



# SHADY SIDE ACADEMY

**Senior School Course Catalog**

2024-2025 School Year

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**MISSION:** Shady Side Academy’s mission is to challenge students to think expansively, act ethically and lead responsibly.

The information contained in this course catalog was accurate at the time of publication. Between the date of publication and the opening of the 2024-2025 school year, some of the rules, regulations, policies, course offerings and content may change. Updates will be posted online.



# DIPLOMA REQUIREMENTS

Discipline/Area	Credits
Arts	1 year / 2 semesters
Computer Science	1 year / 2 semesters
English	4 years
Health and Wellness	1 semester, to be completed in the Form III year
History	3 years
Mathematics	3 years
Science	3 years
World Language	3 years and mastery of Level 3
Immersives	1 course per year at the Senior School
Elective Courses	Varies by student to achieve required number of credits
Interscholastic Athletic Requirement	Minimum of two seasons of athletic activity per academic year
Swimming Safety	Required

## **TOTAL:**

### **Class of 2025**

45 credits in Forms III, IV, and V; 5 credits in Form VI

### **Class of 2026**

30 credits in Forms III and IV; 10 credits in Forms V and VI

### **Class of 2027**

15 credits in Form III; 15 credits in Forms IV, V, and VI

### **Class of 2028**

20 credits

## Specific Requirements

Beginning in 2024-2025, a semester course will earn 0.5 credits and a yearlong course will earn 1.0 credits. Students must enroll in five courses each term. Independent studies typically supplement standard course enrollment and do not count towards this requirement, except with permission from the Dean of Studies.

Students must be enrolled in a minimum of 5 classes each semester, and may not exceed 6 classes each semester, unless exempted by the Dean of Studies. (Note: Health does not count towards this class maximum.)

The Academy's requirements take priority over courses at other schools if such registration conflicts with the student's obligations to the Academy.

The arts requirement can be fulfilled by successful completion of courses in theatre, music or visual arts.

All Senior School students must complete two terms of athletic activity each academic year. Athletic activity offerings are broken into two categories: interscholastic athletics and intramural activities.

- Form III and IV: Two terms, both of which must be Interscholastic Athletics
- Form V: Two terms, one of which must be an Interscholastic Athletic
- Form VI: Two terms, student choice



If a student participates in multiple offerings in a single term, two terms of participation are still required. Please see the Athletic Department section for more information.

Mathematics courses must be at the level of Math 1 or higher.

Students must take the final year of study of a world language during the school year.

Dropping a course or athletic commitment after the published drop/add period may be recorded on the transcript as a “W” (Withdrawn). Withdrawal is permitted only prior to the final exam or final assessment of the course.

Form VI students must pass the equivalent of four year-long academic courses in order to graduate. Students who fail to fulfill graduation requirements are not permitted to participate in commencement exercises. The diploma will be awarded upon completion of requirements.

It may not be possible to fulfill all preferences due to over or under enrollment, so students are asked to list alternate courses when possible, when they request courses. Courses with fewer than six students enrolled may not run.

Students may not register for independent study classes or senior projects.

All requests for exemption from these requirements or any other special requests must be submitted in writing. Please email the Senior School Academic Office at [SSAO@shadysideacademy.org](mailto:ssao@shadysideacademy.org). Students who enter the Senior School in Forms IV, V, or VI may graduate with fewer than the required credits in a specific department with permission from the Dean of Studies.

## Curriculum content

The curriculum of each course and its content is considered and deliberate. Families should not expect exceptions or substitutions within the curriculum; all students will be held accountable for that content and their full participation. Parents who have concerns about a component of a course should first speak directly with the teacher, then the Department Chair, then the Dean of Studies or the Head of School.

## Designations of rigor

The Senior School designates all courses as either **College Preparatory**, **Advanced**, or **Highest Level**.

**College Preparatory (CP)** courses are foundational classes in our sequence. These courses are accessible to every student within our school and set expectations for content mastery, skill building, and independent thinking.

**Advanced (A)** courses require more writing and reading, advanced skills in problem-solving and inquiry, and elevated expectations of independent student work with less teacher scaffolding. The Advanced designation includes both classes that are tracked (course names designated with an A) and courses a student reaches after completing the foundational sequence of courses in a department. In some cases, a prerequisite, teacher recommendation, or application process is required to take these courses. Most students do not take Advanced courses in their Form III or IV year.

**Highest Level (HL)** courses are the most rigorous offered in each department. These classes require significant independent inquiry, engage with more complex content, and explore big ideas in greater depth. In some cases, a prerequisite, teacher recommendation, or application process is required to take these courses. Students typically do not take Highest Level courses until their Form V or VI year.

## Course Numbers

Shady Side Academy uses a course numbering system on the transcript to inform external parties of the sequence of our courses.



## Course Changes

Students are expected to attend the classes listed on their schedules. Course or class section changes are only made in extenuating circumstances, such as incorrect placement in ability level as determined by the department or having had a particular teacher the year immediately prior to the current year.

Course changes must be requested prior to the end of the drop/add period. To change a course, class section or athletics, the student should discuss the change with their parents, advisor, the teacher of the class, the Department Chair and their college counselor, as applicable. The student should complete the drop/add form. The request may or may not be approved.

No credit will be awarded for classes attended without the Dean of Studies' or Registrar's approval.

## Drop/Add Policy

If a course is dropped after the drop/add period, the course may remain on the student's transcript with the letter grade of W (Withdrawn).

For year-long courses, the drop/add period ends eight (8) school days after the beginning of Semester I.

For semester courses, the drop/add period ends five (5) school days after the beginning of the semester.

Students and their parents must secure permission from the advisor, college counselor (if applicable), Department Chair and the Dean of Studies to drop a course. The request may or may not be approved.

## Summer Study

Only one graduation requirement in any discipline can be earned through summer study. For example, science requires three years of study, so only one of the required courses may be taken in the summer.

## Shady Side Academy Summer School Courses

Credit will be awarded for eligible coursework successfully completed at Shady Side Academy Summer School. The course title, credit and grade earned will be listed on the official transcript. The grade will be included in the overall GPA calculation, unless it is a P/F course.

## Non-Shady Side Academy Summer School Academic Work

Credit may be awarded for summer academic coursework not completed at Shady Side Academy Summer School only if the course has been pre-approved by the Dean of Studies and the Department Chair. The deadline to begin the approval process is April 15. Upon successful completion of a pre-approved course, credit will be awarded. The grade will not be included in the overall GPA calculation or appear on the Shady Side transcript.

Note: Science courses must be lab-based.

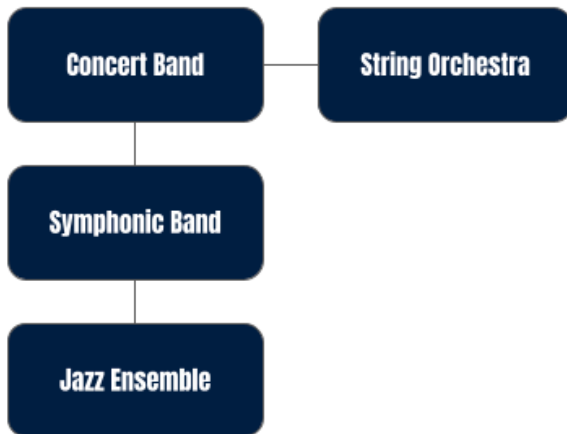


# ARTS

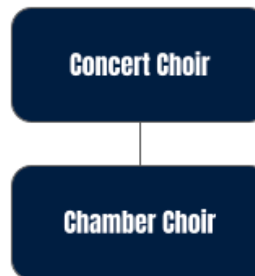
## Performing Arts Course Sequence

### MUSIC SEQUENCES

#### Instrumental Ensembles



#### Vocal Ensembles



### MUSIC ELECTIVES



### THEATRE ELECTIVES



## Performing Arts Department Mission Statement

The Senior School Performing Arts Department prepares young artists to be informed and engaged members of their communities; to recognize and respect diversity of culture, identity and opinion; and to live and create sustainably. It offers all students the opportunity to explore and develop their individual talents in a supportive yet challenging community-based environment. The performing arts reinforce the tenets of the Academy, endorsing the balanced development of students' analytical, artistic and physical abilities. Through production, rehearsal, performance, critical and analytical thinking, and historical and cultural context, all SSA students are welcome to create and learn in a supportive and intellectually rigorous community. A comprehensive foundational program encourages students to explore the creative process with emphasis on proper protocols, terminology and safe practice.

### MUSIC ENSEMBLES

#### ***Concert Band***

***(1 credit)***

All students are welcome to play in the Concert Band. No previous experience is necessary; any student interested in learning a band instrument (woodwinds, brass, or percussion) is invited to join the class. The Concert Band plays all types of instrumental music, including pop, rock, classical, and jazz. The Concert Band performs at four concerts, and members are asked to play with the Symphonic Band at Commencement. The Jazz, Symphonic, and Concert Bands take a spring trip every other year for cultural and musically critical experiences in cities like Orlando, New York, Boston, Chicago, Washington D.C., and Toronto. Private lessons are offered to all Concert Band students free of charge. (CP-first year, A-each subsequent year)

#### ***Symphonic Band***

***(1 credit)***

Woodwind, brass, or percussion musicians with two or more years of study on their instrument are invited to enroll in Symphonic Band. The Symphonic Band plays classical, contemporary, and popular music as well as traditional military band music. The Symphonic Band performs at four concerts and Commencement. The Jazz, Symphonic, and Concert Bands take a spring trip every other year for cultural and musically critical experiences in cities like Orlando, New York, Boston, Chicago, Washington D.C., and Toronto. Private lessons are offered to all Symphonic Band students free of charge. (A - first year, HL - each subsequent year)

#### ***Jazz Ensemble (Auditioned)***

***(1 credit)***

Students who have at least three years of experience on saxophone, trumpet, trombone, piano, guitar, bass, or drum set are encouraged to audition for Jazz Ensemble. There are limited openings for a vocalist, piano, guitar, and drums. Auditions are necessary for all students interested in joining the Jazz Ensemble. Opportunities for improvisation and soloing are encouraged. This course will enable students to play, listen, and study jazz from 1920 to the present. The Jazz Ensemble performs at four scheduled concerts and other events, as needed. The Jazz, Symphonic, and Concert Bands take a spring trip every other year for cultural and musically critical experiences in cities like Orlando, New York, Boston, Chicago, Washington D.C., and Toronto. Private lessons are offered to all Jazz Ensemble students free of charge. (HL)

#### ***Concert Choir***

***(1 credit)***

Concert Choir is for anyone who loves to sing and wants to have fun and build musicianship skills. The choir performs at a minimum of four concerts per year. Course requirements include performing at the concerts and a sight singing evaluation once per month. (CP - first year, A - each subsequent year)

#### ***Chamber Choir (Auditioned)***

***(1 credit)***

Chamber Choir is an advanced, auditioned choral ensemble. The choir prepares students to sing in college and is the featured vocal performance ensemble at Shady Side Academy. They perform at four concerts per year and often are asked to do additional performances (Homecoming, Martin Luther King Jr. Day, Veterans Day). (A - first year, HL - each subsequent year)

#### ***String Orchestra***

***(1 credit)***

Students who have at least two years of instruction on one of the four string family orchestral instruments are encouraged to request String Orchestra. The group accepts one pianist per year, and there are opportunities for percussionists. The String Orchestra plays at least four required concerts, and students are evaluated monthly on duet assignments. (A - first year, HL - each subsequent year)



## MUSIC ELECTIVES

### ***Electronic Sound Studio (Semester I)***

***(0.5 credits)***

This course is designed for students with an interest in audio recording techniques and popular music. Students will explore analog recording tools as well as digital audio technology. Popular music spanning the history of recording technology will be analyzed and discussed. All students will compose and record music of their own. Students are encouraged to take the Music Workshop course during the opposite semester. This course is graded. This course may be taken a second time at an advanced level. (CP)

### ***Music Theory (Semester II)***

***(0.5 credits)***

Music Theory is a great course to develop the skills needed to be able to read and write music! Starting with the basics of rhythm, pitch and notation, we will build towards understanding melody with a deeper study of scales, intervals and tonality, and then we will focus on chords and harmony. So much of popular music only uses four chords and has a simple melody. This course is a way to “decode” music to be able to read, analyze and understand existing music, and build the skills to create your own. There are no prerequisites required for this course. This course may be taken a second time at an advanced level. (CP)

### ***Music Workshop: Piano and Guitar (Semester II)***

***(0.5 credits)***

Music Workshop is designed as an introduction to ensemble playing for students interested in guitar, bass guitar, or piano. While experienced students are welcome, the course will cater to new players. Students will learn basic theory and rhythm as well as perform individually and with the class ensemble. The course will culminate with a class recital. Students are encouraged to take the Electronic Sound studio course during the opposite semester. Successful students may be asked to continue their playing with one of the instrumental performing ensembles. This course may be taken a second time at an advanced level.(CP)

### ***Music Workshop: Voice (Semester I)***

***(0.5 credits)***

In this course, open to students at any level of experience, students will develop their singing technique and learn the skills required to prepare songs for performances or auditions. Singing technique will be developed by carefully selected exercises to strengthen the muscles necessary for proper breath support and learn proper embouchure and vowel shapes required for maximum vocal resonance appropriate for each vocal style we sing. Repertoire could include English folksongs, musical theater/jazz standards, Italian art songs and more. Students will be exposed to videos of great performers from multiple genres and develop their listening skills and musical vocabulary. This will enable them to describe what makes those performances so great. As students learn each song, they will learn what is necessary for the preparation of each piece. That way they will be able to bring their own informed expression to each song they sing. Carefully selected repertoire based on their strengths and needs will be sung mostly in a group setting with some individual work as well. (We will mainly perform for each other in class with the goal of a small recital to end the course.) This course may be taken a second time at an advanced level. (CP)

## THEATRE

### ***Fundamentals of Theatre: Acting (Semester II)***

***(0.5 credits)***

The first half of this course is an introduction to the conceptualization and creation of theatrical productions. Theory and analysis of structure, elements and styles of drama from the written script are coupled with practical techniques to realize a unified vision of theatre on stage. Concepts integral to directing, dramaturgy, design, character development and playwriting will be explored. The second half of this course is designed to give the beginning actor a broad-based knowledge of the basics of acting, and to give the more seasoned actor a more advanced level of training to enhance what they have already learned. Several methods of implementation will be employed. These methods include but are not limited to: vocal and physical awareness, theatre exercises, group discussion, improvisation, monologues/scene work, readings and written work. This course may be taken a second time at an advanced level. (CP)

### ***Fundamentals of Theatre: Stagecraft (Semester II)***

***(0.5 credits)***

The first half of this course is an introduction to the conceptualization and creation of theatrical productions. Theory and analysis of structure, elements and styles of drama from the written script are coupled with practical techniques to realize a unified vision of theatre on stage. Concepts integral to directing, dramaturgy, design, character development and playwriting will be explored. In the second half of this course, students will





explore techniques and best practices in creating modern technical theatre. Topics covered include scene shop and stage safety, scenic construction, shop tool operation and maintenance, introductory painting, props, sound and lighting. Students will collaborate with the acting class to produce a student-created piece of theatre at the end of the term. This course may be taken a second time at an advanced level. (CP)

### ***Fall Play***

***(0 credits)***

The Fall Play is a non-musical theatrical production. Rehearsals begin approximately the second week of school, and performances take place around the first weekend of November in the Black Box Theater. In some years, student writers have adapted an original play (often an older play) to update the language and make it accessible for modern-day audiences; however, this is not always the case. There are many opportunities for technical theater positions as well. There are also opportunities for students interested in directing to be appointed assistant director(s). Considering this theatrical venture is quite a bit smaller than the Winter Musical, students interested in creative crew positions (such as design) are welcome. A wonderful way to meet new people, be creative, build confidence and get to know theater inside and out, the Fall Play is an enriching experience for all involved.

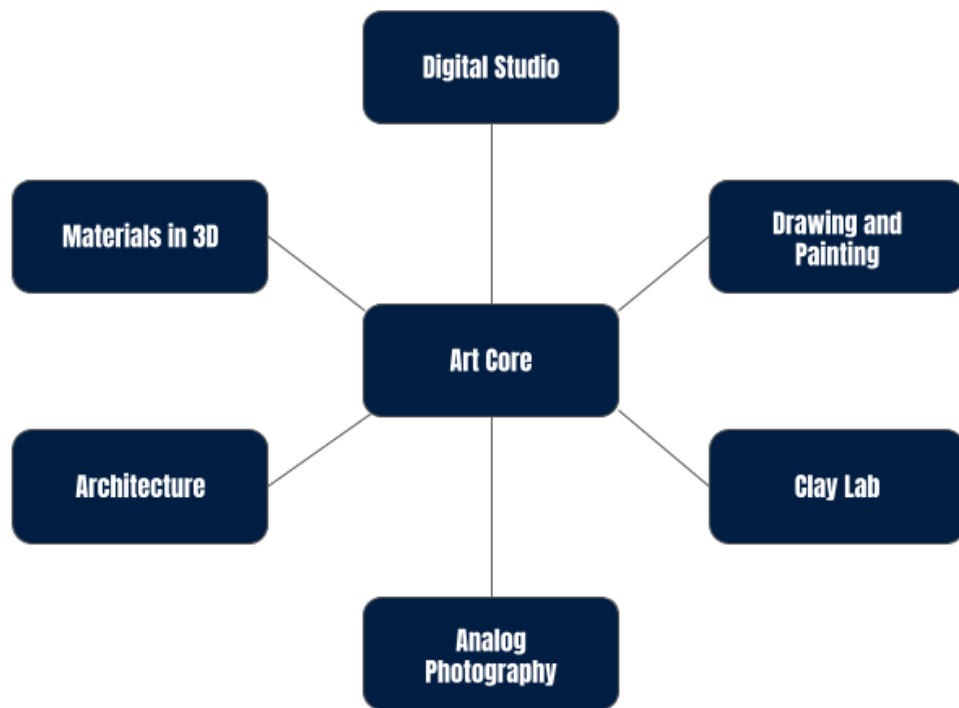
### ***Winter Musical***

***(0 credits)***

The Winter Musical production begins rehearsals around mid-November, and performances take place typically around the second weekend of February. There are many positions backstage in technical theater as well as positions in marketing and publicity. There are also opportunities for students interested in directing to be appointed assistant director(s), and if dancing is involved in the show, students may be appointed as dance captain or assistant choreographer. Participation in the Winter Musical is a wonderful way to meet new people, be creative, build confidence and get to know musical theater inside and out. Please refer to page 14 regarding athletic credit for participation in the Winter Musical.



## Visual Arts Course Sequence



## Visual Arts Department Mission Statement

The visual arts department at Shady Side Academy Senior School offers a contemporary arts program that celebrates an enduring commitment to all students. We encourage the development of students' own interests and sensibilities while exposing them to other perspectives and motivations for making art. We embrace a process-focused pedagogy that emphasizes capacities that can be applied across disciplines and that support Shady Side Academy's mission. Students will learn to *think expansively* through stretching their ideas about what art can be and exploring other points of view, developing craft and skills in their personal work, and engaging with and persisting through the creative process. Students will have the opportunity to *act ethically* by being patient and calm with themselves and others as they try new things, practicing focused attention while pursuing their own ideas or listening to the ideas of others, and using conflict with differing ideas and opinions as a generative experience. Students will *lead responsibly* by developing self-awareness through the creation of original works and guided self-reflection, employing skillful listening and communication in critiques, and synthesizing differing perspectives, ideas, and modes of making through occasional group work. We wish to use the creative process to help students understand themselves better so they can be genuinely engaged members of their communities, open and accepting of difference, and able to see, appreciate, and spread beauty in the world.

