through the complete songwriting process, from constructing a song to producing a broadcast ready version of the song. Students will become familiar with song form and lyric schemes, and become more thoughtful and appreciative listeners. In addition, class assignments will enhance knowledge of simple scales, chords, and rhythms, which will further inform composition work. This class meets in the Vidcast Studio to utilize the latest in music software and recording equipment. The class is capped at 16 participants.

SONGWRITING AND MUSIC PRODUCTION 2 AND 3 AND PORTFOLIO

Grades 11, 12; spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Completion of Songwriting and Music Production 1 (for Level 2) and 2 (for Level 3) and 3 (for Portfolio).

Students will learn more advanced compositional techniques and further their knowledge of music production tools in this class. In addition, students will learn how to use virtual instruments and orchestrate within the computer. The final composition project is a fully realized song ready for promotion. Those interested in enrolling in this class must have successfully completed Songwriting and Music Production I, but not necessarily in the same school year.

PRIVATE INSTRUMENTAL LESSONS

Grades 9–12; full-year course; 0 credit

SCH Academy offers private instrumental instruction in all instrumental media and voice with superb performing artists and educators. Private instruction is provided after school and, in certain cases, during school hours. This service is offered for an additional fee above the cost of tuition and is not applicable for music course credit or the graduation requirement in music. See the link in the "Key Parent Resources" tile in mySCH for more information.

VISUAL ARTS

(Grades 9–12)

INTRODUCTION TO SCULPTURE AND CERAMICS

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

This course is designed to provide a beginning experience in sculpture and wheel throwing (ceramics). Students will explore a variety of mediums including papier-mâché, clay, cardboard, and mixed media. We will also look at contemporary art from various perspectives. Emphasis will be on learning to build using basic design elements, function, aesthetics, creativity, and craftsmanship. Students will gain an understanding of essential vocabulary, and a playful approach to creating.

CERAMICS 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

This course introduces students to the aesthetic, concept, and design of ceramics. We will investigate tactility and the process of realizing form. Students produce work through the effective use of the potter's wheel, casting, jiggering, and/or hand building. This course introduces students to historic and contemporary ceramics, firing techniques, and glaze application.

CERAMICS 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Ceramics 1 (for Level 2) and 2 (for Level 3)

This course is designed to encourage more advanced research and individual focus in ceramics. Advanced handbuilding or wheel throwing techniques will be explored. Simple and complex mold making will also be covered. In-depth analysis of historical and contemporary ceramics helps direct students through their own personal exploration in clay. More advanced glazing methods and the discussion of glaze chemistry will be utilized in the production of student work.

CERAMICS PORTFOLIO

Grades 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Ceramics 1, 1 Semester of Ceramics 2 and 1 Semester of Ceramics 3

This course is designed for students who are considering Ceramics or Sculpture as a college major or for students who want to include a portfolio as a supplement to their college application. Students will create a body of work from a written thesis that generates a clear and focused portfolio. From there, the course will teach exhibition techniques and procedures for documenting the artwork. At the conclusion of the course, students will have a portfolio of 20 slides and an artist statement to complement their body of work.

INTRODUCTION TO DRAWING AND PAINTING

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

Introduction to Drawing and Painting explores the basics of drawing and painting. Students observe the form and structure of various subjects while they improve their skills, strengthen their vision, and begin to define their drawing and painting vocabulary. A variety of drawing media such as graphite, charcoal, brush, and ink as well as acrylic paint will be employed in the process of composing paintings and drawings in a range of different styles.

DRAWING, DESIGN, PAINTING 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

The class will explore a variety of approaches, including drawing from observation to learn the visual language that includes scale, proportion, perspective, composition, modeling, and spatial representation, while experimenting with a range of arts media, including pencil, charcoal, pen, brush and ink, scratchboard, pastels, and paint. Students explore different drawing techniques with an emphasis on working with line, mass, and color. Students will discover the connections between the arts and design. Two-dimensional design projects introduce students to more advanced color theory and painting. Instruction is geared towards inspiring students to develop personal creative ways to solve two-dimensional visual problems and enhancing both observational and conceptual skills.

DRAWING, DESIGN, PAINTING 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Drawing, Design, Painting 1 (for Level 2) and 2 (for Level 3)

This course will build upon the basic skills learned in Drawing, Design, Painting I. Students will explore style, aesthetics, drawing, and painting from different cultural frameworks. They will continue to build their skills and refine techniques from their observational work, while starting to explore concepts to inspire imaginative and symbolic art making. They will engage in integrating design principles with a focus on art evaluation and with an increasing discovery of artists and their work. Students will be encouraged to develop their own artistic voice within each project and learn to develop an artwork over a longer period of time. Each student is also asked to discover a range of working methods to include the change of scale in drawing or painting and investigating a range of different drawing and paint media. This level also provides time for each student to examine the process involved

in making a piece of art, so that one idea may culminate in multiple sketches or a variation of pieces that make up a whole project.

PRINTMAKING 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

This is a one-semester course exploring the art of printmaking. Students will develop their own ideas through a variety of printmaking processes, such as monotype, woodcuts, etching, and various combinations of these. The course will cover the history of printmaking and look closely at the works of pivotal figures in its development. The class will begin with several drawing projects emphasizing both drawing fundamentals and conceptual thinking. We will also engage in an interdisciplinary project examining the relationship of art with creative writing/poetry.

PRINTMAKING 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Printmaking 1 (for Level 2) and 2 (for Level 3)

Printmaking 2 students are encouraged to pursue their own ideas using various printmaking processes to develop them. The class will explore both technical and conceptual possibilities in greater depth, building on the skills learned in Printmaking 1. There will be an opportunity to work on a larger scale, combine different printmaking media, and the freedom to experiment with a variety of processes. Advanced printmaking students will be expected to challenge themselves technically and intellectually as well as enter their work in area competitions.

DRAWING, DESIGN, PAINTING AND/OR PRINTMAKING PORTFOLIO

Grade 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Two semesters of Drawing and Painting 2, Printmaking 2, or Woodworking 2

Students who wish to pursue their interest in 2D (Drawing, Painting, Printmaking) art beyond level three may continue at the portfolio level. This is an opportunity for students to design their own curriculum and delve more deeply into a specific area or work on developing a portfolio of their work for the college admission process. Each student will be assisted in the process of selecting and documenting work for their college portfolio. There will be an option for serious art students to be guided through the process of creating an Advanced Placement portfolio for review by the AP College Board. Students may opt to take this course in both semesters.

INTRODUCTION TO WOODWORKING AND PRINTMAKING

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

This course will introduce students to the fundamentals of both woodworking and the art of creating woodcut prints. The semester will be divided in half, one half devoted to Printmaking and the other to Woodworking. In the Woodworking segment, the students will design and build a dovetailed box. They will learn traditional joinery techniques and

work primarily with hand tools. The Printmaking portion of the class will focus on learning how to create a woodcut print. Important historical and contemporary figures in the field will be discussed and students will carve and print a block of their own design using traditional Japanese tools.

WOODWORKING 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Students will become familiar with all the power tools in the shop as well as joinery techniques, design options, and various methods of applying finish. Historically important styles and craftsmen will be discussed as they relate to the students' projects. Each student will build a project of his or her own design (a dovetailed box or table). Students will also learn to distinguish different species of wood by their color and grain and identify a variety of trees by their leaves.

WOODWORKING 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Woodworking 1 (for Level 2) and 2 (for Level 3)

Advanced woodworking students will be challenged to design projects building and expanding on the skills they acquired in Woodworking 1. An emphasis will be placed on creative design, joinery, and developing a greater sensitivity to the unique qualities inherent in different species of wood. Students will have the opportunity to work more independently as well as the possibility to employ laser-cutting techniques for marquetry (inlay design).

WOODWORKING PORTFOLIO

Grades 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Woodworking 1, 1 Semester of Woodworking 2 and 1 Semester of Woodworking 3

Students who wish to pursue their interest in woodworking beyond level three may continue at the portfolio level. This is an opportunity for students to pursue more advanced projects and further their skills. Students are expected to challenge themselves regarding design, joinery and reach for a higher level of refinement in their work. They will be assisted with documenting their projects if they wish to create a portfolio for their college application.

DIGITAL PHOTOGRAPHY AND PHOTOSHOP

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

In this course, students will learn basic photographic theory and procedures on a digital SLR camera provided by the school. Students will learn through a series of projects designed not only to familiarize them with the rich history of the art form but also to expand their visual abilities when framing a photograph. In addition, students will discover how Photoshop can be used to enhance, abstract, and change an image. Students will learn about digital file types and how to print and share their work.

PHOTOGRAPHY 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Students will learn basic photo theory and printing techniques using both a 35mm SLR film camera and a digital SLR camera provided by the school. Students will learn to produce traditional gelatin silver prints in the darkroom and digital inkjet prints adjusted in Photoshop. Photoshop will also be used to expand the possibilities for creative photo-based work, allowing for hybrid works employing both traditional and digital sensibilities. Students will be exposed to historically important work as well as the latest contemporary ideas representing the field of photography.

PHOTOGRAPHY 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Photography 1 (for Level 2) and 2 (for Level 3)

Advanced students are given the opportunity to refine their exposing, developing, and printing skills. Digital imaging is also explored in depth, with a greater emphasis placed upon individual artistic expression and acute visual awareness. Students compare and contrast traditional 35mm materials with a digital SLR camera and learn to use Photoshop to make the necessary adjustments to photos as well as explore the program's creative potential as a means of manipulating images. Projects are designed with the purpose of encouraging collaboration and helping the student more fully experience the creative process from initial concept to finish.

PHOTOGRAPHY PORTFOLIO

Grade 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Photo 1, 1 Semester of Photo 2 and 1 Semester of Photo 3

This class will be offered to a select group of advanced students who have expressed interest in working to produce a photographic portfolio for college submission. This portfolio can be the primary component to an art school application or function as a visual supplement, along with a range of other materials. This portfolio will consist of 12-24 high-quality digital images that have been selected based on technical and aesthetic quality, as well as stylistic and conceptual considerations. Also, a separate artist's statement and comprehensive written analysis of the body of work will be required for inclusion in the portfolio package.

NEW MEDIA

(Grades 10–12)

Dept. Chair: Ed Glassman – eglassman@sch.org

3D MODELING AND ANIMATION 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

This course will introduce students to Maya, the industry standard for 3D modeling and animation. Students will learn to navigate and build in virtual 3D space, creating objects and environments taught through projects designed to build new skills. By the end of the semester, students will be able to model and animate their own 3D character. This course can be extended into a second semester for those students interested in furthering their skills and creating more extensive animations.

ARCHITECTURAL DESIGN 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

This course will teach students the foundations of architectural design and theory. Key concepts such as abstraction, representation, program, plan, materials, historical context, and structure will be paired with studio design projects. Studio projects will teach critical thinking and the fundamentals of building design including architectural drawing, model making, and original conceptual development for a small-scale urban design. The class will simultaneously incorporate traditional and digital methods of design generation and visualization.

ARCHITECTURAL DESIGN 2 AND 3

Grade 10; spring semester; ½ credit Grades 11, 12; fall/spring semester; ½ credit , meets 4 times per 7 day cycle

Prerequisite: Architectural Design 1 (for Level 2) and 2 (for Level 3)

This course is a continuation of Architectural Design 1 and will focus on using Rhino's Grasshopper for form making through the computational design process. Students will utilize Grasshopper's algorithmic modeling tools in conjunction with Rhino software and traditional model-making tools in project-based learning, culminating in a final project that will involve building a scale model.

DESIGN PORTFOLIO

Grades 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Arch Design 1, 1 Semester of Arch Design 2 and 1 Semester of Arch Design 3

This course helps students prepare a Design Portfolio for those interested in design majors as they apply for college. These majors could include but are not exclusive to Architecture, Interior Design, Graphic Design, Digital Arts, Industrial Design, Interior Architecture, New Media and the Arts, and Animation. The student will work individually with the instructor and emphasize individual investigation and discovery with his or her body of art and design work. The student will create their portfolios specific to the college or university's requirements, including both paper/physical portfolios, or digital portfolios and web based portfolios.

DIGITAL ART AND GRAPHIC DESIGN 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Do you have a message to communicate? How do you send your message? If you use any visual medium at all—if you make a poster; type a letter; create a business logo, a magazine ad, or an album cover; even make a computer printout—you are using graphic design. Digital Art will teach students the concepts and aesthetics of computer-generated graphic design. Students learn about graphic design while working in Adobe Photoshop and Illustrator as well as with traditional art and design media. Projects involve digital imaging, typography, identity design, and page layout. The student's creative process and problem-solving skills are emphasized throughout the course.

DIGITAL ART AND GRAPHIC DESIGN 2

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Digital Art and Graphic Design 1

Digital Art 2 takes the next step into publishing, advertising, or in-depth artistic production. Students continue working in Adobe Photoshop and Illustrator, but also get an introduction to InDesign, as well as with traditional art and design media. Projects involve digital imaging, typography, identity design, and page layout. The student's creative process and problem-solving skills are emphasized throughout the course.

CODING 1- INTRODUCTION TO APP DEVELOPMENT

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Students will apply the skills, knowledge, and experience acquired in Intro to App Development towards a more involved app development programming experience. This course provides students an opportunity to build and deploy iOS applications using basic programming skills and iOS frameworks. Students learn the basics of object-oriented programming, basic data structures, and a solid understanding of how an iOS app is constructed. Using real-world industry tools and best practices, students create several working applications that grow in complexity throughout the semester. Additionally, students learn how to employ Agile Project Management and work in an environment similar to that of a traditional development shop, thus improving their ability to work well under pressure, their time management skills, and their ability to prioritize and delegate work. The course content is divided into five units, each of which teaches the necessary skills to build and develop an application. The units are sequential in terms of complexity and spiral concepts from previous app units.

CODING 2 AND 3- APP DEVELOPMENT

Grades 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Coding 1 (for Level 2) and 2 (for Level 3)

This iOS App Development course is a follow-up to Intro to App Development and App Development 1. This course provides students an opportunity to build and deploy an iOS application from end-to-end using a specific template and framework. Students will build on their knowledge of sequential and object-oriented programming, basic data structures, and overall understanding of how an iOS app is constructed. Similar to App Development 1, the course content is divided into five units, each of which is sequential in terms of

complexity and spiral concepts from previous app units. By the end of the first semester, students will experience building at least 10 apps. In the second semester, students will work on designing and developing unique and original app ideas with the goal of distributing them in the Apple App Store.

CODING – APP DEVELOPMENT PORTFOLIO

Grades 11–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Coding 1, 1 Semester of Coding 2 and 1 Semester of Coding 3

This portfolio course is designed to engage students in a comprehensive experience as a developer. Students learn advanced Swift programming skills, design thinking skills, development team skills (e.g., Agile Development), and client relationship skills. The program is also designed to be aligned with AP Computer Science – Principles, so students also investigate the social impact of a significant computing innovation and other areas of study and practices from AP CS-P. This is a course where students will have the opportunity to engage in a personalized programming experience based on a specific interest as well as skills and knowledge obtained in previous coding courses. Students will be required to write a short proposal outlining the experience they wish to engage in. Students are encouraged to approach this course with an idea in mind for an app they want to design/develop. Students who successfully complete the course possess a robust portfolio to showcase their skills to professional development teams.

