



2017-2018
Senior School
COURSE CATALOG



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 2017 - 2018 school year, some of the rules, regulations and policies may change. Updates will be posted in the online catalog. The online catalog is the most accurate, up-to-date version.

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DIPLOMA REQUIREMENTS

<u>Discipline/Area</u>	<u>Credits</u>
Arts	3 credits
Computer Science	2 credits
English	12 credits
Health	2 credits
History	9 credits
Mathematics	9 credits in the Senior School
Science	6 credits of laboratory science
World Language	9 credits (mastery of Level 3)
Elective Courses	Varies by student to achieve 55 credits
Team Sport Requirement	Minimum of five seasons
CPR Certification	Required (conducted in Health)
Swimming Safety	Required (conducted in Health)
TOTAL: 55 credits	

SPECIFIC REQUIREMENTS

A full-year course is normally three credits, and a one-term course is normally one credit. Students must register for five academic courses each term. They may not take fewer than 5 three-credit courses, or their equivalent, without the permission of the Dean of Studies.

Students in Forms III, V and VI must be enrolled in a minimum of 15 credits per year, not including one music performance class, with a maximum of 17 credits per year, not including one music performance class, unless exempted by the Dean of Studies.

Students in Form IV must be enrolled in a minimum of 17 credits per year, not including one music performance class, with a maximum of 18 credits per year, not including one music performance class, unless exempted by the Dean of Studies. Students are allowed to take more credits during the Form IV year due to the health requirement.

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.

Form III and IV students must participate on two athletic teams and successfully complete each team's program or be granted either an athletic or non-athletic exemption. A third team sport is optional. Enrollment in physical education for Form III and IV students is at the discretion of the Athletics Department and the Dean of Studies. Form V students must participate on one athletic team and successfully complete the team's program or be granted either an athletic or non-athletic exemption. A second or third team sport is optional. If not participating on an athletic team, however, students must be enrolled in physical education. Form VI students have the option of participating on an athletic team. If not participating on an athletic team, however, students must be enrolled in physical education all three terms.

Mathematics courses must be at the level of Problem-Based Mathematics I 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 will be recorded on the transcript as a W (Withdrawn).

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 register. Courses with fewer than five students enrolled will not run. Once the registration form is submitted, any changes to the registration will be at the convenience of the Academy.

Students may not register for independent study classes, senior projects or physical education option.

All requests for exemption from these requirements or any other special requests must be submitted in writing to the Dean of Studies. Please do not include this information on the registration form. Use the Special Request Form, available in the Registrar's or Dean of Studies' office.

CURRICULUM CONTENT

The curriculum of each course and its collection 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 Assistant Head of School.

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 schedule. 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.

In order to change a course, changes must be requested prior to the end of the drop/add period. To change a course, class section or athletics/PE assignment, the student should discuss the change with his/her parents, advisor, the teacher of the class, the Department Chair and his/her college counselor, as applicable. Then, the student and the parents should contact the Dean of Studies and/or the Registrar. 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 will remain on the student's transcript with the letter grade of W (Withdrawn).

For year-long courses, the drop/add period ends 15 school days after the beginning of Term I.

For term courses, athletic team sports and physical education courses, the drop/add period ends eight school days after the beginning of the term. The add/drop period ends four school days after the beginning of the term for English electives.

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

Students are required to attend all classes listed on their schedule. When course changes occur, the Dean of Studies or the Registrar will issue a new schedule.

SUMMER STUDY

Only one graduation requirement in any discipline can be earned through summer study. For example, science requires two years of study, so only one of the required courses may be taken in the summer. Summer tutorial sessions must be approved in advance by the Dean of Studies if the student plans to use the tutorial session to advance in course placement. No credit is given for summer tutorial sessions. The following courses may not be taken for graduation credit through summer study: United States History, Calculus AB, Calculus BC and Advanced Biology. This list is subject to change.

SHADY SIDE ACADEMY SUMMER SCHOOL COURSES

Credit will be awarded for work successfully completed at the 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.

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. Upon successful completion of a pre-approved course, credit will be awarded. The grade will not be included in the overall GPA calculation.

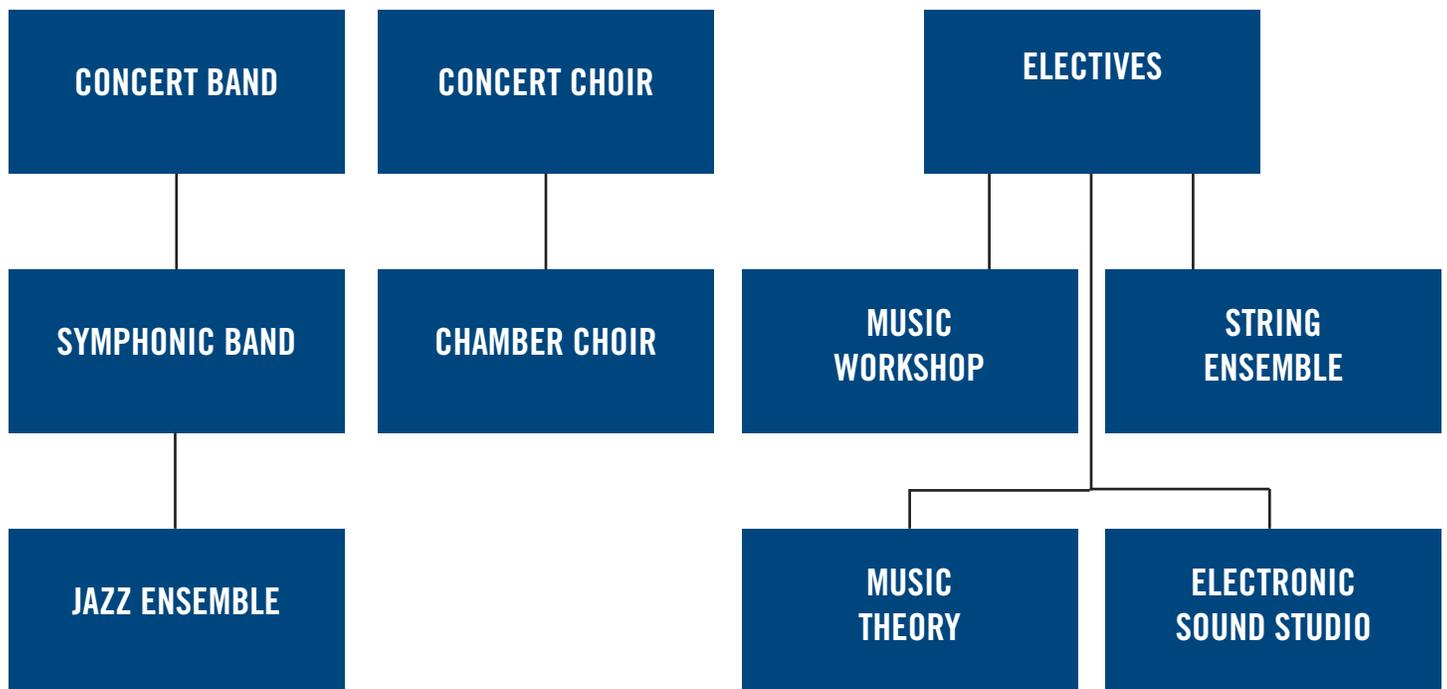
Note: science courses must be lab-based.

ARTS DEPARTMENT

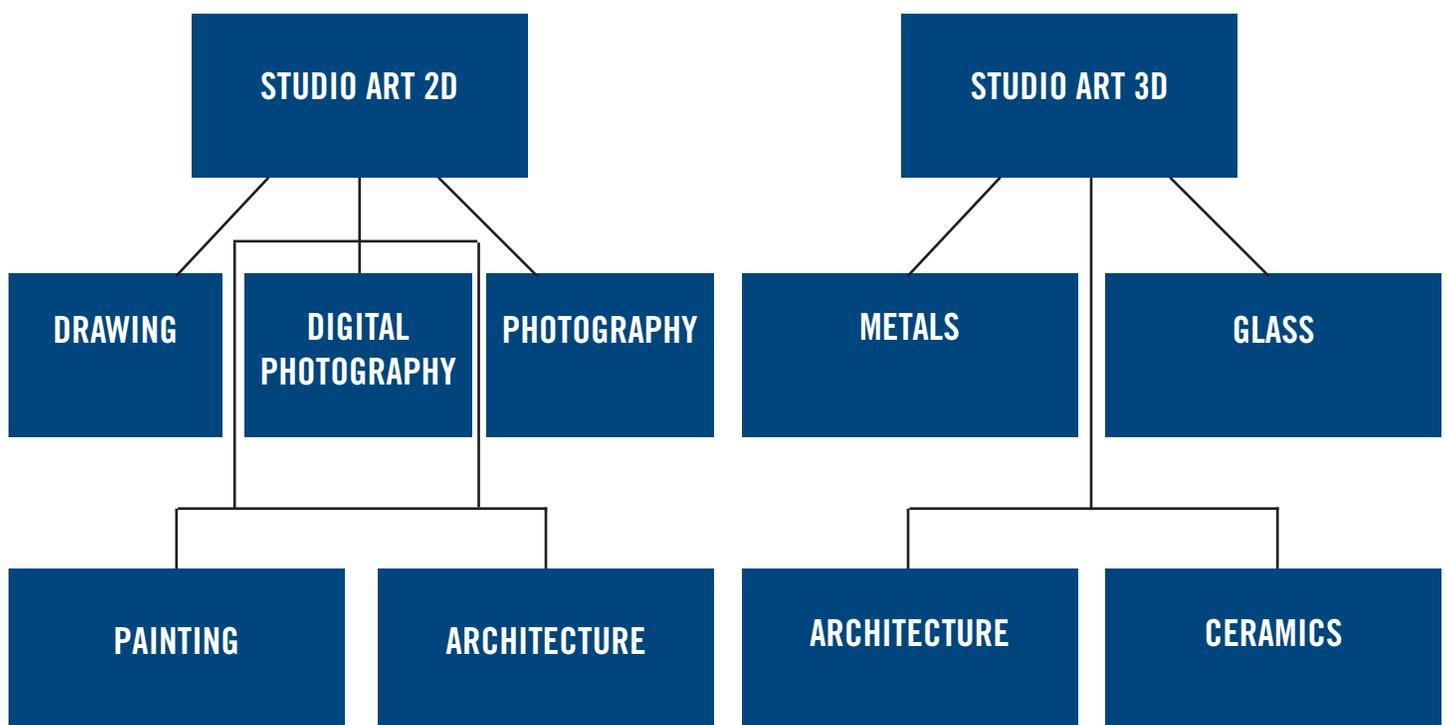
Dr. Daniel Brill, Chair



Performing Arts Course Sequence



Visual Arts Course Sequence



ART DEPARTMENT MISSION STATEMENT

Shady Side Academy offers a rich and varied arts program that celebrates an enduring commitment to all students. The arts program encourages all students to enrich their course of study through both required and elective courses in the visual and performing arts. The arts reinforce the tenets of the Academy Statement of Philosophy endorsing the balanced development of the students' analytical, artistic and physical abilities. Through a rigorous, broad, sequential curriculum in the arts, every student has the opportunity to explore and develop his or her unique and individual talents. Through production, performance, exhibition, critical and analytical response, as well as historical and cultural context, all SSA students are able to embrace the visual and performing arts in an intellectual and nurturing environment. A valuable foundational program encourages students to experience both the process and product of artistic endeavor, while safely experimenting with emotional awareness, analytical skills and abundant performance opportunities.

PERFORMING ARTS - MUSIC

Concert Choir

(1.5 credits/year)

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. Students have the option of participating in the annual trip to New York City. This is a pass/fail course.

Chamber Choir

(1.5 credits/year)

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 Day, Veterans Day). Students have the option of participating in the annual trip to New York City. This is a pass/fail course. Students are able to earn three credits if they choose the letter grade option.

Concert Band

(1.5 credits/year)

All students are welcome to play in the Concert Band. While no previous experience is necessary, typically students have at least two years experience in a band. The Concert Band plays all types of instrumental music, including pop, rock, classical and marches. The Concert Band performs at four concerts, and members are welcome to play with the Symphonic Band at Commencement. All bands take a spring trip each year for cultural and musically critical experiences to cities like Orlando, New York, Boston, Chicago, Washington, D.C., and Toronto. Extra help through free private lessons is available for each student, no matter his or her level. This is a pass/fail course.

Symphonic Band

(1.5 credits/year)

Woodwind, brass or percussion players (no guitarists) with two or more years of study on their instrument are welcome to audition for Symphonic Band. Low brass players (French horn, trombone, baritone horn and tuba) are encouraged to sign up for this band regardless of achievement level. The band plays classical, contemporary and popular music as well as traditional marches. During the year, the band performs at four concerts and Commencement. The band takes a spring trip each year for cultural and critical experiences to cities such as Orlando, New York, Chicago, Washington, D.C., and Toronto. Private lessons are offered to band students free of charge and are sometimes required by the instructor. This is a pass/fail course.

Jazz Ensemble

(1.5 credits/year)

Students who have at least three years of experience on saxophone, trumpet, trombone, piano, guitar and/or drum set are encouraged to sign up for Jazz Ensemble. There are limited openings for a vocalist (usually a senior), piano, guitar and drums. Auditions may be necessary. Opportunities for improvisation and soloing are encouraged. The course will enable students to play, listen and study jazz from 1920 to the present. **Advanced improvisers are asked to play in the Jazz Combo. They perform in concerts and at gigs around the city. They rehearse during the band period and after school.** The Jazz Ensemble performs at four concerts and Homecoming. The Jazz Ensemble takes a spring trip each year for cultural and musically critical experiences to cities like Orlando, New York, Chicago, Washington, D.C., and Toronto. Auditions will be held in the spring and early in the fall. Private lessons are offered to band students free of charge and are sometimes required by the instructor. This is a pass/fail course.

String Orchestra

(1.5 credits/year)

Students who have at least two years of instruction on one of the four string family orchestral instruments are encouraged to register for 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. They may also elect to play in the pit orchestra for the school musical and participate in the annual trip to New York City. This is a pass/fail course.

ELECTIVES

Electronic Sound Studio (Term I)

(1 credit)

This course is designed for students who would like to learn how to record and/or be recorded in a studio. While exploring the recording aspects of music, this class ties back to the Middle School course of General Music and expands on the concepts learned. This hands-on class will afford students a chance to use hard disk recording techniques, mixing boards, microphones and stereos. A field trip to a recording studio will be offered. Students will listen to and create electronic music of their own. Students are encouraged to take the Music Technology course during Terms II and III. This course is graded.

