

# SPS

2020-21 Course Catalog



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## A COMMITMENT TO LEARNING

The SPS academic program offers exceptional depth and breadth, giving students both a solid grounding in the fundamentals and the flexibility to pursue varied and enriching electives. The core curriculum includes challenging courses in humanities, mathematics, sciences, languages, religion, and the arts.

At St. Paul's, students and their teachers work in collaboration – in discussion around Harkness tables, in laboratories, and in the field to investigate new and age-old questions. Through rigorous academic standards, students are encouraged to attain the highest level of scholarship, intellectual growth, and development. St. Paul's School students, working with exceptional faculty, prepare intensively toward success in college, university, and career.

The School offers an ambitious sciences curriculum, in which students implement the scientific process and content learned from their initial course in physics to the following study of chemistry and then biology. Science students next have the opportunity to study each of these foundation courses at an advanced level, as well as opportunities in astronomy, engineering, robotics, and artificial intelligence. Students encounter a carefully designed mathematics curriculum that allows them to progress through comprehensive content and trains them as keen analytical thinkers. In our integrated, interdisciplinary humanities curriculum, students learn to think critically and to connect important notions in literature, history, philosophy, and religious studies.

St. Paul's School goes beyond the traditional language learning structure and offers courses in six languages, as part of the SPS commitment to a global education. The School also recognizes that intense and regular involvement in the arts is fundamental to creating a well-educated person. A performance-based arts program ensures that students at all levels in music, dance, theatre, and the fine arts can develop and grow.

St. Paul's School requires participation in four other areas of community life to complement the academic endeavors of our students: living in community, community engagement, athletics, and Chapel. The School's commitment to education and caring for the whole person, as reflected in this all-encompassing view of education, supports and nurtures the intellectual, spiritual, physical, and emotional development of our students. The School's Advanced Topics, Honors, and Independent Study Programs provide additional opportunities for students to dive deeper into subjects they find most compelling. Teachers at SPS come from diverse backgrounds and bring with them a variety of world perspectives, educational excellence, and rich life experiences. Our faculty members live among the students in our fully residential community, making it easy for them to forge lifelong bonds with students. Teaching goes beyond the classroom, as faculty members serve as advisers, coaches, and mentors.

## GRADUATION REQUIREMENTS

The SPS diploma is awarded to the student who

1. enrolls in a minimum of 5 credits per term;
2. completes at least 25 credits during the Fifth Form and Sixth Form years and has missed no more than one term during his/her tenure at the School;
3. has no more than one Unsatisfactory final grade for any year-long course or the equivalent;
4. satisfies the requirements listed within one year of their anticipated graduation year at time of matriculation.

### Credit Requirements: Arts

1. **Matriculate in Third Form:** 3 credits in a single discipline
2. **Matriculate in Fourth Form:** 3 credits in a single discipline
3. **Matriculate in Fifth Form:** 3 credits in a single discipline

### Credit Requirements: Humanities

1. **Matriculate in Third Form:** 19 credits; sequence of Humanities III (6 credits), Humanities IV (6 credits), Humanities V (6 credits). Then one term course in religious studies. (1 credit)
2. **Matriculate in Fourth Form:** 13 credits; sequence of Humanities IV (6 credits), Humanities V (6 credits). Then one term course in religious studies. (1 credit)
3. **Matriculate in Fifth Form:** 7 credits; Humanities V (6 credits). Then one term course in religious studies. (1 credit)

### Credit Requirements: Languages

1. **Matriculate in Third Form:** 9 credits; three-year sequence in the same language
2. **Matriculate in Fourth Form:** 6 credits; two-year sequence in the same language
3. **Matriculate in Fifth Form:** 3 credits

### Credit Requirements: Mathematics

1. **Matriculate in Third Form:** 9 credits or through Precalculus (minimum of 3 credits earned in residence at St. Paul's School)
2. **Matriculate in Fourth Form:** 6 credits or through Precalculus (minimum of 3 credits earned in residence at St. Paul's School)
3. **Matriculate in Fifth Form:** 3 credits earned in residence at St. Paul's School

### Credit Requirements: Sciences

1. **Matriculate in Third Form:** 9 credits; recommended series of Physics First (3 credits), Chemistry (3 credits), Biology (3 credits)
2. **Matriculate in Fourth Form:** 6 credits; recommended 6 credits in two of the following: Physics (3 credits), Chemistry (3 credits), Biology (3 credits)
3. **Matriculate in Fifth Form:** 3 credits