### INTRODUCTORY COURSE

#### **Art Core**

**(0.5 credits)**

This entry-level course introduces students to both traditional and contemporary two-dimensional and three-dimensional techniques, materials, and ideas in art. Through interspersed art history lessons, student artists will gain an understanding of the context of works of art and what it means to be an artist today. The elements and principles of design will be emphasized to establish a common language and to develop the students' understanding of visual organization, art historical reference, and studio maintenance, which will apply across the visual arts curriculum. Projects invite students to begin to develop their own artistic identity. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. This is a pass/fail course. Upon successful completion of this course, students will be able to enroll in any advanced-level course in the department. (CP)

### ADVANCED COURSES

Students must have successfully completed Art Core to take an advanced-level course. Students may enroll in an advanced course more than one time. Each time students take a course, they explore more advanced concepts and techniques. Students may work with the teacher to customize their goals and outcomes.

#### **Architecture**

**(0.5 credits)**

Architecture is a course that provides students with the fundamentals of architectural design through a range of traditional procedures in drafting and 3D model making. These technical skills are combined with computer applications so that the student can build an architectural plan utilizing both technologies. Emphasis is on the following: history of architecture and styles, contemporary building and design techniques, ideation, and proper use of tools and materials. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. PREREQUISITE: Art Core. (A)

#### **Clay Lab**

**(0.5 credits)**

Students will learn about the properties of common types of clay, including stoneware, porcelain, and earthenware. While focusing on open-ended projects, students will learn the basic skills required for creating clay vessels on the pottery wheel including wedging, centering, forming walls, trimming, bisque firing, and glaze application. Hand-building techniques will also be taught, and students will be expected to create vessels using clay coils, slabs, and/or blocks of clay. We will explore the long history of the medium and research historical and contemporary artists working in clay, looking for ideas we can apply to our own work. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these



three categories: contemplative practices, studio habits of mind, and embodiment in social context.  
PREREQUISITE: Art Core. (A)

### ***Wheel Thrown Pottery (After School – Semesters I & II)***

***(0.5 credits)***

This course is an entry-level class for those interested in wheel-thrown ceramics. The primary emphasis of this course is on form, technique and function. In addition to studio demonstrations of wheel throwing technique, students will view online clips to help illustrate various skills. Students will be introduced to the basic level skills required for creating clay vessels on the pottery wheel, including wedging, centering, forming walls, trimming, bisque firing and glaze application. Students can advance to lidded vessels, combined forms and altered vessels after they demonstrate mastery of the foundational skills. Students will also learn about texturing clay, glazing techniques, using slips, oxides and underglazes, as well as other non-traditional techniques. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. PREREQUISITE: Art Core. (A)

### ***Digital Studio***

***(0.5 credits)***

In this course, students will learn to generate and manipulate digital images, create animation and film, and apply AI technology in the editing process. In addition to individual projects, students will work collaboratively on research, skill development, and group projects. Students will be exposed to art history for context and will study the many contemporary artists utilizing digital tools in their work today. Ethical AI use will be discussed and expected. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. PREREQUISITE: Art Core. (A)

### ***Materials in 3D***

***(0.5 credits)***

This is a studio course exploring concepts and techniques in 3D art. A multi-use shared studio space will support student work through explorations of various materials such as glass and metal. Class sessions include technical demos, slide talks, and critiques. Discussions will include contemporary artists as well as historic examples. Our experiments will prompt students to consider relationships between objects, bodies, space and society. At the conclusion of this class, students will have completed an individual slide portfolio. Emphasis will be placed on technique, process, and creativity. The class will take a field trip to a local gallery or museum. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. PREREQUISITE: Art Core. (A)

### ***Drawing and Painting***

***(0.5 credits)***

This course explores the studio practice of rendering images in a variety of classical and abstract subject matter using the tools and mediums of various drawing and painting techniques including graphite, charcoal, pastel, acrylic and oil paints. Students will also be exposed to various historical Art movements and contemporary practices through research, videos, field trips and lectures. Students will be strongly encouraged to take the risks involved in improving their skill levels and outcomes through conscious craft, constructive and directed experimentation, focus, and critique. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context. PREREQUISITE: Art Core. (A)

### ***Analog Photography***

***(0.5 credits)***

Analog Photography introduces students to the process of taking Film photographs, using the manual control options of a Single Lens Reflex (SLR) camera. Students are guided in the “available light” technique, chemical film development and printing enlargements in the darkroom development Lab. Students will participate in in-process and final critiques for each project and will be assessed on cross-disciplinary capacities within these three categories: contemplative practices, studio habits of mind, and embodiment in social context.  
PREREQUISITE: Art Core. (A)



# ATHLETICS

## ATHLETICS DEPARTMENT MISSION STATEMENT

As an appreciable example of experiential education, athletics play an integral role in the educational experience at the Senior School. The positive character traits developed through athletic participation have a direct correlation to greater individual success following high school. It is the Athletic Department's goal to make the student experience within the SSA Athletic Department both educational and enjoyable.

### ATHLETIC REQUIREMENTS

All Senior School students (Forms III-VI) must complete two seasons of athletic activity each academic year. Athletic activity offerings are broken into two categories: interscholastic athletics and intramural activities.

Form III and IV: Two seasons, both of which must be interscholastic athletics

Form V: Two seasons, one of which must be an interscholastic athletic

Form VI: Two seasons, student choice

In the rare situation where a student has the ability to participate in multiple interscholastic athletics in a single season, they are required to meet with each of the coaches and the Athletic Director to discuss the feasibility of doing so. Permission to do so will be at the discretion of both coaches, with the final decision coming from the Athletic Director. For athletes granted dual athletic credit in one season, two seasons of athletic participation are still required.

### ATHLETIC OFFERINGS AND LEVELS OF TEAM PARTICIPATION

#### Interscholastic Athletics

Interscholastic athletics emphasize the progressive development of individual and team skills, enabling our teams to compete at a high level within their respective leagues. Many of our interscholastic programs offer multiple levels of team participation, including freshman, junior varsity, varsity and/or prep.

The primary goals at the freshman and junior varsity team levels are skill development, physical conditioning, knowledge of strategy, discipline, fun and participation. Success is encouraged and is balanced with student participation and individual preparation for upper-level teams.

At the varsity and prep level of competition, teams are selected according to ability, and students with the requisite skills and experience to play at a high level are chosen. The primary goal is to field highly competitive teams. Shady Side Academy athletes are expected to exhibit excellence in all aspects of sport, including athletic skill, discipline, teamwork and sportsmanship. In addition, athletes must display pride in self and in Shady Side Academy. With varsity and prep level selection, athletes must make a commitment to practice and compete throughout the entire season, including preseason and postseason playoff appearances. Failure to complete the full season may affect the student's ability to receive credit for their participation and/or be reflected in the end of term comments.

#### Intramural Activities

Intramural activities stress both fitness and lifetime participation in sport. These offerings provide opportunities for students who are not involved in the interscholastic athletic program at the varsity/JV level. All intramural activities meet after school and students may choose the one that best suits their interests.



## Roster Size (Interscholastic Athletics) and Enrollment Cap (Intramural Activities)

The Athletic Department reserves the ability to limit roster size (“make cuts” based on a tryout process) for interscholastic athletics, allowing Shady Side to form teams that are competitive at the highest level. These decisions can be based on a number of factors, including physical ability, level of play, commitment to the program and the number of student-athletes trying out for the team. Roster decisions can lead to a student-athlete being offered a spot on a JV or freshman team if those options are available. While all varsity and/or prep teams reserve the right to limit roster size, interscholastic teams that have traditionally limited roster size are denoted under the athletic offering section.

In addition, enrollment in intramural activities may be limited to preserve the physical education experience of all students. If a student is not included on the final roster of an athletic offering, they are still required to meet the minimum requirements listed above through a different option.

## ADD / DROP POLICY

Students are able to drop/add athletic choices from their academic schedules. The deadline for the drop/add period is two weeks from the first day of each season. Requests made during the drop/add period to be added to a roster will be dependent upon available roster openings. Interscholastic and intramural rosters may be limited on the number of students they are able to accommodate while maintaining competitive integrity and/or a teaching environment.

## EXEMPTIONS

Shady Side Academy enthusiastically endorses the active pursuit of athletics and offers a wide range of athletic options to its student-athletes. Despite this, we recognize that there are times when students have passion and talent for sports and/or athletic activities that cannot be offered by the Academy.

Requests for exemptions to the athletic requirement must be received one week prior to the end of the first week of the season for which they are applying (generally the last week of August for fall sports, third week of November for winter sports, and first week of March for spring sports). Requests will be reviewed by the Athletic Department, and students will be notified of the decision prior to the completion of the drop/add period for that term.

### Athletic Exemption

Students who are actively participating in a sport or physical activity that is not offered at Shady Side Academy’s Senior School may apply for an athletic exemption. Athletic exemptions will not be granted for athletic activities already offered by Shady Side Academy. In addition, athletic exemptions must meet a minimum of 60 hours per term and include outside competition.

All requests for an athletic exemption should be e-mailed to Josh Frechette, Associate Athletic Director, at [jfrechette@shadysideacademy.org](mailto:jfrechette@shadysideacademy.org). Completed exemption requests must include the SSA Athletic Exemption form (found on the Athletic Department’s website) and documentation from the student detailing the activity, hours and competitions. In addition, the name, contact information and signature of the coach/leader of the activity for which the student is seeking the exemption is required.

### Medical Exemption

Students who sustain a significant injury/medical condition may apply for a single-season exemption. The medical condition must be significant enough that it prevents the student from fulfilling an intramural or interscholastic requirement for that season. Requests for medical exemptions should be e-mailed to Josh Frechette, Associate Athletic Director, at [jfrechette@shadysideacademy.org](mailto:jfrechette@shadysideacademy.org). Completed medical exemptions must include:

An e-mail/letter from the student or parent/guardian providing a record of the medical issue and season affected

Supporting documentation from a physician verifying the nature of the medical need



Students who are granted medical exemptions will be required to report a progress update to the Certified Athletic Trainer (ATC) and/or Counselor at Shady Side Academy. Medical needs that span more than a single season will be reviewed on a case-by-case basis.

## ATHLETIC OFFERINGS

### FALL SEASON

Interscholastic Athletics	Intramural Activities
Athletic Management Cheerleading / Mascot (Coed) Cross Country (Boys & Girls) Field Hockey (Girls) Football (Coed) Golf (Boys & Girls)^ Soccer (Boys & Girls) Tennis (Girls)*^ Volleyball (Girls)**^	Badminton Ice Hockey Intramural Sports/Fitness Swimming Ultimate Frisbee Yoga WSSA Broadcast Team™

\*Tennis is offered during the PIAA-designated seasons. Fall for girls' competition and Spring for boys' competition.

\*\*Co-op offering with The Neighborhood Academy (TNA). Practices are off-site at TNA, and the team competes with joint participants from both schools.

^Due to the interest level in these sports and limited roster size, these teams have traditionally held a tryout process.

™Students on the WSSA Broadcast Team will produce two to four live sporting events for a livestream audience each term. Students will be trained on the equipment and procedures for producing live event coverage and will produce commentary and graphics. WSSA can only count as an intramural requirement one season per year.

### WINTER SEASON

Interscholastic Athletics	Intramural Activities
<ul style="list-style-type: none"> <li>• Athletic Management</li> <li>• Basketball (Boys &amp; Girls)^</li> <li>• Ice Hockey (Boys &amp; Girls)*^</li> <li>• Squash (Boys &amp; Girls)**^</li> <li>• Swimming (Boys &amp; Girls)</li> <li>• Winter Musical<sup>o</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Cheerleading</li> <li>• Group Fitness</li> <li>• WSSA Broadcast Team™</li> </ul>



\*A participation fee is required for ice hockey. Boys' prep ice hockey competes in the Midwest Prep Hockey League (MPHL), and girls' prep ice hockey competes in the North American Prep Hockey Association (NAPHA).

\*\*Squash is not a WPIAL sport. The varsity squash teams compete against other independent schools and in the U.S. High School Team Championships. A participation fee is required for squash.

^Due to the interest level in these sports and limited roster size, these teams have traditionally held a tryout process.

°The winter musical provides both a team atmosphere and physical activity, and thus fulfills an Interscholastic athletic requirement for Forms III, IV and V.

°Students on the WSSA Broadcast Team will produce two to four live sporting events for a livestream audience each term. Students will be trained on the equipment and procedures for producing live event coverage and will produce commentary and graphics. WSSA can only count as an intramural requirement one season per year.

## SPRING SEASON

Interscholastic Athletics	Intramural Activities
<ul style="list-style-type: none"><li>• Athletic Management</li><li>• Baseball (Boys)</li><li>• Lacrosse (Boys &amp; Girls)</li><li>• Softball (Girls)</li><li>• Tennis (Boys)^</li><li>• Track &amp; Field (Boys &amp; Girls)</li><li>• Ultimate Frisbee (Boys &amp; Girls)**</li></ul>	<ul style="list-style-type: none"><li>• Adventure Sports</li><li>• Golf*</li><li>• Intramural Sports/Fitness</li><li>• WSSA Broadcast Team°</li></ul>

\*Spaces are limited. Priority will be given to non-varsity athletes in golf and squash.

\*\*Ultimate frisbee is not a WPIAL sport. The team competes in the Pittsburgh High School Ultimate League (PHUL).

^Due to the interest level in these sports and limited roster size, these teams have traditionally held a tryout process.

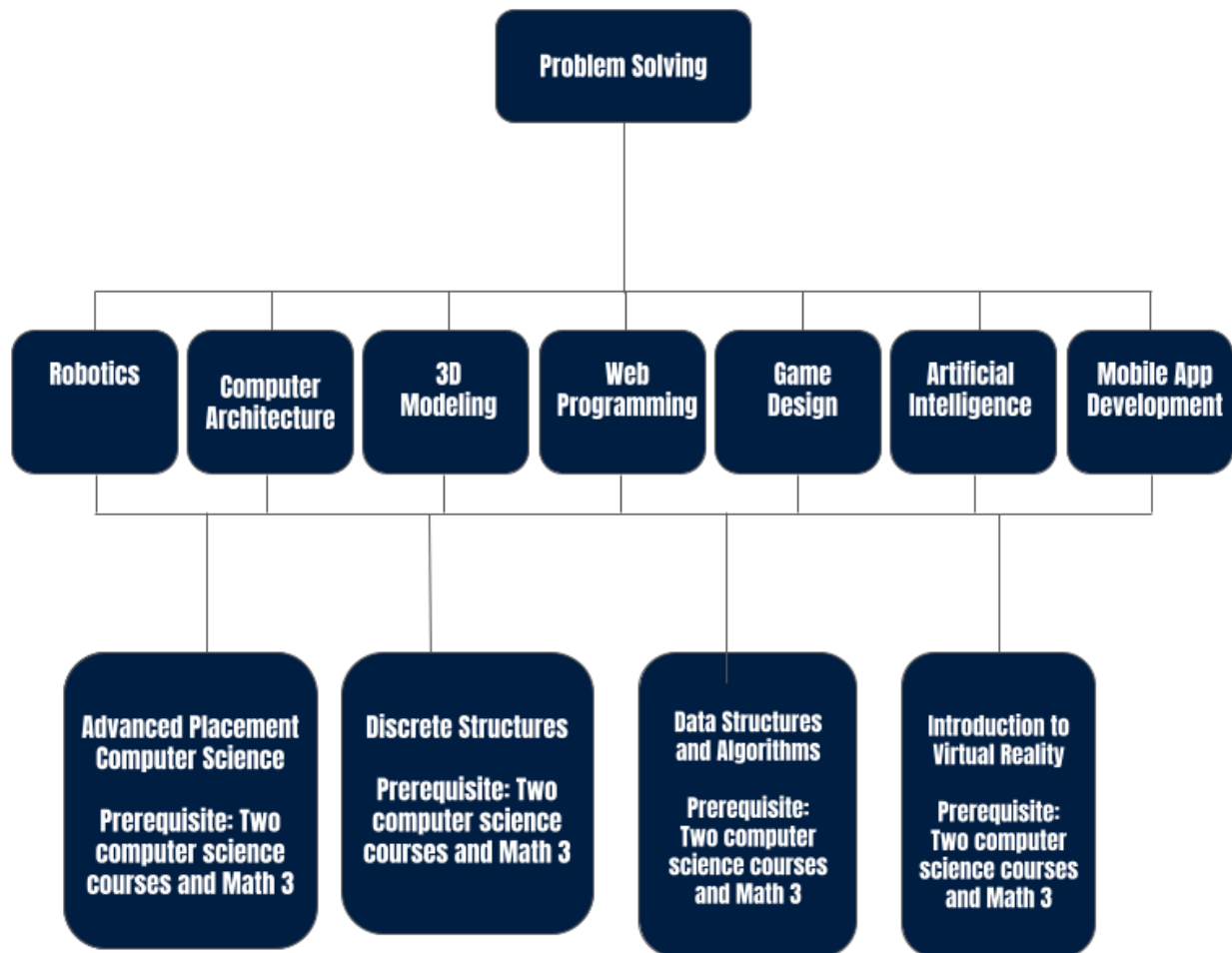
°Students on the WSSA Broadcast Team will produce two to four live sporting events for a livestream audience each term. Students will be trained on the equipment and procedures for producing live event coverage and will produce commentary and graphics. WSSA can only count as an intramural requirement one season per year.





# COMPUTER SCIENCE

## COMPUTER SCIENCE COURSE SEQUENCE



# COMPUTER SCIENCE DEPARTMENT MISSION STATEMENT

The Senior School Computer Science Department strives to provide the fundamental preparation in computer science that will stimulate students' growth in both academic and ethical areas and serve them well throughout their lives. In addition to preparing students for future studies in computer science, our goals include promoting both independent and collaborative thinking. Students in our classroom develop problem solving skills for comprehending challenges, designing solutions for these challenges, coding solutions, testing solutions, and iteratively improving these solutions.

## FOUNDATIONAL COURSE

### ***Problem Solving: Karel & Elementary Graphics***

***(0.5 credits)***

The emphasis of this course is on the foundations of programming methodologies for the discipline of computer science. Topics covered include modular programming, conditionals, loops, variables and parameters. These concepts will be applicable to all programming languages studied in the future. The Java language is used in conjunction with the Karel J. Robot package and a graphics package. PREREQUISITE: Enrollment in Math 2. (CP)

## SOFTWARE ENGINEERING COURSES

### ***Game Design (Any semester)***

***(0.5 credits)***

In this course, the student studies programming problems related to gaming. Topics include an overview of game development, programming with graphics systems, event-driven programming, and designing logic problems. Students will use a scripting language and a game-oriented programming environment. Students are expected to work with independence and initiative to complete a significant long-term project. PREREQUISITE: Problem Solving. (A)

### ***Artificial Intelligence (Semester II)***

***(0.5 credits)***

The Artificial Intelligence class is geared toward those students who have an interest in learning how machines "think." The course material is both theoretical and practical. Students develop skills in using programming languages that are geared toward machine reasoning such as Prolog and Lisp, then apply those skills to building simple AI applications, puzzles, and games. Topics include knowledge representation, reasoning algorithms, machine learning, and natural language understanding. PREREQUISITE: Problem Solving. (A)

### ***Web Programming (Semester I)***

***(0.5 credits)***

This course covers the fundamentals of computation from the perspective of web page design. Topics covered include network engineering, network security, and the creation of web pages using the following languages: HTML, CSS, and JavaScript. Students build creative web applications using variables, conditionals, loops, string-processing, mathematical computations, and arrays. The coursework consists of readings, homework and quizzes, completion of several projects, and a final exam. PREREQUISITE: Problem Solving. (A)

## HARDWARE ENGINEERING COURSES

### ***Robotics (Any semester)***

***(0.5 credits)***

In this course, students experience the power of designing and programming robots. Topics include an overview of robotics, engineering and programming principles, robot mapping, navigating environments, and handling objects. Students will use robotics kits that include motors, encoders, servos, and a variety of sensors. Programming will be done with the C or C++ language. Students are expected to work with independence and initiative to complete several long-term projects. PREREQUISITE: Problem Solving. (A)

### ***3D Modeling (Semester I)***

***(0.5 credits)***

In this course students work with the Plasm3D and OpenSCAD programming platforms to create three-dimensional models for engineering applications. Students will learn visual-spatial reasoning as they build and transform geometric figures in two and three dimensions. The course uses simple scripted programming in either a Python or C++ based language. The course combines geometry, programming and logic with the culminating experience of outputting the files created to 3D printers. Students will learn to build parts for robotics as well as for vehicles and drones. PREREQUISITE: Problem Solving. (A)



## ADVANCED COURSES

The following electives will be offered depending upon enrollment numbers. If an elective does not run, students will be placed in an alternate choice if their schedule permits.