Music Theory

(3 credits)

This course is for students interested in how music is put together. Students will study musical analysis, four-part writing, ear training and some music history. When there is not sufficient enrollment for a full-year class to run, students may propose a music theory independent study with a music faculty member serving as mentor. Students will be evaluated with nightly homework, papers, tests and projects. This course is graded. Course offered pending sufficient enrollment.

Music Workshop: Guitar (Term II)

(1 credit)

Music Workshop: Guitar is an introductory-level class for anyone who has always wanted to play guitar. Since it is a classroom offering, students who are enrolled in performing arts classes should not take this course. Students with more than one year of experience with the guitar also should not enroll. Music theory will be offered so the student will be able to understand what he or she is playing. The class will be graded on a letter grade scale.

Music Workshop: Piano (Term III)

(1 credit)

Music Workshop: Piano is an introductory-level class for anyone who has always wanted to play piano. Since it is a classroom offering, students who are enrolled in performing arts classes should not take this course. Students with more than one year of experience with the piano should also not enroll. Music theory will be offered so the student will be able to understand what he or she playing. The class will be graded on a letter grade scale.

PERFORMING ARTS - THEATRE

Acting

(1 credit)

This course is designed to give the beginner 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 he or she has 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 is a pass/fail course. Students are able to earn a letter grade with the instructor's approval. If the student chooses the letter grade option, he or she will be required to complete two formal writing assessments during the term.

Fall Play (Term I)

(0 credits)

The fall theatrical production is a non-musical play (comedy or drama every other year). 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. Cast size is typically 12-15 (depending on the script), and 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. *Please refer to page 13 regarding information about obtaining a non-athletic exemption for participation in the Fall Play.*

Winter Musical (Term II)

(0 credits)

The Winter Musical production begins rehearsal around mid-November, and performances take place typically around the second weekend of February. Cast sizes can be as large as 50 depending on the demands of the script. 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 13 regarding PE credit for participation in the Winter Musical.*

Spring Original Works Theater Festival (Term III)

(0 credits)

In mid-May, students present original 10-minute plays, scenes or monologues (as seated or staged readings) created from the upper-form English Playwriting class. Students have the opportunity to direct or act (with very little pressure or time commitment because nothing is memorized). A great way for young people (experienced or not) to be a part of the emerging work of young playwrights, the festival is an excellent opportunity for many students to be involved in nearly all aspects of theatre. *Please refer to page 13 regarding information about obtaining a non-athletic exemption for participation in the Original Works Theater Festival.*

VISUAL ARTS

INTRODUCTORY-LEVEL COURSES

Studio Art 2D Foundation

(1 credit)

Students will explore a variety of subject matter, materials and techniques specific to two-dimensional design and composition. 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 references and studio maintenance which will apply across the visual art curriculum. Upon successful completion of this course, students will be able to enroll in advanced-level 2D courses, including Drawing, Painting, Photography, Digital Imaging and Architecture.

Studio Art 3D Foundation

(1 credit)

This one-term course introduces students to the process of creating three-dimensional art projects in a variety of media including, but not limited to, cardboard, foam board, ceramics and metals. Students will be required to sketch their ideas on paper prior to beginning each assignment. While emphasis will be placed on creativity, design, technique and form, each student's visualization and conceptualization skills will be challenged. Upon successful completion of this course, students will be able to enroll in advanced level 3D classes, including Ceramics, Metal, Glass and Architecture.

ADVANCED-LEVEL COURSES

Students must have successfully completed Studio Art 2D Foundation and/or Studio Art 3D Foundation to take an advanced-level course. Students may enroll in a medium 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

(1 credit)

Architecture is a course that provides students with the fundamentals of architecture through a range of traditional procedures in drafting and 3D model making. These technical skills are combined with computer applications (Chief Architect on iMac computers) 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, and proper use of tools and materials. Field trips and guest architects are utilized whenever possible. *PREREQUISITE: Studio Art 2D Foundation or Studio Art 3D Foundation*

Ceramics

(1 credit)

Students will learn about the properties of common types of clay, including stoneware, porcelain and earthenware. While focusing on assigned 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. More advanced skills will be introduced, including lidded vessels, handles, bottle neck vases and altered vessels. Hand building techniques will also be taught, and students will be expected to create vessels using clay coils, slabs and/or blocks of clay. Emphasis will be placed on technique and form. Students will learn about electric, gas and propane kiln firing schedules for bisque firings, high and low fire glazes, and raku firings. *PREREQUISITE: Studio Art 3D Foundation*

Digital Photography

(1 credit)

In this course, students will learn to generate and manipulate images for print and web. Photos and drawings will be created on iMac computers using the Adobe Creative Suite software. This software package includes the latest version of Photoshop™ and Illustrator™. Anyone who likes producing photography, drawing or publication layouts will find this course useful. In addition to class projects and critiques, students will work collaboratively on research and skill development. Art historical references will be implemented as part of the course curriculum. *PREREQUISITE: Studio Art 2D Foundation*

Drawing

(1 credit)

Drawing gives students an opportunity to explore the process of drawing through in-class assignments. A variety of approaches are explored working with pencil, charcoal and pastels. *PREREQUISITE: Studio Art 2D Foundation*

Glass

(1 credit)

Students will learn about the properties of glass, specifically two of the most common types of glass currently used for fusing and slumping. They will learn how to safely cut, grind, clean, assemble, fire and polish glass. Students will gain a thorough understanding of glass fusing temperatures, firing schedules, glass molds, annealing temperatures, coefficients of expansion, compatibility, and how glass reacts to certain factors such as heat, time and gravity. Throughout assigned projects, emphasis will be placed on technique, design, pattern, color, texture and form. *PREREQUISITE: Studio Art 3D Foundation*

Metal

(1 credit)

Students will learn how to cut, pierce, shape, join, add texture, and polish copper, brass and nickel silver sheet metal. They will also be introduced to copper enameling and lost wax casting. Assigned projects will range from jewelry designs to abstract forms. Emphasis will be placed on technique, craftsmanship, creativity and form. *PREREQUISITE: Studio Art 3D Foundation*

Painting

(1 credit)

Painting introduces students to basic approaches to color mixing, brushwork and other simple approaches to making images. Working in class only, assignments include a still-life painting and an open assignment of the student's choice. *PREREQUISITE: Studio Art 2D Foundation*

Photography

(1 credit)

Photography introduces students to the process of shooting pictures with a manual single lens reflex camera using manual controls and available light. Students develop and print their work using darkroom equipment. *PREREQUISITE: Studio Art 2D Foundation*

AFTER-SCHOOL ART PROGRAM

The Arts and Athletics Departments, in an effort to increase flexibility in student academic schedules, offer after-school art courses for credit in art. A student may earn one art credit in a given term through simultaneous participation in an after-school art class and a PE class.

Only students enrolled in a PE class are permitted to register for an after-school art class offered during that same term. Students enrolled in a team sport are not permitted to participate in the after-school art program during that term. Students enrolled in PE and an after-school art class must attend the PE class on Monday and Wednesday during the afternoon athletic period and attend the art course on Tuesday and Thursday during that same time. Students typically choose to attend either the PE or the art course on Friday if they have missed a PE or art that week due to unavoidable conflict.

To receive credit in art and complete the PE requirement, the student must complete all curricular assignments in the art course and complete all required hours in the PE course.

Form III or Form IV students who are enrolled in two terms of athletics (not PE) may choose to enroll in the after-school art program during the remaining term.

The following electives will be offered for the 2017-2018 academic year only if there is sufficient enrollment:

Term I Studio Art 2D PM (after school)

Term II Glass PM (after school)

Term III Painting PM (after school)

ATHLETICS DEPARTMENT

Mr. Eugene Deal, Director



ATHLETICS DEPARTMENT MISSION STATEMENT

Athletics play an integral role in the educational experience at the Senior School. Students are required to participate in the athletic program. The positive character traits developed through athletic participation have a direct correlation to greater individual success after high school. It is the Athletics Department's goal to make the student's experience with the SSA athletic program educational and enjoyable.

ATHLETIC TEAM PARTICIPATION

The primary goals at the junior varsity and freshman team levels are skill development, physical conditioning, knowledge of strategy, discipline, fun and game participation. Success in competition is encouraged but not at the expense of student participation or individual preparation for an upper-level team. At the highest level of competition, teams are selected according to ability, and students with the requisite skills and experience are chosen. At the varsity level, one of the primary goals is to field highly competitive teams. Shady Side Academy athletes are expected to exhibit excellence in skill, discipline, teamwork and sportsmanship, as well as pride in self and in Shady Side Academy. The best combination of players will participate. Equal playing time and/or playing every game are not guaranteed. Emphasis is placed on the value of respect for self, others and the game. Positive encouragement is expected from all participants, as well as acting with graciousness in victory as well as in defeat.

Shady Side's athletic program is divided into three distinct areas: athletics, physical education and health education.

Athletics and PE begin at 3:50 PM and end at 5:35 PM every school day.

Athletics and Physical Education offerings follow the same drop/add procedures outlined for academic courses.

PHYSICAL EDUCATION

Physical Education stresses fitness and lifetime carryover sports, and is required of all Form V and VI students who are not involved in the athletic program. All physical education programs, except PE Option, meet after school and require the student to choose the one that best suit his/her interests. PE programs include fitness, crew, ice hockey, swimming, adventure sports and yoga.

Physical Education Option

This program is open to juniors and seniors only and provides students the opportunity for a student to design and execute their own individualized programs. Each student works with an advisor from the Athletic Department who monitors and critiques the program. The program is completed on the Shady Side campus and is done individually during the academic school day at times that are convenient to the student. The option program can be used to prepare for an upcoming athletic season, rehabilitation, or to supplement an off-campus activity or sport. Students apply for a PE Option by submitting an application to the Director of Athletics two weeks prior to the beginning the term.

ATHLETIC EXEMPTION FROM TEAM AND/OR PHYSICAL ACTIVITY REQUIREMENT

The Academy enthusiastically endorses active pursuit of the highest level of athletics and makes a wide range of athletic options available to its student-athletes. We recognize that sometimes students have passion and talent for sports or competitive physical activities that are not and cannot be offered at the Academy. In those cases, students may request an exemption from the team and physical activity requirements.

Students who are exceptional at, committed to, and actively pursuing a sport or physical activity that is not offered at Shady Side Academy Senior School may apply for an athletic exemption. Students should be participating at a superior level in a sport or physical activity that will lead to a culminating performance or competition.

Requests for an athletic exemption should be emailed or mailed to the Registrar at least one week prior to the start of the term for which an exemption is being requested. The request must include: 1) a letter from the student, including signed parental consent; and 2) a letter of support from the instructor/coach. The student's letter will carefully outline the history and level of

involvement in the activity and the rationale for the request. Halfway through the term and at the end of the term, the instructor/coach will submit a progress report to the Director of Athletics.

Requests will be reviewed by the Director of Athletics, the Dean of Studies, and Head of School. Students and parents will be notified of the decision by the Academic Office. The student must follow the same process for each term he or she requests an exemption.

NON-ATHLETIC EXEMPTION FROM TEAM AND/OR PHYSICAL ACTIVITY REQUIREMENT

The Academy enthusiastically endorses active pursuit of athletics and physical activity and makes a wide range of athletic options available to its student-athletes. We recognize that sometimes students have passion and talent for non-athletic activities offered at the Academy that require a significant time commitment after school and/or on the weekends. In those cases, students may request an exemption from one season of the athletic requirement. Those activities which may qualify for non-athletic exemption include, but are not limited to: Science Olympiad, PJAS, Speech and Debate, Fall Play, Spring Original Works Theater Festival, etc. (Please note that the Athletic Department grants PE credit for participation in the Winter Musical.) Students in any form may apply for a Non-Athletic Exemption for no more than one term per year. Students will devote at minimum four hours per week of work on campus under the supervision of a faculty advisor. Halfway through the term, the advisor will submit a progress report to the Registrar. The student and advisor should be working toward a culminating presentation, competition or performance.

Students should complete and submit the Request for Non-Athletic Exemption Form to the Registrar no later than one week prior to the start of the term for which an exemption is being requested. The forms are available from the Registrar. Requests will be reviewed by the Director of Athletics, the Dean of Studies, and Head of School. If granted, the athletic requirements will be modified as follows:

Students in Forms III and IV who are granted non-athletic exemption are required to play on one athletic team and take one PE (vs. two seasons of athletics). The season of PE could be taken in the same term as the exemption. Students who participate in the Winter Musical may apply for it as their exemption and count it as their PE. For example, students may play a team sport in the fall, apply for an exemption from the second season of a team sport and participate in the Winter Musical to earn PE credit and have the spring term "off." Alternatively, students may play a team sport in the fall, apply for an exemption from a winter team sport to focus on Science Olympiad, and do PE Farm in the spring. Students could also play a team sport in the fall, apply for an exemption in the winter to do Science Olympiad and do PE Crew simultaneously, and have the spring term "off." Students in Form V who are granted non-athletic exemption are required to play on one athletic team and take one PE (vs. one season of athletics and two seasons of PE).

Students in Form VI who are granted non-athletic exemption are required to take two seasons of PE (vs. three seasons of PE). Students and parents will be notified of the decision by the Dean of Studies. The student must follow the same process for each term he or she requests an exemption.

TERM 1 (Fall Term)

GIRLS

Cheerleading (Varsity)
Cross Country (Varsity and JV)
Field Hockey (Varsity and JV)
Golf (Varsity) (1) (2)
Soccer (Varsity and JV)
Tennis (Varsity and JV)

BOYS

Cross Country (Varsity and JV)
Golf (Varsity) (1) (2)
Football (Varsity, JV, Fresh/Soph)
Soccer (Varsity and JV)

CO-EDUCATIONAL

Badminton (2)
Crew (1) (2)
PE Farm
PE Fitness
Golf (JV) (1) (2)
PE Ice Hockey (1) (2)
PE Swim
Ultimate Frisbee (3)

TERM 2 (Winter Term)

GIRLS

Basketball (Varsity and JV)
Ice Hockey (Prep and Varsity) (1) (2)
Squash (Prep) (1) (2)
Swimming (Varsity)

BOYS

Basketball (Varsity, JV, Fresh)
Ice Hockey (Prep, Varsity) (1) (2)
Squash (Prep) (1) (2)
Swimming (Varsity)

CO-EDUCATIONAL

PE Fitness
PE Winter Musical (2)
PE Crew (1) (2)
PE Yoga
PE Track
Squash (JV) (1) (2)

TERM 3 (Spring Term)

GIRLS

Lacrosse (Varsity and JV)
Softball (Varsity and JV)
Track (Varsity)

BOYS

Baseball (Varsity, JV, Blue/Gold)
Lacrosse (Varsity and JV)
Tennis (Varsity and JV)
Track (Varsity)

CO-EDUCATIONAL

Crew (Varsity) (1) (2)
PE Farm
PE Fitness
PE Adventure Sports
Ultimate Frisbee (3)

Notes:

1. There will be a fee for participation
2. Enrollments may be limited
3. Ultimate Frisbee may be taken to satisfy the Team Sport Requirement only once per school year

HEALTH EDUCATION

We want to encourage students to develop their own capacity for personal choice. The earlier young people start accepting responsibility for the consequences of their choices, the sooner they gain the confidence needed to deal with the issues confronting them throughout their lives.