*Courses are assigned 1 credit per term, with the exception that Humanities III, Humanities IV, and Humanities V are each assigned 2 credits per term.*

### Non-Academic Requirements: Athletics/Afternoon Activities (samples below)

1. **Matriculate in Third Form:** 10 terms; Third Form (3 TERMS: must be team oriented, 2 must involve physical activity); Fourth Form (3 TERMS: 2 must be team oriented, 2 must involve physical activity); Fifth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); Sixth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); swim test\*
2. **Matriculate in Fourth Form:** 7 terms; Fourth Form (3 TERMS: 2 must be team oriented, 2 must involve physical activity); Fifth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); Sixth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); swim test\*
3. **Matriculate in Fifth Form:** 4 terms; Fifth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); Sixth Form (2 TERMS: 1 must be team oriented, 1 must involve physical activity); swim test\*

*\*New students required to pass a swim test within 2 years of matriculation*

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**Team Oriented:** Interscholastic, Club/Instructional, Community Engagement, Theatre, Afternoon Music (with instructor permission)

**Team Oriented/Physical:** Interscholastic, Club/Instructional, Musical Theatre

**Physical:** Instructional Fitness

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### Non-Academic Requirements: Community Engagement

1. **Matriculate in Third Form:** 2 credits over the course of 4 years
2. **Matriculate in Fourth Form:** 2 credits over the course of 3 years
3. **Matriculate in Fifth Form:** 1 credit over the course of 2 years

## LIVING IN COMMUNITY

As a residential community, St. Paul's School is committed to the development of the whole person. In order to support students' emerging social and emotional competencies and to encourage personal reflection and commitment to the world around us, our Living in Community program provides opportunities for exploration.

### THIRD FORM COURSE

*(Full year, required)*

This course meets once a week. The focus is on students' introduction and transition to living in our residential community. Topics include, but are not limited to, self-awareness, respect for self and others, communication and compromise, healthy choices, and appropriate use of technology. This course encourages students to develop a balanced approach to their experience at St. Paul's.

### FOURTH FORM COURSE

*(One term, required)*

This course meets three times a week. Fourth Formers discuss the myriad topics that influence their growth as individuals. Topics include, but are not limited to, interpersonal relationships, diversity in all its forms, sexuality, and substance use. We explore these issues in many ways, which includes grappling with contemporary issues in an effort to understand how to live in community while making individual choices. Our goal is to provide accurate information in a trusting environment as our students develop their own perspective and identity.

### FIFTH AND SIXTH FORM SEMINAR

*(Fall, Winter, and Spring Term, required)*

This course meets nine times a year. The seminar provides an intensive training in bystander intervention and human sexuality.

## COMMUNITY ENGAGEMENT PROGRAM

The Community Engagement Program connects SPS students with local youth and adults to address critical community needs and to foster and support positive academic, civic and social/emotional growth for all. The credit requirement ensures the enhanced quality of community service experience and raises awareness of social issues that affect our communities. At the same time it helps SPS students in developing self-awareness, relationship skills and responsible decision making.

SPS students involved in Community Engagement will:

- Develop capacity for self-reflection;
- Monitor and regulate feelings to aid in the handling of situations;
- Identify and understand the thoughts and feelings of others;
- Use verbal and nonverbal skills to express oneself and promote positive and effective exchanges with others;
- Perceive situations in which a decision is to be made and assess factors that might influence one's response.

The Missionary Society, the oldest student-run School organization, collaborates with the Community Engagement Program office to:

- Coordinate community service and engagement projects in the Concord area;
- Oversee fundraising activities for worthy causes;
- Provides leadership training for officers and project leaders

Students meet their credit requirement through engagement programs that are offered in the afternoons and evenings. In addition, students can apply for approval to earn credit at home during breaks. Students are driven by the intrinsic rewards of helping others, and the positive impact their service has on them, the Concord community, and the world.

## OFF-CAMPUS PROGRAMS

### MISSION STATEMENT

St. Paul's School believes that a student's education extends beyond the classroom and that a change in physical environment enriches perspective. Our educational philosophy embraces diversity and endorses the principle that as individuals we learn when we broaden our own beliefs, values, and customs and seek out the wisdom and experience of others. To foster these values, we encourage our students to pursue an authentic understanding of a culture different from their own and to engage this new culture with an open mind.