INTRODUCTION TO VIDEO PRODUCTION, and ANIMATION

Grade 9; fall/spring semester; ½ credit, meets 3 times per 7 day cycle

Students in this class will explore digital storytelling in two different formats. Students will learn the foundational elements of what it is to tell stories through visual mediums. They will also engage with the question of why one would want to tell a story this way anyway. We will learn to use video cameras, lighting instruments, and microphones and will edit video work in Adobe Premiere Pro. Students will also create short stop motion animations. This project-based class is designed so students are learning as they create, and reflect on what they are making. The final project will be designed by the student and will be finalized in a format that the student can use to share their work.

VIDEO PRODUCTION 1

Grades 10–12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Students in the Video Production class will learn how to engage their audience through digital storytelling and filmmaking methods. Students will learn to operate a DSLR camera for video and will collaborate on short videos with their classmates. This is a project-based class and students are expected to design their production schedule. In the second quarter, students will work on a project of their own design. This content can range from documentary, news reports, narrative or experimental works, or public service announcements. In addition, students can choose to focus on animation projects in this class.

VIDEO PRODUCTION 2 AND 3

Grade 10; spring semester; ½ credit, meets 4 times per 7 day cycle

Grades 11, 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Video Production 1 (for Level 2) and 2 (for Level 3)

Video Production 2 is offered to students who wish to further their skills in all aspects of video production or 2D animation. Students will learn how to operate a DSLR camera in manual mode and will build on their knowledge of Final Cut Pro, Motion, and GarageBand. In addition, new skills will be introduced, such as shooting with multiple cameras, shooting action shots, and an introduction to After Effects, the industry standard for special effects and Motion Graphics. Students will design their own projects (independent or collaborative), and content can range from documentary, news reports, narrative or experimental works, or public service announcements. In addition, students can choose to focus on animation projects in this class.

VIDEO PRODUCTION – PORTFOLIO

Grade 11; spring semester; ½ credit, meets 4 times per 7 day cycle

Grade 12; fall/spring semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: 1 Semester of Video Production 1, 1 Semester of Video Production 2 and 1 Semester of Video Production 3

Video Production – Portfolio is offered to highly motivated Video students who wish to expand their knowledge in all aspects of video production by producing large-scale video works. Students are expected to work independently and gather the necessary crew needed for extensive shoots. The student and the instructor will meet before each new project to define new skills to develop and will work together to create a timeline for student work. Students can shape their projects in a variety of ways, and a portfolio will be completed by the end of the semester. Students will present their work to the Video Production class when each project is complete and each video will be showcased on the Vidcast YouTube site.

PERFORMING ARTS

(Grades 9–12)

THEATRE PRODUCTION

Grade 9; fall semester; ½ credit, meets 4 times per 7 day cycle

Students taking this course will work with other students taking Acting, Technical Design, Directing, and Playwriting, collaborating as part of a theatrical production team in the creation of live performances. This course is part of five Theatre Production courses meeting simultaneously in the same block. Students need to select between either an Acting or a Technical Design concentration

THEATRE PRODUCTION – ACTING

Grades 9–12; fall semester; ½ credit, meets 4 times per 7 day cycle

Students will explore and develop acting and communication skills, including improvisation, script analysis, character development, stage presence, and voice and movement techniques. This course meets simultaneously with the other Theatre Production courses as students collaborate in the creation of live performances.

HONORS THEATRE PRODUCTION – ADVANCED ACTING

Grades 10–12; fall semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Theatre Production – Acting

This course offers highly motivated theatre students the opportunity to further develop their acting and communication skills. Students will focus on the more advanced aspects of standard acting techniques and methods. This course meets simultaneously with the other Theatre Production courses as students collaborate in the creation of live performances.

THEATRE PRODUCTION – TECHNICAL DESIGN

Grades 9–12; fall semester; ½ credit, meets 4 times per 7 day cycle

Students will explore and develop aspects of technical theatre (crew), utilizing script analysis in the creation and construction of scenic, property, costumes, lighting, and sound designs. This course meets simultaneously with the other Theatre Production courses as students collaborate in the creation of live performances.

HONORS THEATRE PRODUCTION – DIRECTING

Grades 11, 12; fall semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Theatre Production – Acting and Theatre Production – Technical Design OR Theatre Production – Acting and Theatre Production – Advanced Acting

This course offers the highly motivated theatre student the opportunity to explore and develop aspects of theatrical directing, including higher level script analysis, effective blocking, use of tempo, dynamic, and articulation choices, and the successful coordination of actors and technicians. Students will also practice communication and leadership skills. This course meets simultaneously with the other Theatre Production courses as students collaborate in the creation of live performances.

HONORS THEATRE PRODUCTION – PLAYWRITING

Grades 11, 12; fall semester; ½ credit, meets 4 times per 7 day cycle

Prerequisite: Theatre Production – Acting and Theatre Production – Technical Design OR Theatre Production – Acting, and Theatre Production – Advanced Acting

This course offers the highly motivated theatre student the opportunity to explore and develop aspects of playwriting in the creation of original dialogue and stage directions. Students will utilize the standard play-script format and higher level script analysis as they edit and revise their work in order to more effectively communicate the story and message of their play. This course meets simultaneously with the other Theatre Production courses as students collaborate in the creation of live performances.

HISTORY OF MUSICAL THEATRE

Grades 10–12; spring semester; ½ credit, meets 4 times per 7 day cycle

This survey course introduces and explores musical theater “from page to stage” as a live performance art form. Topics will include the relationship between theater and society — by putting shows into their greater cultural and historical context — and dramatic structure, theatrical representation, and production challenges. From classics like *Oklahoma* to historically-based masterpieces like *Hamilton* and *Come from Away* to modern commentaries like *Rent* and *Tick, Tick, Boom*, the course will feature listening, reading, discussion and engaging with live performances and video archives of past performances of pivotal musical theater productions.

COURSE OFFERINGS: ATHLETICS

GENERAL INFORMATION

Athletic Director: Dave Wilson – dwilson@sch.org

The Upper School Athletic program is set up on an elective basis. Below are the requirements for the school year 2023-2024:

- Freshmen, sophomores, and juniors must participate for two seasons. One season requires participation on an athletic team as a player, manager, videographer, or Fit for Life (5 days a week spring and fall seasons only). The second requirement must be fulfilled as a player on an athletic team, by taking PE or by participating in Robotics (3 hours per week in lab, outreach, competition, or competition support), Players (90 hours total per season cast or crew/tech), SCH Volunteers (3 afternoons per week for one season),
- Seniors must participate for one season on an athletic team as a player or manager or be enrolled in Fit For Life (5 days a week spring and fall seasons only).

Students considering participation on an athletic team should seriously consider the commitment they are making to their sport. All players at all levels are expected to meet the time, effort, and demands to become proficient in the skills and strategies of their sport. Attending all practices, games/matches is mandatory, including pre-season and vacation for anyone hoping to make Upper School teams. Any exceptions will be considered on a case-by-case basis. This attendance is also required for managers and videographers. A varsity athlete who leaves a team at any point for any reason becomes ineligible for credit and end-of-season awards.

Please read the Notes below. Any questions should be directed to either the appropriate coach or the Director of Athletics, Dave Wilson at 215-247-7200 ext 7210 or dwilson@sch.org.

Below is the list of sports that are offered for the 2023-2024 school year:

Fall	Winter	Spring
Crew (B/G) <i>experienced only</i>	Crew (B/G)	Crew (B/G)
Cross Country (B/G)	Basketball (B/G)	Baseball (B)
Field Hockey (G)	Ice Hockey (Coed)	Golf (G)

Football (B)	Squash (B/G)	Lacrosse (B/G)
Golf (B)	Indoor Track (B/G)	Outdoor Track (B/G)
Soccer (B/G)	Wrestling (Coed)	Softball (G)
Tennis (G)		Tennis (B)
Volleyball (G)		Fit For Life (Coed)
Fit For Life (Coed)		

NOTES:

1. **Tryouts are dependent on numbers in each season. Traditionally, the below sports will have a limit on participants:**

Fall: Crew (B/G); Golf (B); Tennis (G); Volleyball (G); Soccer (B/G)

Winter: Basketball (B/G); Squash (B/G); Crew (B/G)

Spring: Baseball (B); Crew (B/G); Golf (G); Tennis (B)

Manager and Videographer positions are LIMITED and will be granted to returning managers first, then on a first-come basis. Please email Ms. Keough with interest.

2. **Crew – Fall:** The fall crew program (B/G) is for experienced rowers only. There is a cost associated with this program and no transportation is provided to the boathouse/river.
3. **Pre-season Fall Information:**
 - Pre-season practice is a two-week period (the 2 weeks preceding the first day of classes)—three weeks for football.
 - Teams traditionally practice at least once a day, and for some teams twice a day, every day, until the beginning of school. **These practices are mandatory for anyone wishing to participate on either a varsity or junior varsity team. Any exceptions will be considered on a case-by-case basis.**

INDEPENDENT ATHLETIC WAIVERS

- Students can only get credit for an independent activity for 1-2 seasons per year.
- Students must participate in the activity for a minimum of 10 hours per week.
- Students must be participating in a **SPORT** not offered at SCH Academy.
- Students must be training for competition in that sport.
- Only students in good academic standing will be considered.

All independent athletic waiver requests are subject to approval by the Athletic Director.

COURSE OFFERINGS: SANDS CENTER FOR ENTREPRENEURIAL LEADERSHIP (CEL)

GENERAL INFORMATION

Dept. Chair: Ed Glassman – eglassman@sch.org

The Sands Center for Entrepreneurial Leadership (CEL) provides unique learning opportunities that empower students to tackle any challenge using entrepreneurial thinking. These classes incorporate technology, design, and entrepreneurship in a hands-on, project-based fashion. At SCH Academy, entrepreneurship is far more than just business. It is a unique way to look at the world: a perspective that will move a student from thought to action—from “I wish this was better” to “I am going to make it better.” The skills and habits of mind that students will acquire through these CEL classes will help them to become entrepreneurial problem solvers.

WHAT CLASSES ARE OFFERED?

Students in 9th grade will be offered four Entrepreneurial Leadership course options, outlined in the section below. 9th graders will pick two experiences. These classes will introduce students to a variety of entrepreneurial, design, and technology skills. In 10th grade, students will tackle a CEL Capstone Project—a student-defined project that utilizes key entrepreneurial skills in the pursuit of creating a product or service, a software application, a social entrepreneurial endeavor, or a creative project. In 11th and 12th grade, students can continue their entrepreneurial pursuits through a variety of classes offered by the New Media, Engineering, and History Departments, as well as the CEL Venture Accelerator program. CEL classes will meet three times in the 7-day cycle.

REQUIRED COURSES

PRODUCT DESIGN

Grade 9; required, meets 3 times per 7 day cycle

Offered by the CEL and New Media Departments, this class introduces students to creative problem solving through design. Students build visual literacy skills and engage in the design process involving 2d drawing with Adobe Illustrator, and 3D modeling and prototyping with the laser cutter, vinyl cutter, heat press, and 3D printer. Throughout the semester-long course, students learn to identify problems and seek solutions in real-world projects that teach the basic skills of Product Design.

INTRODUCTION TO MICROPROCESSORS AND CODING

Grade 9; required, meets 3 times per 7 day cycle

This CEL course, offered by the Engineering Department, will serve as an introduction for students to the basic concepts of electronics and microprocessors, including the C Programming language. Utilizing the SparkFun Inventor's Kit and its Arduino UNO microprocessor, students will create a prescribed series of circuit designs and programs, building an understanding of the circuits, their components, and the C Programming language. They will then embark on a design project using the Arduino processor to create a solution to a defined problem. Each student or group of students will perform a problem analysis and brainstorming process to identify a solution. They will then have to procure the necessary resources (sensors and actuators) and program the Arduino to solve the identified problem. Recent projects include automatic track following model race cars, self-navigating sailboats, digital dog collars using GPS and digital fences, sensor activated hydroponic gardens, self balancing quadcopter drones, digital alarm clocks and coin operated vending machines.

BUSINESS FUNDAMENTALS

Grade 9; required, meets 3 times per 7 day cycle

In this course, students will learn some of the fundamental skills for success in entrepreneurial ventures. We will begin by learning how to plan, analyze, and manage projects. Students will develop their "soft skills" such as collaboration and communication required for success in team environments. From there, we will begin the study of product development with a focus on small businesses and start-ups. This unit will familiarize students with some tools for idea generation and evaluation, culminating in the creation of a full plan for a product launch. Lastly, students will learn some of the basics of product marketing and brand management. This will include case studies of highly successful marketing campaigns and conclude with students developing their own marketing campaign for a product of their choice.

INTRODUCTION TO APP DEVELOPMENT

Grade 9; required, meets 3 times per 7 day cycle

This course is designed to help students build a solid foundation in programming fundamentals through building mobile apps for Apple's mobile devices using the language and tools of professionals – Swift and Xcode. Students will gain practical experience with the tools, techniques, and concepts needed to build a basic iOS app from scratch. Students will also learn basic user interface design principles, which are fundamental to programming and making great apps. Throughout this course, students experience an authentic workplace environment as they develop and apply the skills of social problem-solving, creativity, research, collaboration, and communication to industry best practices, such as paired programming and rapid iteration. The apps students build in this course will concentrate on solving problems with an intersection between their passion and developing an app to find adaptive ways of coping with social issues that are considered problematic in today's world. Students will be given 2 challenge prompts to choose from that involve social problem solving, and subsequently be placed in a group to

collaboratively build an app to address the challenge at hand. Students apply the same development cycle as those in the workplace, which means students build an app, analyze errors in code, and adjust to solve the problem they have identified. To do this well, they must implement resourcefulness while collaborating with their peers, the same way they will have to in the real world. Students will leave this class with a minimum viable prototype of an app that they can continue working on in the 10th grade CEL capstone and/or Coding elective sequence, along with a collection of skills highly valued in the workplace today.

CEL CAPSTONE

Grade 10; required, meets 3 times per 7 day cycle

Students will pursue a project of their own design, utilizing the skills that they have acquired through their prior CEL experiences. With the guidance of a lead faculty mentor, as well as subject matter experts, students will work in small teams to design a product or service, a software application, a social entrepreneurial endeavor, or a creative project. The CEL capstone will culminate in a showcase event, where each student team will display, demonstrate, and present their work in a public forum.

ELECTIVES

STATISTICS AND FINANCIAL LITERACY

Full year course; 1 credit, meets 5 times per 7 day cycle.

Prerequisite: successful completion of PreCalculus/Trigonometry

Interpreting data and making informed financial decisions is something that no future citizen can avoid. We begin collecting and using data at very early ages to understand sports, business trends, and weather predictions. Financial decisions that we make early on in our lives can have positive and adverse effects on our quality of life as older adults. In this full year course, you will become critical consumers of data while learning how to leverage this data and other mathematical concepts to make informed financial decisions. Within these contexts, you will engage with the financial topics of taxes, bank accounts, budgeting, investing, credit, paying for college, and insurance by leveraging key mathematical concepts and skills from algebra, functions, modeling, correlation, probability, and descriptive and inferential statistics.

THE PSYCHOLOGY OF HAPPINESS

Grades 11, 12; elective; spring semester; ½ credit, meets 5 times per 7 day cycle.

How do we find our own happiness? And how do we keep it once we have it? There is so much pressure and many misconceptions based around happiness. What does it mean to find purpose and be whole? What about the inbetween? This class will incorporate research on positive psychology, the science of wellness and human behavior. Using project-based learning, students will explore mindfulness practices, the science of wellbeing, gratitude and the creation of healthy habits. Students will engage in a series of positive activities designed to give them a sense of how the theories can be applied to their

own lives, and at the end of their study students will create a podcast explaining how they have come to define and explain happiness for themselves.