- Fighting Invisible Tigers: A Stress Management Guide for Teens

Contemporary Issues in Teen Health (Form IV)

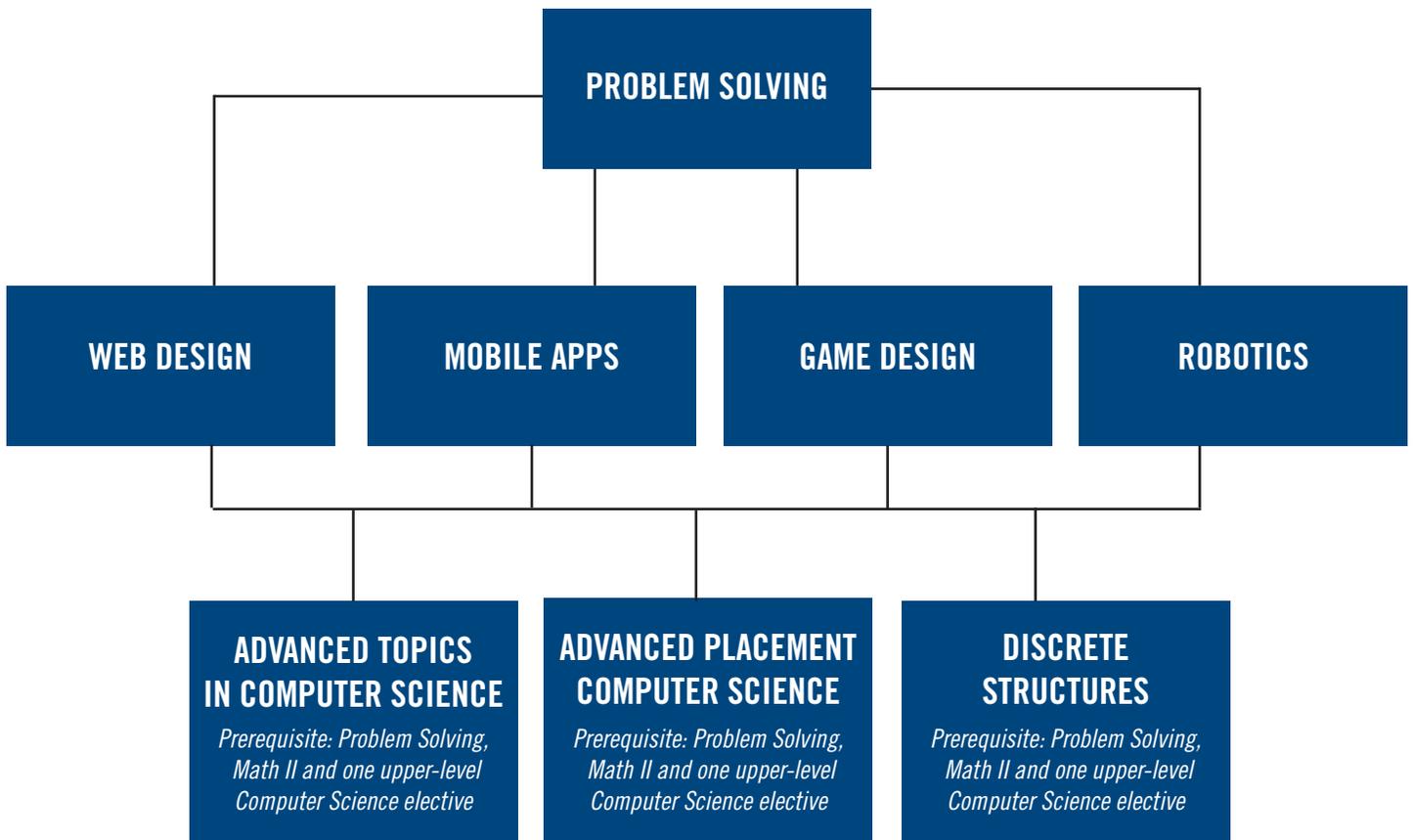
(2 credits)

Contemporary Issues in Teen Health is designed to help students recognize and prepare for the challenges of becoming healthy, autonomous young adults. The course, grounded in SSA's Guiding Principles of Honesty, Respect, Kindness, Responsibility and Safety, provides students with the information and skills necessary to make thoughtful and responsible decisions that promote their well being and the well being of those around them. Students will explore a wide range of relevant issues which include mental and physical wellness, human relationships/sexuality, drug/alcohol use and abuse, social media/communications and social awareness. All students are encouraged to engage in a highly interactive classroom environment. This full-year course is required of all sophomore students and is graded on a pass/fail basis. The class meets four days out of the eight-day class cycle.

COMPUTER SCIENCE DEPARTMENT

Mr. John T. Wizzard, Chair





COMPUTER SCIENCE DEPARTMENT MISSION STATEMENT

Our program 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 ethical collaborative thinking, developing problem solving skills that include comprehending written challenges, designing solutions for these challenges, building solutions, and testing and iteratively improving these solutions.

COURSES

Problem Solving: Karel & Elementary Graphics (All Terms)

(1 credit)

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: Geometry or with the approval of the Dean of Studies*

ELECTIVES

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

Game Design (Term I, II and/or III)

(1 credit)

In this course, the student studies specific programming problems relating to gaming. Topics include an overview of game development, programming with graphics systems and event-driven programming, and designing logic problems. Students will use Java as well as other programming environments. Students are expected to work with independence and initiative to complete a significant long-term project. *PREREQUISITE: Problem Solving*

Interactive Web Page Design (All Terms)

(1 credit)

This course covers the fundamentals of computation from the perspective of web page design. Topics covered include the creation of web pages using the following tools: web page layout and markup language; a scripting language; and simple problem-solving using variables, conditionals and loops. The coursework consists of readings, homework and quizzes, completion of several projects, and a final exam. *PREREQUISITE: Problem Solving*

Robotics (Term I, II and/or III)

(1 credit)

In the robotics course, students experience the power of designing and programming robots to solve problems. Topics include an overview of robotics, engineering and programming principles, robot mapping, handling environments and objects. Students will use the Lego Mindstorm robotics kit with the Robot C language. Students are expected to work with independence and initiative to complete a significant long-term project. *PREREQUISITE: Problem Solving*

Application Development for Mobile Devices (Term I, II and/or III)

(1 credit)

The course will explore the processes and components required to develop mobile applications. Apps will be developed on either the Android platform using a Java development platform or the Apple platform using Objective C. Mobile apps can be used to interact with server-side script and interact with other devices. Students will be required to complete at least four major programming projects. Homework, quizzes and exams round out the assessments. *PREREQUISITE: Problem Solving*

Advanced Placement Computer Science

(3 credits)

This year-long course covers some of the major topics in theoretical computer science utilizing the programming language of Java. Topics include: counting systems, Boolean algebra, object-oriented programming, arrays and matrices, linked structures, recursion, data structures, and the analysis of algorithms. At the end of the course, students will be prepared to take the Computer Science AP examination for college credit. *PREREQUISITE: At least two Computer Science courses (Problem Solving and one upper level elective) and Problem-Based Mathematics II*

Discrete Structures (Term I)

(1 credit)

The Discrete Structures - Computer Science and Math - course 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. 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 (Problem Solving and one upper level elective) and Problem-Based Mathematics II*

Advanced Topics in Computer Science (Terms I, II and/or III)

(1 credit)

This course will explore an advanced computer science topic in depth. Possible topics include: advanced graphics, artificial intelligence and expert systems, computer modeling of scientific phenomena, advanced robotics, or exploring other programming languages such as C++ and Python. An additional possible topic to study is an Advanced Data Structure course (Java), which uses course material developed for a Data Structures and Algorithms course at Carnegie Mellon University. Students may repeat this course as long as they choose a different in-depth topic to study in each term. *PREREQUISITE: At least two Computer Science courses (Problem Solving and one upper level elective) and Problem-Based Mathematics II*

ENGLISH DEPARTMENT

Dr. David Barndollar, Chair



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 men and women to become thoughtful, responsive members of a literate community.

FOUNDATION COURSES (FORM III AND FORM IV)

FOUNDATIONS OF LITERATURE AND WRITING I, II

This is a two-year integrated study of English designed to develop in students the thinking, reading, writing, speaking and listening skills necessary for success in Shady Side Academy's broad academic vision, as well as for success in the upper-form English program. In freshman and sophomore years, students write in many formats – descriptive, narrative, expository and analytical – and they read literature from a range of genres, periods and cultures. The spirit of inquiry is fostered through involvement in activities that encourage expansion of knowledge and interpretive skills.

Foundations of Literature and Writing I (Form III)

(3 credits)

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. 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.

Foundations of Literature and Writing II (Form IV)

(3 credits)

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.

UPPER-FORM OFFERINGS (FORM V AND FORM VI)

In the upper forms, the English Department offers a stimulating, challenging and diversified selection of term-length courses that provides 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. Please note that class size is limited to 16 students in literature classes and 14 students in composition and writing classes. 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.

TERM I

COURSE FOR FORM V:

The Art of Persuasion

(1 credit)

In this course, students will focus on writing persuasively for a variety of audiences and purposes, academic and otherwise. Topics include understanding the logical structure of arguments, employing effective rhetorical appeals, recognizing and avoiding fallacies, understanding and using criteria, engaging fully in all stages of the writing process from invention to delivery, and polishing writing at the sentence level.

FORM VI STUDENTS WILL TAKE ONE OF THE FOLLOWING COURSES:

Fiction Workshop

(1 credit)

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.

Graphic Literature

(1 credit)

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*, *V for Vendetta*, *Sandman* 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. Students will be required to complete in-class writing and mini-essays, discussion board postings, two class presentations, several major analytical writing assignments and a final project.

The Hero's Journey

(1 credit)

Joseph Campbell identifies the hero's journey as an archetype that transcends time and place. We will use his text *The Hero with a Thousand Faces* and apply the stages he outlines in it to hero myths old and new. For example, we will look at T. H. White's *The Once and Future King* and the journey young Wart makes to become the revered King Arthur. Accept the call and embark on the journey!

Modern Narratives

(1 credit)

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 five films that represent the best story-telling from this medium. We will also read the prose versions that were used as the template for these narrative. Films/narratives under consideration include: *Memento*, *Citizen Kane*, *The Graduate*, *Almost Famous*, *Breakfast at Tiffany's*, *Rear Window* and *Monty Python and the Holy Grail*.

Playwriting

(1 credit)

In this course, students are introduced to the elements of dramatic writing including character development, conflict, dialogue, theme and setting. Multiple and varied writing exercises are used to help students put their ideas on paper. In a respectful, productive, workshop setting, writers have the opportunity (publicly or anonymously) to hear their work read aloud (by other class members), bringing their brand new characters and conflicts to life. Discussion about the piece and constructive criticism coupled with positive feedback helps writers with the revision process. Our goal is to write a stage-worthy short play by the end of the term for final exam and hopefully, to submit for the Original Works Theatre Festival presented in May.

Public Speaking

(1 credit)

In this course, students will learn the essential elements of public speaking by studying some of the most famous speeches ever given. Through careful analysis of speeches such as MLK's *I Have a Dream* speech (as well as some others), students will learn the fundamental components of great speech writing and presentation. Specific speeches for study will be selected on the basis of social and political impact, as well as rhetorical artistry. Students will apply what they learn by writing, practicing and delivering various kinds of speeches. Students also will focus some of the term on interpersonal communication skills essential for their future. Interpersonal communication is a key life skill and can be used to give and collect information, influence the attitudes and behavior of others, form contacts and maintain relationships, make sense of the world and our experiences in it, express personal needs and understand the needs of others, give and receive emotional support, and make decisions and solve problems.

Screenwriting

(1 credit)

All narrative film begins 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 screenplay and the use of screenwriting software.

TERM II *Focus on British/European Literature before 1800*

COURSE FOR FORM V:

Theory and Process of Writing

(1 credit)

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 by nomination of the English Department and by approval of the chair.)

FORM V AND FORM VI STUDENTS WILL TAKE ONE OF THE FOLLOWING COURSES:

Ancient Greek Playwrights

(1 credit)

This course will focus on four plays from various playwrights of the Greek theatrical era. Over the course of the term students will examine both ancient Greek dramas and comedies. The plays will include: Sophocles' *Antigone*, Euripides' *Medea*, Aristophanes' *Lysistrata*, and Menander's *The Grouch*. (Plays are subject to change at the instructor's discretion). Following a lecture-discussion format, students will analyze each play in the cultural and theatrical circumstances of its original production; analyze its distinctive vision (especially as expressed through theme, structure, character, spectacle and language) and get a taste for some of the earliest theater ever created. The course includes a final exam as well as two major writing assessments and one major test.

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

(1 credit)

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 Spenser, Raleigh, Shakespeare, Marlowe, Queen Elizabeth I, Donne, Marvell, Herbert, Jonson, Herrick, Milton, Rochester, Dryden, Pope, Swift, Gray, and Collins.

The Henriad

(1 credit)

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 and II, and culminates in the triumphant *Henry V*. We will bring the plays off the page through dramatic readings and scene presentations. Course requirements will include essay writing and the staging of a scene in place. “The game’s afoot. / Follow your spirit, and upon this charge / Cry, ‘God for Harry, England, and St. George!’”

The Individual in Medieval and Renaissance Society

(1 credit)

“To be or not to be,” stated Hamlet, as he weighed his options upon returning from Wittenberg. In this class we will examine the place of individuality as one is pressed by the society to acquiesce, fight, or succumb to forces beyond one’s control. With William Shakespeare’s *The Tragedy of Hamlet, Prince of Denmark*, Geoffrey Chaucer’s *The Canterbury Tales*, and Dante Alighieri’s *Inferno*, we will pursue the themes of individual choice as seen through these classic texts. Other works will complement these as we pursue what role individual choice maintains in times of crisis.