### GOALS

- Complement the student's on-campus education by offering meaningful personal connections with different cultures and other perspectives.
- Challenge students to open themselves to new voices, customs, and understanding so that, in turn, they will become more aware of their own values and beliefs.
- Represent a broad range of interests and opportunities to account for the reality that each student differs in readiness to go beyond familiar comforts.
- Balance both domestic and international opportunities because a student does not have to leave the United States to find the cultural diversity and difference that will offer a significant and enriching experience.
- Incorporate preparatory exercises, reflection, and a culminating project to provide an integrated experience that enriches the student and the School community.
- Offer a transformative experience that will foster a passion and a sense of responsibility for the world beyond the student's familiar exposure.

### **THE OFF-CAMPUS EXPERIENCE**

The off-campus experience is defined by a student's significant exposure to a culture different from his or her own, as well as one or more of the following conditions:

- Specific connection to the student's on-campus experience or program of study.
- Comprehensive immersion into a language different from his or her primary language.
- Significant participation in service-learning activity.
- Understanding of a major global issue (e.g., environmental stewardship, sustainable development, globalization, poverty, healthcare, education, social justice, inclusivity, and governance).
- Experiential leadership opportunity.

### **PROGRAM OFFERINGS (may vary)**

- School Year Abroad in China, France, Italy, and Spain
- Term language exchange in France and Germany
- Short-term language/cultural program in China, France, Germany, Greece, and Spain
- Two-week Eton cultural exchange in England
- One-week service-learning programs in New Hampshire and Washington, D.C.

### **ADVANCED TOPICS**

Sixth formers who fully exhaust all courses in a department, including electives, may pursue Advanced Topics in a particular discipline. Advanced Topics are available in the Arts, Languages, Mathematics, and Science Departments. Advanced Topics offer an opportunity for a student to pursue independent work under the supervision of a member of a faculty member. Students interested in pursuing Advanced Topics must be highly motivated, independent learners with excellent academic records. Students must petition a faculty member to serve as the adviser to their project, recognizing that not all faculty members will be able to take on this extra time commitment. As part of the application process, a student must have written approval from his or her adviser, the Advanced Topics adviser, and corresponding Department Head. All proposals for Advanced Topics are reviewed and voted on by the Dean of Studies and the five academic department heads.

### **INDEPENDENT STUDY PROGRAM**

Students may apply for an Independent Study Project (ISP) during their Sixth Form year. An ISP is a term- to year-long project, in which a student is able to explore an interest in depth. Independent study projects may include activities ranging from internships, terms abroad, and movie production, to writing a book of short stories, but all emphasize the experience and understanding of one's self gained from working in an independent setting. Proposals are submitted to a committee of faculty and students, and the approved projects are overseen by a faculty adviser of the student's choosing.

## ATHLETICS / AFTERNOON ACTIVITIES

St. Paul's School offers opportunities for students of all levels of athletic ability and interests. By engaging in athletics and afternoon program offerings, students develop key values such as teamwork, sportsmanship, personal excellence, courage, humility, and respect for others. All Third and Fourth Formers must participate in an Athletic/Afternoon Program each term. As a Third Former, two terms must involve physical activity and three terms must be team oriented. As a Fourth Former, two terms must involve physical activity and two terms must be team oriented. All Fifth and Sixth Formers must participate in an Athletic/Afternoon Program in at least two out of three terms each year. As a Fifth and Sixth Former, one term must involve physical activity and one term must be team oriented – not mutually exclusive. All new students are required to pass a swim test for graduation, completed within two years of matriculation. Free swim lessons are offered, and students may take the test as many times as necessary.

### INTERSCHOLASTIC

#### Fall Term:

Cross Country (boys/girls)

Field Hockey (girls)

Football (boys)

Soccer (boys/girls)

Volleyball (girls)

#### Winter Term:

Alpine (boys/girls)

Basketball (boys/girls)

Ice Hockey (boys/girls)

Nordic (boys/girls)

Squash (boys/girls)

Wrestling (boys/girls)

#### Spring Term:

Baseball (boys)

Crew (boys/girls)

Lacrosse (boys/girls)

Softball (girls)

Tennis (boys/girls)

Track & Field (boys/girls)

#### Full year commitment:

SPS Ballet Company (boys/girls)

### CLUB, INSTRUCTIONAL (CO-ED)

#### Fall Term:

Bouldering, Farm Team, Fitness, Mountaineering, Rowing, Soccer, Tennis

#### Winter Term:

Alpine/Snowboarding, Ice Hockey, Fitness, Swimming

#### Spring Term:

Farm Team, Fitness, Squash

### TEAM (CO-ED)

#### Fall and Winter Terms:

Musical Theatre

#### All Terms:

Afternoon Music (with instructor permission), Community Engagement (full year commitment available), Fitness, Musical Theatre, Service Learning