### ***Advanced Placement Computer Science***

***(1 credit)***

This year-long course covers many of the major topics in theoretical computer science utilizing the programming language of Java. Topics include counting systems, Boolean algebra, object-oriented programming, strings, arrays, matrices, recursion, data structures, and the analysis of algorithms. The course topics parallel those found in a first-semester college curriculum. At the end of the course, students will be prepared to take the Computer Science “A” AP examination for college credit. PREREQUISITE: At least two Computer Science courses and Math 3. (HL)

### ***Discrete Structures (Semester I)***

***(0.5 credits)***

The Discrete Structures course, offered jointly by the Computer Science and Math Departments, takes an in-depth look at the fundamentals of logic, logical inferences, counting principles, and computability. These topics are fundamental to the study of advanced computer science and will prepare students for future coursework in areas such as math, computer science, and engineering. Topics include sets, lists, graphs, and Turing Machine modeling. Additional topics may include binary trees, hash tables, linked lists and doubly linked lists. Students will be required to complete at least three major programming projects. Homework, quizzes and exams round out the assessments. This course can be used as either a Computer Science or a Mathematics credit. PREREQUISITE: At least two Computer Science courses and Math 3. (HL)

### ***Advanced Topics in Computer Science: Introduction to Virtual Reality (Semester II)***

***(0.5 credits)***

In this one-term course, students are introduced to the basics of building virtual reality environments using A-Frame (an HTML and JavaScript library), CoSpaces and Unity. The history, hardware, psychological impact and future of AR/MR/VR will also be explored utilizing a variety of technologies including mobile devices and Oculus Quest headsets. PREREQUISITE: At least two Computer Science courses and Math 3. (HL)

## COURSES NOT OFFERED IN 2024-2025

### ***Application Development for Mobile Devices (Semester I)***

***(0.5 credits)***

The course will explore the processes and components required to develop mobile applications. Apps will be developed on MIT’s AppInventor platform. Students will engineer software applications using the unique features of mobile devices, such as touchscreen input, camera, GPS tools, and wireless connection. Students will be required to complete at least four major programming projects. Homework, quizzes and exams round out the assessments. PREREQUISITE: Problem Solving. (A)

### ***Computer Architecture (Semester II)***

***(0.5 credits)***

In this course, students will get an overview of electronics and how software transforms ideas into reality. Students study the basics of logic gates and their applications as the building blocks of digital systems. Some of the projects involve how to build LED displays, turn servos and motors, react to light and temperature, and interface with remote controls, joysticks and smartphones. Students will use the C programming language along with breadboards, the Arduino processor, robotics components, and modeling software such as Logisym. PREREQUISITE: Problem Solving. (A)

### ***Advanced Topics in Computer Science: Data Structures and Algorithms (Semester II)***

***(0.5 credits)***

This one-term course explores advanced Computer Science topics that are beyond the scope of AP Computer Science, starting where AP Computer Science leaves off. Topics may include binary trees, hash tables, linked lists and doubly linked lists, sorting, searching, and runtime analysis of algorithms. The course is Java based and students are required to complete a number of programming projects. In addition to classroom material, this course may use material developed for a Data Structures and Algorithms course at Carnegie Mellon University. PREREQUISITE: AP Computer Science and Math 3. (HL)



***Advanced Topics in Computer Science: Machine Learning******(0.5 credits)***

The course will explore the subject of machine-based Learning. The topics include an in-depth study of Python-based libraries to implement computer based learning systems. The course will cover some basic biological features of neurons, types of machine learning systems, a brief history of learning machines such as Perceptrons and Adaline, data transformation, the mathematics behind machine learning algorithms, neural networks, and projects to implement some of these machines. PREREQUISITE: At least two Computer Science courses and Math III. (HL)



# ENGLISH

## ENGLISH DEPARTMENT MISSION STATEMENT

The Senior School English Department fosters in students a love and respect for the English language. Through language fluency, students are better able to make sense of their world, communicate more effectively, and grow to appreciate the finest literature of their own cultures and the cultures of others, both past and present.

Courses in English center on a variety of activities that seek to expand not only students' knowledge and understanding, but also their skills in interpreting and composing texts. The program encourages close analysis of texts from a variety of genres, active and thoughtful class discussions, creative expression and personal reflection. We hold that learning is a communal enterprise with communication at its heart, so we expect students to develop their reading, writing, speaking and critical thinking capacities within a framework of constructive conversation and feedback arising from our study of common texts. Fundamental skills and concepts are thus taught as part of the study of these texts.

Central to our overall approach is the belief that literacy is a recursive act. Students are urged to question, examine and reassess their ideas and values through the development of important habits such as annotating, journaling, drafting and pre-writing, revising, and conducting research. Through this comprehensive program, the English Department seeks to foster the lifelong enjoyment of learning for its own sake. The Department directs its efforts toward the development of young individuals to become thoughtful, responsive members of a literate community.

## FOUNDATION COURSES (FORM III AND IV)

### ***Foundations of Literature and Writing I (Form III)***

***(1 credit)***

This course concentrates on the development of writing habits that include greater fluency, multiple drafting, topic focusing, effective editing of sentences for overall coherence, and the use of audience feedback for revision. Students will be introduced to fundamental concepts of rhetoric and persuasion that will enhance their composition practices. In reading, students move well beyond literal-level interpretations to draw valid and important inferences from a variety of challenging and thought-provoking texts. Individual and collaborative inquiry is encouraged, which lays the groundwork for the research skills necessary later on. (CP)

### ***Foundations of Literature and Writing II (Form IV)***

***(1 credit)***

This course continues to introduce students to literary masterpieces as well as to current works drawn from some of the best contemporary writers in English. Drawing valuable inferences is still emphasized, but moving beyond this to evaluating a work in light of its importance in larger literary and other contexts is encouraged and developed, as well as refining analytical and creative writing skills. Students acquire a greater understanding of the characteristics, strengths and limitations of the major literary genres: prose fiction, poetry, and drama. In responding to the literary works in assignments that range from informal explorations to fully developed analytical essays, students continue as well to improve as thoughtful, proficient writers and independent thinkers. The course also advances students' understanding of core rhetorical concepts, building on the work done in Foundations I. (CP)

## UPPER-FORM OFFERINGS (FORM V AND VI)

In the upper forms, the English Department offers a stimulating, challenging, and diversified selection of semester-length courses that provide students with the opportunity to study specific genres, movements, or topics in literature and language in depth. The program also offers students the training necessary to develop significant modes of thought and reasoning. Students should expect to work with at least three different teachers over their two years in the upper forms. Diversity in period and style is important to the structure of



this program in order to ensure that all students explore a wide variety of topics within the disciplines of literary and rhetorical studies. Students should enroll in at least one English class each semester.

## FALL SEMESTER

### OFFERED EVEN YEARS (2024-2025) – WRITING: FORMS AND PRACTICES

#### ***The Art of Persuasion***

**(0.5 credits)**

This class diverges from “typical” English classes: we will not be reading novels, plays, or poems, but focusing on essays, articles, and visual rhetoric. We will be exploring real-life issues in our society. Some sample questions/topics that we could potentially consider, and subsequently argue: should esports be considered sports? What makes a wetland? Are violent video games good for girls? What policies/practices should we change at Shady Side Academy? We will focus on writing persuasively for a variety of audiences and purposes. Topics include understanding the logical structure of arguments, employing effective rhetorical appeals, recognizing and avoiding fallacies, understanding and using criteria, and creating and making proposals. In our final unit, we will use the rhetorical strategies that we learned in the semester to work on the personal essay, a mode of writing that will help with the college admission process. (HL)

#### ***Fiction Workshop***

**(0.5 credits)**

In this course we will explore fiction by writing it, working together to understand where stories come from and how they are formed, learning to balance craft with inspiration. As we learn about some of the basic elements of fiction – point of view, scene, dialogue, character development, narrative structure – we will move from writing short exercises to writing two complete short stories, drafting, then revising. We’ll also explore the art of fiction by reading published short stories, many by young, emerging writers. (HL)

#### ***Graphic Literature***

**(0.5 credits)**

Over the past 20 years, the graphic novel has emerged as a literary form that works to link the power of language with the force of imagery. In this course, we will examine such graphic novels as *Maus*, *American Born Chinese*, *Ms. Marvel*, *March*, and *Watchmen* to consider what the graphic novel form contributes to our understanding of the text’s topic and of literature more generally. We will look at Scott McCloud’s book *Understanding Comics* in order to have a strong grasp of what makes a graphic novel a graphic novel. We will also examine trends in the content, focus, and form of the graphic novel in recent years. (HL)

#### ***Modern Narratives***

**(0.5 credits)**

In this class we will study both print and film versions of literature. This relatively new art form called film spans about one hundred years. We will study four films that represent the best storytelling from this medium and read the prose versions that were used as the template for some of these narratives. We will also make two films. Students will write the script for each. Films/narratives under consideration include *The Seventh Seal*, *Memento*, *Citizen Kane*, *Rashomon*, *The Graduate*, *Almost Famous*, *Jojo Rabbit*, *Rear Window*, and *Monty Python and the Holy Grail*. (HL)

#### ***The New Journalism***

**(0.5 credits)**

In this course, we will explore the foundational principles of journalism before turning our attention to the New Journalism movement of the 1960s and 70s, in which these principles were subverted by writers who experimented with describing real-life events using the techniques of fiction writing. Their works raise provocative questions about the boundaries between truth, fact, and fiction, complicating notions of journalistic objectivity. The essays and “nonfiction novels” we will read also describe aspects of American life during a period of seismic cultural change. Writers may include Truman Capote, Tom Wolfe, Joan Didion, Hunter S. Thompson, Norman Mailer, and Janet Malcolm. As part of their experience, students will also produce a work of original reporting using the techniques of New Journalism. (HL)

#### ***The Personal Essay***

**(0.5 credits)**

This course will help you develop your written expression on topics that go beyond literary analysis. Working from the principles of writing that you already have learned, you will expand your understanding of how to express your voice on contemporary and personal topics. Rhetorical strategies and example essays will provide guidance for how to focus and organize essays, empowering you to make decisions to best develop your voice.



Students should expect to read and write a range of essay types that will help you in your writing for any class or requirement. (HL)

### ***Pixels to Prose: Crafting Compelling Video Game Narratives***

**(0.5 credits)**

This course is an introduction to the genre of writing for video games – including interactive storytelling, the unique characteristics of the medium, the various parts of a game, and the diverse types of games that exist. Students will consider the pivotal role of the writer through learning about and creating a compelling narrative structure and shaping player experiences, all while embracing interactivity as a fundamental element of game storytelling. You will uncover the significance of the player character in video games, exploring gameplay dynamics and techniques for creating memorable protagonists that resonate with players. And of course, you'll delve into the realm of villains, understanding their role in storytelling, crafting unforgettable antagonists, and exploring the art of creating epic boss battles. Prepare to embark on a thrilling adventure into a world where storytelling meets interactivity and where imagination knows no bounds. (HL)

### ***Reading and Writing Memoir***

**(0.5 credits)**

In this course we will read various memoirs from the twentieth and twenty-first centuries, and students will explore and practice the process of writing memoirs. Authors may include Annie Dillard, Maxine Hong Kingston, Frank McCourt, Eudora Welty, Jeannette Walls, Tara Westover, Sandra Uwiringiyimana, and others. We will also look at G. Thomas Couser's book *Memoir: An Introduction* to better understand the origins and forms of memoir as a genre. (HL)

### ***Screenwriting***

**(0.5 credits)**

All narrative films begin with the script. In this course, you will learn what makes a script good by reading some practical instruction on writing screenplays, by studying several screenplays, by seeing some of the films that arose from those screenplays, and by writing your own screenplays in the manner of successful Hollywood writers: with copious feedback from other writers. You will learn about big-picture concerns such as narrative structure and sustaining the audience's interest through writing effective dialogue and action, as well as about more practical matters such as the mechanics of a film script and the use of screenwriting software. (HL)

### ***Theory and Process of Writing***

**(0.5 credits)**

This course focuses on the analysis of personal, intellectual, and practical problems in composing. Students will study the theoretical issues of the relationship between thinking and writing and will work to gain insight into the parallels between examining and honing their own writing and working with the writing of others. In multiple drafts of three major papers and in extensive journal work, students will examine such elements as voice, focus, audience, development, and organization in writing. The writing and the critique experience at the center of this course are intended to prepare students to work with peers in the Writing Center. (Enrollment in this course is restricted to Form V students only, by application to the English Department and by approval of the chair.) (HL)

## **COURSES NOT OFFERED IN 2024-2025**

OFFERED ODD YEARS (2025-2026) – LITERATURE OF BRITAIN AND IRELAND

### ***Austen and Dickens***

**(0.5 credits)**

Jane Austen and Charles Dickens are considered two of the leading authors of 19th-century British literature. This course will allow students to reflect on the place such works as *Pride and Prejudice*, *Persuasion*, *A Christmas Carol*, and *Great Expectations* have in the world of 19th-century British literature and in the evolution of the modern novel. We will also examine what these works tell us about city and country life in 19th-century Britain. In comparing these authors, we will consider issues of style, voice, authority and thematic focus. (HL)

### ***The Bloomsbury Group***

**(0.5 credits)**

According to the *Routledge Encyclopedia of Modernism*, the Bloomsbury Group is a “loosely defined social circle . . . of writers, artists, and intellectuals who lived and worked in the area in the early part of the 20th century.” Members of the group contributed to various aspects of modernist thought and culture, including feminism, analytic philosophy, psychoanalysis, macroeconomics, progressive domestic arrangements, left-oriented politics, Post-Impressionist art, and literary experimentation. The influence of the Bloomsbury Group continues to resonate with contemporary authors, artists, and artisans. Our focus will center predominantly on the “Bloomsbury” influence on art and political discourse. We will read two significant novels,





Virginia Woolf's *Mrs. Dalloway* and E. M. Forster's *A Passage to India*, which will be supplemented with poetry and short stories by T. S. Eliot, Katherine Mansfield, D. H. Lawrence, and James Joyce. (HL)

**English Poetry From the Renaissance to the Enlightenment (1550-1800) (0.5 credits)**

The period from the late 16th century to the late 18th century produced some of the greatest poems in the English language – on love, life, politics, philosophy, travel, religion and many other topics – many of which contributed phrases and ideas to the language that are now in common parlance. In this course you will look long and deep at many of them, extending your understanding from the Foundations sequence about how poetry works and supplementing it with knowledge of the literary and cultural history that surrounds these works in particular. Poets to be studied may include Spencer, Raleigh, Shakespeare, Marlowe, Queen Elizabeth I, Donne, Marvell, Herbert, Jonson, Herrick, Milton, Dryden, Pope, Swift, Gray, and Collins. (HL)

**English Romanticism (0.5 credits)**

This course will immerse students in the emotion and energy of the English Romantic period. The celebration of nature and the evocation of the sublime permeates the verse of the Romantic writers. Students can expect to read from such Romantic icons as William Wordsworth, Samuel Taylor Coleridge, and Lord Byron. Let yourself be moved by the spirit of these writers and their works. (HL)

**Futures of the Past: Speculative Fiction (0.5 credits)**

This class will travel back and forth in time, exploring how writers from the 19th century to the present day have imagined potential paths for humanity. From reanimating corpses to forging friendships with AI, from totalitarian takeovers to alien invasions, we will examine how fiction about fantastic futures tends to reflect contemporary hopes, fears and realities. Writers may include Mary Shelley, H. G. Wells, George Orwell, J. G. Ballard, Kazuo Ishiguro, and others. (HL)

**Gothic Literature (0.5 credits)**

Dungeons, labyrinths, dark castles, flickering candles, harrowing moans, graveyards – we celebrate elements of the Gothic every October, but in the 18th and 19th centuries, the Gothic had its time in the limelight. In Gothic Literature, students will explore novels and short stories focusing on the macabre, mysterious, and supernatural. What drew Regency and Victorian readers to these terrifying tales? Why and how did the Gothic gain popularity? How has the genre evolved? How do contemporary authors use aspects of the Gothic in their works today? Come find out in Gothic Literature – it is a real scream! Possible authors include Horace Walpole, Mary Shelley, Charles Dickens, Anne Radcliffe, Jane Austen, and Edgar Allan Poe. (HL)

**The Henriad (0.5 credits)**

Like so many who have come before, let us go “once more unto the breach” and engage with one of the most compelling dramatic series of all time. Shakespeare's *Henriad* begins with *Richard II*, continues in *Henry IV Parts I & II*, and culminates in the triumphant *Henry V*. We will bring the plays off the page through dramatic readings and scene presentations. “The game's afoot. / Follow your spirit, and upon this charge / Cry, ‘God for Harry, England, and St. George!’” (HL)

**Irish Literature (0.5 credits)**

The history of literature in Ireland is fraught with varied issues. Located in a far corner of northwest Europe, Ireland has been forced to battle famine, wars, and domination by England. We will read literature in several genres that gets to the heart of the Irish experience. We will study James Joyce's short stories, W. B. Yeats's poetry, and John M. Synge's and Samuel Beckett's plays, along with varied contemporary texts. (HL)

**Modern British Drama (0.5 credits)**

Modern British drama consistently concerns itself with politics, whether it be the politics of the drawing room in the works of Noel Coward, the politics of existence in the plays of Samuel Beckett, the rebellion against the political status quo by the “angry young men” of the 1950s, the politics of identity considered by Harold Pinter, or the politics of class and gender explored by Caryl Churchill and Bola Agbaje. In this course, we will consider how British drama reflects the politics of the time and how British drama has influenced the politics of the time. (HL)

**On the Road: Travel Tales from the British Isles (0.5 credits)**

Some travel for adventure, others to leave something behind. Some travel to honor God, others to conquer. Some travel to defeat monsters, others on their travels are seen as monstrous. In this class, we will read three





essential works about travel from the British literary canon, choosing from *Beowulf*, *Sir Gawain and the Green Knight*, *The Canterbury Tales*, *Gulliver's Travels*, and *The Tempest*. Reading these texts will allow us to explore the worlds created and captured in these works, as well as consider what these works tell us about British history and key points in the development of British literature. From the epic tale of Beowulf's bravery, to the bawdy and pious stories of Chaucer's pilgrims and Sir Gawain's travels, to the sharp satire of Gulliver's many adventures, to the mix of the magic and the prosaic on Prospero's island, the reading for this class will allow us to leap through time and space on a tour through British literature, history and culture. (HL)