Mythology and Literature

(1 credit)

Consider the study of English, the stories and ideas, the literary movements and forms of expression, as a conversation that began before the invention of written language and that continues to this day. Within that conversation are inside jokes, references, allusions that deepen that conversation for those “in the know.” This course will examine the ancient stories and mythologies that continue to speak to us: *The Book of Genesis*, *Gilgamesh*, comparative mythologies and fairy tales. We will finish by applying our understanding of these stories to Neil Gaiman’s *American Gods*. Assessments will include formal essays, reading quizzes, a research component and a final exam.

On the Road: Travel Tales from the British Isles

(1 credit)

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: *Beowulf*, *Sir Gawain and the Green Knight*, and *Gulliver’s Travels*. 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 to the sharp satire of Gulliver’s many adventures, the reading for this class will allow us to leap through time and space, on a tour through British literature, history, and culture.

Through the Eyes of the Other: Alienation across Literary Genres

(1 credit)

In literature, “the other” is a character who is seen by a society as someone who does not fit the mold of the norm – physically, religiously, racially, ethnically, and often morally. Students will explore essential questions such as: Why are certain characters seen as “the other?” Which common characteristics does “the other” share across works? Finally – how does “the other” cope with his/her alienation, and how do these coping mechanisms manifest over the course of a poem, novel, or play? We will examine seminal works in which “the other” plays a significant role in the literature at hand. Potential works include the epic poem *Beowulf*, the postmodern novel *Grendel* by John Gardner, and Shakespearean plays to be determined.

Shakespeare: Tragedy Tomorrow, Comedy Tonight

(1 credit)

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. Class discussion will be an important component of the course, and students will be evaluated based on numerous assessments and writing assignments, including journal responses, discussion board posts, quizzes, analytic essays (both in-class and out-of-class), and oral presentations.

Saints and Sinners

(1 credit)

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*.

Satire

(1 credit)

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. You should expect to write frequently and thoughtfully about these texts and about your experience of reading them, as well as to imitate some exemplars in writing a satirical critique of your own.

TERM III *Focus on World/Non-Anglophone Literatures*

FORM V AND FORM VI STUDENTS WILL TAKE ONE OF THE FOLLOWING COURSES:

Eastern European Literature

(1 credit)

This course will explore the literature and culture of Eastern Europe. Possible authors include Milan Kundera, Elie Weisel, Franz Kafka, and others. 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 narratives' characters. Assessment will include two essays, a test, reading quizzes, and a final exam.

Forgotten Societies in the Modern World

(1 credit)

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," *A Long Way Gone: Memoirs of a Boy Soldier* by Ishmael Beah, *White Tiger* by Aravid 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. Students will be evaluated based on numerous assessments and writing assignments, including journal responses, discussion board posts, quizzes, analytic essays (both in-class and out-of-class), and oral presentations.

French Literature from 1850 to the Present

(1 credit)

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). Students should expect to write frequently and thoughtfully about these texts and about their experience of reading them.

Indian Literature

(1 credit)

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 India 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, Karan Mahajan, and Rohinton Mistry. We will consider what this literature can tell us about the history, culture, and future of India.

Literature of Africa and the Diaspora

(1 credit)

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*. Assessments will include formal essays, reading quizzes, a research component and a final exam.

Literature of Oppression and Resistance

(1 credit)

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.

Literature of South America

(1 credit)

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.

Modern Japanese Literature

(1 credit)

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 profoundly the history and culture of the entire globe over the last century and a half. These texts have had wide-ranging influence in Japan, 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, Yasunara Kawabata, Kenzaburo Oe, Haruki Murakawa, Banana Yoshimoto, and Kobo Abe (all in English translation). Students should expect to write frequently and thoughtfully about these texts and about their experience of reading them.

Nobel Laureates from Around the Globe

(1 credit)

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 José Saramago’s Portugal. We will sample some of the best of world literature through the poetry and fiction of a variety of laureates.

Russian Literature

(1 credit)

Vladimir Nabokov stated that all modern literature began with Nikolai Gogol. We will look at the literature from this vast country during the modern period. We will read a range of literature from the modern Russian masters: Pushkin, Chekhov, Dostoevsky, Tolstoy, Gogol, and Turgenev. We will examine Czarist Russia as it rises and falls through a variety of texts.

Spanish Drama

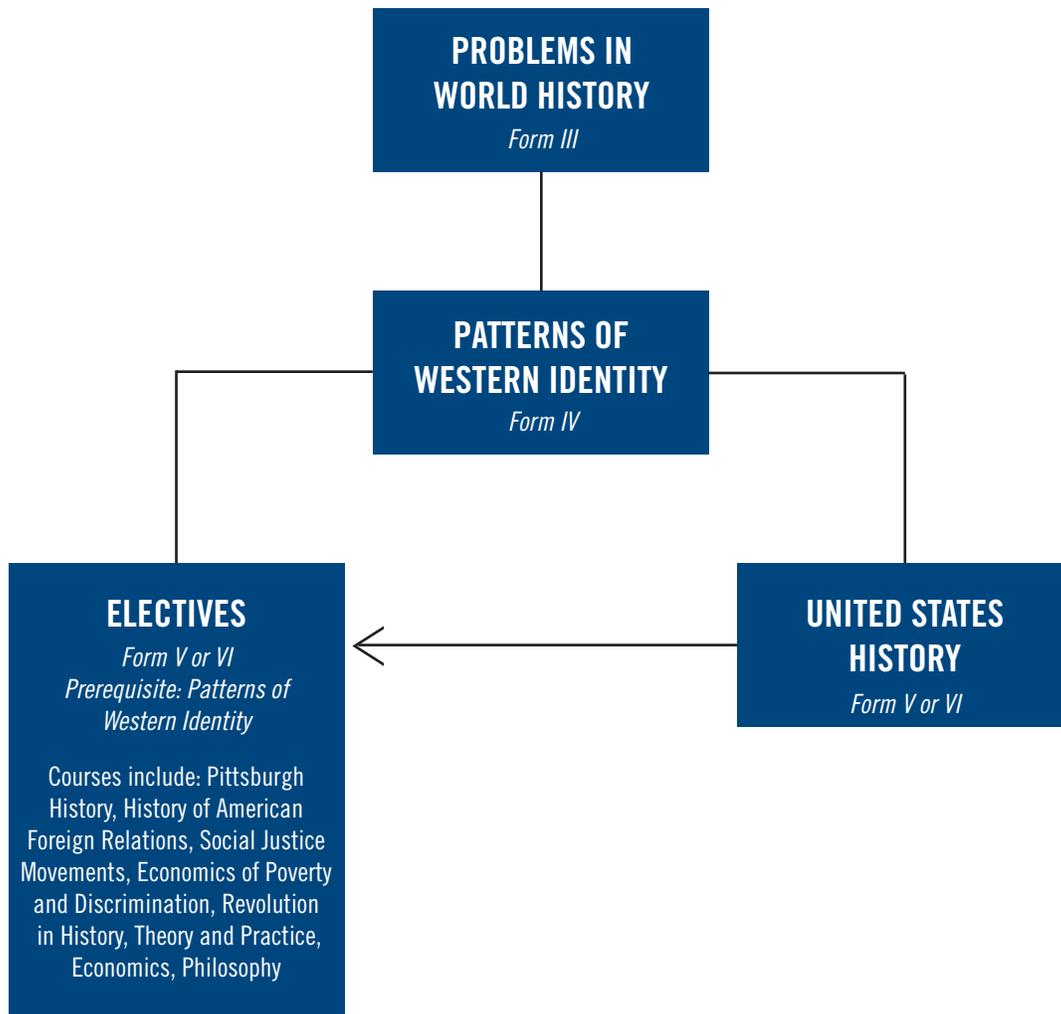
(1 credit)

This course is designed to expose students to a variety of dramatic literature and to acquaint them with the origins of Spanish drama. Five plays will be studied: *Fuenteovejuna* (Lope de Vega), *Life is a Dream* (Pedro Calderón de la Barca), *The House of Bernarda Alba* (Federico García Lorca), *Fly-By* (Alfonso Vallejo) and *Noches de Amor Efímero* (Paloma Pedrero). Following a lecture-discussion format, we will attempt to analyze each play in the cultural and theatrical circumstances of its original production as well as analyze its distinctive vision, especially as expressed through theme, structure, character development, spectacle, and language. Two of the five plays will be accompanied by formal written assessments wherein students will be required to write analytically on the aforementioned five categories using the text as well as historical information to address each category specifically. In addition to the formal assessments, students will generate multiple in class writing assignments directly leading to the culminating formal assessments with teacher evaluation/review along the way. Participation is vital throughout the whole course, and students will be required to read aloud from the texts as well as independent reading at home. There will be a final exam.

HISTORY DEPARTMENT

Mr. Kyle Smith, Chair





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.

HISTORY DEPARTMENT STATEMENT ON SUBJECT TESTS

The History Department encourages students who are motivated to enhance their studies in the field of history to pursue complementary opportunities to strengthen their skills and understanding of the discipline. Outside of the core course offerings at the Senior School, these opportunities include advanced-level electives and independent studies. Students who are particularly motivated to pursue further challenges in history may consider taking a subject test to demonstrate mastery of the content. While the History Department does not focus its curriculum on teaching to standardized tests, the course materials, survey coverage and skills focus of the core courses will make this option viable for many students. It is essential that students who choose to take a subject test, most often the AP exam or SAT II subject test, take responsibility for independently familiarizing themselves with the content and structure of the examination, but the faculty is available to assist. The teachers of the History Department believe that students considering the option of a subject test should do so concurrently with a standard of excellent work in their core courses (i.e. students should exhibit mastery of the content and skills in U.S. History if they are thinking about taking the U.S. AP Exam). Understanding the content covered and methods of assessment with each subject test is essential. Review and practice tests are readily available at the main sites associated with the subject tests. For information on the AP Exams and the SAT II subject tests in history, look to the resources below.

AP Exam: U.S. History: Exam Date: May 2018

<https://apstudent.collegeboard.org/apcourse/ap-united-states-history>

AP Exam: European History: Exam Date: May 2018

<https://apstudent.collegeboard.org/apcourse/ap-european-history>

AP Exam: World History: Exam Date: May 2018

<https://apstudent.collegeboard.org/apcourse/ap-world-history>

SAT II Subject Tests: U.S. History and World History; Exam Dates: TBD

<http://sat.collegeboard.org/about-tests/sat-subject-tests>

CORE COURSES

Problems in World History (Form III or Form IV)

(3 credits)

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.

Patterns of Western Identity (Form IV or Form V)

(3 credits)

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 survey course of western civilization, this course is a study of selected themes and major trends focusing on the concept of identity. This thematic approach provides students with a coherent narrative of the evolution of western thought from the ancient to the modern. *PREREQUISITE: Problems in World History*

United States History (Form V or Form VI)

(3 credits)

United States History, to be taken in either the Fifth or Sixth Form year, is the culmination of three years of historical learning. 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. Starting with European contact with Native Americans and continuing to the present, 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. While the course is not specifically designed to prepare students for the Advanced Placement Examination, students can confidently elect to take the exam. The content coverage and skills focus of the course make this option viable for most students, but it is recommended that students considering taking this exam will have achieved a B or better in the course. The responsibility for preparation remains with the student, but the faculty is available to assist. *PREREQUISITE: Patterns of Western Identity*

ELECTIVES

History electives should be selected with an alternate course indicated. 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.

TERM I

History of Modern Social Justice Movements in America, Part I

(1 credit)

This course will examine two social justice movements of the latter part of the 20th century in the United States: the Civil Rights Movement and the Gay Rights Movement. By examining social justice as an historical phenomenon in the 20th century, students will study these movements' predecessors, the stated objectives, ideals and strategies of each, and what each has in common with the others. The movements will be contextualized within the time period of the Jim Crow era through the 21st century. This course gives students the final opportunity to look at periods in United States history using an interdisciplinary approach. This approach will not only incorporate historical argument but will also emphasize historical analysis and interpretation of poetry and literature of the movements. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Pittsburgh at the Edge of the World

(1 credit)

While much of America's late-colonial and early national history takes place on the east coast, Pittsburgh was the epicenter of a struggle that would eventually give birth to the country. On the other side of the Allegheny Mountains, Pittsburgh was coveted by three powerful empires: the farmland-hungry English, the eager-to-trade French, and the mighty Iroquois Confederacy. Caught in the middle were those living at the forks of the three rivers. In this term, students will examine the large-scale political and military conflicts that Winston Churchill called the real First World War, but they will also learn about the oddballs drawn to America's first frontier and the unusual, ephemeral, hybrid cultures that sprung up in the highly contested space that would become the Steel City. *PREREQUISITE: Concurrent with United States History or the Form VI year*

The Origins of American Foreign Policy

(1 credit)

This course traces the historical development of the United States relations with foreign powers. The course will cover the evolution of the position of the United States within the world community, the historical development of American diplomatic policies, and the relationship of those policies to the economic, military, racial, religious, and cultural forces which have shaped American history. Starting with the foundations of U.S. foreign relations in the early republic and concluding with the Spanish-American War, this course will introduce students to the aims and practices of American foreign relations. Students will be required to write an analytical research paper and will also be graded on response papers, class participation, debates and oral presentations. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Swords Against the Senate: Revolution in the Roman World

(1 credit)

This course examines the role that revolution has played in shaping the ancient Roman world in terms of political liberty and radically changing views on citizenship. The course will analyze theories of revolution, historical perspectives on the major revolutionary changes in Roman history, and the conditions necessary to not only maintain and preserve a republican form of government, but also how republican institutions can erode and transform into tyrannical government. Starting with an introduction on historical theories on revolution, the course will examine the overthrow of the Etruscan kings and establishment of the Roman Republic, Rome's rise to power and the consequences of its success, the Roman Revolution initiated by the Gracchi, and culminate in the transformation of the Republic into the Empire under Julius Caesar and Augustus. Students will write an analytical research paper and be graded on class discussions, small response papers, projects, and debates. *PREREQUISITE: Concurrent with United States History or the Form VI year*

TERM II

History of Modern Social Justice Movements in America, Part II

(1 credit)

Our understanding of the past is transformed when we consider it through women's experiences. This course, therefore, moves through the chronology of American history to examine the broad themes that have shaped women's lives in the United States from the colonial period to the present. While tracing larger trends and identifying common experiences, we will also pay close attention to the specific experiences of individual women in order to shed light on the differences and divisions among them and how and when they come together to organize for change. We will trace interrelated themes such as the changing conditions and ideas about unpaid housework and paid work; relations between different groups of women and the way relations of power have shaped these interactions; the ongoing political and social struggle to gain increased civil and political rights; and the changing notions of "proper" roles for women, especially regarding sexuality. Throughout, we will explore the ways in which notions of gender have changed over time and how a wide variety of women both created and responded to shifting cultural, political and social roles as activists. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Pittsburgh: Steel, Blood and Money