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**Team Oriented:** Interscholastic, Club/Instructional, Community Engagement, Theatre, Afternoon Music (with instructor permission)

**Team Oriented/Physical:** Interscholastic, Club/Instructional, Musical Theatre

**Physical:** Instructional Fitness

## ARTS

The arts are passionate. Initially solitary and ultimately public, the arts involve the whole person and address the whole community. Recognizing that a regular exposure to the arts has always had a powerful and liberating influence in the world, the Fine Arts, Theatre, Dance, and Music Programs offer students a variety of studio and performance-based classes, courses in the history and theory of the arts, and frequent exposure to a diverse group of visiting artists.

Courses that fulfill the initial year graduation requirement in the Arts – and serve as prerequisites to almost all other courses in their respective programs – include:

- In Fine Arts – a combination of three term-long courses
- In Theatre – a combination of three term-long courses
- In Dance – a combination of three term-long courses
- In Music – Applied Music 1-4

Students are strongly encouraged to continue to study in the Arts throughout their St. Paul's career.

### ARTS FEE: \$150 PER TERM

Students in *Photography: Color or Advanced Photography* courses pay additional fees for development of color slides. Students in *Hot Glass* pay additional fees based on the scope of their chosen projects.

The Arts Fee will not be charged to students enrolled in *Art History Seminars* and *Music Theory*.

Students in *Non-Credit Music* will pay a Lesson Fee in place of the Arts Fee:

- Full year, \$2,000
- Winter and Spring Terms, \$1,330
- Spring Term, \$670

Enrollment in arts courses is subject to permission of the program head and/or the department head.

### ARTS: DANCE

St. Paul's School provides students with the opportunity to combine a rigorous academic education with the finest dance training in a dedicated dance facility. The St. Paul's School Dance Program fosters a fun, nurturing, and artistic learning environment and prepares its students to dance at the pre-professional and college level by teaching classical ballet, modern dance, anatomical theory, and performance. The St. Paul's School faculty is committed to the idea that studying dance is a process and that dancers are always evolving and growing. Our goal is to train technically proficient dancers with a sound work ethic, promote artistic growth, and support dancers of all backgrounds.

Serious dancers may audition for the St. Paul's School Ballet Company (SPSBC), a year-round program that can be substituted for athletic participation at the varsity level. SPSBC dancers work one-on-one with faculty and guest teachers and choreographers, rehearsing daily throughout the academic calendar, and performing four different programs per school year. Its repertory includes classics as well as contemporary works. Guest teachers and choreographers have included members of internationally recognized companies such as Paul Taylor Dance Company, Merce Cunningham Dance Company, Twyla Tharp, American Ballet Theatre, New York City Ballet, Batsheva Dance Company, Miami City Ballet, Parsons Dance, Lar Lubovitch Dance Company, and Trisha Brown Dance Company.

## DANCE COURSES

### DANCE I

Full year: 3 credits; Fall, Winter, or Spring Term: 1 credit

This fun and fast-paced studio-based course, formerly named Movement for Athletes, is geared toward athletes and beginner level students looking to learn the fundamentals of dance technique while improving strength, flexibility, agility, stamina, body control and core stability. With a focus on proper alignment, muscle balance and injury prevention, this course draws upon several techniques including: core strengthening Pilates exercises, GYROKINESIS, Yoga, Modern Dance, and Ballet to improve balance and coordination, while also exploring musicality and rhythm. Basic Anatomy will be introduced to develop an understanding of the function of each muscle group and how it pertains to movement.

### BALLET II

Fall, Winter, or Spring Term: 1 credit

*Prerequisite: Training in classical ballet and placement audition.*

This course teaches classical ballet technique at the elementary level. Classes cover barre, centre practice, and the introduction and further study of pointe work. Students with prior dance training and permission from the Dance Director should enroll in Ballet II. Throughout the year, students receive training from visiting artists from professional companies in disciplines ranging from Classical Ballet to Modern and Contemporary Techniques.

### BALLET III

Full Year: 3 credits

This course teaches classical ballet technique at the intermediate level. Classes cover barre, centre practice, and pointe work. Students develop artistry and classical technique while working toward improving strength and flexibility. Students with a significant background in ballet, who are interested in continuing their training at an intensive level, will be placed in Ballet III by the Director of Dance. Throughout the year, students receive training from visiting artists from the professional companies in disciplines ranging from Classical Ballet to Modern and Contemporary Techniques.