VENTURE ACCELERATOR

Grade 10–12; fall/spring semester; elective; ½ credit, variable meeting times per cycle.

Prerequisite: Submission of application prior to enrollment

The Center for Entrepreneurial Leadership's Venture Accelerator (CELVA) is now offered as an elective option for students in grades 10, 11, and 12. This semester-long experience is a forum for students to learn entrepreneurship by doing, where students have the opportunity to work on real ventures under the guidance and tutelage of accomplished entrepreneurs and professionals. Students will be accepted into this elective by application—submitting for-profit, non-profit, advocacy, and personal project ideas for consideration. Students may use the elective to continue their work on either a pre-existing venture or new venture. Outstanding work within the CELVI elective can result in departmental distinctions and seed funding grants.

COURSE OFFERINGS: ENGINEERING, ROBOTICS, AND COMPUTER SCIENCE

GENERAL INFORMATION

Dept. Chair: Peter Randall – prandall@sch.org

SCH Academy challenges every student in the Upper School to explore the process of design and fabrication of complex objects and systems. Through a broad-reaching curriculum starting with the 9th and 10th grade seminars on design, prototyping, and fabrication through the 12th grade advanced programming and CAD/CAM courses, SCH allows each student to develop the skills to see and work in three dimensions, employ rigorous design processes, and learn the techniques of prototyping and fabrication. Students who choose to are able to participate in our world-class robotics program where they will compete with the best pre-engineering students from around the world.

MECHANICAL ENGINEERING, CAD, AND CAM

Grades 10–12; elective; fall semester; ½ credit

This one-semester fall course is a precursor to the spring Engineering Design and Robotics course for those students interested in Mechanics, CAD (computer aided design), and CAM (computer aided manufacturing). This course will explore the use of AutoDesk Fusion 360 for the design of complex three-dimensional objects and their manufacture through the use of the Tormach CNC (computer numerically controlled) milling machine, MakerBot 3D printer and Epilog laser cutter. Each student will be challenged to design and manufacture

a specific mechanical device, such as a gearbox, drivetrain, or other mechanical system, to meet specific design criteria for our FRC Robotics platform or a specific design project for the school community or others. In addition to the core mechanical and design curriculum, students will be challenged to work with real-life constraints of time, cost, weight, and size as well as working in groups and presenting their projects to competitive review.

PROGRAMMING REAL-WORLD SYSTEMS

Grades 10–12; elective; fall semester; ½ credit

This course offers students an introduction to computers, computer sciences, programming, and microprocessor control systems. For this course, we will be using the “C,” Java, and LabVIEW programming languages. Students will begin by exploring the history of computers and programming. Starting with the C programming environment, we will focus on the software development method, algorithms, data and control structures, and structured programming techniques. We will follow that with work in Java and the LabVIEW graphical programming environment. We will spend a significant amount of time working on the special challenges of programming robots. Working with a variety of sensors and control systems, students will develop algorithms that will direct a robot to solve a maze of unknown structure or drive in a predetermined path. Students will explore the unique challenges of programming for the “real world” where systems have momentum, friction counts, and gravity is the law, not just a good idea.

ENGINEERING, DESIGN, AND ROBOTICS 1

Grades 10–12; elective; spring semester; ½ credit

Prerequisite: Mechanical Engineering, CAD, CAM and departmental approval

This course will introduce students to the engineering and scientific aspects of problem solving. This completely project-based course allows the students to work on a design-and-build project of their own choosing (subject to faculty approval). Depending on the project, students will have to learn CAD/CAM, real-time programming, mechanics, and fabrication. Students will learn how to operate some of the sophisticated tools, such as the CNC Milling Machine, 3D printer, and laser cutter. Recent projects have included a fully functional student-sized hovercraft, an eight-motor “Octocopter” with microprocessor-controlled gyro stabilization and GPS navigation, a self-navigating model sailboat, a four-wheel independently steerable robot drive system, and a 3D printer that prints chocolate. We are currently working on a multi-year project to construct a Bede 4C four-passenger single-engine airplane. It is important to recognize that as a project-based class, there is minimal direct instruction and students will be required to be self-motivated to learn new material on their own and complete their project on time and on budget.

MECHATRONICS 301

Grades 10–12; elective; spring semester; ½ credit

Prerequisite: Mechanical Engineering, CAD, CAM, and departmental approval

Mechatronics is the intersection of mechanical and electrical/electronic engineering. In this course (fashioned after a junior level engineering course from Columbia University), we will develop solutions to challenges based on the Arduino microprocessor, a variety of sensors, the C programming language, and various mechanical systems. Students will be required to

develop a mastery of C without any direct instruction. They will be provided with source material, tutorials, and support, but must be sufficiently self-motivated to work independently to develop their own expertise. While the basic challenges are progressive and predefined to develop the required skills, the final challenge will be unique and students may find that they are working on entirely different projects or parts of a larger project. In the past, challenges have included the development of an autonomous weather station to be flown in a high altitude glider, the navigation and control system for the high altitude glider, reprogramming the control system for an FRC robot from the competition-required cRIO to an Arduino processor and an Arduino-based control system for a 5-axis mechanical arm.

HONORS ENGINEERING, DESIGN, AND ROBOTICS

Grades 11, 12; elective; full year; 1 credit

Prerequisite: Engineering, Design, and Robotics 1 and departmental approval

This honors-level Engineering and Design course is for accomplished engineers. Students in this class must have completed Engineering, Design, and Robotics 1 and obtained faculty permission to take this course. Students who have had either CAD/CAM or Real-Time Programming will be at a distinct advantage. It is important to recognize that as a project-based class, there is minimal direct instruction and students will be required to be self-motivated to learn new material on their own and complete their project on time and on budget.

AERONAUTICAL ENGINEERING AND PRIVATE PILOT “GROUND SCHOOL”

Grades 11, 12; elective; full year; 1 credit

This course is being taught in conjunction with our Design and Engineering project to build a Bede 4C four-passenger airplane. Covering such topics as aerodynamic principles, airplane electrical and mechanical systems, navigation, meteorology, communications, and flight performance, this course will prepare students to take the FAA Private Pilot Knowledge Test. This course will be taught with a variety of content, including textbooks, online and video-based tutorials, and flight simulators. This course does not include any flight training, which needs to be obtained from an FAA-certified flight instructor.

ASSOCIATED ROBOTICS ACTIVITY

During the spring semester, students are encouraged to join the SCH Robotics Activity and participate in the annual FIRST Robotics Competition. FIRST is an international robotics competition in which teams of high school students compete by building a large-scale robot (2' x 3' x 5' and 150 lbs.) that accomplishes a particular task. Students will work on a specific part of this problem as part of the team. The Robotics Activity runs through the winter and spring sports seasons and is most intense during the design and building phase (January and February). Space will be limited.

Important: Participation in the FIRST Robotics Competitions may include travel to regional and national competitions. Each competition consists of three full days (Thursday–Saturday or Friday–Sunday) of competitions plus travel time. In the past, these competitions have

run from early March to late April and have included destinations in Hartford, CT, Washington, DC, St. Louis, MO and Detroit, MI, in addition to the local events in the Philadelphia area. One competition has historically occurred over spring break. While attendance at these competitions is optional, students participating in the Robotics Activity are encouraged to plan on attending at least one. If the student chooses to attend a particular competition and is not able to raise sufficient funds through various student fundraising activities, the travel costs associated with attending the competition (food, lodging, and travel) will be charged to the student's account. In the past, these costs have been as follows: Local \$0; National \$600.

COURSE OFFERINGS: ENGLISH

GENERAL INFORMATION

Dept. Chair: Rebecca McWilliams - rmcwilliams@sch.org

Our English program cultivates a lifelong passion for reading and writing and promotes student discovery and engagement. SCH students learn to think, read, write, and speak with clarity and conviction. They identify questions and share opinions about texts, wrestle with complex ideas, build persuasive arguments and interpretations, and use writing as a means of creative expression. Students will examine classic and contemporary literature, as well as diverse forms of media.

The courses in our required sequence (9th–11th) emphasize close reading and analytical writing. Twelfth grade English consists of semester-long electives or AP English. The department's electives offer students the opportunity to investigate a new and specific realm of study. As schedule and space permit, juniors may enroll in selected electives in addition to their core English course. In grades 10-12, the department offers Honors and AP options. Placement in Honors and AP is determined by the department.

Summer work is required for all English courses, and students who change their English electives after reading materials have been distributed must contact the English Department to be sure they do the appropriate summer assignment. Also, it is the expectation that any students who add a course during the add/drop period will complete the summer work for the added course.

REQUIRED CLASSES

THE INDIVIDUAL AND SOCIETY (Freshman English)

Required; full-year course; 1 credit

Summer reading required

This course helps students read texts closely and unpack multiple levels of meaning in order to deepen and complicate their understanding of themselves in relation to the world around them. Students learn to see writing as a collaborative process that involves drafts and revisions, and they strengthen their skills and confidence in written and oral expression. The course is writing-intensive in nature and will incorporate close study of paragraph and essay structures as well as grammar, mechanics, and vocabulary. In order to give students meaningful opportunities to learn and develop, this course will incorporate the following: group projects, formal writing assignments, Socratic seminar discussions, project-based learning experiences, and portfolios of creative work. Texts are drawn from a range of genres (novels, plays, short stories, poetry, and nonfiction) and may include *In the We Are Not Free* (Chee), *Antigone* (Sophocles), *Fahrenheit 451* (Bradbury), and *I Was Their American Dream* (Gharib).

READING THE WORLD (Sophomore English)

Required; full-year course; 1 credit

Summer reading required

In Reading the World, students explore questions of identity, community, gender, race, and class through a focus on global voices. This course continues the arc of 9th grade by asking students to take their new competencies in close reading, critical thinking, student-led discussions, and persuasive writing into challenging works that experiment with literary form. Texts are drawn from a range of genres (novels, plays, short stories, poetry, and nonfiction) and may include *Born a Crime* (Noah), *Othello* (Shakespeare), *Night* (Wiesel), *Klara and the Sun* (Ishiguro), and selected poems and short stories.

HONORS READING THE WORLD (Sophomore Honors English)

Required; full-year course; 1 credit

Summer reading required

In Reading the World, students explore questions of identity, community, gender, race, and class through a focus on global voices. This course continues the arc of 9th grade by asking students to take their new competencies in close reading, critical thinking, student-led discussions, and persuasive writing into challenging works that experiment with literary form. At the honors level, students are guided to unpack more complex texts and develop more nuanced writing. Texts are drawn from a range of genres (novels, plays, short stories, poetry, and nonfiction) and may include *Born a Crime* (Noah), *The Tempest* (Shakespeare), *Night* (Wiesel), *A Handmaid's Tale* (Atwood), and selected poems and short stories.

AMERICAN STORIES (Junior English)

Required; full-year course; 1 credit

Summer reading required

Students learn how to read literary works with greater accuracy and interpretive skill and how to write analytical and personal essays with more polish, persuasiveness, and coherence. The literature studied over the course of the year comprises novels, short stories, essays, poetry, and plays. There is a focus on the literary elements and structure of these works and on a thematic study of the American dream and the invention of the self. Major literary works may include *The Things They Carried* (O'Brien), *The Great Gatsby*

(Fitzgerald), *Their Eyes Were Watching God* (Hurston), *The Vanishing Half* (Bennett), and *Angels in America* (Kushner).

HONORS AMERICAN STORIES (Junior Honors English)

Full-year course; 1 credit

Summer reading required

Prerequisite: Departmental approval

Students learn how to read literary works with greater accuracy and interpretive skill and how to write analytical and personal essays with more polish, persuasiveness, and coherence. At the honors level, they learn to assume greater ownership in discussions, independence in writing, and creativity with their intellectual curiosity. The literature studied over the course of the year comprises novels, short stories, essays, poetry, and plays. There is a focus on the literary elements and structure of these works and on a thematic study of the American dream and the invention of the self. Major literary works may include *The Things They Carried* (O'Brien), *The Great Gatsby* (Fitzgerald), *Song of Solomon* (Morrison), *The Vanishing Half* (Bennett), *Angels in America* (Kushner), and selected essays, short stories, and documentary films. Honors students are expected to analyze literature in greater depth and write with nuance and precision. They are encouraged toward greater independence in their writing and to take greater ownership by investigating topics that spark their intellectual curiosity.

ENGLISH ELECTIVES AND AP ENGLISH

Please note: The English Department's elective offerings are subject to change depending on faculty availability and student sign ups. Asterisk () denotes NCAA-approved English elective.*

INTRODUCTION TO CREATIVE WRITING*

Grades 10–12; elective; fall semester; ½ credit

Summer reading required

Good writing in any form—essays, poems, or stories—reaches across the gap between writer and reader and makes the reader gasp in surprise, laugh with delight, consider new perspectives, feel, and think in new ways. But good writing doesn't just fall from the sky or spring, fully formed, into its creator's mind; it is the product of conscious choices. In this course, students will focus on these conscious choices of writers, by analyzing what makes nonfiction, poetry, and fiction effective. Students will read works by a variety of writers and investigate how each of the authors' choices affects the finished work. Students will write analytical essays, short pieces, journals, poems, polished drafts, and everything between. Students will be required to share their drafts and writing collections with their peers through writing workshops. The goal of this course is to stretch our imaginations and become better writers. Course texts will vary while studying particular genres.

ADVANCED CREATIVE WRITING*

Grades 10–12; elective; spring semester; ½ credit

Prerequisite: Introduction to Creative Writing

“Fiction that isn’t exploring what it means to be human today isn’t art.”

~ David Foster Wallace

This course builds on the foundational skills students developed in Introduction to Creative Writing and allows them to delve deeper into their craft. In this cross-genre course, students will focus on those elements that make for vivid, effective writing: significant detail, lyrical language, and memorable images; inventive metaphor and simile; resistance to cliché; and authentic voice, dialogue, and characterization. Students will be challenged to reflect on their growth as writers and work to see themselves as part of a community of writers through Writer’s Workshops, peer edits, and the use of a portfolio. The course will focus on fiction, poetry, and/or nonfiction. Course texts may include *Vampires in the Lemon Grove* (Karen Russell), *The Making of a Poem* (Eavan Boland), and numerous short stories, poems, and personal narratives.

FOUNDATIONS OF DRAMA

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

This course aims to discover the roots of Western theater through an exploration of texts now considered fundamental to playwriting. After reading *The Importance of Being Earnest* by Oscar Wilde, a play that is renowned for both its wit and artistic merit, we’ll decide as a class which play we’ll read to gain a deeper understanding and appreciation for ancient Greek theater. Then, our second quarter will propel us centuries into the future to an equally important, foundational figure in the playwriting world: William Shakespeare. As a class, we’ll decide which play (tragedy, history, or comedy) we read and act out. This course will include analytical writing, creative writing, and the opportunity to bring our texts to life in class each day. Texts include *The Importance of Being Earnest* by Oscar Wilde (summer reading), *Lysistrata* by Aristophanes, *Oedipus Rex* by Sophocles, and a Shakespearean play.