(1 credit)

This term will focus on the Pittsburgh that became the heart of industrial America. As mills mushroomed along the shores of the city's rivers and railroad tracks connected Pittsburgh to every place of consequence in the United States, two interdependent and contrasting societies emerged in the country, and they were nowhere on better display than in Pittsburgh. While immigrant communities labored in the sooty shadow of the mills, building distinct communities, sometimes getting ahead but mostly laboring under harsh conditions for low pay, a new class of super-rich Americans was building the modern industrial and financial system and was shaping the city through its companies and philanthropy. Issues of class, industry, and ethnicity that were played out on a grand scale across the nation can be studied in microcosm in Pittsburgh. The course examines the tension between both sides of the class divide, focusing on Les Standiford's *Meet You in Hell*, which chronicles the falling out between Carnegie and Frick, and literature including Thomas Bell's *Out of This Furnace*, and tours of buildings still standing in Pittsburgh, including steel mills, houses like Frick's Clayton, and the products of philanthropy, such as the Homestead Library, to introduce students to these oddly symbiotic sectors of American society. *PREREQUISITE: Concurrent with United States History or the Form VI year*

The Rise of the United States as a World Power

(1 credit)

This course traces the historical development of the United States relations with foreign powers in the 20th century. The course will cover the evolution of the position of the United States within the world community, the historical development of American diplomatic policies, and the relationship of those policies to the economic, military, racial, religious and cultural forces which have shaped modern American history. Starting with the Open Door policies and concluding with the current challenges faced by America in an age of global terror, this course will introduce students to the aims and practices of American foreign relations. Students will be required to write an analytical research paper and will also be graded on response papers, class participation, debates, and oral presentations. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Americanos! Revolution in Modern Latin America

(1 credit)

This course seeks to examine modern Latin American history and, more specifically, how revolutions have shaped Latin American identity and society as part of their quest for social justice. The course will analyze historical theories of revolution in relation to Latin America, historical perspectives on Latin America's political development, and the constant tension between revolutionary forces of both the right and the left. The course will begin with the legacy of Latin American independence and continue with the "progress" and shortcomings of the 19th century, the Mexican revolution, nationalism and populism during the early 20th century, the Cuban revolution, liberation theology, the era of right-wing counterrevolution throughout the 1970s and 1980s, and conclude with the legacy of revolutionary leftist governments in Latin America today. Students will be graded on class discussions, small response papers, projects and debates. *PREREQUISITE: Concurrent with United States History or the Form VI year*

TERM III

The Economics of Poverty and Discrimination

(1 credit)

This course will explore current and historical problems, such as minimum wage, prison privatization, the economics of slavery and income inequality using a historical and quantitative approach. The course will offer an interdisciplinary approach to the study of history and social change. It incorporates history, economics, sociology, anthropology and ethnology. It uses the quantitative tools of economics to explore specific social questions. The course will expose students to ideas and social problems to which they would otherwise not be exposed, and they will learn the importance of quantitative analysis in determining problems and solutions in the social sciences. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Pittsburgh: From Soot to Rust and Beyond

(1 credit)

This course begins with an exploration of an under-studied aspect of Pittsburgh's history: its African-American population. We study Pittsburgh's role in the Great Migration, reading August Wilson's *Joe Turner's Come and Gone* and learning about Pittsburgh's legendary Hill District and Negro League baseball teams, the Grays and Crawfords. Moving to mid-century, as industrial jobs fled first south and then across borders and over oceans, the industrial middle class built on union movements of the 30s and post-WWII prosperity found itself threatened by the end of America's industrial dominance. Pittsburgh became a symbol of America's troubles, not just in the economic and industrial arenas, but in its agonies at the end of the Vietnam War and Watergate. It is significant that the first important post-Vietnam War movie about the war, *The Deer Hunter*, was set in Clairton, Pa. Of course, 20th-century Pittsburgh is also a story of renaissance and renewal. Students will learn about how visionary leadership, Republican and Democratic, private and public, helped Pittsburgh lay the groundwork for a future after steel and became a center for education, innovation and widely recognized as one of America's most livable cities. This course will utilize primary and secondary sources such as film, novels and memoirs, oral history, and the Heinz Regional History Center. *PREREQUISITE: Concurrent with United States History or the Form VI year*

Into the Labyrinth: The United States and the Middle East Since 1945

(1 credit)

This course traces the historical development of the United States relations with the Middle East from the latter half of the 20th century to the present. The course will cover the evolution of the policies of the United States towards the Middle East and the relationship of those policies to the economic, military, racial, religious, and cultural forces which have shaped modern American history. Starting with the end of World War II and concluding with the current challenges faced by America in an age of global terror, this course will introduce students to policies that have guided American foreign relations with the Middle East. Students will be required to write an analytical research paper and will also be graded on response papers, class participation, debates, and oral presentations. *PREREQUISITE: Concurrent with United States History or the Form VI year*

In the Shadow of the Swastika: Life, Death and Revolution in Modern Germany

(1 credit)

This course examines the role that revolution has played in shaping modern German history and German identity. The course will analyze historical theories of revolution, historical perspectives on Germany's modern development, and the evolution of its national identity. Starting with an introduction to Imperial Germany, the course will examine the Revolution of 1919 and the birth of the Weimar Republic, Hitler and the Nazi party as a revolutionary movement, the creation of West and East Germany, and conclude with the unification of Germany and its role in Europe today. Students will be graded on class discussions, small response papers, projects, and debates. *PREREQUISITE: Concurrent with United States History or the Form VI year*

ECONOMICS COURSES

These courses do not fulfill the diploma requirements for History

Introduction to Economics (Form V and VI) (Term I)

(1 credit)

The world we live in is shaped by economic forces, and we are constantly bombarded with information regarding interest rates, unemployment, GDP and more. A basic understanding of the economic principles guiding our lives is important no matter what field the student chooses for his/her future career. Understanding the meaning of unemployment, inflation, interests rates, opportunity costs, and the way they shape our daily decision-making process is the main objective of this term course. At the end of the course the student will be able to discern the news and will be a better informed citizen.

Game Theory and Behavioral Economics Applications (Form V and VI) (Term II)

(1 credit)

Economic forces shape the world we live in, in ways that sometimes might escape our attention at a superficial analysis. Scarcity and incentives drive our actions in everyday choices, sometimes in ways much more irrational than standard economic theory states. This course is designed to give students a strong emphasis in teamwork, critical thinking and analysis. After an introductory review of major economic theories, students will, individually or in small groups, decide on a research project, collect data, analyze results and draw conclusions. There will be a strong emphasis on the exploration of the relatively new field of behavioral economics and its implications for the standard theory. Is human behavior always rational? What does the concept of "maximizing one's utility" mean? *PREREQUISITE: Introduction to Economics or Economics or by permission of the instructor*

Economics (Form VI)

(3 credits)

The 19th century writer Thomas Carlyle's labeling of economics as the "dismal science" was wrong. Economics is a broad-ranging discipline that tries to predict human behavior. At base, economics is the study of the allocation of scarce resources. Students will learn not only macro- and micro-economic theory but also how economics is applied in the public and private arenas. Special attention will be paid to: supply and demand; national accounting systems; economic growth; government regulation; unemployment; trade; efficiency; and markets and competition. By the end of the year, students will be able to distinguish between economic theory and government policies based on social values, ethical opinions, and asymmetrical information. The focus of the course will be on critical thinking using economic theory and facts to develop policy arguments.

PREREQUISITE: This course is open to seniors or by special request of the Dean of Studies.

PHILOSOPHY COURSES

These courses do not fulfill the diploma requirements for History. 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.

Introduction to Philosophy (Form VI)

(3 credits)

This course will be an introduction to the investigation of the basic principles which underlie the fundamental assumptions made in every discipline. We will try 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 will 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 will 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 seniors or by special request of the Dean of Studies.

Introduction to Ethics (Term I)

(1 credit)

This course will cover 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 will be selected from both traditional sources (Plato, Aristotle, Hobbes, Kant, Mill) and commentaries on contemporary events. Each student will be 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 seniors or by special request of the Dean of Studies.

The Ascent of Man (Term II)

(1 credit)

It was only in the relatively recent past that we humans were tied to a localized hunter/gatherer existence not that different from many other animal species. Now we fly to every corner of the earth for vacations, send probes to other planets, and transform (for better or worse) the environment for all species. How did we come so far so fast? This course seeks to survey these remarkable achievements in a number of fields that Jacob Bronowski identifies as "leaps" of mankind in order to answer this question and understand ourselves a little better. New intellectual perspectives in astronomy, architecture, anatomy, sculpture, medicine, biology, art and mathematics will be explored and their place in our intellectual history appreciated. Lastly, as man has emerged as the dominant force in shaping our natural world in the modern age, the course will conclude with an examination of the debates surrounding what proper stewardship of our planet entails. *PREREQUISITE: This course is open to seniors or by special request of the Dean of Studies.*

Philosophy of Religion (Term III)

(1 credit)

This course will help students develop a better understanding of both the religious and secular views of the world in which we live. The fundamental principles that underlie a number of different religions (Eastern and Western) will be examined. In addition, the challenge that modern science (especially psychology/biology/physics) is often held to present to religion will be looked at in detail, and the religious responses to this challenge will be examined. We will also examine the thesis that man's search for meaning and significance in his life results in a 'religious-like' attitude toward some similar central unifying theme - whether it appears in the form of traditional organized religion, non-traditional personal religious beliefs, or secular humanistic causes. *PREREQUISITE: This course is open to seniors or by special request of the Dean of Studies.*

MATHEMATICS DEPARTMENT

Mr. Chad Fularz, Chair

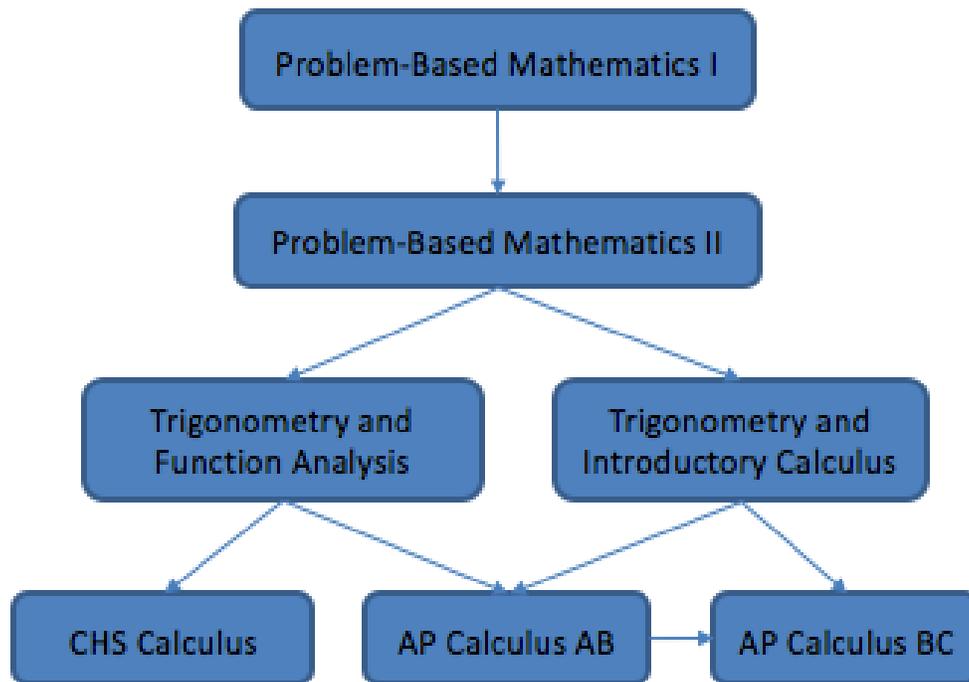


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ELECTIVES

	Term 1	Term 2	Term 3	Full Year
Every Year	Linear Algebra ²	Multivariable Calculus ^{3, 5}	Differential Equations ³	CHS Statistics ¹
	Discrete Structures ^{1, 4}			
Rotates every year	Problem Solving Seminar ^{1, 2}	Abstract Algebra ⁵	Real Analysis ³	
		Set Theory ⁶	Fractal Geometry ³	
Even				

Prerequisites: 1-Problem Based Math II, 2-Trigonometry level course, 3-Calculus level course, 4-Problem Solving (Computer Science) plus one upper-level Computer Science course, 5-Linear Algebra, 6-Discrete Structures

MATHEMATICS DEPARTMENT MISSION STATEMENT

The Senior School Mathematics Department encourages creative problem-solving based on logical thinking and computational skills, while striving to promote an appreciation for the beauty and rigor of mathematics. Through a variety of teaching methods and activities designed to enhance understanding, we work to maintain a balance between mathematics as an abstract discipline and as an application for use with other disciplines. In all that we do, we hope to promote a lifelong love of mathematics. We emphasize the importance of student participation in classroom discussion, and our students develop the ability to communicate effectively in mathematical discourse. Students who want to further their study of mathematics may elect to pursue advanced courses.

All students in the Senior School are required to have their own Texas Instruments TI-89 Titanium Calculator

STATEMENT ON SECTIONING

In an attempt to better meet the needs of our students, the Mathematics Department groups students by ability, as scheduling permits. This grouping is based on performance on the placement test, performance in previous math classes and teacher recommendation. 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 SUBJECT TESTS

Students should be prepared to take the SAT I or the ACT after Trigonometry and Function Analysis. Students wishing to take the SAT II exam should review the following topics which may not be covered in depth in our Trigonometry and Function Analysis course: matrices, series, polar coordinates, standard deviation, interquartile range and conic sections. Students enrolled in Trigonometry and Introductory Calculus will be prepared for the SAT or ACT exam while enrolled in that course. All students in math AP courses must take the Advanced Placement exam in May.

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 consider 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

A student who wishes to place out of a mathematics course must complete the content of that course on his/her own or with a tutor (recommended) and earn at least a B on the 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. **Students may not place out of Problem-Based Mathematics II.**

CORE COURSES

PROBLEM-BASED MATHEMATICS I AND II

This two-year integrated study of algebra and geometry is designed to develop students into problem solvers who can reason and communicate mathematically. These two courses form the foundation of our students' mathematical studies. Real-life applications are emphasized in the context of word problems, and student discourse is emphasized daily. One particular goal of these courses is to prepare our students for upper-form mathematics, namely trigonometry, precalculus, calculus and a variety of electives.