## BALLET IV

Full Year: 3 credits

This course teaches classical ballet technique at the advanced level. Classes cover barre, centre practice, and pointe work at the advanced level. Students develop artistry and classical technique while working toward improving strength and flexibility. Students with a significant background in ballet, who are interested in continuing their training at an intensive level, will be placed in Ballet IV by the Director of Dance. Membership in the SPS Ballet Company is a prerequisite for placement at this level. Throughout the year, students receive training from visiting artists from the professional companies in disciplines ranging from Classical Ballet to Modern and Contemporary Techniques.

## ARTS: FINE ARTS

The Fine Arts Program is a studio-based program, with hands-on studio assignments supplemented by a broad introduction to art history, theory, criticism, and aesthetics, and with students expected to display their work as one outcome of each course. All students are offered extensive elective opportunities in one of three major areas: drawing, painting and printmaking; sculpture, glass, and ceramics; or photography and computer graphics. Advanced Portfolio courses are offered as culminating classes in each of those three major areas of study. The program also offers courses in architecture and art history, and students may also choose to study across a variety of studio arts disciplines. The Fine Arts Program supports the beginning, introductory student through those who wish to study in the studio arts in depth and throughout their St. Paul's career.

A recommended course of study for those students wishing to explore drawing and painting in depth includes: *Introduction to Drawing*, *Introduction to Painting*, *Advanced Drawing*, *Advanced Painting*, and/or *Advanced Painting Seminar*, and/or *Advanced Drawing Seminar*, and/or *Advanced Studies in Painting*, and/or *Advanced Studies in Drawing*, and culminating in *Advanced Portfolio: Drawing and Painting* (*Printmaking* and the *Art History Seminars* are also recommended).

A recommended course of study for those wishing to explore 3-dimensional design in depth includes: *Introduction to Ceramics*, *Advanced Ceramics*, *Introduction to Sculpture*, *Advanced 3D*, *Warm Glass*, *Hot Glass*, and/or *Advanced Ceramics Seminar*, *Advanced Studies in Sculpture*, *Advanced Studies in Ceramics*, and culminating in *Advanced Portfolio: Sculpture* (*Drawing* and the *Art History Seminars* are also recommended).

A recommended course of study for those wishing to explore 2-dimensional design in depth includes: *Introduction to Photography*, *Black & White Photography*, *Photography: Color*, *Advanced Photography Seminar*, *Computer Graphics/Digital Imaging*, and/or *Advanced Studies in Photography*, and culminating in *Advanced Portfolio: Photography* (*Printmaking*, *Computer Graphics/Web Design*, *Drawing*, and the *Art History Seminars* are also recommended).

A recommended course of study for those wishing to explore architecture in depth includes *Architectural Concepts*, *Introduction to Drawing*, *Advanced Drawing*, and *Advanced Studies in Architecture*. Fine Arts students are also encouraged to study in multiple mediums and/or studio arts disciplines.

## FINE ARTS COURSES

### INTRODUCTION TO DRAWING

Fall, Winter, or Spring Term: 1 credit

This introductory level course focuses on the basic techniques of drawing. Beginning with the fundamentals of drawing through the use of pencil, ink, marker, pastels, charcoal, and Conté crayon, the class then transitions to similar projects in watercolor and oil painting. Elements of design are introduced and reinforced in this course. The course is designed for students from all levels of experience and serves as a prerequisite for all advanced drawing courses.

### ADVANCED DRAWING [1–2]

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Drawing.

This course builds on the basic techniques introduced in *Introduction to Drawing* and develops those skills via more extensive, conceptual works. Students develop a thematic series of works around one or two subjects, including landscape, portraiture, still life, or abstraction. Assignments are more independent in nature and individualized to the requirements of each student. Studio work is informed by art history and master artist references. Students may repeat this course up to two terms, provided that they have earned a minimum of an Honors grade in all previous drawing courses.

### ADVANCED DRAWING SEMINAR [1–3]

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Two terms of Advanced Drawing.

An advanced-level drawing course for highly motivated drawing students that builds upon basic drawing and compositional skills, emphasizing further and more extensive work with a particular drawing medium, including graphite, charcoal, pastel, pen and ink, Conté, or other drawing media. Students propose to develop a particular conceptual idea over a series of works. Subjects include landscape, portraiture, still life, illustration, and abstraction. Students may repeat this course up to three terms, provided that they have earned a minimum of an Honors grade in all previous drawing courses.