CONTEMPORARY DRAMA

Grades 11, 12; elective; spring semester; ½ credit

Drama. Secrets and lies. Gossip and vengeance. Triumph and despair. In this course, we’ll seek to explore what contemporary playwrights have been creating in the last 25 or so years and how that reflects on our own lived experiences. Our plays will explore the depth of family secrets, the path ambition sets us on, how a single tragedy can reflect wounds at the core of society, and how beautiful everyday life can be. This course will include the opportunity for reflective writing, analytic writing, and creative writing (especially in the form of playwriting). This course will also include the opportunity for a field trip or two to experience the incredible live theater that is performed right in our own city of Philadelphia. (Note: Foundations of Drama is NOT a prerequisite for Contemporary Drama) Texts include *August, Osage County* by Tracy Letts; *Disgraced* by Ayad Akhtar and other plays.

MONSTERS AND THE MONSTROUS IN LITERATURE*

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

In this course, we will explore the figure of the monster in myth, literature, and film, keeping in mind the cultural and historical background of various tales, as well as some central questions: What makes a monster? What distinguishes human from monster? What can monsters tell us about the values, anxieties, and fears of the cultures in which they emerge? Through extensive in- and out-of-class reading, writing, and project-based activities, students will investigate what the cultural politics of monstrosity have to tell us about what it means to be human. Course texts may include *The Odyssey* (Homer), *Beowulf*, *Frankenstein* (Shelley), *We Have Always Lived in the Castle* (Jackson).

LITERATURE OF THE AMERICAS*

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

In *Literature of the Americas*, students will explore the literature of Central and South America and the diaspora of those voices, focusing on stories and histories that they may not have encountered! They will engage with the ways that history and religion combine in the Magical Realism of Garcia Marquez and will unpack how Neruda's tribute to warm socks can be so much more than what first appears on the page. We will digest the poetry of Pablo Neruda, the prose of Isabel Allende, Gabriel Garcia Marquez and Elizabeth Acevedo, and the musings of Eduardo Galeano. We may even get a chance to dive into world cinema with the works of Guillermo Del Toro and Patricia Cardoso. Possible texts include *100 Love Sonnets* by Pablo Neruda, *The House of Spirits* by Isabel Allende, *Chronicle of a Death Foretold* by Gabriel Garcia Marquez, *The Book of Embraces* by Eduardo Galeano, *With the Fire on High* by Elizabeth Acevedo, and various films.

RHETORICAL THEORY: PERSUASION IN PROSE AND POETRY*

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

This course aims to study rhetorical traditions and rhetoric's application in the composition process through the prisms of short nonfiction, speeches, and music. Rhetoric, the art of effective or persuasive communication, is practiced around us daily: on television, on the web, in our conversations, and on our iPods in our favorite songs. One of many goals in this course is to encourage students to be more aware and analytical of the messages broadcasted around them, and know that the "knowledge of rhetoric can help us to respond critically and appreciatively to advertisements, commercials, political messages, satires, [and] irony...of all varieties" (Corbett and Connors, 25). Texts: Course reader with selections from *Classical Rhetoric for the Modern Student*, excerpts from Aristotle's *Rhetoric*, President Kennedy's Inaugural Address, "The Allegory of the Cave," "Letter from a Birmingham Jail," in addition to excerpts from scholarly essays and song lyrics.

DYSTOPIAN LITERATURE*

Grades 11, 12; elective; spring semester; ½ credit

This course will investigate the art of dystopian literature and short stories. By definition, a dystopia is a society in which oppressive social control is maintained through the illusion of a perfect society. Authors have created countless societies whose founding principles or end goals seem noble and just, but the end result is the opposite. Part of the brilliance of the dystopian form is its ability to cultivate a discerning eye; as the reader dives deeper into this imagined world, harrowing elements of his or her own reality may be illuminated. Through reading a variety of dystopian literature, students will identify and analyze how authors inspire their readers to question the world around them. In short, how do authors make a statement about the real world through an exploration of the imagined? In addition to close reading and analysis, students will create several of their own dystopian societies that illuminate a social issue of concern. Texts include *1984* (Orwell) and several dystopian short stories, ranging from Shirley Jackson's "The Lottery" to Philip K Dick's "Minority Report."

FILM AS TEXT: THE ANALYSIS OF CINEMATIC LANGUAGE

Grades 11, 12; elective; spring semester; ½ credit

This course offers a critical understanding and deep appreciation of one of the most influential of modern popular art forms of our time. The beginning of the course serves as an introduction to cinematic language and techniques, and then we will survey the styles, genres, and history of landmarks in American cinema. In order to begin looking at films more analytically and perceptively, we will look at each film through a variety of interpretive, stylistic, and theoretical frames, exploring the relationship between culture and the movies. Through extensive in-class and out-of-class reading and writing, film viewings, and lively class discussion, students will also explore issues such as the relationship of film to narrative fiction and to dramatic literature. Texts may include *Adaptations: From Short Story to Screen* (ed. Stephanie Harrison) and *Looking at Movies: An Introduction to Film*, 3rd ed. (eds. Richard Barsam and Dave Monahan).

INTRODUCTION TO JOURNALISM*

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

French philosopher and journalist Albert Camus said that "journalism can never be silent: that is its greatest virtue and its greatest fault. It must speak, and speak immediately, while the echoes of wonder, the claims of triumph and the signs of horror are still in the air." Thus, the goal of the journalist is to illuminate the world, both its beauty and its horror. In this course, students will gain authentic journalism experience by becoming staff writers for our school newspaper as they learn what makes a story newsworthy, as well as how to write in a variety of journalistic formats, including news stories, editorials, and personality profiles. Additionally, students will examine how historically marginalized voices have been included and excluded from their own narratives. Possible texts include *The Influencing Machine* (Gladstone), selections from *In Fact: The Best Of Creative Nonfiction* (Gutkind),

Writing Tools (Clark), "The Media's Stereotypical Portrayals of Race," Sam Fulwood, "How Implicit Bias Works in Journalism" Isaac Bailey, in addition to excerpts from news and media outlets.

NARRATIVE NONFICTION*

Grades 11, 12; elective; spring semester; ½ credit

This course explores short creative nonfiction essays written by a diverse range of authors spanning from the 17th Century to today, such as Jonathan Swift, Frederick Douglass, George Orwell, Jhumpa Lahiri, Zora Neale Hurston, David Foster Wallace, David Sedaris, and Joan Didion. The selected essays will examine topics such as cultural analysis, nature and the environment, personal opinion, sports, and food among other topics. Students will conduct their own discussions on the elements that make this style of writing captivating, persuasive, and informative. Students will also compose their own creative personal essays and keep daily journals to practice their own voice and style on topics gathered from their own personal experiences.

CRIME, PUNISHMENT & JUSTICE IN AMERICAN LIT*

Grades 11, 12; elective; fall semester; ½ credit

Summer reading required

From Edgar Allan Poe's 1841 "The Murders in the Rue Morgue," to the rise in popularity of crime dramas, podcasts, and documentaries, America has nurtured an age-old fascination with crime and punishment. This course pushes students to examine literature and media in which crime, punishment, and justice are the main subject. Students will consider how these sources reinforce or dismantle stereotypes of victims and perpetrators, and how questions of right, wrong, and fairness have been and are understood. Students will be expected to write critically and host discussions to demonstrate understanding of the topic from various points of view. Finally, this course asks students to explore how crime, punishment, and justice is impacted by one's identity. More specifically, students will examine how crimes are represented in the media, and how justice is impacted by gender, race, ability, socioeconomic status, and cultural differences.

INTERTEXTUALITY: CONVENING AT THE INTERSECTION OF LITERATURE AND SOCIAL JUSTICE *

Grades 11, 12; elective; spring semester; ½ credit

When we dig beneath surface level meanings, what is literature? What is social justice? In what ways do literary works cause us to wrestle with questions of social justice and civil disobedience? This course will examine the ways in which literary works challenge or validate dominant ideologies, provide a framework for the formation of social and economic oppression, and elicit emotions that serve as a catalyst for social justice and change. Through a variety of texts relating to race, class, gender and sexuality, we will explore techniques employed by the author and ask the question *why* as it pertains to the

coloring of societal views and understandings of social justice issues as well as answer the *how* in terms of what we may do, as readers and writers, to emulate such techniques and apply them to another social justice issue. We/You will explore other aspects including, but not limited to, the role of the media, storytelling and personal testimonies in shaping our understanding of these issues. In addition to close reading and critical analysis, students will select a social justice issue to illuminate through writing of their own. Texts will include *Queer History of the United States for Young People* (Michael Bronski, Richie Chevat), *Panther Baby* (Joseph), *Kindred: A Graphic Novel Adaptation* (Duffy) and supplemental texts such as *Why I Write* (Orwell), *Playing in the Dark: Whiteness and the Literary Imagination* (Morrison) and “Civil Disobedience” (Thoreau).

THE BEAUTIFUL GAME: LIFE, DEATH, AND THE HUMANITIES*

Grades 11, 12; elective; spring semester; ½ credit

Bill Shankly, celebrated and influential manager of Liverpool Football Club, once said, “Some people believe football is a matter of life and death. I am very disappointed with that attitude. I can assure you it is much, much more important than that.” The import and aim of this course is to examine the human condition using soccer as the conduit. On a global scale, soccer—or, football, as it’s commonly known away from American shores—serves much the same purpose as religion or politics: a form of cultural identity for billions of people where allegiances and worldview, for better or worse, are generational and hereditary. In this context, the game is not only a metaphor for life, as suggested by Mr. Shankly, but also a promoter and purveyor of various societies across the globe. It’s also a game that has (and has had) many individuals who are heroes, anti-heroes, and tragic heroes, both on the field and off.

Through the prism of soccer, students will explore topics of power, politics, poverty, race/racism, and gender within the world’s “beautiful game.” Using the texts and documentaries listed below, students will see a game that, at its best, is one that brings people together highlighting the intensity and wonder of shared human experience. Conversely, at its worst, it is an enterprise that is “ethically fraught[,] morally bankrupt,” and lethal (*World Corrupt*). Possible Texts include selections from *The Ball is Round: A Global History of Football* (by David Goldblatt), *Soccernomics (2022 World Cup Edition): Why European Men and American Women Win and Billionaire Owners Are Destined to Lose* (by Simon Kuper & Stefan Szymanski) *Gazza Agonistes* (by Ian Hamilton) as well as various podcasts, documentaries and assorted poetry.

ADVANCED JOURNALISM*

Grades 11, 12; elective; spring semester; ½ credit

Prerequisite: Introduction to Journalism

For students who have taken Introduction to Journalism, this course builds on refining one’s journalistic skill set, such as finding the story, writing in a variety of formats, and capturing a scene with intricate details. Students will be required to pitch their own story ideas based on the principles of News Value and produce a variety of content including

news pieces, editorials, and features in the form of a student publication. Readings will include selections from major news organizations including *The New York Times*, *Sports Illustrated*, *Wall Street Journal*, and *The New Yorker*.

AP LITERATURE AND COMPOSITION*

Grade 12; elective; full-year course; 1 credit

Prerequisite: Departmental approval

Summer reading required

AP students may also enroll in additional English electives each semester if space permits.

This yearlong course focuses on works from the three genres highlighted on the Advanced Placement Literature and Composition examination: poetry, drama, and narrative.

Students read and interpret a wide range of texts written in varied styles and chosen from different centuries. Works studied may include novels and plays by Dickens, Chopin, Woolf, Conrad, García Márquez, Morrison, Shakespeare, Euripides, and Wilde, as well as poetry dating from the Renaissance to the 21st century. Students will also improve their writing skills through work on carefully argued, supported, and polished analytical essays. At the end of the course, students are prepared to take the AP Literature and Composition exam.

AP LANGUAGE AND COMPOSITION*

Grade 12; elective; full-year course; 1 credit

Prerequisite: Departmental approval

Summer reading required

AP students may also enroll in additional English electives each semester if space permits.

AP Language and Composition provides students with the opportunity to study the way rhetoric, the ancient art of persuasive speaking and writing, shapes our lives and our world. By reading and writing various forms of nonfiction, students will cultivate an understanding of author as architect, as well as the ability to analyze and articulate the way language operates in any text. Possible texts include works by Jonathan Swift, George Orwell, E.B. White, Annie Dillard, Martin Luther King, Zora Neale Hurston, and Judith Ortiz Cofer. Possible writing assignments include written response journals; letters; speeches; and personal, analytical, and persuasive essays. At the end of the course students are prepared to take the AP Language and Composition exam.

COURSE OFFERINGS: HISTORY

GENERAL INFORMATION

Dept. Chair: Sarah McDowell – smcdowell@sch.org

In today's dynamic global environment, a strong knowledge of history and the ability to think critically are an essential part of a 21st century education. SCH students study history in inquiry-driven classrooms that promote experiential learning and develop historical empathy. In 9th and 10th grades, students spend two years studying world history, beginning with the Neolithic Agricultural Revolution and ending in today's complex and rapidly changing world. Eleventh graders study American history from colonization onward. In 11th and 12th grades, students may choose from a diverse array of elective courses. Placement in Honors or AP sections is determined by the department.

REQUIRED COURSES

GRADE 9 FOUNDATIONS OF THE MODERN WORLD

Required; full-year course; 1 credit

Prerequisite: Departmental approval for Honors

This course examines the interactions among major societies that helped shape the modern world. The course begins in the Neolithic Revolution and continues to the Age of Exploration. Using a global perspective, students will explore the issues arising from interactions between humans and the environment, the development of social structures, the interaction of cultures, the creation and expansion of economic systems, and empire building. Research skills, creative analysis, and persuasive writing will be core components of the course.

GRADE 10 MODERN WORLD HISTORY

Required; full-year course; 1 credit

Prerequisite: Departmental approval for Honors

This course examines the interactions and connections among major societies of the world from the 1400s to the present day. Students will explore new human and environmental connections, increasingly complex economic systems, innovative ideas arising from technological innovation, the rise of the nation-state, worldwide warfare, and the development of international systems. Research skills, creative analysis, and persuasive writing will be core components of the course.

GRADE 11 U.S. HISTORY

Full-year course; 1 credit

Prerequisite: Departmental approval for Honors

The course covers the history of the United States from colonial times to the present, focusing on political, economic, and social issues. Students will explore how the United States developed over time into a world power as well as contemporary foreign policy issues. The course will examine the turning points in American history, including the American Revolution, the origins of our Constitution, reform movements, Westward Expansion, the Civil War and Reconstruction, the Gilded Age, World War I, the Great

Depression, World War II, the Cold War, and issues in the United States today. Research skills, creative analysis, and persuasive writing will be core components of the course.

GRADE 11 AP U.S. HISTORY

Full-year course; 1 credit

Prerequisite: Departmental approval

AP U.S. History will cover content and chronology similar to that covered in 11th grade History. Due to the breadth of material and the depth of understanding that students will be expected to obtain in AP U.S. History, there will be a significant summer assignment and regular extensive reading assignments during the school year. Nightly reading may be as much as 10 pages or more. Students will use primary and secondary readings in addition to their text. Students will engage in regular class discussions, research, and regular assessments, primarily based on AP-type questions. Students will also spend time writing in a variety of styles, including AP Free Response, responding to document-based questions, expository essays, and research-based essays.

ELECTIVES

INTERNATIONAL RELATIONS: MANAGING ANARCHY IN A GLOBALIZED WORLD

Grades 11, 12; elective; fall semester; ½ credit

The world is an anarchic system; no one country or organization is in control. How can nations achieve peace and security in a globalized anarchic world? Thanks to the information technology revolution and the growth of international governance and economics, the world has become closely tied together in ways we never imagined were possible. This course serves as an introduction to the theoretical tools necessary to analyze actions of countries and the nature of the international systems. Students explore how nations interact through IR theories and case studies, with an emphasis on history and political science. This interactive course provides students with the opportunity to apply their understanding of key concepts to historic, current and fictional events through simulations and research-based projects. In addition to reading Daniel Drezner's *Theories of International Politics & Zombies*, all students engage in the Statecraft simulation and conduct an in-depth research project.