Problem-Based Mathematics I

(3 credits)

Problem-Based Mathematics I is a problem-based, student-centered study of core topics in algebra and geometry. Students are active participants in their own learning as they complete problems through which the following key concepts are investigated: the distributive property, order of operations, percent, slope, linear and quadratic relationships, perimeter, area, volume, direct variation, uniform motion, exponents, radicals, the Pythagorean Theorem, angle relationships and the distance formula. Reading, writing and speaking mathematics are emphasized by requiring students to complete solutions to open-ended word problems and present their findings in class. Real-life applications are explored in the context of word problems, and student discourse is fostered in the implementation.

Problem-Based Mathematics II

(3 credits)

Problem-Based Mathematics II is a continuation of Problem-Based Mathematics I, expanding on the algebraic and geometric concepts begun in that course while introducing several new topics. Students are active participants in their own learning as they complete problems through which the key concepts are investigated. Topics from Math I that will be explored in more depth include slope, linear and quadratic relationships, perimeter, area, volume, uniform motion, exponents, radicals, the Pythagorean Theorem, angle relationships and the distance formula. New topics introduced in Math II include factoring, vectors, parametric equations, geometric transformations, functions, circles, and exponential and logarithmic relationships. Reading, writing and speaking mathematics are emphasized by requiring students to complete solutions to open-ended word problems and present their findings in class. Real-life applications are explored in the context of word problems and student discourse is fostered in the implementation. *PREREQUISITE: Problem-Based Mathematics I or Geometry (Including successful completion of placement test)*

Trigonometry and Function Analysis

(3 credits)

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 twelve basic functions and their transformations; inverses; solving polynomial, rational, radical, logarithmic, and exponential equations and inequalities; conic sections; and limits and continuity. *PREREQUISITES: Problem-Based Mathematics II or Geometry and Algebra II*

Trigonometry and Introductory Calculus

(3 credits)

This is an advanced 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: Recommendation of the Mathematics Department and Problem-Based Mathematics II (B+ or better on the final exam and a final grade of A- or better) or Geometry and Algebra II (earning an A- or better)*

Statistics

(3 credits)

In this course, students collect their own data throughout the year. 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 may exercise the option to take the course for four college credits (at a minimal cost) from the University of Pittsburgh. *PREREQUISITE: Mathematics II or Geometry and Algebra II*

CHS Calculus

(3 credits)

This course discusses limits and continuity, differentiation and integration of polynomials, logarithmic and exponential functions, and multivariable applications. Applications to the social sciences, especially business and economics, are stressed. 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. *PREREQUISITE: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus*

AP Calculus AB

(3 credits)

This course 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 AB Calculus examination of the College Entrance Examination Board. All students are required to take the CEEB AB Calculus examination. *PREREQUISITES: Recommendation of the Mathematics Department and Trigonometry and Function Analysis (B+ or better on the final exam and a final grade of A- or better) or Trigonometry and Introductory Calculus*

AP Calculus BC

(3 credits)

This course is a more extensive course than AB Calculus. 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 BC Calculus examination of the College Entrance Examination Board. All students are required to take the CEEB BC Calculus examination. *PREREQUISITES: Recommendation of the Mathematics Department and Trigonometry and Introductory Calculus (B or better on the final exam and a final grade of B+ or better) or AP Calculus AB*

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.

Linear Algebra (Term I)

(1 credit)

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: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus*

Discrete Structures (Term I)

(1 credit)

The Discrete Structures (Computer Science and Math) course 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. 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 Mathematics credit. *PREREQUISITES: Problem Solving I and one other upper-level Computer Science elective, and Mathematics II*

Multi-Variable Calculus (Term II)

(1 credit)

Multi-Variable Calculus begins with the study of functions of two or more variables and their derivatives. We then study applications of partial derivatives, multiple integrals including integrals in cylindrical and spherical coordinates. The course ends with the study of vector fields, Green's Theorem, and Stoke's Theorem, time permitting. *PREREQUISITES: CHS Calculus, AP Calculus AB or AP Calculus BC and Linear Algebra*

Differential Equations (Term III)

(1 credit)

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: Currently enrolled in AP Calculus BC or have previously completed CHS Calculus, AP Calculus AB, or AP Calculus BC*

OFFERED ODD YEARS (2017-2018)**Problem Solving Seminar (Term I)**

(1 credit)

This course uses the classic text "How to Solve It" by George Polya as well as a variety of problems taken from many sources. Means of assessment include homework problems, quizzes, tests and/or group projects. Homework problems are taken from prior national mathematics exams, SAT prep books and online resources. In lieu of a final exam, an extended group project is selected by pairs or trios of students. This course is offered in the first term. This course will help students prepare for the Mathematics Association of America's American Mathematics Competition (AMC) national exam which is offered in February. *PREREQUISITES: Problem-Based Mathematics II and Trigonometry and Function Analysis or Trigonometry and Introductory Calculus*

Abstract Algebra (Term II)

(1 credit)

Our initial approach is to use numbers to quantify things, but we grow to understand numbers as concepts in and of themselves. Abstract Algebra generalizes this process to mathematical structures, allowing us to analyze any operation on any sets of elements, such as moves on a Rubik's Cube. In this course, we study groups, rings, homomorphisms, and vector spaces to explore the underlying structures of mathematics. These abstractions allow us to show powerful results, such as why a generalized solution to a quintic equation cannot exist. *PREREQUISITE: Linear Algebra*

Real Analysis (Term III)

(1 credit)

Certain concepts in calculus are widely used in computations, though the rigorous proofs of these approaches are outside the scope of the course. Analysis aims to fill in the gaps of calculus by formalizing our notions of key concepts such as limits, continuity, inverse maps, sequences, and convergence. This in-depth exploration of some of the key ideas in mathematics broadens our understanding of calculus, abstracting notions such as measure and distance and completing our number line with irrationals. Students will learn to be more precise and deductive thinkers, and be ready to explore the wide variety of branches of mathematics that exist. *PREREQUISITE: AP Calculus AB or AP Calculus BC*

OFFERED EVEN YEARS (2018-2019)

Set Theory (Term II)

(1 credit)

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: Discrete Structures*

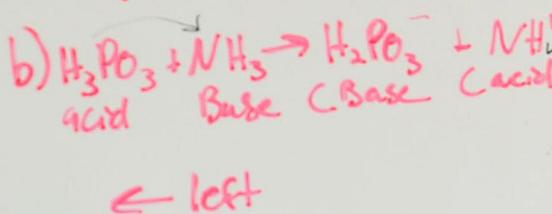
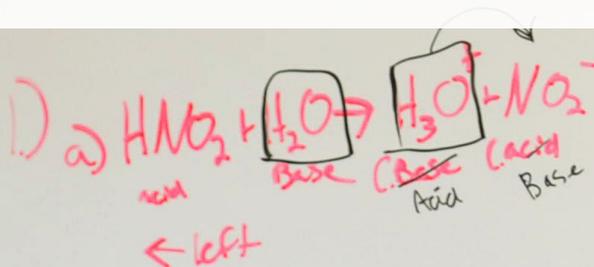
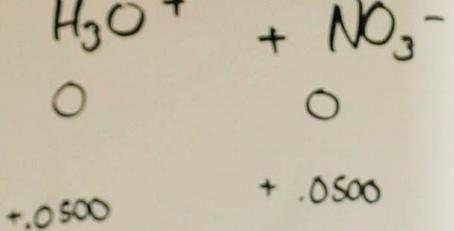
Fractal Geometry and Chaos Theory (Term III)

(1 credit)

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: CHS Calculus, AP Calculus AB or AP Calculus BC*

SCIENCE DEPARTMENT

Mr. Derek L. Nussbaum-Wagler, Chair



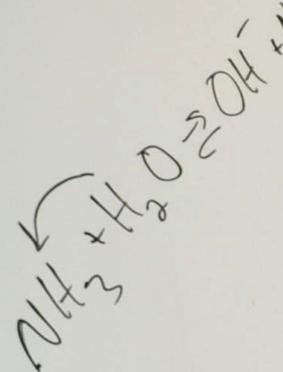
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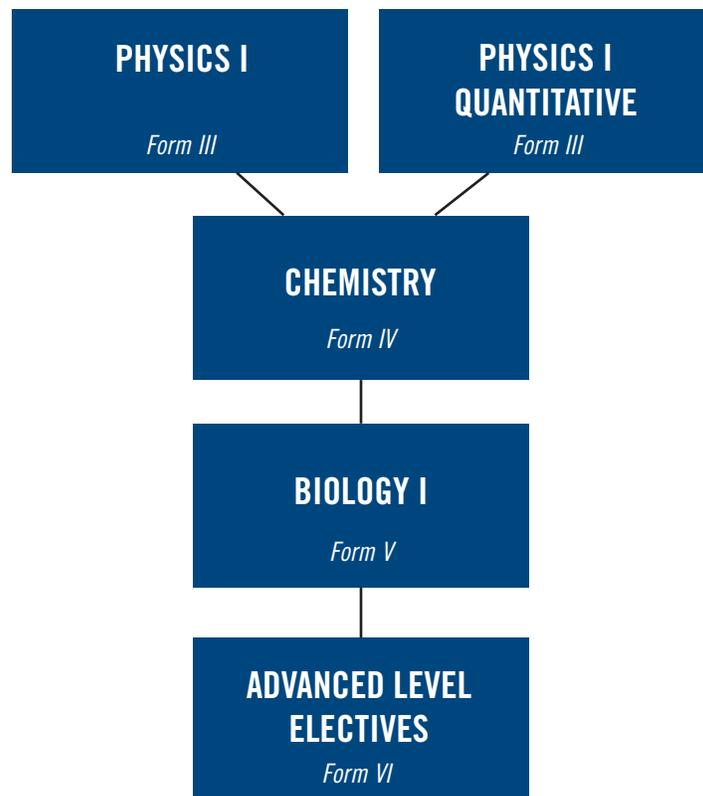
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STANDARD SCIENCE SEQUENCE



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.

To become a well-rounded scientific thinker, students typically take Physics I, Chemistry and Biology I. Students who have finished with this sequence (or enrolled in Biology I) are encouraged to explore the advanced-level science courses that they find most interesting.

STATEMENT ON SUBJECT TESTS

The Science Department encourages students who are motivated in a particular field of study to continue to seek ways to strengthen their skills and understanding; this can take the form of advanced-level courses, internships and independent studies.

Science students who are particularly adept and interested in a specific area (physics, chemistry or biology) may consider taking a subject test to demonstrate their mastery of the content. While the majority of the material on the subject tests is covered in their coursework, students will need to independently review some material to familiarize themselves with the types of questions they will encounter and to study some concepts that may not be covered in class.

The teachers in the Science Department believe that to be successful on a subject test, students should have a strong understanding of time management, scoring methods and question formats, as well as a very positive attitude. Three keys to success on subject tests on top of strong mastery of the topic are as follows: focused time management; intimate familiarity with question formats; and understanding of test scoring (knowing the consequences of correct, incorrect and skipped questions).

CORE COURSES

Physics I (Form III or Form IV)

(3 credits)

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/IV students and builds upon their Algebra I skills. Students will take Chemistry upon completion of the course. *PREREQUISITE: Problem-Based Mathematics I, which can be taken concurrently*

Physics I Quantitative (Form III or Form IV)

(3 credits)

This course introduces the same content and develops the same skills as the Physics I course but with a greater mathematical emphasis. It is most suited for strong math students, as student-designed experiments will be analyzed using statistical tools such as standard deviation and root mean squares. Algebra and trigonometry skills will be extensively employed to solve challenging multi-step problems. Students should be prepared to do a considerable amount of work outside of class. Students interested in this course should speak with the Chair of the Science Department. Students will take Chemistry upon completion of the course. *PREREQUISITE: Math placement score that allows for concurrent enrollment in Problem-Based Mathematics II or higher*

Chemistry (Form IV or Form V)

(3 credits)

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 and nuclear chemistry, chemical structure and bonding, molecular geometry, stoichiometry and quantitative analysis, gas laws, acid/base chemistry, kinetics, equilibrium, thermodynamics, oxidation/reduction reactions and basic organic chemistry. The topics discussed continue to develop the student's understanding of the particle model of matter, energy and the behavior of electrons that were first introduced in Physics I. An 'A'-level student in chemistry may be prepared to take the chemistry subject test in June after taking this course if he or she spends significant time outside of class on his or her own preparing content and test taking skills with a mentor teacher. *PREREQUISITE: Physics I; CO-REQUISITE: Problem-based Mathematics II or Algebra II*

Biology I (Form V or Form VI)

(3 credits)

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 credits of the topics are: what is life, classification, evolution, cell structure and function, energy, cell growth and development, and heredity. An 'A'-level student in biology may be prepared to take the biology subject test with molecular emphasis in June after taking the Biology I class if he or she spends significant time outside of class studying and reviewing content and test-taking skills while also meeting with a mentor teacher. *PREREQUISITE: Chemistry*

Summer Research Seminar

(1.5 credits)

The science 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 5 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 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 term III 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. *PREREQUISITE: Form V Student*

Upper-level physics courses offered will be determined by student requests; if a course is not offered, it will be given priority the subsequent year.