### INTRODUCTION TO PAINTING

Fall, Winter, or Spring Term: 1 credit

This course introduces the techniques of painting through the use of water and oil based media. The course begins with the use of watercolor in both transparent and gouache forms. The assignments then move into the use of oil paints as both an opaque and transparent medium. Fundamental design skills, color theory and visual analysis are introduced through applied projects, critiques, and work with visiting artists.

### ADVANCED PAINTING [1-2]

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Painting.

This course builds on the basic techniques introduced in the *Introduction to Painting* course and develops those skills through a thematic series of works. Various landscape techniques and conceptual projects are introduced. Assignments are more independent in nature and individualized to the requirements of each student. Students may repeat this course up to two terms, provided that they have earned a minimum of an Honors grade in all previous painting courses.

**ADVANCED PAINTING SEMINAR [1-3]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Two terms of Advanced Painting.

This advanced-level painting course for highly motivated painting students builds upon basic painting and compositional skills, emphasizing further and more extensive work with a particular painting medium, including watercolors, acrylics, oils, and/or encaustics. Students propose to develop a particular conceptual idea over a series of works. Subjects include landscape painting in “plein air,” portraiture, still life, and abstraction. Students may repeat this course up to three terms, provided that they have earned a minimum of an Honors grade in all previous painting courses.

**PRINTMAKING [1-2]**

Winter or Spring Term: 1 credit

The printmaking course introduces students to various printmaking methods and media in a fast-paced, collaborative studio. With a heavy focus on experimentation, originality, and message, students explore multiplicity, image reversal, design principles, color, and mark making through both hand-printed and press-printed methods techniques. Students develop technical ability and aesthetic skills through instruction in relief printing, embossing, intaglio, monotype, bookmaking, screen printing, Riso duplication, and Xerox. This studio course delves into the rich, democratic history of print media by discussing its roots in publishing, as well as politically engaged and public artworks, and continuing into contemporary print cultures and industrial applications. No drawing experience necessary. Students may repeat this course up to two terms with departmental permission.

**INTRODUCTION TO PHOTOGRAPHY**

Fall, Winter, or Spring Term: 1 credit

An introductory photography course designed for those students with little or no previous photography experience, this course introduces students to the principles of photography through a blend of traditional and digital processes. The main objective is to teach students to see light rather than things. Students gain foundational understanding of the 35mm camera, black-and-white film, digital scanning, Adobe Photoshop, and digital printing. Students must have access to a fully manual 35mm camera or may borrow one from the Department. Each photography course is concerned with the aesthetics, history, and practice of this light-generated form of art. Additionally, productive critique procedures are cultivated. Except in rare instances, students begin with Introduction to Photography and move to either Black and White Photography or Photography: Color, although the sequence does not have to be contiguous; also available is *Computer Graphics/Digital Imaging*. With permission, students can enroll in *Advanced Photography Seminar* – they may take this course twice with a different individualized curriculum.

**BLACK & WHITE PHOTOGRAPHY**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Photography.

Students further develop black-and-white photography concepts introduced in *Introduction to Photography*, this time with a focus on people and the body. The Zone Simple System, studio lighting, and other intermediate-level techniques are explored, and several historical and contemporary artists are discussed. An emphasis is placed on portraiture and self-portraiture,

and the exploration of gesture and meaning. Additionally, productive critique procedures are cultivated and the collaborative studio dynamic explored. Students should be highly motivated and have strong critical skills in all intermediate- and advanced-level photography courses. Students must have access to a fully manual 35mm camera or may borrow one from the Department.

### **PHOTOGRAPHY: COLOR**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Photography and Black & White Photography.

Students continue to develop photographic vocabulary and vision while building upon intermediate-level black-and-white photography techniques. They are also introduced to computer colorization, color photography, color digital printing, and basic computer image manipulation. Emphasis will be placed on developing narratives using photographic imagery. Students must have access to a fully manual 35mm camera or may borrow one from the Department.

### **COMPUTER GRAPHICS/ART WITH COMPUTERS**

Fall, Winter, or Spring Term: 1 credit

Students in this course learn to use scanning, drawing tablets, the digital camera, and various software to create art using computers. Creativity and experimentation are emphasized. Students output their work in a variety of digital media, including large archival inkjet prints. Computer Graphics students are strongly encouraged to continue with *Computer Graphics/Web Design*.

### **COMPUTER GRAPHICS/WEB DESIGN**

Spring Term: 1 credit

Students in this course learn the basics of web design and create their own portfolio site as well as sites that are an art form in their own right. They also learn to maintain and remodel existing sites. Students also create new art pieces for use on their sites. Computer Graphics students are strongly encouraged to continue with *Computer Graphics/Digital Imaging*.