HONORS GLOBAL SLAVERY AND EMANCIPATION

Grades 11, 12; fall semester; ½ credit

Prerequisite: Departmental approval

This course will study slavery as a social and economic system over time, beginning with the slave societies of ancient Greece and Rome, through the rise of African slavery and the Atlantic slave trade under the Spanish and Portuguese empires, through the growth and expansion of slavery in the U.S. South. The course will conclude by focusing on the global elimination of slavery in the second half of the nineteenth century and its tragic reemergence in recent decades, both in the United States and the world. The class will use

David Brion Davis' *Inhuman Bondage* as a textbook, and pair it with a selection of primary sources and academic articles. In addition to regular assessments, students will conduct an in-depth research project.

POP CULTURE IN AMERICA

Grades 11, 12; elective; fall semester; ½ credit

In this course students will take a critical approach to examining the evolution of American popular culture in various forms, including television, film, advertising, and theater. Students will begin the semester by exploring definitions of pop culture and high culture before embarking on a study of how popular culture has developed and changed in the century between the 1880s and the 1980s. Special emphasis will be put on how pop culture has both shaped and reflected ideas of race, gender, and sexuality. Students will conduct an in-depth research project.

WORLD WAR II IN EUROPE AND BEYOND

Grades 11, 12; elective; fall semester; ½ credit

Unlike broader survey courses, this course is intended to allow students to learn about one topic in considerable depth by spending the entire semester on a relatively short period of time and focusing on the theaters of WWII. Students will explore the origins of WWII in Europe and Asia, military strategies developed during the war, how the war affected those on the homefront, and the long-term consequences of the war. Sources include primary and secondary text sources as well as non-traditional sources, such as film, poetry, and music. Students will have the opportunity to conduct an in-depth research project.

CIVIL RIGHTS MOVEMENTS

Grades 11, 12; elective; spring semester; ½ credit

This course will examine barriers to equality that have existed in America at various times during the nation's history and the strategies employed by those who sought to dismantle those barriers, with a focus on the second half of the 20th century. While the experiences of numerous groups will be examined, the primary focus will be on the efforts to guarantee equality to African Americans (from abolitionism to the Black Lives Matter Movement), women and the LGBTQ Rights Movement. In addition to regular assessments, students will conduct an in-depth research project.

CLIMATE CHANGE AND ITS EFFECTS IN HISTORY

Grades 11, 12; elective; spring semester; ½ credit

In this course we will examine specific episodes of climate change and how they impacted world and national histories. From the die off of species in the Triassic and Jurassic transitions to the Little Ice Age to the Year Without a Summer, changes in climate have had profound effects on humans and other animals. We will explore how historians and scientists measure climate change in the past, what role changes in climate have had on human history, and how climate change has both led to terrible destruction and amazing innovation. Students will conduct an in-depth research project.

RACE, GENDER AND SEXUALITY IN AMERICAN SOCIETY

Grades 11, 12; elective; spring semester; ½ credit

This course is designed to explore the role of race, gender, and sexuality in American history. The class will examine definitions of these ideas in American society in order to understand how Americans have used race, gender, and sexuality to understand the world around them, create power relationships, and impose social order. Students will conduct an in-depth research project.

SPORTS AND SOCIETY IN THE U.S. AND THE WORLD

Grade 11 AND 12 ; elective; spring semester; ½ credit

Athletics are often seen as an escape from the real world, but they are also a reflection of that world. Athletics often intersects with controversies over race, class, and gender, and frequently connects to issues of social power and global economics. This class explores the history of sports, focusing on moments in time that speak to profound societal changes in the United States and the world. Topics include the fight for equal pay for the US women's soccer team, the controversy surrounding Colin Kaepernick and kneeling during the National Anthem, geopolitical sports rivalries like India versus Pakistan in cricket and the US versus the USSR in the Olympics, and the Supreme Court's recent decision against the "amateur" status of the NCAA. Particular attention will be paid to the history of sports in Philadelphia. Students will conduct an in-depth research project.

AP ART HISTORY

Grade 12; elective; full-year course; 1 credit

Prerequisite: Departmental approval

Advanced Placement Art History explores the history of art across the globe from prehistory to today. Students analyze works of art through observation, discussion, reading, writing, and research. AP Art History engages students at the same level as an introductory college art history survey. Students examine a core set of 250 images of art and architecture from diverse cultures as they respond to and interpret the form, content, process, and context of each work of art. The course is rigorous and requires dedication to learning and an interest in world history, the artistic process, and exploring art as primary source documents. Additionally, competency in a variety of skills, including close reading of texts, timed and academic writing, research, analysis, interpretation, and visual literacy, is an important focus of the course.

AP UNITED STATES GOVERNMENT

Grade 12; elective; full-year course; 1 credit

Prerequisite: Departmental approval

This yearlong class will provide a conceptual framework and an understanding of the United States government and politics that will enable the student to think critically about the political processes at work in American society. This is a political science course that studies the interconnectedness of the different parts of the American political system and

the behaviors and attitudes that shape and are a byproduct of this system. Though this course is designed to help prepare students for the Advanced Placement U.S. Government and Politics exam, its ultimate goal is to provide students with knowledge and skills to understand and actively participate in American politics and society. This course will focus on cultivating the skills of research, analysis, argumentation, and written and verbal communication. All students will engage in a civic action project of their choice. Students will differentiate between political and constitutional issues, as well as engage in nonpartisan and multi-partisan examination of content. Topics to be explored include: the Constitution & foundations of American representative democracy, political ideologies and beliefs, the political roles played by public opinion, the media, private interest groups, corporations, political parties, and social movements. Special attention will be paid to the 2020 elections and the results.

COURSE OFFERINGS: MATHEMATICS

GENERAL INFORMATION

Dept. Chair: Derrick Keister dkeister@sch.org

The primary goal of the Mathematics Department is to provide a curriculum that meets the academic needs of each student at Springside Chestnut Hill Academy. The Mathematics Department strives to develop opportunities for students to engage in active inquiry at every course level and to encourage students to achieve their highest mathematical potential.

All students are required to take four years of mathematics and some elect to take one or more additional elective math courses. The typical four-year sequence of mathematics begins with Geometry and extends through Algebra II, Pre-Calculus, Calculus, or Statistics. Courses in 9th and 10th grade are sectioned into Honors and College Prep while in 11th and 12th grade the classes are sectioned into Pre-AP, Honors, and College Prep, allowing for each student to be challenged at an appropriate level. The full range of AP mathematics and statistics courses are also offered and taught to the specific AP curriculum. Juniors are required to take the AP Exam or an AP-based final exam at year's end. Seniors may opt out of the AP exam. Students are required to have a graphing calculator. Students are encouraged to communicate with their math teacher, advisor, college counselor, and parents as they determine the appropriate sequence of courses for their high school program.

CONCEPTS OF ALGEBRA AND GEOMETRY

Full-year course; 1 credit

Prerequisite: Departmental recommendation

This course serves two purposes: 1) to strengthen and support students' algebraic understanding and reasoning skills, and 2) to introduce and support students' learning of geometry. By the end of the course, students will have reviewed, practiced, and developed their Algebra 1 skills to be fully prepared to take Algebra 2. They will have also developed their ability to reason by building definitions, writing logic statements, physically drawing geometric constructions, and writing proofs. Students arrive at the SCH Upper School from a wide variety of backgrounds, training, and experiences. Thus, this course has been designed to specifically accommodate a wide range of needs by use of blended instruction. It is a class that meets face to face and receives much direct instruction. There are also aspects of the class that use online resources to meet students where they are and allow students to work at their own pace on the areas they need the most help with and receive live help from the teacher right when they need it.

GEOMETRY

Full-year course; 1 credit

Prerequisite: Departmental recommendation

This yearlong study of geometry will include such fundamental concepts as points, lines, planes, angles, polygons, and perpendicular and parallel lines. The properties of triangles and triangle inequalities will be studied in depth. Right triangles, congruent and similar polygons, properties of quadrilaterals, coordinate geometry, right triangle trigonometry, and calculating areas and volumes of various 2D and 3D figures will also be studied extensively. Students use inductive reasoning to explore and discover geometric ideas via computer software and hands-on experiences. Students will use deductive reasoning, including informal and formal proofs, to solve various kinds of problems. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT.

HONORS GEOMETRY

Full-year course; 1 credit

Prerequisite: Departmental approval

The main topics in this geometry course are points, lines, planes, angles, polygons, perpendicular and parallel lines, and the fundamental axioms of geometry. In addition, topics include right triangles, congruent and similar polygons, properties of quadrilaterals, coordinate geometry, special right triangles, circles, triangle trigonometry, and properties of three-dimensional figures. Students use geometric ideas to solve problems, find relationships in complex drawings, and construct formal proofs. The ultimate goal is for students to think deductively. To be successful in the course, students must gain a mastery of the facts, see the connections among concepts, and synthesize interrelated ideas to present cogent arguments for their solutions to problems. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT.

ALGEBRA 2

Full-year course; 1 credit

Prerequisite: Successful completion of Concepts of Algebra & Geometry OR Geometry.

This course begins with a review and extension of topics presented in Algebra 1. Topics include linear, quadratic, and other polynomial functions, with an overview of solving

systems of equations. Students will investigate the complex number system. The study of Rational, Radical, and Exponential functions will be included as time permits. The numerical, graphing, and other features of the graphing calculator are used to explore and extend the skills and concepts covered. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT.

HONORS ALGEBRA 2

Full-year course; 1 credit

Prerequisite: A or better in Geometry, Departmental approval

This course covers linear, quadratic, polynomial, rational, exponential, and logarithmic functions. In addition, students study complex numbers, radicals, and systems of equations and matrices. To be successful, students must be able to analyze functions numerically, symbolically, and graphically. The numeric and graphing features of the graphing calculator are used to explore and extend the skills and concepts covered. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT. Students are required to have a graphing calculator.

HONORS ACCELERATED ALGEBRA 2 / TRIGONOMETRY

Full-year course; 1 credit

Prerequisite: A or better in Honors Geometry, Departmental approval

This course covers the same curriculum as the Algebra 2/Trig Honors above; however, students will be expected to analyze concepts at a more abstract level and move through the material at a faster pace and includes the study of trigonometric functions and their graphs. Students will analyze functions numerically, symbolically, and graphically. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT. The numeric, graphing, and programming features of the graphing calculator are used to explore and extend the skills and concepts covered.

PRECALCULUS/ TRIGONOMETRY

Full-year course; 1 credit

Prerequisites: Algebra 2 and Geometry

Precalculus is an introduction to the language and concepts of Calculus. Student understanding of functional analysis will be extended within the study of polynomial, rational, exponential, logarithmic, and trigonometric functions. Students will be looking at these functions from a numeric, algebraic, and graphic standpoint. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT.

HONORS PRECALCULUS/TRIGONOMETRY

Full-year course; 1 credit

Prerequisite: B or better in Honors Algebra 2/Trig, Departmental approval

Honors Precalculus/Trigonometry is a thorough preparation for Honors Calculus. In this course, functional analysis will be stressed. Topics include polynomial, exponential, logarithmic, trigonometric functions, and conic sections. The year concludes with a unit of

study on Limits and Continuity. Students are required to have a graphing calculator. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT. The numeric, graphing, and other features of the graphing calculator are used to explore and extend the skills and concepts covered.

HONORS PRE-BC CALCULUS

Full-year course; 1 credit

Prerequisite: B or better in Honors Accelerated Algebra II/ Trigonometry, Departmental approval

Pre-BC Calculus is a yearlong class in functions and limits that develops the theoretical underpinnings of calculus. The first semester expands upon what is learned in Accelerated Honors Algebra II/ Trigonometry with the study of Analytic Trigonometry, Conic Sections, and mathematical relationships defined with vectors, parametric curves, and polar equations. The second semester rigorously develops formal notions of limits of sequences and functions, as well as the theory of continuous functions (functional analysis). Differential calculus for single-valued functions of real variables rounds out the second semester.

DIFFERENTIAL CALCULUS

Full-year course; 1 credit

Prerequisite: Precalculus

Summer work required

Differential Calculus begins with a review of linear, absolute value, non-linear, rational, and piecewise defined functions. Calculus topics include limits, derivatives, and applications of the derivative. A variety of real-life applications taken from fields such as business, life sciences, economics, and physics are used throughout this course. As students move through the curriculum, they see concepts and problems that are related to questions on the SAT.

HONORS CALCULUS

Full-year course; 1 credit

Prerequisite: B or better in Honors Precalculus/Trigonometry, Departmental approval

In Honors Calculus, the theory of elementary functions and real-world applications of mathematics will be studied. Differential calculus and an introduction to integral calculus plus the applications of each will be explored. The course focuses on polynomial, rational, power, exponential, and logarithmic functions. Students are required to have a graphing calculator. (TI-84 Plus is recommended.)

AP CALCULUS (AB)

Full-year course; 1 credit

Prerequisites: B or better in Honors Precalculus/Trigonometry, Departmental approval

Summer work required

AP Calculus AB includes both the theory of elementary functions and real-world applications. Differential and integral calculus plus their applications will be studied in preparation for the Calculus AB exam. In addition to polynomial, rational, power,

exponential, and logarithmic functions, this course also includes work with trigonometric functions. *Juniors are required to take the AB level of the AP Exam or an AP-based final exam at year's end. Seniors may opt out of the AP exam.* Students are required to have a graphing calculator.

AP CALCULUS (BC)

Full-year course; 1 credit

Prerequisites: B or better in Honors Pre-BC Calculus, Departmental approval

BC Calculus picks up where Pre-BC Calculus left off. It is a yearlong class that rigorously develops differential and integral calculus for all piecewise-smooth functions of a single real variable, including Cauchy limits, the derivative and its applications, and the Riemann integral and its applications. In addition, several topics in real analysis, including the completeness of the real line, are introduced as time allows. Participation in this class requires an excellent mastery of algebraic and transcendental functions and a formal notion of limits, continuity, and derivatives of algebraic functions. Students without the correct prerequisites will require extensive independent summer work and the special permission of the department. *Juniors are required to take the BC level of the AP Exam or an AP-based final exam at year's end. Seniors may opt out of the AP exam.* Students are required to have a graphing calculator. (TI-84 Plus is recommended.)

HONORS LINEAR ALGEBRA

Elective; Fall Semester; 1/2 credit

Prerequisites: B or better in Honors Algebra II, Departmental Recommendation

This Honors course offers students an introduction to linear algebra. Students will learn techniques to solve simultaneous linear equations and will distinguish among systems with no solutions, many solutions, and a unique solution. These systems will lead students to investigate matrices, inverse matrices, and determinants. In addition to algebraic approaches, students will also represent and solve equations graphically. Other topics include diagonalization and Markov Chains.

HONORS DISCRETE MATH

Elective; Spring Semester; 1/2 credit

Prerequisites: B or better in Honors Algebra, Departmental Recommendation

Honors Discrete Math runs in alternate years opposite H Multivariable Calculus. This course will cover a variety of discrete math topics, including game theory, graph theory, combinatorics, theory of probability, dimensionality, and cryptography. Exact topics covered are driven by student inquiry and passion, both individually and as a group.