### ***The Other: Alienation in Shakespeare's Plays***

**(0.5 credits)**

In literature, "the other" is a character who is seen by a society as someone who does not fit the mold—physically, religiously, racially, ethnically or morally. Students will explore these essential questions: Why are certain characters seen as "the other"? Which common characteristics does "the other" share across works? How does "the other" cope with their alienation, and how do these coping mechanisms manifest over the course of a play? Lastly in each unit, we will discuss Shakespeare's possible intentions for creating "the other" in each work. Using the evidence within his plays, we'll investigate: was Shakespeare a social progressive, transcending societal norms, or was he a man of his time? We'll read and watch *The Tempest*, *Othello* and *The Merchant of Venice*. (HL)

### ***Saints and Sinners***

**(0.5 credits)**

This class will use a wide-ranging selection of pre-1800 tragic plays, autobiographical writings, and lyric and epic poems to explore themes of good and evil, suffering and salvation, and redemption and despair. Students will deepen their understanding of literature, religion, and history while also sharpening their ability to read and write more critically. Texts may include Dante's *Inferno*, John Milton's *Paradise Lost*, Augustine's *Confessions*, William Shakespeare's *King Lear*, and Christopher Marlowe's *Doctor Faustus*. (HL)

### ***Satire***

**(0.5 credits)**

Satire is one of the longest-lived modes of literature, beginning as far back as ancient Rome, and unsurprisingly so, since civilization needs sharp critiques of its follies and vices. In this course, you will study some of the most well-known satires and satiric comedies in English, culminating in the writings of the Enlightenment, the so-called Golden Age of English satire. Since satire frequently focuses on affairs and personages of the day, you will study the cultural contexts for these works as well as the particular methods the works employ to land their points. Authors in the course may include Geoffrey Chaucer, Ben Jonson, Richard Brinsley Sheridan, John Dryden, William Congreve, Alexander Pope, and Jonathan Swift. (HL)

### ***Shakespeare: Tragedy Tomorrow, Comedy Tonight***

**(0.5 credits)**

This course will examine numerous works by William Shakespeare, focusing on both tragedy and comedy. How does Shakespeare weave the themes of love, marriage, and loyalty into his works? We will delve deep into these themes and the relationships between the characters in the plays, while also discussing how these issues pertain to our world today. We will also explore Shakespeare's use of language, as well as discuss the element of drama and the historical context of his era. (HL)

### ***Tales of Love and War***

**(0.5 credits)**

Many literary narratives, going back at least as far as the *Iliad*, have dealt with the conjunction of love and war. In this class, you will study a few examples of the combination from the last couple of centuries of British literature, giving some consideration to how modernity – including modern love, modern warfare, or both – affects the shape of these narratives. Authors may include Alfred Tennyson, George Bernard Shaw, George Orwell, Graham Greene, and Kazuo Ishiguro. (HL)

### ***Voices from the Victorian Age***

**(0.5 credits)**

The Victorian Age was a time of social, political, economic, and cultural change. In this course, students will read a variety of literary works by authors of this period (1830-1900), which may include Charlotte Brontë, George Eliot, Elizabeth Barrett Browning, Christina Rossetti, Robert Browning, Gerard Manley Hopkins, and Alfred Tennyson. We will explore numerous issues and themes common to British literature of this era, with specific focus on the role of women in society, the age of industry, British imperialism, scientific discovery, and a variety of social problems and inequalities. (HL)



## SPRING SEMESTER

### OFFERED EVEN YEARS (2024-2025) – LITERATURE OF THE UNITED STATES

#### ***American Journeys***

**(0.5 credits)**

From westward expansion to the Great Migration, from the Dust Bowl exodus to the cross-country road trip, the journey has long been central to American history, identity, and myth. In this course, students will read a wide-ranging selection of narratives about journeys, with an eye toward understanding what is quintessentially American about them. Writers may include William Faulkner, John Steinbeck, Willa Cather, Ralph Ellison, Cormac McCarthy, and others. (HL)

#### ***American Poetry***

**(0.5 credits)**

We will examine the history of America through poetry, beginning with the colonials and moving through the contemporary period. Major poets may include Anne Bradstreet, Herman Melville, Emily Dickinson, Walt Whitman, Robert Frost, Marianne Moore, T. S. Eliot, Langston Hughes, Theodore Roethke, Sylvia Plath, and Frank Walker. Students will learn how to explicate poetry by examining these works closely. (HL)

#### ***The American Renaissance***

**(0.5 credits)**

The middle 50 years of the 19th century produced some of America's greatest writers and thinkers, many of whom knew each other well and communicated closely with each other about their work. What we think of today as "American literature" first came to exist during this period. In this course you will get to read some of the period's most canonical works, including selections from authors such as Nathaniel Hawthorne, Herman Melville, Washington Irving, Ralph Waldo Emerson, Henry David Thoreau, Walt Whitman, Edgar Allan Poe, Emily Dickinson, Frederick Douglass, Harriet Jacobs, and Abraham Lincoln. (HL)

#### ***August Wilson***

**(0.5 credits)**

Director Marion McCClinton sums it up nicely: "There are no new August Wilsons. There ain't going to be any neither." The same can be said about his magnum opus, a 10-part series of plays that showcase the African-American experience set in every decade of the 20th century. Unique in scope and perspective, Wilson writes with a stunningly authentic voice and powerful artistic metaphor. His plays in the "Century Cycle" feature dynamic characters who set out to define their own values, culture, and identity. Wilson has been called the American Shakespeare — and he is from our fair city of Pittsburgh! In this course, we will be reading, exploring, and studying several plays in the Cycle (save the ones that you read as under-formers). Considering that nine of 10 plays are set in Pittsburgh, we will hopefully travel to some of these locations to do some writing of our own. Lastly, the course will culminate with a trip to the August Wilson Center in downtown Pittsburgh. (HL)

#### ***The Hard-Boiled Detective***

**(0.5 credits)**

The hard-boiled detective first appeared in pulp fiction publications in the United States in the 1920s, a flawed hero who was as quick with his fists as with his wits. In reading the works of such authors as Dashiell Hammett, Raymond Chandler, Mickey Spillane, Ross Macdonald, Walter Mosley, Robert B. Parker, Sara Paretsky, and Lawrence Sanders, we will consider the factors that led to the development of this iconic character, explore the elements central to the hard-boiled detective, and investigate whether the hard-boiled detective has changed with the times. We will also look at how the hard-boiled detective novel fits into the mystery genre. (HL)

#### ***Indigenous Voices: A Survey of Modern Native American Prose and Poetry***

**(0.5 credits)**

This course delves into the rich tapestry of modern Native American literature to foster an appreciation for the diverse voices, perspectives, and storytelling traditions within Native American communities through the study of short stories, poetry, memoir, and fiction. Students will embark on a literary journey that spans a variety of Native American experiences, addressing contemporary issues, cultural resilience, and the complexities of identity. Through the exploration of both established and emerging Native American authors, students will gain insights into the vibrant literary and geographical landscape that reflects the dynamic and ever-evolving narratives of indigenous peoples. Possible authors include Sherman Alexie, Joy Harjo, Kelly Jo Ford, Tommy Orange, N. Scott Momaday, and John Joseph Matthews. (HL)

#### ***The Individual in America***

**(0.5 credits)**

America was born out of an Enlightenment era that placed a new value on the rights and freedoms of the individual. We will read from writers who explore the voices of this new world in prose, poetry, and drama. Writers may include Nathaniel Hawthorne, Walt Whitman, Arthur Miller, and Ernest Hemingway. Despite the



years that separate the writers and their characters, they all share struggles and societal impositions that may or may not be uniquely American. We will compare their experiences and try to evaluate why some of them succeed or fail to emerge as stronger at the end of their trials. (HL)

### ***Literature of the Harlem Renaissance***

**(0.5 credits)**

This course will examine various literary works of the Harlem Renaissance, from the 1920s to the 1930s, as well as take a look at the origin, impact and legacy of the movement. We will examine works by Harlem Renaissance writers such as Langston Hughes, James Weldon Johnson, Claude McKay, Zora Neale Hurston, Nella Larsen, and Countee Cullen. From there we will explore the movement's influence on future writers, through possible works by Richard Wright, Ann Petry, or August Wilson. The course will also study the music and art of the Harlem Renaissance, the influence of the New Negro Movement, and various historical documents to support our discussion of the literature. We will take a close look at the experiences of each author and their search for identity amidst issues of race, class, and gender. (HL)

### ***Modern American Drama***

**(0.5 credits)**

The possibility of achieving the "American Dream" is a topic that has consistently concerned the playwrights of the modern American theater. We will explore the works of playwrights of the 20th and 21st centuries (authors may include Eugene O'Neill, Tennessee Williams, Arthur Miller, Lorraine Hansberry, Sam Shepard, David Mamet, Suzan-Lori Parks, August Wilson, Wendy Wasserstein, Tony Kushner, Tracy Letts, and Lynn Nottage) to consider whether the "American Dream" is more dream or nightmare. (HL)

### ***Voices from the American South***

**(0.5 credits)**

Students will explore the works of four contemporary Southern writers – Flannery O'Connor, Lewis Nordan, Yusef Komunyakaa, Octavia Butler – as they grapple with the issues of race, gender, class and power. The forms and genres these four award-winning writers use to confront these topics range from short stories to magical realism to poetry to speculative fiction, all with the aim of illuminating some thread, some filament of the challenges – interwoven and overlapping – that continue to reverberate throughout the varied geography of the US. The course will also require additional readings or assignments designed to provide context for the historical events associated with these works. (HL)

## **COURSES NOT OFFERED IN 2024-2025**

OFFERED ODD YEARS (2025-2026) – NON-ANGLOPHONE WORLD LITERATURE

### ***Eastern European Literature***

**(0.5 credits)**

This course will explore the literature and culture of Eastern Europe. Possible authors include Milan Kundera, Elie Weisel, Franz Kafka, and Karel Čapek. The course will explore the literature with an eye and ear for what makes this region distinct from others, and how its culture shapes the perspectives of the narratives' characters. (HL)

### ***Forgotten Societies in the Modern World***

**(0.5 credits)**

This course will take a look at groups located around the world that are often forgotten or purposely ignored in Western/American ideology. Through both non-fiction and fiction works, we will dive into unique stories about men and women of your age stepping into a "Western" dominated world. We will begin the course with pieces written about the "third world," including *A Long Way Gone: Memoirs of a Boy Soldier* by Ishmael Beah, *White Tiger* by Aravind Adiga, and *The Underground Girls of Kabul: In Search of a Hidden Resistance in Afghanistan* by Jenny Nordberg. We will conclude with selections that bring to light the idea that the "third world" exists in our very own country, through works by T. C. Boyle, Sandra Cisneros, Julia Alvarez, and/or Edwidge Danticat. The class will focus on discussing these works in terms of their artistic merit as well as issues surrounding their social, political, and economic impact on our world. (HL)

### ***French Literature from 1850 to the Present***

**(0.5 credits)**

In this course, you will study some of the greatest works written in French over the last two centuries. Beginning with the industrial age and progressing through the Modernist era to the present day, these texts reveal concerns that are both uniquely French as well as global in their significance; some of them have come to define universal conditions in human existence. Authors studied in the course may include Gustave Flaubert, Edmond Rostand, Jean-Paul Sartre, Albert Camus, Samuel Beckett, Jean Anouilh, Simone de Beauvoir, Marguerite Duras, Michel Houellebecq, and Amélie Nothomb (all in English translation). (HL)



**Indian Literature****(0.5 credits)**

India is a country of many languages and of a long history of literature, a literature that captures its myths and history, the story of India's places and people. In this class, we will dip into the deep pool of Indian literature, starting with selections from the epic poem Mahabharata, moving on to the poetry of Rabindranath Tagore, India's Nobel Laureate in Literature, and then we will explore some of the amazing novels and short stories of 20th- and 21st-century India, including such authors as Salman Rushdie, Anita Desai, Vikram Chandra, Amitav Ghosh, Jhumpa Lahiri, Arundhati Roy, Aravind Adiga, and Rohinton Mistry. We will consider what this literature can tell us about the history, culture and future of India. (HL)

**Literature of Africa and the Diaspora****(0.5 credits)**

What began as oral tradition has now become the source of some of the most powerful and original stories of our world. Working through multiple regions of Africa in multiple genres – poetry, short stories, novels – this course will study the work of African writers as they tackle such topics as gender inequality, the ravages of war and AIDS, colonialism and post-colonialism, and cultural imperialism. Possible texts include Chimamanda Ngozi Adichie's *Half of a Yellow Sun* and Ishmael Beah's *Radiance of Tomorrow*. (HL)

**Literature of Oppression and Resistance****(0.5 credits)**

In 1948, the United Nations signed a treaty on the prevention and punishment of the crime of genocide, declaring for the first time that genocide was a crime under international law. What horrific instances brought these powerful nations to sign such a treaty? In this course, we will read works that bring light to some of the darkest periods of our world's history. Through the poignant voices of our authors and their characters, we will witness startling oppression but also narratives of dogged Perseverance and unbounding optimism. Potential works include literature from Eastern Europe, Cambodia, and Rwanda. (HL)

**Literature of South America****(0.5 credits)**

New York Times columnist James Reston once observed that “the people of the United States will do anything for Latin America, except read about it.” We will do our part to remedy this situation by exploring major works of South American literature in translation. The poetry, short stories, and novels we read will be situated within their historical, political, and cultural contexts so that students will gain a deeper understanding of a diverse region and its array of literary voices. Writers may include Jorge Luis Borges, Gabriel García Márquez, Pablo Neruda, Julio Cortázar, Mario Vargas Llosa, Isabel Allende, Luisa Valenzuela, and Roberto Bolaño. (HL)

**Modern Japanese Literature****(0.5 credits)**

In this course, we will examine some of Japan's greatest prose writers of the 20th and 21st centuries, gaining an introduction to the literary and social concerns of an archipelagic nation that has influenced the history and culture of the entire globe profoundly over the last century and a half. These texts have had wide-ranging influence in Japan, in the United States, and elsewhere; they have variously earned Nobel Prizes for their writers, inspired adaptations into award-winning films, and turned their authors into overnight celebrities at home and abroad. You will have a chance in this course to see why. Authors studied may include Ryunosuke Akutagawa, Yasunari Kawabata, Haruki Murakami, and Kobo Abe. (HL)

**Nobel Laureates from Around the Globe****(0.5 credits)**

Come travel the world through literature! Awarded since 1901, the Nobel Prize in Literature seeks to recognize “the person who shall have produced in the field of literature the most outstanding work in an ideal direction.” In the years since it has been awarded, the prize has gone to authors writing in 25 different languages, coming from 41 different countries. In this class, we will explore the writing of several authors who have been awarded the Nobel Prize for Literature. Reading the works will take us on a tour of the world, from the Egypt of Naguib Mahfouz to the China of Mo Yan and Gao Xingjian, from Orhan Pamuk's Turkey to Yasunari Kawabata's Japan. We will sample some of the best of world literature through the poetry and fiction of a variety of laureates. (HL)

**Russian Literature****(0.5 credits)**

Vladimir Nabokov once stated that all modern literature began with Nikolai Gogol. Taking Nabokov's cue, we will look at the literature from this vast country during the modern period, including a range of texts from the modern Russian masters: Gogol, Alexander Pushkin, Anton Chekhov, Fyodor Dostoevsky, Leo Tolstoy, and Ivan Turgenev. We will examine Czarist Russia as it rises and falls through a variety of texts. (HL)





# GLIMCHER TECH AND DESIGN

The following courses will be in the Glimcher Tech & Design Hub. They will not fulfill graduation requirements, but will earn non-departmental credits.

## COURSES

### ***Projects for Tech & Design***

***(0.5 credits)***

Students will be able to leverage the Glimcher Tech & Design Hub to its fullest capacity by becoming familiar with 3D modeling, printing, CNC mills and routers, vector design, laser cutting and various wood and metalworking tools. Entirely project-based, the term will consist of minor projects centered around each piece of equipment culminating in a final project specific to the student's interest. (CP)

### ***Community Connections Through Tech & Design***

***(0.5 credits)***

Students work with community partners to identify and solve problems according to the design thinking framework, utilizing the resources and tools of the Glimcher Tech & Design Hub. Students work with community partners to identify and solve problems utilizing a variety of strategies, such as design thinking, innovative design, and agile thinking. The course is heavily project-based and typically follows a different theme each year. (CP) Previous themes have been:

- The Creation of a Children's Show - students learned puppetry, animatronics, animation and stop motion.
- Sustainability - students learned how to create hydroponic gardens and learned the various growth cycles of plants and vegetables, creating a large CNC-routed grow-sphere.
- Assistive Technology - students partnered with Makers Making Change to create and distribute prosthetics for children and adults around Pittsburgh.

Please see Dr. Robinson to determine what the current thematic planning is.



# HEALTH AND WELLNESS

As a foundational component of SSA's overall student life curriculum, health courses collectively aim to provide accurate health and wellness information and resources to students while simultaneously helping them to build the social and emotional skills to successfully negotiate adolescence and establish habits that will serve them over the course of their lifetime.

Health classes promote and provide a safe space for open discourse and offer our youngest students the opportunity to build community, express themselves and share any concerns they may have.

## COURSES

### ***Form III Health and Wellness***

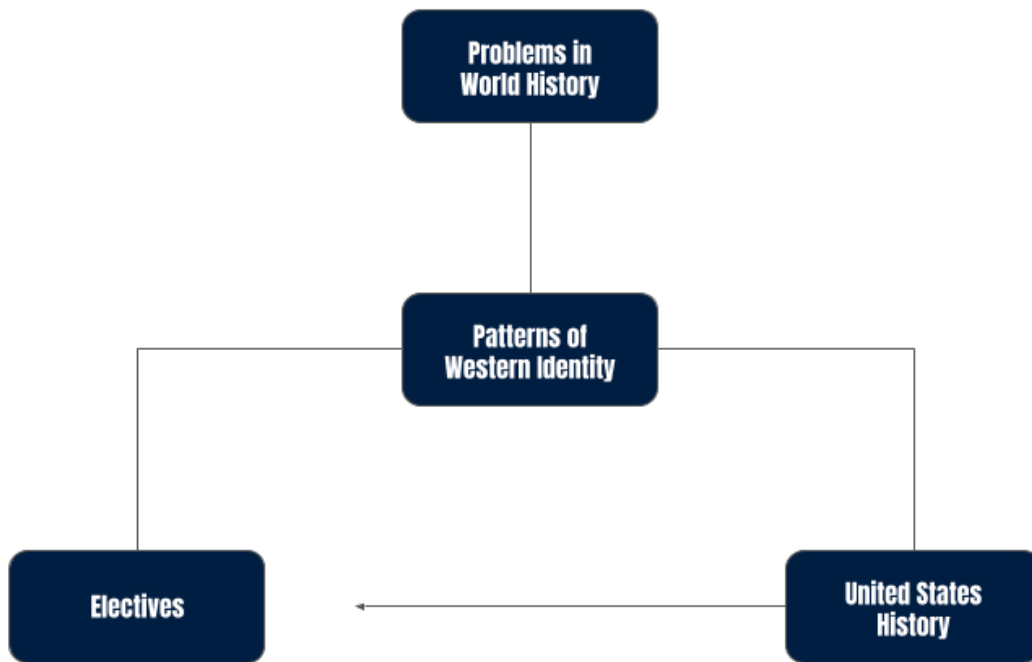
***(0.5 credits)***

Form III Health empowers students to prepare for, recognize, and analyze the challenges of becoming self-actualized and healthy young adults. The course, grounded in SSA's Guiding Principles of Honesty, Respect, Kindness, Responsibility and Safety, provides students with the information necessary to make thoughtful and responsible decisions. Students will engage in honing the skills required to successfully negotiate the high school experience while also gaining broad-based knowledge in the holistic and critical areas of Health literacy; nutrition and food access, fitness plan design, meditation and mindfulness, stress, mental and physical wellness, sexual health and relationships, substance use and abuse, and social media awareness. Students will contribute to the course experience through active participation, individual contributions, and collaborative projects. Health is a one-semester course that is required of all Form III students and is graded on a pass/fail basis. (CP)



# HISTORY

## HISTORY COURSE SEQUENCE





## HISTORY DEPARTMENT MISSION STATEMENT

The Senior School History Department offers a curriculum guided by two complementary educational aims: to introduce students to the breadth and depth of the human experience by a comparative study of past and contemporary societies and cultures; and to develop in students the skills of research, analytical writing and critical thinking that are central to historical inquiry, broadly transferable to other disciplines, and central to a rich and fulfilling intellectual life. Students are trained to explore the past through the use of a variety of primary and secondary sources and are challenged to interpret past events to arrive at original conclusions to complicated problems. Further, they are taught to think critically about the discipline of history and how historical arguments are shaped by the eras that produced them. Our three core courses build on each other in both content and skills, while a range of elective courses offer students with a keen interest in history the opportunity to explore subjects that engage them on a deeper level.