Physics II: Algebra (Form V or Form VI)

(3 credits)

Physics II Algebra is a junior-level introductory physics course. The course is intended for students who joined Shady Side Academy after their Form III year or students who took Physics I and want to further develop their quantitative understanding of physics. (Students who have completed AP Calculus AB or are currently enrolled in AP Calculus BC should consider Physics II Calculus.) Students investigate concepts in this branch of science in greater depth and complexity. Topics covered include two-dimensional, circular and simple harmonic motions; forces; momentum and energy relationships; waves; light and optics; and static and current electricity. Emphasis is placed on designing and conducting meaningful experiments in the lab as well as developing robust problem-solving skills using algebra and trigonometry. A major final project serves as a capstone to this course and provides an opportunity for the student to investigate the physics behind some area of special interest. *MATH PREREQUISITE: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus. SCIENCE PREREQUISITE: Biology I (may be taken concurrently)*

Physics II: Calculus (Form V or Form VI)

(3 credits)

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: Biology I (may be taken concurrently)*

Advanced Topics in Astronomy (Form V or Form VI)

(3 credits)

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. It is highly recommended that students enrolling for this course have attained a B average in their previous science classes. *MATH PREREQUISITE: Trigonometry and Function Analysis or Trigonometry and Introductory Calculus. SCIENCE PREREQUISITE: Biology I (may be taken concurrently)*

Advanced Topics in Physics (Form V or Form VI)

(3 credits)

For students who wish to further their study in this branch of science. Topics vary year to year based on instructor and student interest, but may include non-inertial reference frames, wave particle duality, energy use in society, fluid dynamics, numerical methods (computer modeling), analysis of truss loading, electronics as well as 20th and 21st century physics. As with all physics courses, lab work is a critical component of the course, with the opportunity to build major term-long projects. Preparation for the qualifying exam for the U.S. National Physics Team may also be a component of the course. *PREREQUISITES: Physics II and enrollment in or completion of AP Calculus BC or completion of AP Calculus AB*

Advanced Biology (Form V or Form VI)

(3 credits)

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. It is recommended that students enrolling in this course have a strong background (B+ or better) in both Biology I and Chemistry. While this is not an Advanced Placement course, the level of work is at the 200 college level. Students who have an interest in taking the Advanced Placement Biology Exam should plan to invest time outside of class throughout the year in order to familiarize themselves with the exam format and review topics not covered in this course. *PREREQUISITE: Biology I*

Environmental Science

(3 credits)

This interdisciplinary course stresses scientific principles and analysis in areas including biology, chemistry and geology. Some of the themes to be 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. It is recommended that students enrolling in this course have a strong background (B- or better) in both Biology I and Chemistry. *PREREQUISITE: Biology*

Psychology (Form V and VI)

(3 credits)

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 awareness of how psychologists propose hypotheses and examine data about psychological problems; and (4) an appreciation of the fact that one of the keys to understanding human behavior is to take into account human individuality and diversity. This course does not meet during the lab period and does not fulfill the graduation requirement in science. *PREREQUISITE: Physics 1 and Problem-Based Mathematics II*

Organic Chemistry

(3 credits)

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. It is recommended that students enrolling in this course have a strong background (B+ or better) in Chemistry. *PREREQUISITE: Biology I, which may be taken concurrently*

ADVANCED ELECTIVES

Only one of the upper-level course sequences below will be offered per year.

OFFERED ODD YEARS (2017-2018)

INORGANIC CHEMISTRY SEMINAR (FORM V AND VI)

Each term may be taken separately

Chemical Equilibrium I (Term I)

(1 credit)

After a review of stoichiometry and nomenclature, this course briefly discusses chemical kinetics as it pertains to an understanding of chemical equilibrium. This course is designed to study chemical equilibrium greater detail. The equilibria discussed includes phase, solution and chemical. In the laboratory, students conduct equilibrium studies using traditional and instrumental methods. Students keep a journal. The texts include selected monographs, the chemistry text, and handouts. *PREREQUISITE: Chemistry and Biology (may be taken concurrently)*

Acid Base Chemistry (Term II)

(1 credit)

This course is designed to study in greater detail the behavior of acids and bases as extension of the study of chemical equilibrium. The discussion includes acid-base theories (Arrhenius, Bronsted/Lowry and Lewis), buffers, titration, common ion effects and application of aqueous equilibrium. In the laboratory, students conduct studies demonstrating the principles of acid-base chemistry. The text used includes selected monographs, the chemistry text and handouts. *PREREQUISITE: Chemistry and Biology I (may be taken concurrently)*

Ionic Equilibrium and Qualitative Analysis (Term III)

(1 credit)

This is a laboratory course in which students apply their knowledge of aqueous chemical equilibrium systems. Students conduct a study of classical wet qualitative analysis of selected cations (through Group V) and selected anions (through Group IV). Evaluation is based both on the student's understanding of the behavior of ions and aggregates in aqueous equilibrium environments and correct analysis of unknown ion solutions. The text used includes selected monographs, the qualitative analysis manual, the chemistry text and handouts. *PREREQUISITE: Chemistry and Biology I (may be taken concurrently)*

OFFERED EVEN YEARS (2018-2019)

ADVANCED TOPICS IN CHEMISTRY (FORM V AND VI)*Each term may be taken seperately***Chemical Bonding (Term I)**

(1 credit)

This course is designed to study the chemical bond in greater detail. Topics discussed include: intra-molecular and inter-molecular forces; covalent, ionic and metallic bonding; and the effects of bonding on shapes of molecules and aggregates. Laboratory activities demonstrate the behavioral effects (polarity, reactivity, reaction mechanism) of different types of bonding (intra/inter-molecular forces; ionic, covalent, polar covalent and metallic bonding). *PREREQUISITE: Chemistry and Biology I (may be taken concurrently)*

The Chemistry of Metals (Term II)

(1 credit)

Metals comprise the majority of elements in the periodic table. The chemistry of metals includes their behavior as metallic substances (alloys, structural materials, conductivity, malleability and ductility). While metals have these properties in common, they widely vary in their chemical behavior when acting as a cation or part of biological molecule. In this course, students study the way in which metals bond and how this bonding behavior is responsible for their typical metal characteristics as well as why their ionic and molecular chemistry is so diverse and unique to specific metals. *PREREQUISITE: Chemistry and Biology I (may be taken concurrently)*

Quantitative Chemical Analysis (Term III)

(1 credit)

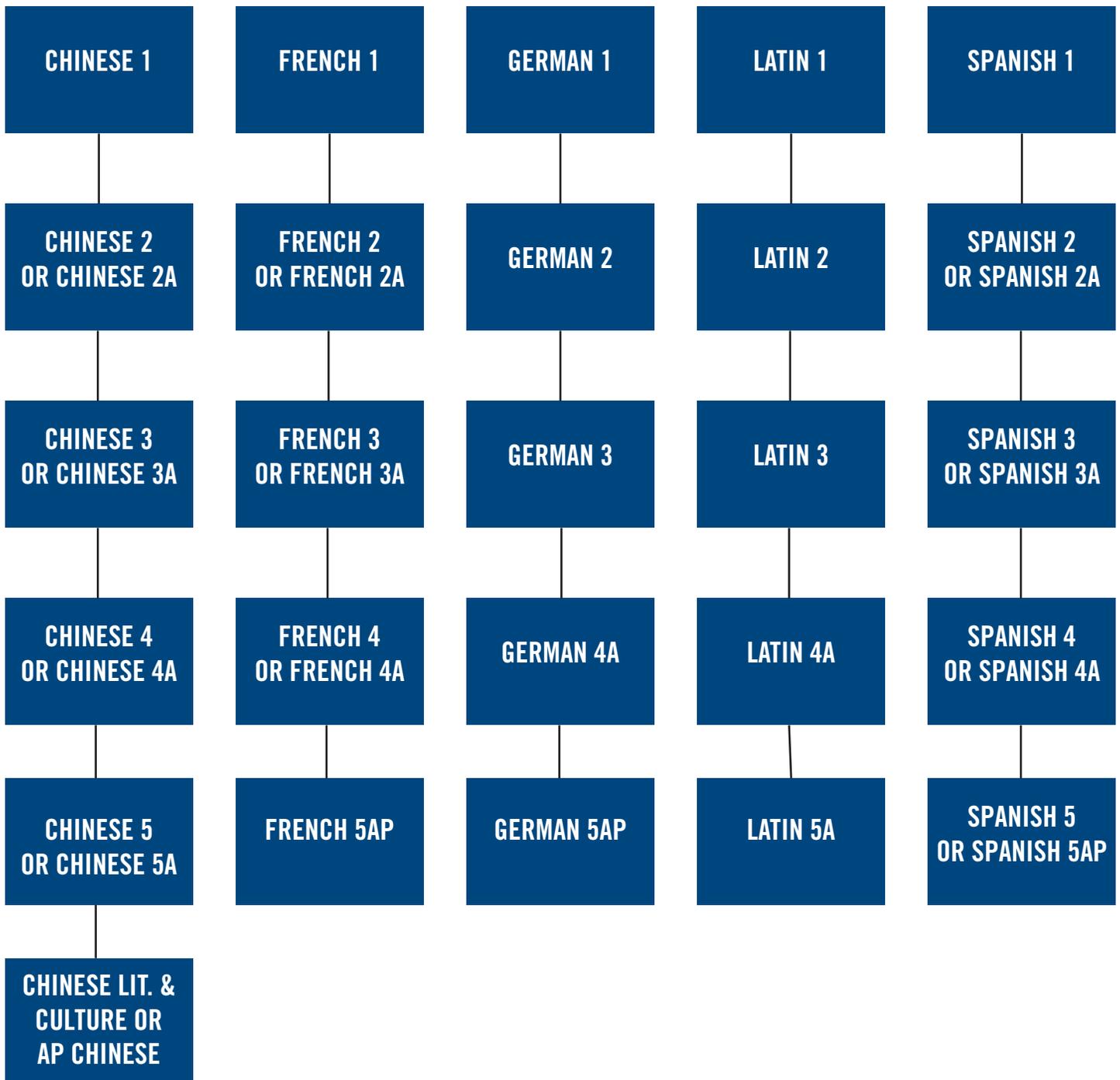
In this course, students learn the nature of quantitative chemical analysis. In the classroom, students learn the theory of each area of analysis (gravimetric, volumetric and instrumental), the limits of the analysis, the expectations/precision of analytical work, and the error control and analysis. A significant portion (65-70%) of the class is laboratory work conducting activities in each of the three areas of analysis. A portion of the laboratory grade is based on the correct analysis of unknown samples. *PREREQUISITE: Chemistry and Biology I (may be taken concurrently)*

WORLD LANGUAGES DEPARTMENT

Dr. Carol-Jean McGreevy-Morales, Chair



STANDARD WORLD LANGUAGES SEQUENCE



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.

An authentic cultural and linguistic dimension is added to language courses at all levels so as to immerse the student into native situations in the target language and thus illustrate and enhance the student's learning experience. These sources include guest speakers, the Language Lab, film, CDs, newspapers and magazines provided through hard copy and Internet subscriptions, and literature written for native speakers. Field trips are also arranged to theaters and museums for relevant plays, exhibitions, poetry readings and films.

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 our 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, Spain, China and Germany. 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).

WORLD LANGUAGES DEPARTMENT STATEMENT ON SUBJECT TESTS

For information on SAT II subject tests in languages and accompanying practice tests, visit <http://sat.collegeboard.org/practice/sat-subject-test-preparation>. We recommend that students take the SAT II language subject test upon the completion of Level 4A. For Latin, we recommend students take the SAT II after Level 3, if they are not continuing to Level 4A. All students thinking about taking an SAT II language test should take the practice test prior to making a decision whether or not to take the test.

For SAT test dates, visit <http://sat.collegeboard.org/register/sat-subject-test-dates>. Note that for French, Spanish and German one may opt to take a reading-only test offered at various times throughout the year, or a reading test with a listening component offered in November. Students need to coordinate with their college counselor and the colleges to which they are applying to determine whether it is in their best interest to take the reading-only test, or the reading and listening test. For Chinese there is only the Chinese with Listening test, which is only offered in November.

Advanced Placement Language and Culture tests are required for students enrolled in French, Spanish and German Level 5 AP and AP Chinese courses. All Advanced Placement exams are administered in May. More information can be found at <http://apcentral.collegeboard.com/apc/public/courses/index.html>.

REQUIREMENTS

Shady Side Academy requires students to successfully complete the first three levels of one language. Students seeking credit in a second world language must successfully complete three levels of one language in order to meet the credit requirement of the diploma. 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 (LBD), 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 LBD 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 his/her 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 or Assistant 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. 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 his/her signature on the sheet.

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

CHINESE

Chinese 1

(3 credits)

This course introduces the starting level of Mandarin language and Chinese culture with a focus of 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, and 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.

Chinese 2

(3 credits)

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*

Chinese 2A

(3 credits)

This course continues to build on the foundations established by students in the areas of reading, writing, listening, and speaking, with emphasis on listening and speaking. Students learn widely applicable vocabulary and grammar structures in the context of thematic lessons on topics relevant to their daily lives. *Modern Chinese 1A* is the textbook for this course. Additional supplementary material such as audio recordings, videos, and readings are also utilized to broaden students' exposure to the target language and used to aid them in developing critical language skills. *PREREQUISITE: Chinese 1*

Chinese 3

(3 credits)

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*

Chinese 3A

(3 credits)

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. 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 2*

Chinese 4

(3 credits)

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 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*

Chinese 4A

(3 credits)

The focus of lesson topics in Chinese 4A widens from the individual to the community and to the culture. Students continue to delve into the 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. *Modern Chinese 1B* is the textbook for this course. Additional supplementary material in the forms of audio recordings, video clips, and articles are also utilized to broaden students' exposure to the target language and to provide additional context for our lessons. *PREREQUISITE: Chinese 3A*

Chinese 5

(3 credits)

In this course, lesson topics explore Chinese society, elements of its history, culture, practices and beliefs. Students learn how to navigate conversations on more abstract topics and how to use more complex vocabulary and grammar structures. *Discovering Chinese 4* is the textbook for this course. Students are constantly exposed to the target language through podcasts, documentaries, and articles, which serve to provide deeper insight into the Chinese language and culture, and provide additional context for our lessons. Increasingly difficult materials featuring increasingly complex content challenge and aid students in refining their language skills. *PREREQUISITE: Chinese 4 or Chinese 4A*

Chinese 5A

(3 credits)

The main objective of Chinese 5A is to help students refine and further develop their functional language ability – the ability to use Mandarin Chinese in linguistically, culturally and socially appropriate ways in real-life contexts. The college-level textbook *Modern Chinese Book 2A* is used in this course to introduce students to different cultural aspects of life in the Chinese-speaking world. There is a focus on specific communicative skills in theme-based contexts. The course provides students with maximum exposure to authentic cultural and language materials. Throughout the course, assessments are frequent, varied and explicitly connected to the content and skills that comprise the learning goals of each unit of study. *PREREQUISITE: Chinese 4A*

Topics of Chinese Language and Culture

(3 credits)

This course is a course 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 5*

AP Chinese

(3 credits)

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 which 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. All students in this course are required to take the AP exam to receive credit for the course.

PREREQUISITE: Chinese 5A

FRENCH

French 1

(3 credits)

This course emphasizes the student's development of basic communicative competence in the five proficiency areas: 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, hobbies, sports and shopping.

French 2

(3 credits)

Reviewing and expanding upon Level 1 French, this course emphasizes the continued development of communicative proficiency in the French language. Students achieve increased oral and written fluency through contextualized target language practice and sharpen their reading and listening skills through the exploration of authentic written and audio-visual materials. Thematic units are designed to prepare students for real-life experiences in the target culture by equipping them with increasingly complex vocabulary and grammatical structures and cultivating their understanding of French and francophone cultures.