HONORS STATISTICS

Elective; full-year course; 1 credit

Prerequisites: B+ or better in Algebra II. Students should be highly motivated and curious about the world of statistics.

Summer work required

Understanding and interpreting data are critical skills for 21st century learners. The Honors Statistics course will provide students with the requisite skills to navigate the sea of data in an organized and scholarly manner. Using an investigative approach to learning, the course will introduce and then develop a method of analyzing data with an emphasis on descriptive and inferential topics. Key concepts such as significance, generalization, and causation will be studied. Students will use technology tools to work with data sets drawn from various disciplines and also gather data using accepted and appropriate data collection methods.

STATISTICS AND FINANCIAL LITERACY

Full year course; 1 credit, meets 5 times per 7 day cycle.

Prerequisite: successful completion of PreCalculus/Trigonometry

Interpreting data and making informed financial decisions is something that no future citizen can avoid. We begin collecting and using data at very early ages to understand sports, business trends, and weather predictions. Financial decisions that we make early on in our lives can have positive and adverse effects on our quality of life as older adults. In this full year course, you will become critical consumers of data while learning how to leverage this data and other mathematical concepts to make informed financial decisions. Within these contexts, you will engage with the financial topics of taxes, bank accounts, budgeting, investing, credit, paying for college, and insurance by leveraging key mathematical concepts and skills from algebra, functions, modeling, correlation, probability, and descriptive and inferential statistics.

AP STATISTICS

Elective; full-year course; 1 credit

Prerequisites: Minimum 550 on PSAT Math and PSAT Evidence-Based Reading & Writing, departmental approval

Summer work required

AP Statistics introduces students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes: 1) exploring data: describing patterns and departures from patterns; 2) sampling and experimentation: planning and conducting a study; 3) anticipating patterns: exploring random phenomena using probability and simulation; and 4) statistical inference: estimating population parameters and testing hypotheses. Students interested in AP Statistics should possess a strong work ethic, as substantial new vocabulary and calculator procedures will be introduced; the ability to work collaboratively as well as independently; and a desire to master the AP curriculum to succeed on the AP examination in May. *Juniors are required to take the AP Exam or an AP-based final exam at year's end. Seniors may opt out of the AP exam.* Students are required to have a graphing calculator. (TI-84 Plus is recommended.)

COURSE OFFERINGS: SCIENCE

GENERAL INFORMATION

Dept. Chair: Scott Stein – sstein@sch.org

The Science Department at Springside Chestnut Hill Academy provides a rigorous, challenging, and exciting program for all students during each year in Upper School. Courses provide students with opportunities for using the most up-to-date equipment and technologies as they ask questions, design experiments, explore, collaborate, and become efficient and effective problem solvers. Students utilize a variety of sources, including, primary sources, computer probes, and on-line data and image resources, that allow them to access the same information as research scientists in critically analyzing and explaining scientific principles and phenomena. Students effectively synthesize information and creatively present what they have learned from their individually designed projects. Many of the course materials and activities are designed and/or assembled by the SCH Science Department in order to enhance and supplement available materials. Teachers are guided by the Next Generation Science Standards, PA Science Standards, the National Science Teachers' Association, and local curricular materials.

AP courses are taught to the specific AP curriculum and will prepare the students for the AP examinations.

Electives in the 10th, 11th, and 12th grades that are offered on a semester basis may be selected separately.

PHYSICS

Grade 9; required; full-year course; 1 credit

Students in Physics learn to ask their own questions about a topic and how to go about solving that problem using an active, laboratory-based approach to the understanding of matter and energy and the laws that govern their interactions. Students explore and learn physical concepts and ideas through experimentation and observation, often with the aid of computer-based lab interface equipment. Students frequently work in teams applying engineering design principles and problem-solving skills to design, build, and experiment. Many units culminate in a design-based, real-world challenge project. Importantly, students apply their developing math skills to solve algebraic equations related to each principle covered. Where applicable, new math techniques will be introduced to assist in deeper understanding of concepts. The course is also designed to develop an appreciation for physics as it applies to everyday life.

HONORS PHYSICS

Grade 9; full-year course; 1 credit

Prerequisite: Departmental approval

Students in Honors Physics learn to ask their own questions about a topic and how to go about solving that problem, using an active, laboratory-based approach to the understanding of matter and energy and the laws that govern their interactions. Problem solving and analysis are emphasized, but the course is also designed to develop an appreciation for physics as it applies to everyday life. Students explore and learn physical concepts and ideas through experimentation and observation, often with the aid of computer-based lab interface equipment. Students learn to ask their own questions about a topic and how to go about solving that problem. Students frequently work in teams applying engineering design principles and problem-solving skills to design, build, and experiment. Many units culminate in a design-based, real-world challenge project. Importantly, students apply their developing math skills to solve algebraic equations related to each principle covered. Where applicable, new math techniques will be introduced to assist in deeper understanding of concepts. All students design and complete an independent research project, which they will enter in the PJAS (Pennsylvania Junior Academy of Science) competition.

CHEMISTRY

Grade 10; required; full-year course; 1 credit

This course provides a background in basic chemical concepts while enabling students to use their chemical knowledge to explore some of today's relevant problems and make informed decisions about personal and societal issues. It places less emphasis on the mathematical and analytical aspects of abstract problem solving than Honors Chemistry. It covers a wide sampling of the range of modern chemistry, including inorganic, organic, environmental, industrial, and biochemistry. It will provide an introduction to the experimental study of chemistry and the theoretical concepts of structure, bonding, energy, and reactions. The course stresses laboratory skills including observing, looking for regularities, collecting data, developing conclusions, and using standard laboratory equipment.

HONORS CHEMISTRY

Grade 10; full-year course; 1 credit

Prerequisite: Departmental approval

This Honors course is geared to students with strong mathematical and analytical skills. The course provides an introduction to the experimental study of chemistry and the theoretical concepts of structure, bonding, energy, and reactions in a more traditional format. Topics include atomic theory, chemical reactions, solutions, kinetics, thermodynamics, equilibrium, and electrochemistry. Laboratory skills are stressed. These include observing, looking for regularities, collecting data, developing conclusions, and using standard laboratory equipment. Students in Honors Chemistry cover topics in more depth, move at a faster rate, and research and design a long-term, independent, experimental research project, which is entered in the PJAS (Pennsylvania Junior Academy of Science) competition.

of Science) competition. Students are selected into the Honors Chemistry section by the Science Department based upon their achievement in 9th grade Physics, their achievement in math, and their successfully meeting of the criteria outlined in Criteria for Placement in Honors Science in Upper School.

BIOLOGY

Grade 11; required; full-year course; 1 credit

This course introduces students to the fundamental topics in biology as well as those on the cutting edge of science, providing a solid background, the most current information, and personal relevance to the student. This course builds upon the major concepts introduced in Physics and Chemistry. Students learn to gather and critically analyze information from many resources, including web-based bioinformatics sites, scientific journals, and their own peers. Topics covered include environmental science; biochemistry; cell biology; energy flow; animal and plant reproduction and development; molecular, classical, and human genetics; biotechnology, including genetic engineering and PCR; evolution and taxonomy; and how the body fights disease. Students design, investigate, and analyze many of their own experiments using college-level equipment, including micropipettes, electronic balances, microscopes with digital cameras, gel electrophoresis, and PCR and microcentrifuges. Our unique approach to biology education is highlighted by topics and activities that help students develop into critical thinkers and thoughtful members of our world community. These include environmental justice and disparities in health; inequalities in cancer rates and treatment; designing a healthy fast food meal to meet the nutritional needs of their celebrity client, bioethical case studies involving stem cells and reproductive technologies; sex verification of athletes; and the study of what makes us each unique in analyzing genetics, evolution and the biology of race. The surrounding Wissahickon natural area provides a local, tangible, working laboratory examples to enhance and clarify concepts that are often abstract or global in their nature.

HONORS BIOLOGY

Grade 11; full-year course; 1 credit

Prerequisite: Departmental approval

This Honors course introduces students to the fundamental topics in biology as well as those on the cutting edge of science, providing a solid background, the most current information, and personal relevance to the student. This course builds upon the major concepts introduced in Physics and Chemistry. Students learn to gather and critically analyze information from many resources, including web-based bioinformatics sites, scientific journals, and their own peers. Topics covered include environmental science; biochemistry; cell biology; energy flow; animal and plant reproduction and development; molecular, classical, and human genetics; biotechnology, including genetic engineering and PCR; evolution and taxonomy; and how the body fights disease. Students design, investigate, and analyze many of their own experiments using college-level equipment, including micropipettes, electronic balances, microscopes with digital cameras, gel electrophoresis, and PCR and microcentrifuges. Our unique approach to biology education is highlighted by topics and activities that help students develop into critical thinkers and thoughtful members of our world community. These include environmental justice and

disparities in health; inequalities in cancer rates and treatment; designing a healthy fast food meal that meets the nutritional needs of their celebrity client, bioethical case studies involving stem cells and reproductive technologies; sex verification of athletes; and the study of what makes us each unique in analyzing genetics, evolution and the biology of race. The surrounding Wissahickon natural area provides a local, tangible, working laboratory to enhance and clarify concepts that are often abstract or global in their nature. Students in Honors Biology cover topics in more depth, move at a faster rate, and research and design a long-term, independent, experimental research project, which is entered in the local George Washington Carver Science Fair and the regional Delaware Valley Science Fair. Students are selected into the Honors Biology section by the Science Department based upon their achievement in 10th grade Chemistry, along with successfully meeting criteria outlined in Criteria for Placement in Honors Science in Upper School.

ENVIRONMENTAL SCIENCE

Grades 10–12; elective; fall semester; ½ credit

This one-semester course focuses on human ecology (humans and ecosystems); the human population and global problems; pollution, with special emphasis on local environmental concerns; and the politics, economics, and ethics surrounding societal and environmental issues. Lab activities will include extensive fieldwork in the Wissahickon natural areas around the school, such as calculating the amount of carbon dioxide SCH campus trees sequester annually; identifying and researching local medicinal plants; and conducting monthly assays of biodiversity around school and at home to observe how the world around us changes with the seasons. We will venture into SCH's green areas to tally invasive species, collecting invasive spotted lanternflies as we go; students will research, design, and test ways to attract lanternflies to reduce their numbers. Students will evaluate their everyday lives to quantify their impact on the planet and discuss methods of reducing their carbon footprint. The class will have visits from expert scientists including nuclear engineers, geologists, conservation biologists, beekeepers, and of course environmental scientists. The class culminates in a field trip to Island Beach State Park, New Jersey, where we will learn about vulnerable ecosystems and indicator species while collecting beach water, sand, and debris samples. A microplastics lab accompanies this trip. In this lab, students tally microplastics using various methods: dissection of marine organisms, chemical isolation, and microscopic inspection of food, beach samples, and everyday products.

OCEANOGRAPHY

Grades 10–12; elective; fall semester; ½ credit

Oceanography is an interdisciplinary science course that asks students to explore the physical, biological, and societal aspects of the ocean and the hydrosphere. Topics will include interactions between the biosphere, atmosphere, and lithosphere in the world's oceans; marine geology and sediments; salinity and other aspects of ocean water chemistry; currents and other methods of ocean water circulation; waves and water dynamics; coastal processes; causes and effects of tides; marine biology, biodiversity, and sustainability; ecology of oceans; and the impact of humans. The majority of the students' class time will be used for inquiry-based activities, while class lectures (in the form of podcasts) and readings will be reserved as homework. As part of their coastal processes

unit, the class will take a full-day field trip to Island Beach State Park in Seaside Heights, New Jersey. Using resources from The Blue Ocean Institute and Whole Foods we will learn where the fish that we eat comes from, and how we can make choices as consumers that will promote sustainable fisheries and healthier ocean habitats. The unit will culminate with a sustainable fresh fish feast!

FORENSIC SCIENCE

Grades 10–12; elective; spring semester; ½ credit

This interdisciplinary course deals with the application of the scientific principles of biology, chemistry, and physics in evaluating the physical evidence found at crime scenes. Topics will include drug testing; blood, fingerprint, and document analysis; arson and explosives; firearm identification; DNA profiling; forensic anthropology and autopsies; forensic technology and encryption; and forensic engineering. Students will explore how investigators use instrumentation such as spectrophotometers, gel electrophoresis, acoustical fingerprinting, and image processing to solve crimes. The course will make extensive use of database searches and “wet” labs in order to gain firsthand experience analyzing simulated samples of physical evidence. Extensive connections are made to real-life case studies, including historical cases like the analysis and identification of the remains of Czarina Anastasia Romanov and the kidnapping of the Lindbergh baby. Contemporary case studies are highlighted by the forensic experts who visit the course. These have included an anthropologist, an arson investigation specialist from the Philadelphia Police Department, a forensic toxicologist, and an FBI special agent.

AP BIOLOGY

Grades 11, 12; elective; full-year course; 1 credit

Prerequisites: Biology, Chemistry, and departmental approval

The Advanced Placement Biology course is the equivalent of a first-year college biology course and is geared toward students with a particular interest in biology and who have demonstrated a willingness and ability to commit considerable time to studying and completing assignments outside of class. The goals of the course include helping students gain a conceptual framework for modern biology, helping students gain an appreciation of science as a process, and helping prepare students for the rigors of a college-level science course. These are accomplished through extensive text and journal readings; using web-based databases, bioinformatics tools and simulations; and student-designed laboratory investigations utilizing the most up-to-date techniques and technologies. These include micropipettes, electronic balances, microscopes with digital cameras, gel electrophoresis and PCR, microcentrifuges and CRISPR. Students are expected to study beyond what they would for a typical course each night and attend extra sessions outside of class time several times each semester. Given the speed with which scientific discoveries and research continuously expand scientific knowledge, this course focuses on big ideas, consisting of enduring, conceptual understandings and the content that supports them. This enables students to spend less time on factual recall and more time on inquiry-based learning of essential concepts that will help them develop the reasoning skills necessary to engage in the science practices used throughout their study of AP Biology and advanced topics in subsequent college courses.

Students must complete approximately six hours of summer work in order to be adequately prepared to start the year with a solid knowledge of ecology. Students will be required to take and satisfactorily complete a cumulative examination at the end of the course that simulates the AP examination. Students are also strongly encouraged to take the national Advanced Placement examination in AP Biology.

AP CHEMISTRY

Grades 11, 12; elective; full-year course; 1 credit

Prerequisite: Chemistry Honors and departmental approval

This course covers the equivalent of one full year of college-level general chemistry, comparable to a first-year science major's course at a college or university. The course is a rigorous math-based course, with a strong laboratory component. It is intended for students who have demonstrated a willingness to commit considerable time to studying and completing assignments outside of class, and who have successfully completed a prior course in chemistry during high school.

The course will develop the students' ability to incorporate mathematical skills in the solution of chemistry problems, both through the use of problems and laboratory activities. Significant emphasis will be placed on developing the students' ability to solve problems through dimensional analysis and estimation. Students will be required to do extensive writing and to keep a thorough and accurate ongoing laboratory notebook. The AP Chemistry course provides students with a foundation to support future advanced coursework in chemistry. Through inquiry-based learning, students develop critical-thinking and reasoning skills. Students cultivate their understanding of chemistry and science practices as they explore topics such as atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium.