### CORE COURSES

#### ***Problems in World History (Form III)***

***(1 credit)***

This course uses selected content to trace historical roots of modern problems and, therefore, forms the foundation for future history courses. The beginning course of the three-year history requirement serves multiple purposes. It develops the analytical skills necessary for advanced historical research and scholarship in later courses, building reading, writing and thinking skills as used by historians and social problem solvers. The course also introduces students to the use of narrative as a means of understanding historical phenomena and allows students to explore history from multiple perspectives. The guiding theme of the course is identity, both individual and national. Taking a problems-based approach to history, the course gives students the foundational historical knowledge they will build upon to develop an understanding of the forces that shape history: political structure, religion, trade and economics, family and social structure, geography, the environment and cultural phenomena. (CP)

#### ***Patterns of Western Identity (Form IV)***

***(1 credit)***

Patterns of Western Identity builds upon the analytical skills the students began to develop the previous year in Problems in World History. It is a course that provides a general understanding of history as an intellectual discipline along with basic methods of historical research through the study of primary and secondary sources. The skill focus for this course is the construction of historical argument and analytical writing. The more extensive writing requirement is designed to prepare students for the United States History research paper the following year. Rather than a mere survey course of western civilization, this course uses a thematic approach to emphasize global connections of western culture and the impact of western societies on the world in the modern era. PREREQUISITE: Problems in World History. (CP)

#### ***United States History (Form V or Form VI\*)***

***(1 credit)***

United States History is the culmination of three years of historical learning. While this course may be taken in either the Form V or VI year, the department recommends that students complete U.S. History in Form V. It is a course that provides a general understanding of history as an intellectual discipline along with basic methods of historical research through the study of primary and secondary sources. This course concentrates on the political, social, cultural, economic and intellectual forces that shaped American civilization. While this course will address many themes in American history, such as the struggle for racial and gender equality, the guiding theme of the course will be to trace American national identity. Never static and always complex, the idea of America and the definition of who is an American will be core issues this class will address. A unique feature of the course is the opportunity for students to prepare and write a formal research paper that incorporates both primary and secondary historical sources. PREREQUISITE: Patterns of Western Identity. (A)

\*While this course may be taken in either the Form V or Form VI year, the department strongly recommends that students complete U.S. History in Form V.

### ELECTIVES

History electives should be selected with an alternate course indicated. If a student is unable to be placed in their first choice, due to scheduling or course enrollment, they will automatically be placed in an alternate elective option. Electives may also be offered on a rotating basis.



## FALL SEMESTER

### ***Modern Social Justice Movements in America***

***(0.5 credits)***

This course examines continuities and transformations in both the study and practice of modern social movements. The course will explore why movements emerge, how they develop and what they accomplish. We will study several dimensions of collective action, including their organization, leadership, ideology and objectives. We will also seek to understand the sometimes powerful and sometimes subtle influences of social movements on the nature of socioeconomic, gender, sexual identity, racial, ethnic, national and transnational relations today. The course will make these greater connections through a close examination of African American, women and LGBTQ history in the United States. PREREQUISITE: Concurrent with United States History or the Form VI year. (HL)

### ***Pittsburgh History: The Forever Frontier***

***(0.5 credits)***

This course begins with Pittsburgh's history in the years before European/African settlement in the region, when the land on which our city sits was not only under the dominion of absentee rulers, the Iroquois Confederacy, but was also largely peopled by a motley group of native exiles from all directions on the compass. The course continues through the emergence of Pittsburgh as the world's preeminent industrial center, led by industrial pioneer and Scottish immigrant Andrew Carnegie. The course takes the students through three distinct periods. First, we examine Pittsburgh's role in the Seven Years War and the struggle among three empires--two European and one native--for control of this valuable place. Second, we will learn about Pittsburgh as a center for boat-building, nascent manufacturing, and commerce, serving as the jumping-off point for those headed to the burgeoning west, including Lewis and Clark. Finally, we will explore how Pittsburgh's role as the arsenal of the Union Army launched it into the forefront of modern industrial production. The unifying theme that ties the term together is that, whatever field of endeavor dominated the life of the region, Pittsburgh was always on the frontier. PREREQUISITE: Concurrent with United States History or the Form VI year. (A)

### ***A History of American Music***

***(0.5 credits)***

This course seeks to apply the habit of analytical thinking to the history of America's sonic identity. Using music as an artifact and lens to examine the American narrative, students will explore how the diversity of influences within the United States fostered a unique and vital contribution to the world of music. Students will engage with the dynamics of American culture reflected in the music of distinct groups and generations. Beginning with a brief look at Native American and early colonial musical lifeways, students will examine the historical context of American music as it evolved in the United States over the late-nineteenth and twentieth centuries, emphasizing prominent composers and musical periods and styles of the twentieth century. Students will explore ideas, customs, and political climates regarding each musical period. Students will appreciate the historical context as well as artistic mastery of popular and significant compositions from each period through readings, recordings, films, videos, guest speakers, and live performances in and outside the classroom. Students will be evaluated using various methods, including but not limited to a research essay, a body of listening quizzes, a journal, a notebook, presentations, and performances. Students will be able to name and give historical context for music from all generations of the American experience; they will reinforce their understanding of the narrative of the United States as a diverse country whose musical identity has had a critical global influence. PREREQUISITE: Concurrent with United States History or the Form VI year. (A)

## SPRING SEMESTER

### ***Pittsburgh History: Rivers of Steel, Rivers of Change***

***(0.5 credits)***

This course begins with the dawn of the 20th century. Pittsburgh was an industrial colossus, a destination for immigrants and migrants from all over the world and the United States, but particularly people from Eastern and Southern Europeans fleeing poverty and instability in their homelands and African Americans escaping persecution south of the Mason-Dixon Line. The city was also a chaotic, smoky mess, whose streets were often darkened by smog at mid-day and periodically submerged under floodwaters. In the late 19th century, James Parton wrote in *The Atlantic* that Pittsburgh was "hell with the lid taken off," and 50 years later, the description still applied. Yet by the later 20th century, Pittsburgh would be named by Rand McNally as the US's Most



Livable City. This transformation was not easy, and there was much misery in the transformation, but it was historic, and it is that history we will explore in this course. PREREQUISITE: Concurrent with United States History or the Form VI year. (A)

### ***Economics of Gentrification***

***(0.5 credits)***

This course will examine current and historic economic problems encountered in developing and gentrifying communities using an interdisciplinary approach to the study of history, economics and social change. It will incorporate history, economics, sociology, anthropology and ethnology, and use the quantitative tools of economics to explore specific social questions. This term course will be fast-paced, and we will dive into our exploration of these themes with the “There Goes the Neighborhood” Teach the Class assignment major assessment. Then, we will conduct a case study and application of the theoretical framework to the case of gentrification in two Pittsburgh neighborhoods, Garfield and East Liberty. PREREQUISITE: Concurrent with United States History or the Form VI year. (HL)

### ***Recording Our History***

***(0.5 credits)***

Recording our History introduces students to the genre of oral or spoken history and gives them the experience of creating authentic historical projects of their own using this modality. Students will become familiar with critical examples of oral history and learn the methods of conducting, recording, transcribing and archiving narrations of people in their communities. Each student will record and publish at least one narration using their smartphones and a video editing suite. They will be encouraged to preserve the recollections of a member of their community or our region that can shed light on the average person’s experience during a specific period of time. By historicizing vital aspects of a local place during a particular time, students will be practicing authentic history and leave the course with an enduring product. PREREQUISITE: Concurrent with United States History or the Form VI year. (A)

## **Electives NOT OFFERED IN 2024-2025**

### ***Revolution in Ancient Rome - Fall Semester***

***(0.5 credits)***

This course examines the rise and fall of the ancient Roman Republic from 509 BC to 23 AD. The founding of the Republic overthrew a system of monarchy and established a republican government that lasted for hundreds of years with a dynamic system of checks and balances that allowed the Romans to conquer the Mediterranean world. But victory would have its price and the bonds that held Roman citizens together frayed and ultimately destroyed the Republic. Social strife over citizenship, corruption and inequality gave birth to a new autocratic society and government: the Roman Empire. How does a powerful and stable republic collapse into revolution? How does a democracy die? This is that classic story of the ancient world of larger than life figures like Caesar, Sulla, Marius and Brutus that holds important lessons for the present. The course also analyzes larger theoretical questions about revolutions and historical perspectives on the Roman Revolution. Students will engage in these topics through writing exercises, discussions, simulations and creative projects. PREREQUISITE: Concurrent with United States History or the Form VI year. (HL)

### ***Revolution in Modern China - Spring Semester***

***(0.5 credits)***

This course examines the role that revolution has played in shaping modern China. The course will analyze theories of revolution, historical perspectives on the major revolutionary changes in modern Chinese history, and the transformation of a worldview grounded originally in Imperial Confucianism to one dominated by Maoism and then eventually a form of authoritarian capitalism. Starting with an introduction on historical theories on revolution, the course will examine the major pillars of the old Confucian Order, the impact of Western Imperialism on China in the 19th century, the rise of Chinese nationalism, the Chinese Civil War between Chiang Kai-Shek and Mao Zedong, the pillars of the new Maoist State, the Great Leap Forward, the Cultural Revolution, and the rise of Deng Xiaoping and Chinese capitalism. Students will engage in discussions, debates, writing exercises and creative projects as we tackle the topics of the course. PREREQUISITE: Concurrent with United States History or the Form VI year. (HL)



## ECONOMIC COURSES

These courses do not fulfill the diploma requirements for History.

### ***Introduction to Economics (Form V and VI) (Semester I)***

***(0.5 credits)***

This course will introduce students to the basic concepts and models of economics. Economics includes the study of how people, firms, and governments make decisions about resource allocation to achieve their goals. Microeconomics will prepare students to analyze the decisions of individuals and firms, and Macroeconomics will prepare students to explain how economic indicators (CPI, GDP, interest rates and the unemployment rate) impact decisions made by governments. Some graphical analysis will be required, and students will participate in simulations to showcase the impact of choices made by individuals, firms, and governments. Students who are interested in economics, public policy, political science, business, government, and international relations should consider taking this course. PREREQUISITE: There are no prerequisites to the course, but a student taking this course is precluded from taking the yearlong Economics course. (A)

### ***Economics with Graphical Analysis (Form V and VI)***

***(1 credit)***

The yearlong Economics course examines how individuals, firms and societies deal with the central economic problem: the allocation of scarce resources. Topics in both microeconomics and macroeconomics are addressed, and we analyze how economic decision-making is used to solve problems in both the public and private arena. Units of study include: The Economic Problem, Markets in Action, International Trade, Economic Indicators, Monetary Policy and Fiscal Policy. The focus of this course is on using critical thinking to analyze the economic decisions made by individuals, businesses and nations. Students will become skilled in applying economic principles to predict human behavior for individuals and firms, and learn how to ‘think like an economist’. This rigorous course prepares students for applying economics to their studies in business, public policy and political science at the university level. PREREQUISITE: While there are no prerequisites for this course, calculus is strongly encouraged. (HL)

## PHILOSOPHY COURSES

These courses do not fulfill the diploma requirements for History. Philosophy electives should be selected with an alternate course indicated. If a student is unable to be placed in their first choice, due to scheduling or course enrollment, they will automatically be placed in an alternate elective option.

### ***Philosophy (Form VI)***

***(1 credit)***

This course is an introduction to the investigation of the basic principles which underlie the fundamental assumptions made in every discipline. We seek to understand what makes some arguments good and others bad (by studying logic), what makes some actions good and others bad (ethics), what makes some things knowledge and others mere opinions (epistemology), and what makes some ways of viewing the world better than others (metaphysics). In our investigation we consider the following questions:

How does one win an argument?

How does one determine what we should or shouldn't do?

When can one say that he really knows something?

Is there any free will, or is everything we do completely determined by our environment and heredity?

Is there a God?

Is a person anything more than a physical body with a physical brain?

Is there any “higher” reality or does the everyday world we ordinarily experience constitute all that there is?

We first learn to identify and evaluate an argument and then use this skill to examine a number of classical answers to the above questions. However, as the course progresses, the students will be expected to develop their own positions on a number of the above issues, to analyze the positions of other students, and to respond



to such critical analysis themselves. PREREQUISITE: This course is open to Form VI students or by special request of the Dean of Studies. (HL)

***Ethics (Semester I)***

***(0.5 credits)***

This course covers the traditional theories of ethics (utilitarianism, social contract theory, theories of rights and duties, caring, justice, etc.) as well as extensive discussions of contemporary problems facing people today within the context of these classical ethical theories. Readings are selected from both traditional sources (Plato, Aristotle, Hobbes, Kant, Mill) and commentaries on contemporary events. Each student is expected to become an expert on one contemporary problem and one traditional theory and will be expected to play a major role in teaching those subjects to the rest of the class. PREREQUISITE: This course is open to Form VI students or by special request to the Dean of Studies. (HL)

***Philosophy of Happiness and the Good Life (Semester II)***

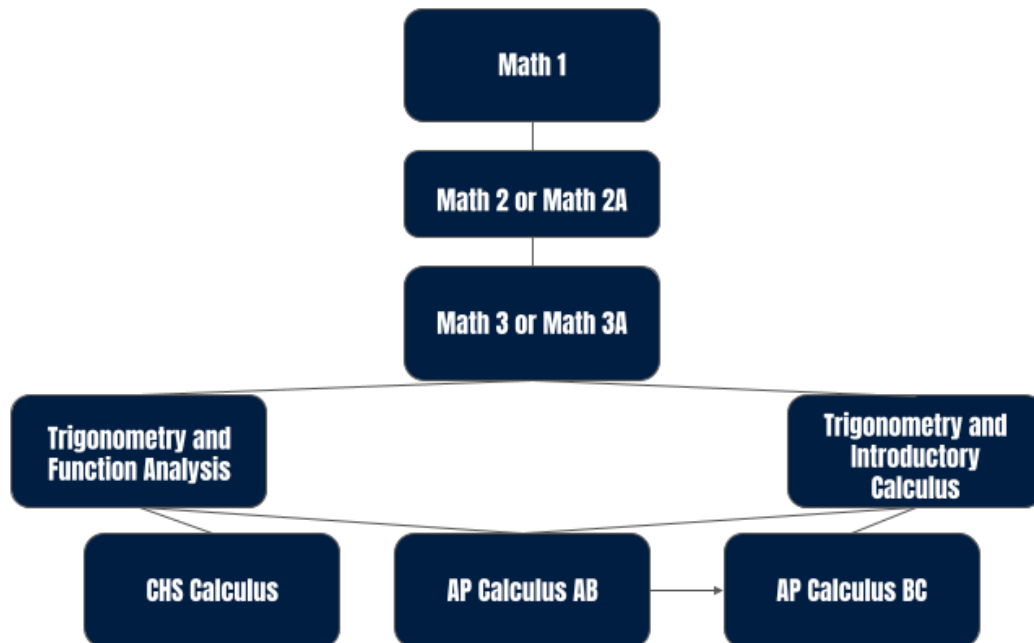
***(0.5 credits)***

How do I live a happy life? This question could rightly be described as one of the central questions of both the western and eastern philosophical traditions. In this course, we examine historical and contemporary answers to this question from a wide range of academic disciplines. The course is grounded in examining the classical philosophies of the good life: from Aristotle's *Nicomachean Ethics* and the writings of Epicurus, to the answers provided by Laozi, Confucius and the *Bhagavad Gita*. The course also examines contemporary findings on the nature of happiness from a psychological and scientific perspective. PREREQUISITE: This course is open to Form VI students or by special request to the Dean of Studies. (HL)



# MATHEMATICS

## STANDARD MATH COURSE SEQUENCE



## ELECTIVES

	Fall Semester	Spring Semester
Even Years	Topics in Linear Algebra	Topics in Differential Equations
Odd Years	Set Theory	Fractal Geometry
Every Year	CHS Statistics	
	Multivariable Calculus	



## MATHEMATICS DEPARTMENT MISSION STATEMENT

The Senior School Mathematics Department promotes problem-solving grounded in creativity, logical thinking, collaboration, algorithmic computation and risk-taking. Through a variety of teaching methods and activities, we strive to illuminate the interdisciplinary threads that connect mathematics to other disciplines, while also underscoring the beauty of the subject in its own right. We emphasize the importance of student participation in classroom discussion, and mathematical discourse is modeled verbally and in writing. In all that we do, we hope to promote a lifelong appreciation for mathematics.

All students in the Senior School are required to have a graphing calculator with CAS (Computer Algebra System) capability. Possible options include the TI-84 plus, TI-89 Titanium, or the TI Nspire CX CAS. Note: While the SAT allows these calculators, the ACT only allows calculators that do NOT have CAS functionality.

## STATEMENT ON SECTIONING

In an attempt to better meet the needs of our students, the Mathematics Department groups students by demonstrated ability, as scheduling permits. This grouping is based on performance in previous math classes, teacher recommendation and performance on placement tests, where applicable. We believe that grouping by ability better addresses the needs of our students by allowing teachers to differentiate the curriculum with appropriate remediation and enrichment, and enables more productive and efficient conversations in the classroom.

## STATEMENT ON PLACEMENT IN AP COURSES

“Advanced Placement (AP) is a program in the United States and Canada, created by the College Board, which offers college-level curricula and examinations to high school students. American colleges and universities often grant placement and course credit to students who obtain high scores on the examinations. The AP curriculum for each of the various subjects is created for the College Board by a panel of experts and college-level educators in that field of study. For a high school course to have the AP designation, the course must be audited by the College Board to ascertain that it satisfies the AP curriculum. If the course is approved, the school may use the AP designation and the course will be publicly listed on the AP Course Ledger.” (“AP Course Ledger.” AP Course Audit. University of Oregon. Retrieved 13 May 2014.)