### **COMPUTER GRAPHICS/DIGITAL IMAGING [1–2]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Photography.

This course teaches students introductory to advanced techniques in Photoshop and other software or the purpose of making digital artworks. Students learn to use scanning and drawing tablets, and output their work in a variety of digital media, including large archival inkjet prints. Students may choose to pursue a photo-based curriculum which focuses entirely on digital image-making, using digital cameras or a hybrid technique with traditional film and scanning. No wet darkroom techniques will be employed. Digital work-flow, color management, image enhancement, and digital darkroom techniques will be explored in depth. Class discussion will include historical and contemporary artists and movements, as well as concepts of materiality and “real” in manipulated images. With instructor permission, highly motivated students make take this course a second time with an advanced curriculum, or as a process intensive.

**ADVANCED PHOTOGRAPHY SEMINAR [1–3]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Black & White Photography, Photography: Color, and departmental approval.

Highly motivated students continue to use the Zone Simple System to explore advanced-level black-and-white and digital processes in photography, including night photography, SLOfilm, studio still life, and other alternative and multimedia techniques. Students are expected to work more independently and experimentally in this exploration of photography as a living and material medium. Students may elect to take this course a second time and would do so using a new individualized curriculum. Students must have access to a fully manual 35mm camera or may borrow one from the Department. Students may repeat this course up to three terms, provided that they have earned a minimum of an Honors grade in all previous photography courses.

**ARCHITECTURAL CONCEPTS**

Fall or Winter Term: 1 credit

Students are introduced to the language of architecture with respect to fundamental design, drafting, and architectural history. The course begins with the study of architectural elements translated into paper models. After a brief review of perspective drawing, students explore drafting through the design of small personal spaces and structures. Online sources are used to facilitate the historical research and image-gathering needed for each project.

**INTRODUCTION TO SCULPTURE**

Fall, Winter, or Spring Term: 1 credit

*Introduction to Sculpture* is a beginning course for students who want to explore and work in sculpture. Students will be introduced to 3-dimensional design concepts, sculptural techniques, and art history. Emphasis is placed on skill development, experimentation, creative thinking, self-expression, and quality craftsmanship. Students will learn to work with clay, plaster, wire, and various other materials. This course also introduces the basics of welding.

**ADVANCED SCULPTURE [1–2]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Sculpture.

*Advanced Sculpture* is designed to develop sculpture skills learned in *Introduction to Sculpture*. New techniques, skills, and processes, such as mold-making, carving, and welding are explored. Materials include stone, clay, glass, fibers, and metal. Emphasis in Advanced 3D is placed on skill refinement, material exploration, self-expression, and high-quality craftsmanship. This course may be taken a second time.

**WARM GLASS**

Winter Term: 1 credit

*Warm Glass* will introduce the basic skills of flat glass construction as well as glass fusing, slumping, and casting. Historical and contemporary examples of stained glass are studied. Students will learn how to cut and grind glass, solder, and experiment with glass painting techniques. The course provides the opportunity for students to explore kiln-forming techniques. Emphasis will be on color theory, skill development, creative thinking, and self-expression.

**ADVANCED WARM GLASS [1–2]**

Spring Term: 1 credit

*Prerequisite:* Warm Glass.

This course further explores glasswork techniques introduced in the beginning *Warm Glass* course. Students will also employ advanced stained glass techniques such as leaded glasswork as well as other techniques, including fusing.

**HOT GLASS**

Fall, Winter, or Spring Term: 1 credit

[Available only to Fourth, Fifth, and Sixth Formers.]

This course introduces the basics of manipulating hot glass through the use of a blowpipe and hand tools. Students learn how to gather glass from the furnace and shape it using hand tools at the glass blowing bench. Using heat, gravity, and centrifugal force, students create vessels such as tumblers, bowls, and vases. Students also are introduced to basic color applications and grinding and polishing techniques. Students study historical and contemporary examples of blown glass, as well as the artists involved with glass. Emphasis is given to developing hand skills, team work, creative thinking, self-expression, and shop safety.

**ADVANCED HOT GLASS [1–2]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Hot Glass.

[Available only to Fourth, Fifth, and Sixth Formers.]

This course covers manipulating hot glass through the use of a blowpipe and hand tool, as well as a continuation of the study of historical and contemporary examples of blown glass and glass artists. Advanced students assist other students in the process of glass blowing. Advanced students develop and carry out specific assignments that meet their particular level of experience.