PREREQUISITE: French 1

French 2A

(3 credits)

Building upon the foundations of French 1, French 2A allows students to transition from short, memorized speech patterns to sentence and paragraph discourse. Students develop fluency in listening, reading, writing and speaking through interaction with authentic texts: print, audio and visual. Furthermore, the texts allow students to develop appreciation for the richness of Francophone cultures. *PREREQUISITE: French 1 or approval of the Department Chair*

French 3

(3 credits)

Students who elect French 3 are expected to speak French at all times, especially among themselves. As in the previous level, the course is conducted entirely in French. A variety of authentic print and audio materials, such as newspaper and magazine articles, literary excerpts, podcasts, videos, reports and graphs permit students to develop reading, writing, speaking and listening skills. At the same time, they will acquire useful knowledge across disciplines: art, science, technology. Key grammar elements include passé composé and imparfait, future and conditional tenses, and the subjunctive.

PREREQUISITE: French 2 or French 2A

French 3A

(3 credits)

This course, conducted in French, introduces students to increasingly complex vocabularies and grammatical structures. Students demonstrate growth in confidence and fluency in reading, writing, listening comprehension and speaking the target language. French 3A improves the students' ability to move appropriately from tense to tense as they discuss and write about literature and film and carry on meaningful sustained conversations relating to real-world situations. Authentic texts help students gain a deeper understanding of French and Francophone cultures. Students will read, analyze and produce dramatic presentations of Saint-Exupéry's *Le Petit Prince*. *PREREQUISITE: French 2A*

French 4

(3 credits)

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 Francophone cultures, literature, music and art. Students practice listening, reading, writing and speaking skills through authentic texts and with real-life tasks. Extensive use is made of Internet resources, allowing students to experience language and culture first-hand.

PREREQUISITE: French 3 or 3A

French 4A

(3 credits)

This course, conducted entirely in French by teacher and students, focuses on increasing students' conversational, reading and writing skills by having them tackle authentic articles and debate the pros and cons of 21st-century controversies, e.g. globalization. Students also study the works of French masters, such as de Maupassant and Ionesco, and perfect advanced grammatical structures. All elements of the course are situated in the context of French-speaking nations. Emphasis is placed on understanding subtle yet significant cultural differences between Americans and Francophones and increasing students' effectiveness in cross-cultural encounters. It is recommended 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 3A*

French 5AP

(3 credits)

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 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: Completion of French 4A*

GERMAN

German 1

(3 credits)

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 Internet, films and new German music help develop skills and prepare for real-life German language situations.

German 2

(3 credits)

This course introduces additional grammatical structures and vocabulary that are essential to achieve intermediate-level oral and written skills. The Internet, films and current music expose students to authentic language and current topics in German society. Gradually, short stories and credits outside of the textbook are introduced. This class is conducted primarily in German, and students become comfortable speaking German. *PREREQUISITE: German 1*

German 3

(3 credits)

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. The Internet, films and current German music provide exposure to authentic language situations and current events. Students read teen literature and short stories in addition to completing textbook work. 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*

German 4A

(3 credits)

German 4A and 5AP 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. An AP-level textbook facilitates the transition 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*

German 5AP

(3 credits)

Seniors have the option of completing an additional AP German curriculum. If an exceptionally strong fourth-year senior chooses this option, German 5AP 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

LATIN

Latin 1

(3 credits)

This course, which emphasizes the primary Latin communication skill of reading, introduces elementary grammar and syntax. Students build a vocabulary for readings in culture and history, especially pertaining to daily life in 1st century Pompeii and Greece.

Latin 2

(3 credits)

The first few weeks of this course involve review of the grammar and syntax of Latin 1, while introducing new vocabulary and more intermediate Latin grammar. Students build a broad vocabulary for readings in culture and history, especially as pertains to life in the Roman city and military. *PREREQUISITE: Latin 1*

Latin 3

(3 credits)

This class begins with review of intermediate grammar and completes advanced grammar and syntax in a literary context. The “Urbs Antiqua,” life in the ancient city, is examined via selections from a variety of Roman authors. Works might include, but are not limited to, selections from Julius Caesar’s *De Bello Gallico*, the works of Pliny, Cicero, Tacitus, and an introduction to Latin poetry via readings from Ovid’s *Metamorphoses*. *PREREQUISITE: Latin 2*

Latin 4A

(3 credits)

This advanced class surveys a variety of Latin authors, including but not limited to the dramatists Plautus and Seneca, and the poetry of Catullus, Horace, and Ovid. Students examine works in their historical context, while reviewing poetic and rhetorical structures. 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. *PREREQUISITE: Latin 3*

Latin 5A (taught in rotation with Latin 4A)

(3 credits)

This class studies Golden Age Latin literature under Augustus, the first Roman emperor, focusing on the life and work of Vergil. Students read Vergil’s *Aeneid*, with particular emphasis on literary form and technique, while also examining the philosophical and political dimensions of his age. 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. *PREREQUISITE: Latin 4A.*

SPANISH

Spanish 1

(3 credits)

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.

Spanish 2

(3 credits)

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 achieve intermediate oral and written fluency. 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 verb tenses covered include the preterit tense, as well as an introduction to the imperfect tense. The vocabulary offered covers themes such as technology, vacations, daily activities and health, places in the city and driving. Each of these topics is supplemented with a variety of new grammar structures that allow for superior communication through a variety of methods. *PREREQUISITE: Spanish 1*

Spanish 2A

(3 credits)

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*

Spanish 3

(3 credits)

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. A variety of activities are utilized to help the students to become more proficient with the use of the present, preterit 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 create projects, write short essays and present oral activities. They also listen to music, watch films and read short pieces of literature. *PREREQUISITE: Spanish 2 or Spanish 2A*

Spanish 3A

(3 credits)

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. 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*

Spanish 4

(3 credits)

This course enables students to complete the fundamentals of Spanish grammar while increasing vocabulary, fluency and knowledge of Hispanic cultures. Conducted in Spanish, this course focuses on learning in culturally appropriate contexts, which include greetings, traveling, education, professions and household chores, among others. Students participate in a variety of projects that will increase their ability to communicate in Spanish. **This course does not prepare students to take Spanish 5AP.** *PREREQUISITE: Spanish 3 or Spanish 3A*

Spanish 4A

(3 credits)

This class, conducted exclusively in Spanish, places communicative goals at the forefront; 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 literature of all regions of the Spanish-speaking world and focus on specific communicative skills in theme-based contexts. 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 his/her signature on the course registration form. *PREREQUISITE: Spanish 3A*

Spanish 5

(3 credits)

This course, conducted in Spanish, builds upon the skills and knowledge acquired in Spanish 4/4A. Students engage in class work, homework and projects that increase their speaking, listening, reading and writing skills, all within a Hispanic context. The contexts include family, society and social problems, college education and finances, painting, music, sculpture, literature, television programming and advertising, news coverage, media and current events. The course makes use of authentic materials from the Spanish-speaking world, including the Internet, magazine articles and Hispanic literature and film. **This course does not prepare students to take the AP exam.** *PREREQUISITE: Spanish 4 or Spanish 4A*

Spanish 5AP

(3 credits)

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, and to prepare the students to take the AP Spanish Language Examination, which is required for students to receive credit for the course. Taught in the target language, this course involves exposure to a variety of Spanish voices and requires extemporaneous speech in response to given situations. Reading and writing skills are refined through a grammar review that adapts to the needs of every student, since the focus of the class is communication. The literature studied concentrates on short stories and poetry by Spanish and Latin American authors. Students must be prepared to come to a class conducted completely in Spanish and be willing to participate daily in class conversations and/or discussions. 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 his/her signature on the course registration form. *PREREQUISITE: Spanish 4A*

EXCHANGE PROGRAMS

Shady Side Academy's partner school exchange programs in China, France, Germany and Spain
(3 weeks abroad and 2-3 weeks hosting)

- **Wuhan Foreign Languages School, Wuhan, China**
- **Beijing No. 4, Beijing, China**
- **St. Joseph de Tivoli, Bordeaux, France**
- **Gymnasium Oldenfelde, Hamburg, Germany**
- **Liceo Europeo, Madrid, Spain**

These programs are based on family-to-family reciprocity. The SSA student, while abroad, resides with the family whose son or daughter 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. For further information, please contact the Director of Global and Off Campus Opportunities.

SPECIAL PROGRAMS



INDEPENDENT STUDY (FORMS IV, V AND VI)

Mr. Richard Gable, Director

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 only able to pursue Independent Study in Term III and must have an A- average (3.67 GPA) with an effort rating average of 4 or better for Terms I and II of the current school year, as well as approval from the department chair and the project mentor.

A letter grade must be given for Independent Study as a fourth course; the curricular plan for students carrying four courses must be approved by the Dean of Studies. If the project is a fifth course, a letter grade may be requested. 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 Downloadable School Forms page behind the portal of the Shady Side Academy website.

SENIOR PROJECTS (FORM VI)

Mr. Richard Gable, Director

Philosophy

The Senior Project is designed to recognize and meet the special needs of those seniors who are ready for a substantial and serious learning experience outside the traditional setting of the classroom. The Senior Project emphasizes the importance of planning and setting goals in researching and proposing an original project.

Description

The Senior Project is explicitly designed for the student who needs time away from the Academy during the school year (usually in Term III) in order to pursue his/her special interest. It can cover a wide range of educational activities. Projects, designed by the student with the support of the Academy, may involve the investigation of career possibilities, service to the community or the pursuit of a particular interest, talent or lifelong dream. The student will prepare a formal, written proposal for presentation to the Senior Project Committee. The student is required to find a faculty advisor who will help with the proposal and serve as a liaison between the student and the school and a sponsor who is willing and able to supervise on-site activities. At the conclusion of the project, students will participate in the annual Senior Projects Open House and prepare a formal report for the Senior Projects Committee (format to be determined by the nature of the project and the committee).

Complete and up-to-date information and forms are available on the Downloadable Forms page behind the portal of the Shady Side Academy website.

GLOBAL AND OFF-CAMPUS PROGRAMS

Ms. Jessica Parker, Director

These programs are for students in Forms IV, V and VI. The application deadline is typically mid-February of the prior school year. Applicants must discuss their plans with Ms. Parker and the Dean of Studies before applying. Shady Side tuition is applied to the program's tuition cost but may not cover all expenses.

The grades earned in the off-campus semester programs listed below and School Year Abroad are treated as grades from Shady Side Academy and, as such, are used to compute GPAs, honor status and prize eligibility, including Cum Laude. The official Shady Side Academy transcript will be adjusted to accurately represent the length of time the student spent at Shady Side Academy and in attendance at the semester program. Students attending off-campus semester programs in the winter semester are required to attend Shady Side Academy through the midpoint of Term II.

SCHOOL YEAR ABROAD

www.sya.org

Founded in 1964 by Phillips Academy in Andover, Massachusetts, and now a consortium including top independent high schools across the country, School Year Abroad (SYA) is the only secondary-level program that allows high school students to live with a European or Asian family for an entire academic year while earning U.S. graduation credits and preparing for selective U.S. colleges and universities. Every year, each of the SYA schools in China, France, Italy and Spain enrolls approximately 60 students to complete their junior or senior year of high school. The central elements of SYA – the homestay and an academic program emphasizing foreign language acquisition – ensure that students return home with real mastery of a second language. At the same time, instructors from U.S. high schools guarantee that they do not lose ground in their core American courses: math and English. Extracurricular activities and organized travel round out the year. Current world events and global economic developments have only confirmed SYA's belief in the necessity of such an experience for more and more young American high school students. It is committed to maintaining high standards as the program work with future generations of adventuresome high school students eager to gain mastery of another language, a new perspective on themselves and a deeper understanding of the complex world beyond our borders.

The grades earned in School Year Abroad are treated as grades from Shady Side Academy and, as such, are used to compute GPAs, honor status, and prize eligibility, including Cum Laude.

OFF-CAMPUS SEMESTER PROGRAMS

Shady Side Academy is affiliated with a number of off-campus semester programs for sophomores, juniors and seniors that combine rigorous academic classroom and field experience with a theme that focuses on exploring people's connections with their environment. For the programs listed below, a student's SSA tuition is applied to the program's tuition, although that may not cover all expenses. Grades earned in these off-campus programs are treated as grades from Shady Side Academy and used to compute GPAs, honor status and prize eligibility.

Chewonki Maine Coast Semester (<http://www.chewonki.org/lmcs>) takes place mostly on a 400-acre setting of Maine pine forests and pastures surrounded by a tidal estuary. A typical day might include morning classes, afternoon work detail on the farm, in the fields or in the wood lot, followed by an evening of group work/study or community involvement. Several weekends each semester include hiking, skiing or water activities and research utilizing natural resources of the area.

Rocky Mountain Semester (<http://www.hminet.org/>) takes place in Colorado in the Rocky Mountains. Its rigorous academic program incorporates traditional classroom learning with the challenges of wilderness backcountry living. It is dedicated to nurturing personal and community growth through interaction with the natural world and to the idea of "simple in means, rich in ends." Learning by experience, academic excellence and education that inspires intellectual growth are fundamental principles of the program.

CITYterm (<http://www.cityterm.org>) With New York City as its classroom and laboratory, CITYterm brings together six residential faculty and 30 intellectually adventuresome juniors and seniors in high school for a semester of intensive, experience-based learning. CITYterm challenges its students to think, question, speak up and grow. Together in a closely knit community of students and teachers CITYterm explores, wonders, watches and learns on the streets of New York City. Students spend every other day linking their classroom work to the endless array of opportunities available in the greatest city in the world. Its mission is to encourage students to engage fully in learning and thinking for themselves, about themselves and about who and what is beyond them. Its goal is for students to leave CITYterm with the intellectual tools they need to understand and express the complexity of New York City and the emotional and social tools to participate constructively in their community.

Alzar School Semester (www.alzarschool.com) Located in Cascade, Idaho, the Alzar School offers academic semesters for motivated high school sophomores and juniors. These semesters immerse students in a rigorous, challenging educational setting that emphasizes leadership training. The mission of the Alzar School is to educate and facilitate the leadership development of high school students. The school aims to equip students with the background knowledge and skills to be effective leaders who will change the world. The school accomplishes its mission through the integration of six foundations: Academics, Leadership Training, Outdoor Adventure, Cultural Exchange, Service Learning and Environmental Stewardship. Through these foundations, the Alzar School challenges motivated, passionate future leaders. Many students are invigorated and refreshed after a semester away from their traditional school. The semester program features an extended trip to Chile.

Oxbow School Semester (www.oxbowschool.org) The Oxbow School is a one-semester coeducational boarding school located in Napa, California, with a visual arts and academic focus. It is a unique, interdisciplinary semester program for high school students. Its mission is to strengthen students' abilities in creative and critical inquiry by combining rigorous studio art practice with innovative academics. Its vision is for Oxbow students to develop a stronger sense of identity, self-worth, and the confidence to embrace the responsibility for their own learning and lives. High school juniors and seniors can choose to attend in either the fall or spring semester.