When determining placement of a student in Advanced Placement courses, the Mathematics Department will make recommendations based on the following: student performance in previous mathematics classes, performance on final exams, ability to grasp concepts quickly, self-motivation, ability to exert effort over an extended period of time and an interest in and enthusiasm for mathematics.

## PLACING OUT OF A MATHEMATICS COURSE

While we generally do not encourage students to place out or “skip” a course within the departmental sequence, we understand that there are circumstances in which an advancement is recommended. Students interested in placing out of a mathematics course must first seek approval from the Mathematics Department Chair and Dean of Studies. After approval, the student must complete the content of that course on their own through an approved course of study and earn at least a B on the departmental final exam to place out of the course and enroll in a more advanced course. The Department Chair and/or the Dean of Studies reserve the right to review all completed work and determine whether it satisfies the course requirement. Note, however, that students receive neither a letter grade nor academic credit for the course, out of which they have placed.

## CORE COURSES

### **Math 1**

**(1 credit)**

Mathematics is a student-centered study of foundational algebraic concepts. For some, this will be their first attempt at moving beyond pre-algebra content. All students will have the opportunity to solidify their understanding of important concepts and skills used in all future math classes. In this course, real-life applications are explored in the context of word problems, and student discourse is fostered in the classroom. Students are active participants in their own learning by completing problems through which key concepts are





investigated. Reading, writing and speaking mathematics are emphasized by requiring students to complete solutions to open-ended word problems and present their findings in class. The students learn new ways of thinking to solve problems through the creative solutions produced by their peers. The teacher helps the students navigate the problem-solving strategies needed to discover solutions and make conclusions. Supplemental materials are provided for the students to practice the concepts as needed. (CP)

### **Math 2**

**(1 credit)**

This course is a study of key geometric concepts for the student who has completed Math 1 or Algebra 1. In this course, students are supported in their independent problem solving through review of foundational content, directed skills practice and teacher-generated materials, as deemed necessary. Reading, writing and speaking mathematics are emphasized by supporting students in their work with open-ended word problems and solution presentations. The students learn new ways of thinking to solve problems and to formalize their logical thinking. PREREQUISITES: Math 1 or successful completion of an Algebra 1 course. (CP)

### **Math 2A**

**(1 credit)**

Math 2A is a problem-based, student-centered study of geometric concepts. This course is for the student who has completed and mastered Math 1 or Algebra 1. In this course, students are active participants in their own learning by completing problems through which key geometric concepts are investigated. Reading, writing and speaking mathematics are emphasized by requiring students to complete solutions to open-ended word problems and present their findings in class. The students learn new ways of thinking to solve problems and to formalize their logical thinking. The teacher helps the students navigate the problem-solving strategies needed to discover solutions and to make conclusions. Supplemental materials are provided for the students to practice the concepts as needed. PREREQUISITES: For SSA students: 1) Year long grade of A- or better in Math 1, 2) Final exam grade of A- or higher in Math 1, and 3) recommendation of the Math Department. For incoming students: 1) Demonstration of mastery of the concepts found in Algebra 1, 2) Exceptionally strong performance on placement test, 3) recommendation from the Math Department. (A)

### **Math 3**

**(1 credit)**

This course prepares students for precalculus through a study of quadratic, rational, exponential and logarithmic equations, and an introduction to vectors, parametric equations, conics, probability and basic statistics, and right triangle trigonometry. Students in this class have completed Math 1 or an Algebra 1 course, and Math 2 or a Geometry course. In this course, students are supported in their independent problem-solving through review of foundational content, directed skills practice, and teacher-generated materials, as deemed necessary. Reading, writing and speaking mathematics are emphasized by supporting students in their work with open-ended word problems and solution presentations. The students learn new ways of thinking to solve problems and to formalize their logical thinking. PREREQUISITES: Math 2 (or a Geometry course) and a demonstration of mastery of the concepts found in Math 1 and 2. (CP)

### **Math 3A**

**(1 credit)**

Math 3A is a problem-based, student-centered study of advanced algebraic concepts. This course is for the student who has completed Math 1 and 2A (or has completed an Algebra 1 and Geometry course and has mastered the concepts found in Math 1 and 2A). In this course, students are active participants in their own learning by completing problems through which key geometric concepts are investigated. Reading, writing and speaking mathematics are emphasized by requiring students to complete solutions to open-ended word problems and present their findings in class. The students learn new ways of thinking to solve problems and to formalize their logical thinking. The concepts in Math 3A expand upon the concepts found in Math 1 and 2A and extend problem-solving to non-linear functions. The non-linear functions emphasized include quadratic, rational, exponential and logarithmic equations. An introduction to vectors, parametric equations, conics, probability and basic statistics, and a review of right triangle trigonometry will lead into a precalculus level class the following year. PREREQUISITES: For SSA students: 1) Year long grade of at least A- in their prior math course, 2) Final exam grade of at least an A- in prior math course, 3) recommendation of the math department For incoming students: 1) Demonstration of mastery of the concepts found in Algebra 1 and Geometry, 2) Exceptionally strong performance on internal placement test, 3) and recommendation from the Math Department. (A)

### **Trigonometry and Function Analysis**

**(1 credit)**

The majority of Math 3 students take Trigonometry and Function Analysis as their next course. This level of mathematics is taken by students who are preparing for the CHS Calculus or the AP Calculus AB course. Topics





include: trigonometry; an in-depth analysis of the 12 basic functions and their transformations; inverses; solving polynomial, rational, radical, logarithmic and exponential equations and inequalities; conic sections; and limits and continuity. PREREQUISITES: Math 3. (CP)

### ***Trigonometry and Introductory Calculus***

***(1 credit)***

The pace, rigor and additional topics of study differentiate this course from Trigonometry and Function Analysis. This is an accelerated level of mathematics taken by students who are preparing for an AP Calculus course. During the first half of the year, all of the topics from Trigonometry and Function Analysis are studied with a more sophisticated application of trigonometry concepts. Differential calculus is studied the second half of the year. Topics include: a systematic study of limits; derivatives of polynomial, rational and transcendental functions; related rates, maxima and minima, Rolle's Theorem; and the Mean Value Theorem. PREREQUISITES: (1) A- or higher year-end grade in Math 3 or 3A; (2) A- or higher on Math 3/3A final exam; and (3) Department recommendation. (A)

### ***CHS Statistics***

***(1 credit)***

A wide range of students choose to take this course. Some take it in place of calculus while others take it at the same time as calculus or as an elective after completing calculus. In this course, students practice methods for collecting their own data so that they can analyze and draw conclusions about a larger population. They learn the art of presenting and interpreting data in a concise, meaningful and accurate manner. Topics such as probability and statistical significance also are explored, especially in their relationship to conducting experiments. Hands-on work is strongly emphasized. The course is part of the University of Pittsburgh's "College in High School" program. Students have the option to take the course for four college credits (at a minimal cost) from the University of Pittsburgh. PREREQUISITE: Math 3 or Geometry and Algebra 2. (A)

### ***CHS Calculus***

***(1 credit)***

This course is designed for students interested in business, economics and other social sciences. Applications to the social sciences, especially business and economics, are stressed. The calculus of trigonometric functions is not covered. Topics included in this course are limits and continuity, differentiation and integration of polynomials, logarithmic and exponential functions, and multivariable applications. The course is part of the University of Pittsburgh's "College in High School" program. Students may exercise the option to take the course for four college credits in Business Calculus (at a minimal cost) from the University of Pittsburgh. Please note that the University of Pittsburgh requires that students taking this course for credit take a qualifying exam on ALEKS and earn a score of 61 or better. This test is given to verify that students have mastered the algebra concepts necessary to be successful in calculus. In accordance with the University of Pittsburgh, students in this course will not use calculators on tests. PREREQUISITES: (1) B or higher year-end grade in TFA; (2) B- or higher on TFA final exam; and (3) Department recommendation. (A)

### ***AP Calculus AB***

***(1 credit)***

This course is for students interested in majoring in a STEM field and assumes a thorough knowledge of all of the material discussed thus far in the mathematics curriculum as demonstrated by a strong performance in Trigonometry and Function Analysis. The course includes a systematic study of limits; derivatives of polynomial, rational and transcendental functions; related rates, maxima and minima, Rolle's Theorem and the Mean Value Theorem; integration and the Fundamental Theorem, and applications (areas, distances, volumes, average value); and simple methods of integration. The selection of topics prepares the student for the Calculus AB examination of the College Entrance Examination Board. All students are required to take the CEEB Calculus AB examination. PREREQUISITES: (1) A- or higher year-end grade in TFA; (2) B+ or higher on TFA final exam; and (3) Department recommendation OR (1) Completions of TIC and (2) Department recommendation. (HL)

### ***AP Calculus BC***

***(1 credit)***

This course is a more extensive course than Calculus AB. It includes all of the topics of the AB syllabus, plus the additional topics of more sophisticated techniques of integration, graphs in polar coordinates, vector functions and parametrically defined functions, and infinite sequences and series. This course, taken after Trigonometry and Introductory Calculus, prepares the student for the Calculus BC examination of the College Entrance Examination Board. All students are required to take the CEEB Calculus BC examination. PREREQUISITES: (1) B+ or higher year-end grade in TIC; (2) B+ or higher on TIC final exam; and (3) Department recommendation OR (1) Completion of AP Calculus AB and (2). Department recommendation. (HL)



## ADVANCED ELECTIVES

The following electives will be offered depending upon enrollment numbers. If an elective is canceled, students will be placed in the alternate choice if their schedule permits.

### ***Multivariable Calculus***

***(1 credit)***

This yearlong Multivariable Calculus course is for students interested in a more in-depth and challenging post-calculus experience. Multivariable Calculus, also known as Calculus 3 or Vector Calculus, is the next level of calculus for students who have completed AP Calculus BC. A function in three dimensions extends the notions of the derivative and the integral by challenging students to think about rates of change and accumulation given multiple – as opposed to singular – dependent relationships. The calculus of vectors and vector valued functions is inextricably woven into the study of  $f(x,y)$ . Additional topics include various applications of the derivative and integral, vector fields, Green's Theorem and Stoke's Theorem. Students desiring more than a trimester introduction to calculus in the third dimension will be most interested in this course. Students may take this yearlong course whether or not they took the one-term introductory Multivariable Calculus course. PREREQUISITES: (1) Completion of Calculus AB or Calculus BC and (2) Department recommendation. (HL)

### ***Topics in Linear Algebra (Fall Semester 2024)***

***(0.5 credits)***

This course is for students interested in majoring in a STEM field. Systems of linear equations are first introduced to motivate the concepts of matrices. We then study properties of matrices, inverses, determinants, vectors in 2-space and 3-space, and Euclidean  $n$ -space. A vector space is then defined and the concepts of subspace, linear dependence and independence, basis and dimension, row and column space, and change of basis. Linear Algebra concludes with the study of linear transformations, eigenvalues and eigenvectors, if time permits. PREREQUISITE: (1) Completion of AP Calculus AB or BC and (2) Department recommendation. (HL)

### ***Topics in Differential Equations (Spring Semester 2025)***

***(0.5 credits)***

This course is for students interested in majoring in a STEM field. The course in Differential Equations includes the study of first-order differential equations, second-order linear homogeneous and nonhomogeneous differential equations with constant coefficients, variation of parameters, vibrations and higher-order linear equations. The course concludes with the study of approximation methods (power series), slope fields, and Picard's existence and uniqueness theorem. Applications are studied as needed. PREREQUISITE: (1) Completion of AP Calculus AB or BC and (2) Department recommendation. (HL)

## COURSES NOT OFFERED IN 2024-2025

### ***Set Theory (Fall Semester 2025)***

***(0.5 credits)***

Does the catalog of books that do not reference themselves contain itself? This question nearly broke mathematics and inspired mathematicians to tackle fundamental questions such as: why is  $1+1=2$ ? Does 1 really exist? What is a number? Set Theory attempts to axiomatize mathematics, building the rules from the ground up while making as few assumptions as possible. This course explores sets of objects, their properties, and how they intersect and combine, from basic counting numbers to transfinite cardinalities, and the rules and paradoxes that arise. PREREQUISITE: (1) CHS Calculus, AP Calculus AB or AP Calculus BC and (2) Department recommendation. (HL)

### ***Fractal Geometry and Chaos Theory (Spring Semester 2026)***

***(0.5 credits)***

Do the flapping wings of a butterfly in Brazil affect our weather in Pittsburgh? Is the coastline of Maine one-dimensional, two-dimensional or somewhere in between? One of the newest fields in mathematics, Fractal Geometry and Chaos Theory answers these questions and poses many more. In this course, the concept of iteration is used to explore both fractal geometry and chaos. Iteration of functions on the complex plane generates fractals – objects with infinite detail and fractional dimension. Iteration of functions on the real plane illustrates chaos theory – the notion that small initial changes can eventually lead to large-scale changes. Applications in science, music and art are emphasized. PREREQUISITE: (1) Trigonometry and Function Analysis or Trigonometry and Introductory Calculus and (2) Department recommendation. (HL)



# SCIENCE

## STANDARD SCIENCE COURSE SEQUENCE

Physics I

Chemistry

Biology \*

Advanced Level  
Electives\*\*

\* Students who join Shady Side Academy after their Form III year and have previously taken Biology should enroll in Physics I - Accelerated during their Form V year.

\*\* Advanced electives may be taken concurrently with the final course (typically Biology or Physics IA) of our three course requirements.



## SCIENCE DEPARTMENT MISSION STATEMENT

The mission of the Senior School Science Department is to provide students with the skills and knowledge to become informed participants in our changing world. Students develop their critical and analytical thinking skills through student-centered laboratory investigation and analysis that leads to the formation of predictive, testable models.

## REQUIREMENTS

To become a well-rounded scientific thinker, students are required to successfully complete Physics I, Chemistry and Biology I. Students who have finished with this sequence are encouraged to explore the advanced-level science courses that they find most interesting.

## CORE COURSES

### ***Physics I***

***(1 credit)***

This laboratory-based, hands-on course focuses on helping students achieve an understanding of the nature of science and experimental design through the study of energy, forces and motion. It is the foundation course of the SSA science sequence, and in addition to covering specific physics content, it teaches the processes involved in doing science. A heavy emphasis is placed on conducting experiments, evaluating data, developing models based on evidence that explain experimental results, and then applying these models as a predictive tool in novel situations. Students augment the intensive laboratory experience with further concept development in the classroom via student discussion. The course also develops strategies and techniques for solving difficult and open-ended problems. This course is designed for Form III students and builds upon their algebra skills. PREREQUISITE: Math 1, which can be taken concurrently. (CP)

### ***Physics I Accelerated***

***(1 credit)***

This course is an upper-form introductory physics course intended for students who have transferred into Shady Side having already taken biology and chemistry in their underform years. It is a laboratory-based, hands-on course that emphasizes discussion and data interpretation as tools to help students develop their own knowledge framework of physics concepts. It introduces the same physics content as the Physics I course (Newtonian kinematics and dynamics, energy and energy conservation) but does so with a greater mathematical emphasis as appropriate for upperform students. It differs from Physics I in that it de-emphasizes the development of fundamental experimental design skills, since students in this position will have learned those concepts in earlier science courses. In addition, the content is extended to cover some basic concepts in momentum and circular motion. PREREQUISITE: Math 2 or Math 3, which can be taken concurrently. (CP)

### ***Chemistry***

***(1 credit)***

The general chemistry course presents the fundamental concepts of modern chemical theory utilizing the laboratory investigation techniques taught in Physics I. The topics covered include: atomic theory, chemical structure and bonding, molecular geometry, stoichiometry and quantitative analysis, gas laws, acid/base chemistry, kinetics, equilibrium, thermodynamics, and oxidation/reduction reactions. The topics discussed continue to develop the student's understanding of the particle model of matter. PREREQUISITE: Physics I; CO-REQUISITE: Math 2. (CP)

### ***Biology I***

***(1 credit)***

This is a survey course with emphasis on general biological and scientific principles. This course focuses on developing lab and critical thinking skills and builds upon the concepts and techniques developed in Physics I and Chemistry. The major topics are: what is life, classification, evolution, cell structure and function, energy, cell growth and development, and heredity. PREREQUISITE: Chemistry. (CP)

## ADVANCED-LEVEL ELECTIVES

### ***Science Research Seminar (Form V)***

***(1 credit)***

The research seminar course is intended for Form V students interested in learning about and participating in authentic science and engineering research. Students will participate in coursework during their Form V year to



1) develop the skills to read scientific papers, 2) build familiarity with laboratory equipment and analysis, and 3) identify a research project to work on over the summer. To be accepted into the course, students must be able to spend approximately 200 hours (about five weeks) doing research with a collaborator outside of the SSA Science Department (some collaborators may require more time). To receive credit for the course, students will compile their work and present it in an evening poster session during the fall of their Form VI year. Failure to complete the summer portion of the research seminar could result in a loss of credit and/or an F in the course. Interested students should submit an application during the Spring Semester of their Form IV year. Students will be admitted into the program based upon their academic record, the strength of their application and how the course fits into their schedule. Enrollment for this class may also be limited based on the number of applicants. PREREQUISITE: Two years of our core electives. NOTE: This class meets every other day, all year, and requires the summer internship. Both must be completed to earn the full 1 credit. (A)

### ***Physics II: Algebra***

***(1 credit)***

This fast-moving and rigorous course is intended for students who are interested in continuing their physics exploration by developing more robust physics models to explain how the world around them behaves. Although the topics covered are generally similar to the Physics II: Calculus course (translational and rotational motion and dynamics, momentum, energy, static and current electricity, and waves), the situations investigated are less complex and can be treated with an algebraic approach. Using the fundamental conservation laws to analyze complicated problems receives consistent emphasis, and there are opportunities for students to conduct self-directed projects. The course is appropriate for students who have finished studying trigonometry and are currently enrolled in AP Calculus AB, Statistics or CHS Calculus. Students enrolled in AP Calculus BC or higher are strongly encouraged to enroll in Physics II Calculus. This course can serve as partial preparation for the AP Physics I exam for the ambitious student. MATH PREREQUISITE: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus. SCIENCE PREREQUISITE: Physics I or Physics IA. (A)

### ***Physics II: Calculus***

***(1 credit)***

This fast-moving and rigorous course is intended for students who are interested in using calculus to explain how the world around them behaves. Although the topics covered are generally similar to the Physics II: Algebra course (translational motion, momentum, energy, static and current electricity), the situations investigated are significantly more complex. Additional topics covered in this course include rotational dynamics and transient responses in circuits. Using the fundamental conservation laws to analyze complicated problems receives consistent emphasis, and there are opportunities for students to conduct self-directed projects. This course can serve as partial preparation for both the Mechanics and Electricity and Magnetism Physics C Advanced Placement exams for the ambitious student. MATH PREREQUISITE: Enrollment in or completion of AP Calculus BC or completion of AP Calculus AB. SCIENCE PREREQUISITE: Physics I or Physics IA. (HL)

### ***Principles of Engineering***

***(1 credit)***

This course introduces students to different aspects of engineering in a hands-on way. You will learn how to design 3D models using CAD software and to turn them into real world objects to meet certain goals. Examples might include student designed CNC machines or a marble run. Students will also learn how to use GIS tools to explore spatial patterns and analyze problems. Students will work on interdisciplinary topics that connect different engineering fields. Students will have the opportunity to design their own projects based on interests and the skills they acquire in this course. PREREQUISITES: Biology (or Physics IA to complete core Science requirement; may be taken concurrently) and Trigonometry and Functional Analysis (may be taken concurrently). (A)