Students must complete approximately six hours of summer work in order to be adequately prepared to start the year with a solid knowledge of basic chemistry. Students will be required to take and satisfactorily complete a cumulative examination at the end of the course that simulates the AP examination. Students are also strongly encouraged to take the national Advanced Placement examination in AP Chemistry.

AP PHYSICS

Grade 12; elective; full-year course; 1 credit

Prerequisites: Physics and Calculus taken concurrently and departmental approval

This course is designed to prepare the student for the AP Physics C-level Advanced Placement examination in mechanics. It will cover thoroughly one half of the C-level syllabus, omitting the electricity and magnetism portion. The C-level program forms the first part of the college sequence that serves as the foundation in physics for students majoring in the physical sciences or engineering. Methods of calculus are used wherever appropriate in formulating physical principles and in applying them to physical problems. Topics covered in mechanics are kinematics; Newton's laws of motion (including friction and centripetal force); work, energy, and power; linear and angular momentum; and

gravitation and oscillations. Laboratory work will be done to assist in understanding the concepts of mechanics being studied.

Students must complete approximately six hours of summer work in order to be adequately prepared to start the year with a solid knowledge of basic Physics. Students will be required to take and satisfactorily complete a cumulative examination at the end of the course that simulates the AP examination. Students are also strongly encouraged to take the national Advanced Placement examination in AP Physics, C-level.

HONORS CHEMISTRY 2

Grades 11, 12; elective; full-year course; 1 credit

Prerequisites: Honors Chemistry or Chemistry (with a A or better) and departmental approval

This yearlong course will deepen your understanding of inorganic chemistry and also explore topics in organic chemistry and biochemistry. Among the themes to be studied in class are nuclear chemistry, intermolecular forces, polymers, acid and bases, reaction rates and equilibrium and redox reactions. These topics are covered as stand alone units or incorporated in the study of food chemistry and food safety, forensic chemistry including toxicology and environmental chemistry. Laboratory investigations explore the use of instrumentation to collect data in chemistry, including visible light spectrophotometers, gas chromatography, and polarimeters. During the spring semester, Chemistry 2 students have the opportunity to become teachers during a collaborative chemistry-based project with SCH's Middle and Lower School students. This project involves the development of multimedia lessons shared with the younger students. Classes in Chemistry 2 are highly discussion-based, and the laboratory portion will introduce techniques used in college-level courses.

HUMAN PHYSIOLOGY

Grades 11, 12; elective; full-year course; 1 credit

Prerequisite: Biology

This course investigates the function and structure of the human body, in both health and disease. Students are exposed to the intricacies of their bodies at the molecular, cellular, and systems levels. In addition, the study of sports medicine, exercise physiology, and mind-body connections highlights the interdependence and adaptability of all body systems. Laboratory experiments designed and investigated by students provide them with a solid understanding of how their body functions and responds to its environment. Extensive use of computer-based probes helps students explore their own muscle grip strength and fatigue rate, EKGs, heart rate, and respiratory rate. Students are able to visualize and measure the inner workings of the human body using National Institutes of Health image-processing software. Current issues related to health and medicine, such as organ donation, drug addiction, performance enhancing drugs, and health care, are researched and discussed.

PHARMACOLOGY

Grades 11, 12; elective; fall semester; ½ credit

In this semester-long course, students develop an understanding of drugs as preventive, diagnostic, and therapeutic agents. Topics include the mechanism of action, side effects, drug interactions, and contraindications of a wide spectrum of drugs used in primary care practice. Lab investigations include the analysis of aspirin formulations; the effects of drugs on worm blood vessel size; and the examination of the effects of alcohol on fruit fly behavior. Other topics include an introduction to neuroscience emphasizing the molecular organization, chemistry, and physiology of the neuron, how neurons are organized into functional circuits, and how these functional circuits process information and control both normal and abnormal behavior. Students will also explore the biochemical and genetic basis of drug addiction and brain disorders, such as autism, depression, schizophrenia, and Parkinson's disease. Field trips include a visit to the Pennsylvania Hospital to see the first operating room in America, and to learn about the practice of medicine in the 18th and 19th centuries. Students also visit the Mütter Museum to learn how reference collections of different diseases and injuries continue to help physicians today.

H PHYSICS 2: ASTROPHYSICS

Grades 11, 12; grade 10 with departmental approval; elective; spring semester; ½ credit

Prerequisite: B in Honors Physics or A in Physics

This semester-long course explores our universe by surveying introductory astronomy and astrophysics. The course is designed to engage students in the scientific process while fostering an appreciation for the majesty of our universe. Students will delve into the history of astronomy, size and scale of the universe, and observation and data collection techniques. Topics will include stars, planets, black holes, galaxies, orbital mechanics, and modern astrophysics and cosmology. The class will also include computer simulations, hands-on laboratory investigations, scientific debates, and independent research. To supplement our in-class learning, the course will have an observation component that will take place during evening observation sessions.

H PHYSICS 2: EXPLORATIONS IN PHYSICS

Grades 11, 12; grade 10 with departmental approval; elective; fall semester; ½ credit

Prerequisite: Physics

Physics is all about looking at the world around us and asking questions. This semester-long course explores a handful of especially relevant physics topics in an in-depth, hands-on, inquiry-based fashion. Here's a brief summary of some of the questions we'll attempt to answer during this course: How does an airplane stay up in the air? Why does my microwave heat unevenly, and is it really bad to put metal in it? I love my cell phone so much and use it all day, every day... how exactly does it work? What is special relativity, and how does the speed of light affect the world we live in? Along the way, we might make pinhole cameras that really work, build our own mini-radio stations, sink model boats and then rescue them using only ping pong balls, or write short stories about hypothetical worlds with different laws of physics.

PSYCHOLOGY

Grades 11, 12; elective; spring semester; ½ credit

Psychology introduces students to the systematic and scientific study of human behavior and mental processes. While considering the psychologists and studies that have shaped the field, students explore and apply psychological theories, key concepts, and phenomena associated with such topics as the biological bases of behavior, sensation and perception, learning and cognition, motivation, developmental psychology, testing and individual differences, treatment of abnormal behavior, and social psychology. Throughout the course, students employ psychological research methods, including ethical considerations, as they use the scientific method, analyze bias, evaluate claims and evidence, and effectively communicate ideas.

ZOOLOGY

Grades 11, 12; elective; spring semester; ½ credit

Students will learn what makes animals, *animals*—from microzoology to blue whales, and almost everything in between! Labs include comparative dissections (first practicing on a fruit, using dissection instruments to perfectly skin a grape), investigating animal adaptations using simulations and board games, and observing native resident animals in the temperate deciduous forest surrounding SCH. We will battle animals “Pokemon-style” in a virtual arena, using research and public opinion to decide who wins each round and the entire “March Madness” tournament. Students will quantify how similar humans are to other species by utilizing comparative gene and protein databases operated by working scientists. We’ll use the same DNA technology to solve a Madagascar lemur mystery! This course culminates in a field trip to the Philadelphia zoo where students evaluate an exhibit of their choice, and a comparative analysis of animal behavior.

INDEPENDENT RESEARCH FOR SCIENCE COMPETITIONS

Grades 9-12; elective; full-year course; ½ credit (meets 3 out of 6 days per cycle)

Prerequisite: Departmental approval

This rigorous, independent study allows students to refine and enhance their scientific research abilities while developing a project to be submitted to local and/or national science competitions. These include the George Washington Carver Science Fair, the PA Junior Academy of Sciences (PJAS) science competition, the International Science and Engineering Fair, and the Westinghouse Science Talent Search. Students will become proficient in the use of complex laboratory equipment, statistical analysis, and proper research techniques. Students are expected to meet the challenge of formal guidelines and deadlines, perform in-depth research, and design and implement sophisticated laboratory procedures. Students may be required to complete some of their work in research facilities outside of school. Projects must be individually designed and proposed by the student and approved by a Science Department faculty member.

COURSE OFFERINGS: WORLD LANGUAGES

GENERAL INFORMATION

Dept. Chair: Stephanie Kasten – skasten@sch.org

The goal of the Upper School modern language program is to help students become proficient communicators in French, Spanish, and Chinese. Students are expected to speak, read, and write in the target languages every day and to learn by listening to others. We place emphasis on creating meaningful contexts for acquiring grammar and vocabulary in each language through use of authentic materials and cultural elements from the regions in which these languages are spoken.

The goal of our Upper School Latin program is to help students become competent readers and translators of Latin. This involves a close study of the grammatical structures of Latin and of English. Students learn forms, sentence structure, syntax and vocabulary through the translation of both Latin into English and English into Latin in order to master the subtlety of usage. Original Latin texts and secondary readings provide an understanding of the historical and cultural world of the Romans.

In the modern languages, we evaluate students' oral and aural proficiency, as well as their ability to read and write, through a wide variety of performance tasks. In Latin, we evaluate students' mastery of grammatical concepts and vocabulary in conjunction with their ability to read, through tests, quizzes, in-class translations and projects.

Levels 1–3 (required courses)

Throughout these levels, students work on developing the speaking, listening, reading, and writing skills that will provide a solid foundation for more advanced work. In any language, in order to continue from level 1 to level 2, and from level 2 to level 3, a student must attain a minimum grade of C for the year. A student who does not earn this minimum grade will be required to complete a summer course of study.

Honors Courses

In Honors courses, students are expected to speak, listen, read, and write consistently at or above the high end of the target proficiency scale for their level, as well as to master more content. As appropriate for each Honors course, students will demonstrate their command of the language through formal presentations and unrehearsed conversation, research and reports, and interpretation of authentic texts. At this level, students are expected to use the target language competently and confidently at all times. In order to be recommended for an Honors course from a CP course, students must have demonstrated the willingness and ability to do the above and their grades must be solidly in the A range throughout the

entire year. They must also have the approval of the department chair. Once placed in an Honors course, students must maintain a B+ average to remain in the Honors track and must have the approval of the department chair.

Levels 4–5 (elective courses College Placement level)

Having elected to continue beyond the third level, a student will be expected to demonstrate a genuine interest and aptitude in language study. In order to successfully complete level 4 and level 5 courses, a student must have built a satisfactory foundation and have demonstrated a willingness to exert serious effort.

Levels 4–5 (elective courses Honors level)

In order to continue into levels 4 and 5 in the Honors track, a student must have attained a minimum grade of B+ in the previous Honors course. Enrollment in an Advanced Placement course or an Honors course requires approval of the department chair.

CHINESE 1

Grades 9–12; elective; full-year course; 1 credit

This course will be offered when there is sufficient enrollment.

Chinese 1 serves as an introduction to Chinese using three modes: interpretive (reading, listening), interpersonal (speaking, listening, writing), and presentational (writing, speaking). Students become familiar with Mandarin Chinese pronunciation, and they learn to speak using the four tones. Students learn to read and write using both romanized Chinese (Hanyu Pinyin) and simplified Chinese characters, and they learn to type Chinese characters on both cell phones and computers. Approximately equal emphasis is placed on active recognition and production. The course is conducted primarily in Chinese, and students are expected to speak in the target language as often as possible. Students develop familiarity with basic Chinese vocabulary, grammar, and language structures. Additionally, students explore China and its culture through projects, readings, and discussions. At the end of the school year, students will be able to communicate on familiar topics using words and phrases they have practiced.

CHINESE 2

Grades 9–12; full-year course; 1 credit

Prerequisite: Chinese 1

Chinese 2 reviews and builds upon the interpretive, interpersonal, and presentational foundations established in Chinese 1. Approximately equal emphasis is placed on active recognition and production, and students are expected to work in simplified Chinese characters. The course is conducted mostly in Chinese, and students are encouraged to speak Chinese. Students continue to solidify and expand their skills in vocabulary, grammar, pronunciation, and language structures. Students pursue greater understanding of Chinese culture through projects, readings, and discussions, and they are encouraged to see language and culture as mutually influencing pieces. At the end of the school year, students are expected to be able to communicate and exchange information about topics

they have studied, write short messages related to everyday life, and understand most of what they have heard and read on familiar topics.

CHINESE 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Chinese 2

Chinese 3 challenges students to further develop their interpretive, interpersonal, and presentational skills with the Chinese language. Students are expected to be able to comfortably use familiar Chinese sentence patterns and vocabulary to interact with others. Students read, write, and type in simplified Chinese characters. The course is conducted primarily in Chinese, and students are expected to speak mostly in the target language. Students build on their previous Chinese learning to solidify and expand their skills in vocabulary, grammar, pronunciation, and language structures. Students explore the complex interplay between language and culture, and they deepen their understanding of both through projects, readings, and discussions. At the end of the school year, students should be able to participate in conversations on familiar topics and handle short social interactions in everyday situations, write on a variety of familiar topics, and understand the main idea of texts and presentations on a range of topics related to everyday life and personal interests or studies.

HONORS CHINESE 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Chinese 2; Department approval for Honors

Chinese 3 Honors challenges students to further develop their interpretive, interpersonal, and presentational skills with the Chinese language. Students are expected to be able to comfortably use a wide variety of familiar Chinese sentence patterns and vocabulary to interact with others. Students read, write, and type in simplified Chinese characters. The course is conducted almost entirely in Chinese, and students are expected to speak in the target language. Students build on their previous Chinese learning to solidify and expand their skills in vocabulary, grammar, pronunciation, and language structures. Students explore the complex interplay between language and culture, and they deepen their understanding of both through projects, readings, and discussions. At the end of the school year, students are expected to be able to participate in conversations on a wide variety of familiar topics and handle short social interactions in everyday situations, write to express their opinions, and understand texts and presentations on a range of topics related to everyday life and personal interests or studies.

CHINESE 4

Grades 9–12; full-year course; 1 credit

Prerequisite: Chinese 3

Chinese 4 continues to develop and challenge students' interpretive, interpersonal, and presentational skills with the Chinese language. This course is taught exclusively in Chinese, and students are expected to communicate in the target language. In addition to continuously improving and solidifying their skills in vocabulary and grammatical structures,

students will read and study a variety of literary texts. Students explore the complex interplay between language and culture, and they deepen their understanding of both through projects, readings, and discussions. At the end of the school year, students are expected to be able to participate in conversations on a wide variety of familiar topics and handle short social interactions in everyday situations, write to express their opinions, and understand the main idea of texts and presentations on a range of topics related to everyday life and personal interests or studies.

HONORS CHINESE 4

Grades 9–12; full-year course; 1 credit

Prerequisite: Chinese 3H; Department approval for Honors

Chinese 4 Honors continues to develop and challenge students' interpretive, interpersonal, and presentational skills with the Chinese language. The course is conducted entirely in Chinese, and students are expected to speak in the target language. In addition to continuously solidifying and expanding their skills in advanced vocabulary and grammatical structures, students will read, analyze, and discuss a variety of literary texts. At the end of the school year, students are expected to be able to communicate information confidently, understand the main idea and a few details, make presentations, and express their thoughts on a wide variety of familiar topics related to everyday life and personal interests and studies using sentences and series of connected sentences through spoken or written language. Students are beginning to handle and negotiate meaning even in unfamiliar or unexpected situations.

CHINESE 5

Grade 12; elective; full-year course; 1 credit

Prerequisite: Chinese 4

This course continues the balanced approach to the study of Chinese language, literature, and culture. Students will have a thorough review of grammar, and continue to develop their skills by reading in various genres using authentic materials, watching films, having class discussions, and practice writing in formal and informal formats. This course is conducted exclusively in Chinese.