### ***Astronomy***

***(1 credit)***

This interdisciplinary, inquiry-oriented course utilizes the models developed in the introductory science courses to study the universe. Students are introduced to the earth, sun and moon system and learn about the nature and structure of cosmic objects such as stars, black holes and galaxies. The course then expands into the area of cosmology (a branch of astrophysics), which allows students to learn about the nature of the universe and its origins. If time allows, special relativity and quantum mechanics are explored. Toward the end of the year, students bring to bear their biological models when the course moves into the study of astrobiology. Astrobiology is the study of the origin, evolution and distribution of life in the universe. Mathematical skills from algebra, geometry and trigonometry are applied. Throughout the year and with greater emphasis during Term III, students do research utilizing real data collected by current astronomers or themselves. One of these research projects is presented as the final exam. Students can either investigate a different research question



each term or a single question across the entire year. MATH PREREQUISITE: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus. SCIENCE PREREQUISITE: Physics I or Physics IA. (A)

### **Advanced Biology**

**(1 credit)**

The course is heavily lab-based and oriented towards a more in-depth approach to selected topics in biology: developmental and evolutionary biology, genetics, biotechnology, and anatomy and physiology. Students enrolling in this course are expected to have a strong background (B or better) in both Biology I and Chemistry OR have been given permission to enroll by the Science Department. The level of work is at the 200 college level. PREREQUISITE: Biology I. (HL)

### **Environmental Science**

**(1 credit)**

This interdisciplinary course stresses scientific principles and analysis in areas including biology, chemistry, and geology. Some of the themes studied include: the process of science; energy conversions; the earth as a single interconnected system; human impacts on natural systems; and the cultural and social implications of environmental problems. As this is an environmental science rather than an environmental studies course, there is a strong laboratory and field investigation component, which complements the classroom portion of the course. Students enrolling in this course are expected to have a strong background (B- or better) in both Biology I and Chemistry OR have been given permission to enroll by the Science Department. PREREQUISITE: Biology. (A)

### **Psychology**

**(1 credit)**

This course introduces students to the scientific study of behavior and mental processes. The goals of the course are to provide students with (1) an introduction to the diverse field of psychology; (2) an appreciation for how behavior and mental processes can be studied scientifically; (3) an appreciation of the fact that one of the keys to understanding human behavior is to take into account human individuality and diversity; and (4) an understanding of the brain and the biology of stress and thriving. Students will experience well-being interventions experimentally supported by positive psychology research to support student growth and resilience. This course does not meet during the lab period and does not fulfill the graduation requirement in science. PREREQUISITE: Biology I (may be taken concurrently). (A)

### **Advanced Chemistry: Organic Chemistry**

**(1 credit)**

This course presents the nomenclature, structure, reactivity and synthesis of elementary carbon-based molecules. The chemistry of hydrocarbons, haloalkanes, alcohols, esters, acids and arenes is developed in a laboratory-centered, interactive atmosphere. A comprehensive microscale laboratory program and basic spectroscopic analysis are heavily relied upon to study the structure of representative compounds. Students enrolling in this course are expected to have a strong background (B+ or better) in Chemistry OR have been given permission to enroll by the Science Department. PREREQUISITE: Chemistry. (HL)

## **ADVANCED INORGANIC CHEMISTRY ELECTIVES**

Only one of the upper-level course sequences below will be offered per year. Students enrolling in any of these courses are expected to have a strong background in Chemistry (B or better) OR have been given permission to enroll by the Science Department.

OFFERED EVEN YEARS (2024-2025)

### **Advanced Chemistry: A Quantum Approach to Chemical Bonding (Semester 1) (0.5 credits)**

This course investigates the fundamental nature of the chemical bond and the electronic structure of the atom in greater depth than in the introductory Chemistry course. Topics include Quantum Mechanics, the wave-particle duality of light, intramolecular and intermolecular forces (including covalent, ionic, metallic, Van der Waals bonding, and hydrogen bonding), and molecular orbitals and structure. Our laboratory activities will involve exploration of the quantum nature of light and the synthesis-characterization of an inorganic compound. Students also get to use and learn the basic theory of scanning electron microscopy (SEM) and X-ray based spectrometry, as well as an introduction to computational molecular modeling programs. PREREQUISITE: Chemistry. (HL)



***Advanced Chemistry: Inorganic Chemistry and Materials Science (Semester 2) (0.5 credits)***

Metals comprise the majority of elements in the periodic table. Understanding the fundamental reactivity and properties of transition metals and metalloids is essential for fields such as biochemistry, materials science/engineering and geochemistry. Topics in the course include metal behavior in chemical reactions, coordination compounds, chelations, catalysts and enzymes, crystal field theory, and solid-state chemistry (crystallography and material properties). Students get hands-on experience with traditional chemical synthesis and analyses techniques, scanning electron microscope (SEM) and UV-Vis and infrared (IR) spectroscopy, as well as an introduction to computational molecular modeling. PREREQUISITE: Chemistry. (HL)

OFFERED ODD YEARS (2025-2026)

***Advanced Chemistry: Chemical Thermodynamics and Reactivity (Semester 1) (0.5 credits)***

Understanding whether a chemical reaction will occur and to what extent is fundamental to all fields of chemistry and biology. This course investigates chemical equilibrium and its thermodynamic foundations in greater depth than the content in the introductory Chemistry course. With thermodynamics as the foundation, the second half of the course is an investigation of two of the most important types of reactions in chemistry and biology, acid/base and redox reactions. Topics covered in this course include the law of mass action, the equilibrium constant, Le Chatelier's Principle, common ion effect, solubility, Gibbs free energy, entropy, acid-base theories (Arrhenius, Bronsted/Lowry and Lewis), buffers, titrations, oxidation-reduction reactions, and electrochemistry. Students are introduced to chemical speciation modeling programs as a tool to predict complicated aqueous systems. Additionally, they will be trained in various titrimetric analyses and electrochemical sensing techniques in the laboratory. PREREQUISITE: Chemistry. (HL)

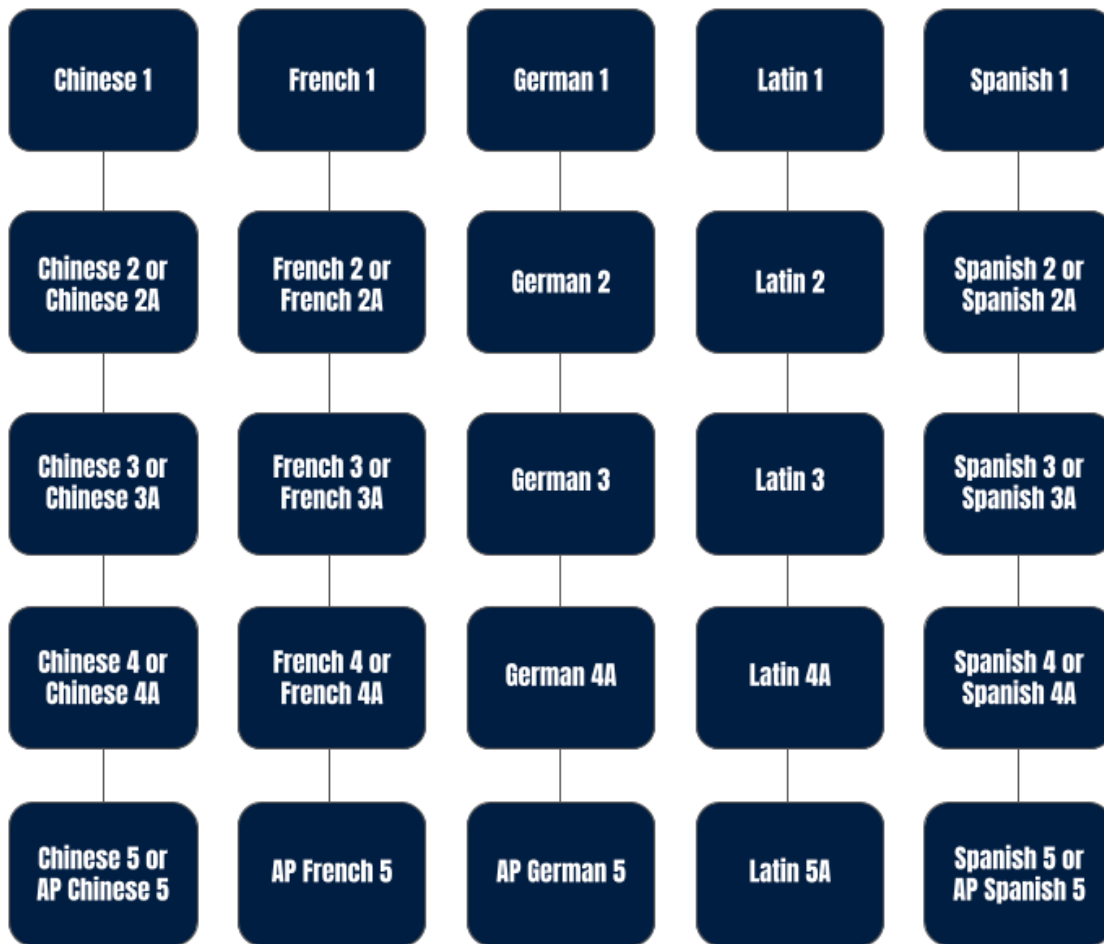
***Advanced Chemistry: Analytical and Instrumental Analyses (Semester 2) (0.5 credits)***

In this course, students learn the theory/practice of quantitative analysis - the identification and quantification of the components in a chemical system. Topics include the theory of traditional chemical separations and analyses (e.g., gravimetric and volumetric), instrumental analyses (including spectrochemical methods), and statistical analyses of experimental data (e.g., error analysis, accuracy vs. precision, standard deviation and confidence intervals). A significant fraction of the class is laboratory work culminating in a final independent project designed by the students. The theme of the final project varies from year to year, but emphasizes learning the theory/application of an in-house gas chromatograph mass spectrometer (GC-MS) and scanning electron microscope with X-ray analysis (SEM/EDS). PREREQUISITE: Chemistry. (HL)



# WORLD LANGUAGES

## STANDARD WORLD LANGUAGES course SEQUENCES





## WORLD LANGUAGES DEPARTMENT MISSION STATEMENT

The mission of the Senior School World Languages Department is to graduate culturally aware and linguistically competent global citizens who explore, engage and excel in intercultural communications.

### OVERVIEW

Offerings include Chinese, French, German, Latin and Spanish. The modern languages are taught in the target language using methodologies that foster the student's development of communicative competence in the five proficiency areas: listening, speaking, reading, writing and cultural knowledge. The study of Latin emphasizes communication skills of reading, writing and listening, while developing knowledge of cultural and historical contexts.

Culture is integrated into language courses at all levels so as to immerse students in the target language and thus illustrate and enhance the student's learning experience. Teachers strive to incorporate authentic resources such as guest speakers, unique field trip opportunities, multimedia materials and literature written by native speakers.

Students are encouraged to share their enthusiasm for language learning by participating in extracurricular linguistic and culturally oriented activities within the Asian, French, German, Latin or Spanish clubs.

The department's aim is to equip students with linguistic and cultural sensitivity skills required for effective participation in the 21st century's global economy. Classroom participation in the language within a cultural context is vital for development of the student's foundation in these skills; however, nothing can replace actual immersion in another culture to practice and perfect those skills and add immeasurably to personal growth. Thus, the World Languages Department urges participation in cross-cultural experiences and coordinates with the International Program to provide a myriad of ways to experience another culture firsthand. Among the possibilities are three-week partner school exchanges in France. We also support academic year or semester abroad programs, as well as numerous summer abroad programs. (See the Special Programs section of this catalog for details of the International Program offerings).

### REQUIREMENTS

Students graduating from Shady Side Academy must successfully complete nine credits at the Senior School in a language other than their own. While all students are encouraged to continue the study of one language through the highest level possible, students are required to complete course work through Level 3 of one language. Students may choose to study another language after having completed the diploma requirement. Two languages may be taken concurrently.

### HERITAGE LANGUAGE POLICY

Since the goal of studying a world language at Shady Side Academy is to sensitize students to a language system and culture(s) other than the students' own, students are not permitted to fulfill the World Language graduation requirement by studying a language in which they are already fluent. A student's degree of written and oral fluency in a heritage language will be determined by a placement test and an interview with a teacher of the student's heritage language. If it is determined that the student has achieved written and oral fluency beyond that which is taught in Level 3 at the Academy, the student must pursue another language at the Academy to fulfill the graduation requirement. The student may take courses in the heritage language, but the course will not count for credit toward fulfilling the graduation requirement.

### LANGUAGE WAIVER/EXEMPTION POLICY

The Academy does not take lightly requests for language waivers/exemption from the World Language requirement. A student with a diagnosed language-based learning disability (LBLD), however, may receive accommodations specific to a foreign language that may include an alternative language diploma requirement



(ALDR) or, at the extreme, a waiver of the language requirement entirely. The student requesting accommodations owing to a documented LBLD must submit to the Dean of Studies both a clear rationale for the request and a current report (not more than three years old) of psychoeducational testing from a licensed clinician/diagnostician that must document profound impairment. Following a thorough documentation review, including solicitation of past and current teacher input and testimony, assessment/review of the student's past and current achievement in their language study and other disciplines, and assessment/review of the student's success in other areas of school life, the Dean of Studies, in consultation with the Head of the Senior School, the Department Chair, and the Learning Support Specialist (and Counselor if needed), will determine whether or not to grant an ALDR or, in the extreme circumstances, a waiver. Whenever possible, an ALDR will be suggested as a substitution for world language study rather than a language waiver being granted. If an ALDR or waiver is granted, the Dean of Studies, in consultation with the aforementioned group, will design ALDRs with equity, the integrity of the diploma, and documented disability in mind. The student's transcript will note that an ALDR or waiver has been granted.

## DETERMINATION OF COURSE LEVEL

Determination of the level of language study for students new to Shady Side who wish to continue the language they began in their previous school is based upon review of their previous school's course of study, student performance at that school, and a placement exam given in April. A Zoom interview with a department faculty member in the target language may be conducted to ascertain speaking proficiency. Students placing in Level 2 or Level 3 of a language taught at the Senior School receive language credits toward the SSA diploma for the levels they have already successfully completed.

All levels of French, Spanish and Chinese are divided into advanced (A) and standard groupings based on the extent of previous language experience at different schools, performance in previous levels at Shady Side Academy, or results of the placement test. This sectioning permits students to advance in the manner which best corresponds to their abilities and base of knowledge. Students registering for the second or third level of Chinese, French and Spanish only indicate the numerical level of the course on the course registration sheet. Their current teacher stipulates to the Department Chair which students go on to advanced sectioning. Students registering for levels 4A or 5A/AP must indicate their current teacher's approval by acquiring the teacher's signature on the sheet.

Note that Level 1 language courses only will be offered with sufficient enrollment.

## CHINESE

### ***Chinese 1***

***(1 credit)***

This course introduces the starting level of Mandarin language and Chinese culture with a focus on oral proficiency, designed for students with no or little background in Mandarin. The goal is to lay a solid foundation for further Mandarin language and Chinese culture study. Modern Chinese Book 1A is used in this course. Students are exposed to a sequence of topics of instructional language, self-introductions, descriptions of their immediate surroundings, such as family, school life, leisure activities, etc. With an emphasis on oral proficiency, students learn to recognize some commonly used radicals, read approximately 200 Chinese characters and write about 100 of them. (CP)

### ***Chinese 2***

***(1 credit)***

This course continues to build on the foundations established by students in Chinese 1 in the areas of reading, writing, listening and speaking, with emphasis on listening and speaking. Students learn basic vocabulary and grammar structures in the context of thematic lessons on topics relevant to their daily lives. Emphasis is placed on learning to perform practical tasks in the target language. Modern Chinese Book 1A is the textbook for this course. Additional supplementary materials in the forms of audio recordings, videos and readings are also utilized to increase students' exposure to the target language. PREREQUISITE: Chinese 1. (CP)

### ***Chinese 2A***

***(1 credit)***

This course develops language proficiency from sentence level to paragraph discourse level. Students learn rich vocabulary and various intermediate-level grammar structures in thematic units related to their daily lives. Various authentic materials such as audio, video, film and text are utilized to broaden students' exposure to the



target language and to develop intercultural competence. Students are expected to stay in the target language in class. PREREQUISITE: Chinese 1. (A)

### **Chinese 3**

**(1 credit)**

Stress is placed on comprehensive reading while developing communicative competence. Students are required to speak more Chinese in class. The textbook Modern Chinese Book 1B is used in this course. Students will be exposed to additional materials which will help them to achieve intermediate oral and written fluency.

PREREQUISITE: Chinese 2. (CP)

### **Chinese 3A**

**(1 credit)**

This course continues to develop students' fluency in spoken and written Chinese. Students move from speaking and writing at the sentence level to the paragraph level. In thematic units, students develop interpersonal, interpretive and presentational communication skills via various activities and tasks. Students will be able to participate in conversations on familiar topics using sentences and series of sentences, handle short social interactions in everyday situations by asking and answering a variety of questions, communicate their ideas, and express their opinions related to themselves and their everyday lives. This course is conducted primarily in Chinese and students are encouraged to use the target language all the time in class. Modern Chinese Book 1B will be used as the primary text in this course. Students are exposed to authentic language materials, such as conversational video clips, podcasts, authentic texts, movies and songs, which help them gain a deeper understanding of Chinese cultures. PREREQUISITE: Chinese 2A. (A)

### **Chinese 4**

**(1 credit)**

In addition to advanced grammar structures and vocabulary, idiomatic expressions commonly encountered in the language are explored, supplemented by short stories which explain their origins and uses. Students continue to develop their communicative abilities in the language while more emphasis begins to be placed on reading and writing. Modern Chinese Book 1B is the textbook for this course. Additional supplementary material such as audio recordings, videos, and readings are also utilized to further engage students in the target culture and to cultivate a deeper understanding of it. PREREQUISITE: Chinese 3 or 3A. (A)

### **Chinese 4A**

**(1 credit)**

The focus of lesson topics in Chinese 4A widens from the individual to the community and to the culture. Students continue to delve into Chinese culture, history, practices and beliefs. More emphasis begins to be placed on the development of reading and writing skills as students continue to develop their communicative abilities. Students will be able to understand the main idea and various detailed information on various topics, participate in spontaneous spoken and written conversations on familiar topics, communicate information, make presentations, and express their thoughts at a paragraph level. Modern Chinese Book 1B is the textbook for this course. In addition, various authentic multimedia and literary materials including songs, poems, stories, newspaper articles, videos, films, TV shows, podcasts and websites are also used to help students to develop a deeper understanding of the products, practices and perspectives of Chinese culture. Students planning to take this course are required to obtain approval from their current Chinese teacher. PREREQUISITE: Chinese 3A. (A)

### **Chinese 5**

**(1 credit)**

This course is conducted in Chinese with Magical Tour of China Vol. 1 as its textbook. The textbook is supplemented with authentic materials in the forms of articles, audio clips, and video clips in the target language. In this course, students are exposed to various topics of interest relevant to the Chinese-speaking community from a modern perspective, expanding their understanding of Chinese culture, the changes it has undergone, and relating these back to their own experiences. They continue to expand their vocabulary and to acquire more complex grammatical structures that allow them to discuss these topics in detail, with attention to all four language skills. PREREQUISITE: Chinese 4 or 4A. (A)