CHINESE 5 – ADVANCED PLACEMENT

Grade 12; elective; full-year course; 1 credit

Prerequisite: Chinese 4H, Departmental approval for AP

This course will allow students the opportunity to develop communicative and cultural competence in preparation for advanced study of Chinese at the college level. It emphasizes communication by applying interpersonal, interpretive, and presentational skills in real-life situations. It engages students in an exploration of culture in both contemporary and historical contexts. The course develops students' awareness and appreciation of cultural products, practices, and perspectives. The course will train AP students to learn and develop critical thinking skills, as well as tackle and master difficult materials. Teachers and students use Chinese exclusively in this course.

FRENCH 1

Grades 9, 10; full-year course; 1 credit

This course will be offered when there is sufficient enrollment.

French Course Descriptions based on [Performance Descriptors for Language Learners](#), as well as [NCSSFL-ACTFL 2017 Can-Do Proficiency Benchmark Indicators](#).

Intercultural communication skills are core to language acquisition. Students want to learn French in order to communicate effectively and respectfully with the people in the French and Francophone world. In French 1, students practice interacting at a survival level in some familiar everyday contexts and learn to identify products and practices in their own and other cultures to help them understand perspectives. Throughout the year, students engage in tasks that support their learning targets. To examine perspectives, and in order to communicate in different contexts, all French students practice in three modes. By the end of French 1, students should be able to show evidence of level proficient performance in each of the three modes described below.

While engaged in the **Interpretive Mode** (reading and listening), students identify the general topic and some basic information in both very familiar and everyday contexts by recognizing practiced or memorized words, phrases, and simple sentences in texts that are spoken or written. Interacting in the **Interpersonal Mode** (person-to-person), students communicate in spontaneous spoken or written conversations on both very familiar and everyday topics, using a variety of practiced or memorized words, phrases, simple sentences, and questions. Taking center stage in the **Presentation Mode** (speaking and writing), students present information on both very familiar and everyday topics using a variety of practiced or memorized words, phrases, and simple sentences through spoken, or written language.

FRENCH 2

Grades 9, 10; full-year course; 1 credit

Prerequisite: French 1

French Course Descriptions based on [Performance Descriptors for Language Learners](#), as well as [NCSSFL-ACTFL 2017 Can-Do Proficiency Benchmark Indicators](#).

Intercultural Communication Skills are core to language acquisition. Students want to learn French in order to communicate effectively and respectfully with the people in the French and Francophone world. In French 2, students begin to interact at a basic functional level in some familiar contexts. Students also begin to make comparisons between products and practices in their own and other cultures to help them understand perspectives. Throughout the year, students engage in tasks that support their learning targets. To examine perspectives, and in order to communicate in different contexts, all French students practice in three modes. By the end of French 2, all students should be able to show evidence of level proficient performance. Some will also show consistent performance at or above the highest targeted benchmark in each of the three modes described below.

While engaged in the **Interpretive Mode** (reading and listening), students identify the topic and related information from simple sentences in short texts and conversations.

Interacting in the **Interpersonal Mode** (person-to-person), students request and provide information in conversations on familiar topics to meet their basic need in familiar situations by creating simple sentences and asking appropriate follow-up questions. Students also express, ask about, and react with some details to preferences, feelings, or opinions on familiar topics by creating simple sentences and asking appropriate follow-up questions. Taking center stage in the **Presentational Mode** (speaking and writing), students present personal information about their lives, activities and events as well as express preferences on familiar and everyday topics using simple sentences.

FRENCH 3

Grades 10, 11; full-year course; 1 credit

Prerequisite: French 2

French Course Descriptions based on [Performance Descriptors for Language Learners](#), as well as [NCSSFL-ACTFL 2017 Can-Do Proficiency Benchmark Indicators](#).

Intercultural Communication Skills are core to language acquisition. Students want to learn French in order to communicate effectively and respectfully with the people in the French and Francophone world. In French 3 students interact at a functional level in some familiar contexts. French 3 students make comparisons between products and practices in their own and other cultures to help them understand perspectives. Throughout the year, students engage in tasks that support their learning targets. To examine perspectives, and in order to communicate in different contexts, all French students practice in three modes. By the end of French 3, students should be able to show evidence of level proficient performance in each of the three modes described below.

While engaged in the **Interpretive Mode** (reading and listening), students identify and understand the main idea and key information in short straightforward fictional and informational texts and conversations. Interacting in the **Interpersonal Mode** (person-to-person), students exchange information and negotiate meaning in conversations with others on familiar topics and some researched topics, creating sentences and series of sentences and asking a variety of follow-up questions to meet their needs. Students also exchange preferences, feelings, or opinions and provide basic advice on a variety of familiar topics, creating sentences and series of sentences and asking a variety of follow-up questions. Taking center stage in the **Presentational Mode** (speaking and writing), students tell stories about their lives, activities, events and other social experiences, using sentences and series of connected sentences. Students are now able to state their viewpoint about familiar topics and give some reasons to support it, using sentences and series of connected sentences. Students can also give straightforward presentations on a variety of familiar topics and some concrete topics they have researched, using sentences and series of connected sentences.

HONORS FRENCH 3

Grades 10, 11; full-year course; 1 credit

Prerequisite: French 2; Departmental approval for Honors

In the Honors section for French 3, students have the added challenge and framework to consistently perform at or above the highest targeted proficiency benchmark for level 3 in all three modes. Students are asked to complete tasks that require them to express themselves using a wider variety of details, supporting evidence, and more complex language functions related to familiar topics. Students will perform at the high target range at a fast pace so they may spend the last quarter of the year reading, interpreting, and unpacking the French novel, *Le Petit Prince*.

FRENCH 4

Grades 11, 12; elective; full-year course; 1 credit

Prerequisite: French 3

This course will concentrate on improving the students' command of spoken and written French as well as developing reading skills. Students will study a variety of Francophone writers in various genres, including short stories, newspaper articles, and poetry. Students will gain insight into French culture and history through readings, films, and discussions. This course is taught exclusively in French, and students are expected to communicate in French.

HONORS FRENCH 4

Grades 11, 12; elective; full-year course; 1 credit

Prerequisite: French 3H, Departmental approval for Honors

The Honors section of French 4 further develops students' skills in reading, writing, listening, and speaking. In addition to learning advanced vocabulary and grammatical structures, students will read, analyze, and discuss a variety of literary and historical texts. Assessments, in addition to tests and quizzes, will include online and in-class presentations and projects. In order to gain departmental approval for enrollment in this course, students must previously have demonstrated satisfactory development of all four language skills, as well as the ability to work both independently and in groups. This course helps students refine and strengthen the skills they need in order to move into the Advanced Placement course the following year.

FRENCH 5

Grade 12; elective; full-year course; 1 credit

Prerequisite: French 4

This course continues the balanced approach to the study of French language, literature, and culture. It is designed to provide students with a thorough review of grammar and a comprehensive treatment of the readings, films, or plays studied. Students are expected to work actively at refining the four language skills of speaking, listening, reading, and writing. This course is conducted exclusively in French.

FRENCH 5 – ADVANCED PLACEMENT

Grade 12; elective; full-year course; 1 credit

Prerequisite: French 4H, Departmental approval for AP

This course will allow students the opportunity to develop communicative and cultural competence in preparation for advanced study of French at the college level. French and

Francophone literature of various genres and from various periods will be studied in historical and cultural context. Students will use a variety of authentic periodical and literary texts as well as audio and video selections as the basis for writing and speaking on an array of topics, for improving their comprehension of both spoken and written French in various contexts, and for reviewing the more challenging aspects of French grammar. Teachers and students use French exclusively in this course.

LATIN 1

Grades 9–12; full-year course; 1 credit

This course will be offered when there is sufficient enrollment.

This course is designed to introduce students to the forms and functions of nouns and verbs and to develop basic translation skills. Students will learn about ancient Roman culture through reading stories written in Latin and through various projects that will augment their language study.

LATIN 2:

Grades 9–12; full-year course; 1 credit

Prerequisite: Latin 1

This course is designed to allow students, building on elements of basic grammar, vocabulary, and cultural competency explored in Latin 1, to approach the Latin language through the development of fluid reading skills along with grammatical understanding. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

LATIN 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Latin 2

This course is designed to allow students, building on basic grammar, vocabulary, and cultural competency, to explore the Latin language through the development of fluid reading skills along with the understanding of increasingly complex grammatical constructions. Students will begin reading authentic texts of various authors throughout the year to receive an introduction to a diverse set of genres. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

HONORS LATIN 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Latin 2, departmental approval for Honors

This course is designed to allow students, building on basic grammar, vocabulary, and cultural competency, to explore the Latin language through the development of fluid reading skills that allow students to read with insight and precision. This course will also introduce students to increasingly complex grammatical constructions and variation of usage. Students will concentrate on authentic texts of various authors throughout the year to receive an introduction to a diverse set of genres. Projects throughout the year will

provide students with opportunities to augment linguistic and cultural literacy in various formats.

LATIN 4

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Latin 3

This course is designed to allow students to strengthen their foundation of grammatical understanding and to build vocabulary through further exposure to authentic texts. Students will have the opportunity to read both poetry and prose; significant emphasis will be placed on recognizing constructions within context, developing translation skills, and understanding classical themes reflected in ancient material. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

HONORS LATIN 4

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Latin 3H, departmental approval for Honors

This course is designed to allow students to explore the arts of oratory, prose, and poetry through selections from the body of authentic Latin texts. Building on a solid grammatical foundation, students will begin to grapple with the complexity of language with which each author cultivates his audience. Students will build vocabulary and cultural competency while further developing fluid reading skills. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

LATIN 5

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Latin 4

This course is designed to allow students to augment their exposure to a variety of ancient authors and genres while continuing to strengthen their foundation of grammatical understanding and to build vocabulary. Students will have the opportunity to read both poetry and prose and to reflect upon the culture in which their texts emerged; significant emphasis will be placed on recognizing the relationship between specific grammatical constructions and the meaning of the text within the context of the ancient world. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

HONORS LATIN 5

Grades 11–12; elective; full-year course; 1 credit

Prerequisite: Latin 4H, departmental approval for Honors

This course is designed to allow students to augment their exposure to a variety of ancient authors and genres, including authentic texts of oratory, prose, and poetry. Building on a solid grammatical foundation, students will grapple with the complexity of language with which each author cultivates his audience. Students will build vocabulary and cultural competency while further developing fluid reading skills along with an understanding of

grammatical nuances through the study of Latin syntax in the hands of master writers. Projects throughout the year will provide students with opportunities to augment linguistic and cultural literacy in various formats.

SPANISH 1

Grades 9–12; full-year course; 1 credit

This is a beginning Spanish course intended for students entering SCH Academy at the 9th grade level who either have had no Spanish or whose background in Spanish is not sufficient to qualify them for a more advanced course. It is also open to students who did not study Spanish in our Middle Schools. This course will introduce students to pronunciation, spelling, verb systems, and basic vocabulary. We will lay the foundation for all four language skills: listening, speaking, reading, and writing. Constant practice in pronunciation and intonation will be accompanied by written exercises to promote a gradual acquisition of basic skills in reading and writing Spanish. We will place emphasis on speaking and on developing a solid foundation of grammar and vocabulary to support it. Cultural and geographic highlights of Spanish-speaking countries are introduced throughout the year. This class is conducted primarily in Spanish.

SPANISH 2

Grades 9–12; full-year course; 1 credit

Prerequisite: Spanish 1

In this course, students review and build upon the basic grammar, vocabulary, and structures learned in previous years. Students begin to interact at a basic functional level, since we emphasize oral and written production in order to effectively communicate at their level in different contexts. Throughout the year, students engage in tasks that support their learning targets, such as expressing their preferences, feelings or opinions on familiar topics. Students are also exposed to particular topics of Spanish-speaking countries, in order to start developing an appreciation and understanding of Latin and Spanish cultures. This class is conducted almost entirely in Spanish and students are expected to communicate in Spanish.

SPANISH 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Spanish 2

In this course, students continue to develop cultural and communicative competencies through vocabulary building, conversational practice, and grammatical review. Students will expand, in depth and breadth, their reading, speaking, listening, and writing proficiencies in the target language. This course is taught almost exclusively in Spanish, and students are expected to communicate in Spanish.

HONORS SPANISH 3

Grades 9–12; full-year course; 1 credit

Prerequisite: Spanish 2, departmental approval for Honors

In this engaging course, students will continue to develop cultural and communicative competencies through vocabulary building, conversational practice, and grammatical review. Students will enhance reading, speaking, listening, and writing proficiencies by constructing essays and communicating exclusively in Spanish. Spanish 3 Honors aims to engage students in their interests and passions through a wide variety of performance tasks, including interpersonal, presentational, and interpretive modes. The learning goals of this course are based upon the World Readiness Standards for language learners. The course curriculum is directly aligned to the following Spanish Advanced Placement themes: global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. Students will demonstrate their command of the language and knowledge of the Spanish Advanced Placement themes through formal presentations and informal conversation, research reports, and expository essays. Additionally, students will read and listen to authentic resources through multiple medias. At this level, students are expected to use the target language competently and confidently at all times. This course is taught exclusively in Spanish.

SPANISH 4

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Spanish 3

In this course, students continue to develop their communicative skills by speaking with other Spanish speakers, by writing, and through oral presentations. At this level, greater emphasis is placed on structural accuracy and ease in understanding spoken Spanish. Students will exchange and support opinions on a variety of topics related to contemporary and historical events, comprehend spoken and written Spanish texts from a variety of authentic sources, as well as produce compositions containing well-developed ideas on various topics. This course is taught exclusively in Spanish, and students are expected to communicate in Spanish.

HONORS SPANISH 4

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Spanish 3H, departmental approval for Honors

In this course, students are expected to fully engage on a daily basis and enhance their cultural and communicative competencies through vocabulary building, conversational practice, and grammatical review. Spanish 4 Honors aims to engage students in their interests and passions through a wide variety of performance tasks, including interpersonal, presentational, and interpretive modes. The learning goals of this course are based upon the World Readiness Standards for language learners. Through these goals, students will establish global competence for their future endeavors and life experiences beyond our campus. The course curriculum is directly aligned to the following Spanish Advanced Placement themes: global challenges, science and technology, contemporary life, personal and public identities, families and communities, and beauty and aesthetics. Students will demonstrate their command of the language and knowledge of the Advanced Placement themes through formal and informal presentations and informal conversation. Students will also research and write expository, informative, and persuasive essays. Additionally, students will read and listen to authentic resources through multiple media.

At this level, students are expected to use the target language competently and confidently at all times. This course is taught exclusively in Spanish.

SPANISH 5

Grades 9–12; elective; full-year course; 1 credit

Prerequisite: Spanish 4

Students will improve their ability to use and understand Spanish in a variety of spoken and written contexts. They will refine their mastery of all the verb tenses and essential language structures while broadening vocabulary. They will read works of literature and periodicals, listen to native speakers, write, and practice speaking in varied formal and informal formats. This course is taught exclusively in Spanish.

SPANISH 5 – ADVANCED PLACEMENT

Grades 11, 12; elective; full-year course; 1 credit

Prerequisite: Spanish 4H, departmental approval for AP

In this course, students are expected to engage in increasingly complex and spontaneous oral interaction in which they demonstrate their understanding of the Spanish language. Spanish and Latin American literature of a variety of genres and periods will be studied in a cultural and historical context. Learning about strategies necessary to sustain and extend communication and training in the organization and writing of compositions are integral components of this course. Emphasis will be placed on refining students' mastery of sophisticated language structures and verb tenses. Teachers and students use Spanish exclusively in this course.