### **AP Chinese 5**

**(1 credit)**

The AP Chinese Language and Culture is a rigorous course conducted in Chinese that helps students to further develop their proficiency across interpersonal, interpretive, and presentational communication modes in real-life contexts. A college-level textbook Modern Chinese will be used in addition to various authentic multimedia and literary materials within a theme-based framework. Students will vastly expand vocabulary and advanced-level sentence structures in different linguistic registers, read and write intensively on a wide range of topic areas that reflects contemporary and historical aspects of Chinese language, society, and culture, and



conduct elaborate discussions and provide in-depth reflections on the materials in the target language on a daily basis. Students planning to take this course are required to obtain approval from their current Chinese teacher. All students in this course are required to take the AP exam to receive credit for the course.  
PREREQUISITE: Chinese 4A. (HL)

## FRENCH

### **French 1**

**(1 credit)**

This introduction to the richness of French language and culture will provide students with basic communicative competence in speaking, listening, reading, writing and cultural knowledge. Authentic audio and visual materials are used to help develop these skills and to prepare for real-life native situations using the target language in topics such as greetings, family, food, favorite activities, sports and shopping. Music and the visual arts are woven throughout the course. (CP)

### **French 2**

**(1 credit)**

Building upon the foundation of French 1, students continue to develop their oral and written fluency through contextualized practice in French. In addition, authentic written and audio texts allow students to sharpen their skills through structured activities related to themes presented in class. French 2 offers a scaffolded experience to support students as they move forward in language acquisition and cultural understanding.  
PREREQUISITES: French 1. (CP)

### **French 2A**

**(1 credit)**

A quick pace and in-depth exploration of Francophone cultures characterizes French 2A. Students begin to create with the language. They acquire a solid grammatical foundation and high-frequency vocabulary that allows them to express themselves on familiar topics: preferred activities, mealtimes, family and friends, preferences, etc. PREREQUISITES: French 1 and SSA French teacher's recommendation. (A)

### **French 3**

**(1 credit)**

In French 3, students explore cultural topics such as leisure time activities, sports, food and clothing. The course offers students the opportunity to develop their conversational skills with support. Grammar structures are presented and practiced in meaningful contexts. PREREQUISITES: French 2 or 2A. (CP)

### **French 3A**

**(1 credit)**

French 3A provides students with the opportunity to continue to acquire increasingly rich vocabulary and complex grammatical structures. Special emphasis is placed on the speaking skill, and 75-80% of the class period consists of student-to-student conversations. These conversations become less structured throughout the year, until students can confidently speak independently on familiar topics. Students examine the products, practices and perspectives of Francophone cultures. The visual arts and music are woven through the lessons. PREREQUISITES: French 2A and SSA French Teacher's recommendation. (A)

### **French 4**

**(1 credit)**

This course is for students who wish to maintain and expand their French language skills but who choose not to be in a pre-AP course. Conducted entirely in French by both teacher and students, the class offers a rich panorama of French cultures, literature, music and art. Students practice listening, reading, writing and speaking skills through authentic texts. Internet resources allow students to experience language and culture first-hand. PREREQUISITE: French 3 or 3A. (A)

### **French 4A**

**(1 credit)**

This course, conducted entirely in French by students and teachers, provides students with a pre-AP experience. Students revisit and polish major grammar topics, and low-frequency structures are introduced. Vocabulary is rich and complex. The exploration of two gems of world literature, *Oscar et la dame rose* and *Le Petit Prince* provide students with the opportunity to examine and discuss themes of faith, mankind's relationship with nature, and *raison d'être*, among others. By the end of the course, students are confident in expressing and defending their opinions, comparing cultures, and navigating francophone cultures. Students planning to take this course must obtain the approval of their current French teacher and have his/her signature on the course registration. PREREQUISITE: French 3A and SSA French teacher's recommendation. (A)



**AP French 5****(1 credit)**

The objective of this course, conducted in French, is to prepare students to take the AP French Language Examination. All students are required to take the AP exam to receive credit for the course. Preparation for the listening and speaking components of the AP involves exposure to a wide variety of listening sources including the Internet, film, podcasts and French song to facilitate comprehension and extemporaneous speech in response to given situations. Oral presentations on news articles, art and other topics are used to enhance student fluency. In preparation for the written component of the exam, writing skills are refined through compositions and a grammar review of problem areas. Reading comprehension is developed by practice and vocabulary building involving a variety of works including a novel, short stories, drama, poetry and philosophy. It is recommended that students enrolling in this course have a grade of B or better in their prior French course. Students planning to take this course are required to obtain the approval of their current French teacher and have his/her signature on the course registration form. PREREQUISITE: French 4A and SSA French teacher's recommendation. (HL)

**GERMAN****German 1****(1 credit)**

This class teaches students to communicate in German by addressing the five proficiency areas: speaking, listening, reading, writing and cultural knowledge. In this course students discover how to best learn a world language. Small class size ensures that students receive much individual attention and plenty of speaking time in the target language. Authentic materials in the form of websites, videos, music and poetry help develop skills and prepare for real-life German language situations. (CP)

**German 2****(1 credit)**

This course introduces additional grammatical structures and vocabulary that are essential to achieve intermediate-level oral and written skills. Websites, videos, music, poetry and scientific texts expose students to authentic language and current topics in German society. Short stories targeted to German-learners are introduced. This class is conducted primarily in German, and students become comfortable speaking German. PREREQUISITE: German 1. (CP)

**German 3****(1 credit)**

In this course students learn advanced grammar forms as well as how to express themselves in more complex speaking situations as they discuss topics and defend their opinions. Websites, videos, music, television, and articles provide exposure to authentic language situations and current events. The course begins to move beyond simply a language course as students learn about German history and current topics. Classes are conducted in German. PREREQUISITE: German 2. (CP)

**German 4A****(1 credit)**

German 4A and AP German 5 are taught in a combined class, the curriculum of which alternates from year to year so that students can take both courses if desired. Emphasis is placed upon application of advanced grammar and vocabulary constructions in order to transition the learner from intermediate to advanced-level discourse. The themes of the course increase cultural and political awareness, and current events are regularly discussed. Longer works of literature allow students to expand vocabulary and improve their skill level. Students are strongly encouraged to participate in the German exchange program in order to gain the fluency and cultural knowledge that only an immersion experience can provide. It is recommended that students enrolling in this course have a grade of B or better in their prior German course. Students planning to take this course are required to consult with their current German teacher. PREREQUISITE: German 3. (A)

**AP German 5****(1 credit)**

AP German 5 is available to students who have successfully completed German 4A or to students who have the teacher's approval. If a student chooses this option, AP German 5 will appear on the transcript. All students are required to take the AP German Language exam to receive credit for the course. It is recommended that students enrolling in this course have a grade of B or better in their prior German course. Students planning to take this course are required to consult with their current German teacher. PREREQUISITE: German 4A or teacher's recommendation. (HL)



## LATIN

### **Latin 1**

**(1 credit)**

This course emphasizes the primary Latin communication skill of reading and introduces comprehensive elementary grammar and syntax. Students will learn basic concepts such as case inflection and verb conjugation as applied to readings in cultural topics from Roman daily life, historical legend, and Greco-Roman mythology. Students also build a vocabulary for composition and readings in Roman culture, progressing from Novice level to Intermediate-Low on the ACTFL scale: students will be able to read and understand basic Latin texts written in simple sentences and short paragraphs. (CP)

### **Latin 2**

**(1 credit)**

The first few weeks of this course involve review of the grammar and syntax of Latin 1, while introducing new vocabulary and intermediate Latin grammar. Using Hercules' Labors as a narrative framework, students will meet further grammatical concepts including participles, indirect discourse, and uses of the subjunctive mood. Progressing to the Intermediate-Mid level on the ACTFL scale, students will practice basic techniques of accurate translation and comprehension of paragraph-length Latin texts, and be able to use their knowledge of Latin roots to expand their understanding of both Latin and English. Students will also build a broad vocabulary for composition and exploration of mythology, culminating in readings from the *Argonautica*. PREREQUISITE: Latin 1. (CP)

### **Latin 3**

**(1 credit)**

This class begins with review of basic and intermediate grammar before moving into a reading survey. The "Urbs Antiqua," the life, culture, and history of the ancient city are examined via selections from a variety of Roman authors and genres. Works might include, but are not limited to selections from Julius Caesar's *De Bello Gallico*, the works of Livy, Petronius, Pliny, Tacitus, and an introduction to Latin poetry via readings from Ovid's *Metamorphoses*. Students will deepen their understanding of grammar and syntax while developing their ability to read authentic Latin literature, as well as meeting poetic forms and figures for the first time. Working toward the Intermediate-High level on the ACTFL scale, they will understand textual evidence in longer annotated Latin texts about historical events, people, and myths; be able to deduce the meaning of unfamiliar Latin words from context; and draw contrasts between the ancient and modern worlds. PREREQUISITE: Latin 2. (CP)

### **Latin 4A**

**(1 credit)**

This advanced class, which meets in conjunction with Latin 5A, surveys a variety of Latin authors, including but not limited to the comic playwright Plautus and the poets Catullus, Horace and Ovid. Students examine works in their historical context, strengthening their understanding of grammar, syntax, and rhetorical structures. In addition, they will further expand their vocabulary as they become more proficient readers of authentic Latin literature. As Advanced Low Learners on the ACTFL scale, students in this class will be able to understand details in Latin text from different genres. In addition, they will use information in Latin texts for literary analysis, making cross-disciplinary comparisons, and understanding differing perspectives. It is recommended that students enrolling in this course have a grade of B or better in their prior Latin course. Students planning to take this course are required to consult with their current Latin teacher. Latin 4A and Latin 5A meet as a combined advanced literature class, with the following curricula offered in alternating years. The 2024-2025 class will be following 5A (Vergil's *Aeneid*). PREREQUISITE: Latin 3. (A)

### **Latin 5A**

**(1 credit)**

This advanced class, which meets in conjunction with Latin 4A, studies Golden Age Latin literature under Augustus, the first Roman emperor, and focuses on the life and work of Vergil. Students read Vergil's epic the *Aeneid*, with particular emphasis on literary form and technique, while also examining the philosophical and political dimensions of his age. Students will hone their skills as proficient readers of Latin as they consider the meaning of duty and leadership in the Roman world and in our own; what is a hero? As Advanced Mid Level learners they will practice understanding the main idea and supporting details in analysis of Latin texts of considerable length and in various time frames. It is recommended that students enrolling in this course have a grade of B or better in their prior Latin course. Students planning to take this course are required to consult with their current Latin teacher. Latin 4A and Latin 5A meet as a combined advanced literature class, with the following curricula offered in alternating years. The 2024-2025 class will be following 5A (Vergil's *Aeneid*). PREREQUISITE: Latin 4A. (HL)





## SPANISH

### **Spanish 1**

**(1 credit)**

The emphasis of the course is on the development of basic communicative competence in the five proficiency areas: speaking, listening, reading, writing and cultural knowledge. Along with the text, authentic audio and visual materials are utilized to help students to develop skills and to prepare for real-life situations. Daily activities presented in the target language include classroom exercises, partner work and individual response work. Some of the topics covered during the year include greetings, numbers, days and months, time, food, clothing, family, classes and classroom objects. (CP)

### **Spanish 2**

**(1 credit)**

While providing a review of material covered in Spanish 1, this course uses the target language to introduce additional verb tenses, grammatical structures and vocabulary that are essential to improve students' oral and written fluency. The hope is that through increased practice, students will also gain confidence in the language. Using various multimedia resources, students learn from increasingly complex authentic written and audio-visual materials and practice the target language within cultural contexts of both Spain and Latin America. The major grammatical structures covered include reflexive verbs, commands, the preterit tense, and an introduction to the imperfect tense. Each of these topics is supplemented with a variety of new vocabulary words that allow for superior communication through a variety of methods. PREREQUISITE: Spanish 1. (CP)

### **Spanish 2A**

**(1 credit)**

This course builds on grammatical, vocabulary and conversational skills learned in Spanish 1. The target language is used to introduce additional verb tenses, grammatical structures and vocabulary to help students develop oral and written fluency. Students are active participants during all classroom activities, which are centered on written and oral exercises. They are introduced to grammatical concepts that go beyond personal information and are useful for practical communication in the target language. Students gain confidence and fluency as speakers, readers and writers in Spanish while learning from a wide range of authentic written and audio-visual materials relating to the cultural contexts of Spain and Latin America. PREREQUISITE: Spanish 1 or approval of the Department Chair. (A)

### **Spanish 3**

**(1 credit)**

This course continues to build upon the materials introduced during Spanish 1 and 2. Students are encouraged to utilize the target language on a daily basis to participate in spontaneous spoken and/or written conversations/dialogues. A variety of activities are utilized to help the students to become more proficient with understanding the main idea and pieces of information from a variety of authentic materials. Students will continue to use the present, preterite and imperfect tenses. Additionally the future and conditional tenses are introduced along with the subjunctive mood. In an effort to increase the levels of communicative competency in speaking, listening, reading, writing and with cultural knowledge throughout the year, students will create projects, write short essays and present oral activities. They also will listen to music, watch films and read short pieces of literature. An emphasis will be placed on learning about the culture of Hispanic nations and famous individuals from a variety of countries. PREREQUISITE: Spanish 2 or Spanish 2A. (CP)

### **Spanish 3A**

**(1 credit)**

Conducted in Spanish, this course introduces students to high-frequency vocabulary and grammar in a meaningful context. With daily guided practice, the students gain confidence and fluency in reading, writing, listening and speaking. Emphasis is placed on exposing students to the cultural traditions of Spain and Latin America. Communicative interactions through whole class and small group activities provide a solid foundation for communication. Movies, videos, readings and the Internet equip students with relevant, current and authentic information on the Spanish-speaking world. PREREQUISITE: Spanish 2A. (A)

### **Spanish 4**

**(1 credit)**

This course, conducted in Spanish, enables students to complete the fundamentals of Spanish grammar while increasing vocabulary, fluency and knowledge of Hispanic cultures. Students explore cultural themes through videos, songs and novels. They read two novels as a class, in addition to reading independently throughout the year. Focus is placed on improving written and spoken expression of Spanish. Students participate in a variety of projects that will increase their ability to communicate clearly. This course does not prepare students to take AP Spanish 5. PREREQUISITE: Spanish 3 or Spanish 3A. (A)



**Spanish 4A****(1 credit)**

This class, conducted exclusively in Spanish, places communicative goals at the forefront through a cultural approach; students are encouraged to look at grammar as a tool for communication and learn to express themselves with increasing fluency and accuracy. In this way, they see how mastery of specific grammar points is necessary to gain the confidence to communicate effectively and think critically about language and culture. The accompanying texts introduce students to the literature of the Spanish-speaking world and focus on specific communicative skills in theme-based contexts. Students are expected to be able to read and comprehend texts from authentic materials and engage in discussions and conversations on a more advanced level than in previous coursework. It is recommended that students enrolling in this course have a grade of B or better in their prior Spanish course. Students planning to take this course are required to obtain the approval of their current Spanish teacher and have their signature on the course registration form. PREREQUISITE: Spanish 3A. (A)

**Spanish 5****(1 credit)**

This course, conducted in Spanish, reviews and strengthens all of the skills acquired throughout the student's journey in previous Spanish classes. The objectives of this class are to increase students' fluency in the areas of reading, writing, listening and speaking Spanish, to increase cultural and political awareness of Spanish-speaking countries. Students engage in activities to practice their skills in speaking, listening, reading and writing. Particular attention is paid to refining a student's ability to express ideas clearly, both orally and in writing, through active participation in class and engagement with many culturally relevant contexts in the Spanish-speaking world. Students read novels as a class and independently, as well as study film in Spanish. Students are asked to analyze and summarize news articles and other materials intended for native speakers. Some major topics covered include the environment, the treatment of indigenous peoples in the Spanish speaking world, immigration, and the Cuban revolution. This course does not prepare students to take the AP exam. PREREQUISITE: Spanish 4 or Spanish 4A. (A)

**AP Spanish 5****(1 credit)**

This is a rigorous course that requires students to polish their skills across three modes of communication: interpretive, presentational, and interpersonal. The course focuses on the integration of authentic resources, including online print, audio, and audiovisual resources; as well as traditional print resources that include literature, essays, and magazine and newspaper articles; and also a combination of visual/print resources such as charts, tables, and graphs; all with the goal of providing a diverse learning experience. Students communicate using rich, advanced vocabulary and linguistic structures as they build proficiency in all modes of communication toward the ACTFL Advanced Low level: students will be able to sustain conversations on a wider variety of topics, interpret the main idea and significant details from authentic material and literary samples, and write narrative and essays on a variety of topics. The course is divided into thematic units, which are further based on recommended contexts and guided by essential questions. Corresponding cultural elements are integrated into the study of the units, and activities are directed with those cultural connections in mind. It is assumed that students have previously been exposed to advanced language structures in the courses leading up to Advanced Spanish; however, a review of the mechanics is done within the contextual framework of each unit as needed. The content of this course prepares students to take the AP Spanish Language and Culture exam in May. PREREQUISITE: Spanish 4A. (HL)

**EXCHANGE PROGRAM**

Shady Side Academy offers a partner school exchange program in France (3 weeks abroad and 2-3 weeks hosting):

**Bordeaux, France**

These programs are based on family-to-family reciprocity. The SSA student, while abroad, resides with the family whose child the student received or will receive, depending on the order of the exchange. If conditions do not allow the Shady Side student to host, the student must locate another host family and be significantly involved with the replacement host family during the exchange student's stay here. Each program abroad involves some in-country travel and a two-to-three week period during which the foreign student attends the host's school, while also visiting local sites of cultural and historical importance. Acceptance into these





programs is competitive. Students will be informed of the application process, program eligibility and approximate costs during the preceding spring.



# SPECIAL PROGRAMS

## INDEPENDENT STUDY (FORMS IV, V AND VI)

Independent Study creates an opportunity for a student to explore and investigate in depth some special area of academic interest that goes beyond our curriculum offerings. The student selects a faculty mentor who is willing to oversee the project on a regular basis. These projects must be taken for credit and carry with them the same responsibilities as regular curriculum offerings. Strong student motivation constitutes a major criterion for acceptance of a project. Students in Forms IV, V and VI must have a B- average (2.67 GPA) with effort ratings of 3 or better from the previous school year and any preceding terms in the current school year, as well as approval from the appropriate department chair and the project mentor. Students in Form III are not eligible to pursue an Independent Study unless granted an exception by the Dean of Studies. A letter grade must be given for Independent Study as a fifth course. If the project is a sixth course, a pass/fail grade proposal must be presented to the Independent Study Committee, but the candidate may petition the Dean of Studies for a letter grade after the proposal has been approved. Students whose projects last more than one term may be asked to appear before the committee for approval of the continuation of the project.

Complete and up-to-date information and forms are available on the Shady Side Academy website.

## SENIOR PROJECTS (FORM IV)

### PHILOSOPHY

The Senior Project is designed to offer students the opportunity to pursue a serious learning experience outside the traditional setting of the classroom during the final three weeks of their senior year. Approval of the project acknowledges that the student has demonstrated a good record at Shady Side Academy and the maturity to carry out the project in a timely and responsible manner.

### DESCRIPTION

The Senior Project covers a wide range of educational activities. The project, designed by the student, provides an opportunity to pursue special activities, and it may be completed on or away from the campus. Projects may involve the development of a new skill, the pursuit of an academic research project, mastery of a musical piece, creation of a work of art, or service to the community.

The student will prepare a formal written proposal for presentation to the Senior Project Committee. The student is required to find 1) an on-campus project sponsor who will help with the planning of the proposal and serve as a liaison between the student and the school and 2) a project mentor who is willing and able to supervise the project's activities. Complete and up-to-date information and forms are available on the Shady Side Academy website.