**INTRODUCTION TO CERAMICS**

Fall, Winter, or Spring Term: 1 credit

Through hand-built and wheel-thrown projects, students design and create various ceramics artworks ranging from utilitarian items to sculptural works. An emphasis is placed on the understanding of the fundamental aspects of 3-dimensional form, including volume, scale, shape, texture, and color to create original and expressive pieces.

**ADVANCED CERAMICS [1–2]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Introduction to Ceramics.

This course is a continuation of techniques learned in the *Introduction to Ceramics* course. Various hand-building and wheel techniques will be covered along with an exploration of the different firing techniques used in the medium. This course may be taken a second time.

**ADVANCED CERAMICS SEMINAR [1–3]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Two terms of Advanced Ceramics.

This course for highly motivated students emphasizes the continued development of ceramics techniques through exploring clay as both functional, wheel-thrown pottery and/or as a sculptural medium. Students will also be encouraged to devise novel approaches to solving problems of design, proportion, color, and form through the development of a thematically related body of work. Students may repeat this course up to three terms, provided that they have earned a minimum of an Honors grade in all previous ceramics courses.

**ADVANCED SCULPTURE SEMINAR [1–3]**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Two terms of 3-dimensional electives.

An advanced-level sculpture course for highly motivated sculpture students that builds upon basic technical skills, emphasizing further and more extensive work with particular sculpture mediums. Students propose to develop a particular conceptual idea over a series of works. Students may repeat this course up to three terms, provided that they have earned a minimum of an Honors grade in all previous sculpture courses.

**ADVANCED PORTFOLIO: DRAWING AND PAINTING**

Full Year: 3 credits

*Prerequisite:* At least one term of Advanced Drawing Seminar or Advanced Painting Seminar.

[Available only to Sixth Formers or Fifth Formers with departmental approval.]

This highly rigorous program provides serious and dedicated advanced-level drawing and painting students the opportunity to prepare an Advanced Placement Portfolio to be submitted to the College Board. Throughout this year-long course, students develop a comprehensive body of work that fulfills the Advanced Placement Portfolio requirements of breadth, concentration, and quality; students also organize an exhibition of their work.

**ADVANCED PORTFOLIO: SCULPTURE**

Full Year: 3 credits

*Prerequisite:* At least one term of Advanced Sculpture Seminar.

[Available only to Sixth Formers or Fifth Formers with departmental approval.]

This course consists of an in-depth exploration of 3-dimensional art with the aim of creating a rich personal portfolio, which also will satisfy the requirements of the Advanced Placement 3-Dimensional Design Portfolio to be submitted to the College Board. Students are expected to design projects for their own area of concentration in media such as ceramics, wood, metal, stone, or plaster; and are expected to demonstrate their breadth of abilities in all aspects of their 3-dimensional work, including volume, scale, shape, texture, color, negative and positive space, and other sculptural elements. Students will also organize an exhibition of their work.

**ADVANCED PORTFOLIO: PHOTOGRAPHY**

Full Year: 3 credits

*Prerequisite:* At least one term of Advanced Photography Seminar.

[Available only to Sixth Formers or Fifth Formers with departmental approval.]

This course provides advanced photography students the opportunity to explore their unique personal vision with the aim of producing a comprehensive Advanced Placement Portfolio to present to the College Board. Students in this year-long course will develop in-depth work in a concentrated theme and explore the breadth of the medium through experimentation with alternative themes and processes. Students will also organize an exhibition of their work. Students must have access to a fully manual 35mm camera or may borrow one from the Department.

**ART HISTORY STUDIO SEMINAR: 1200 TO 1860**

Fall Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

This course explores the major European art historical movements from the Gothic to Impressionism. Taught in conjunction with the SPS gallery, students study the history and techniques of various artists through research, visual analysis, and in-studio projects. A general unit will start with a full exploration of a period in the history of art followed by the creation of a work in the style of that era by employing historic materials and techniques. The course is taught in the Crumpacker Gallery and utilizes the exhibition space, permanent school collection, and gallery studios. This offering is designed for those who have no experience, or confidence, in their artistic abilities, while at the same time allowing students in advanced level art courses to explore their personal work through new and different media. Projects include, but are not limited to, creating and painting with raw pigments using tempera, oil, and encaustic methods, preparation of board and canvas supports using Medieval and modern techniques, printmaking in both intaglio and lithography, and exploring oil painting by glazing and impasto methods. Historical analysis will be done through studying actual works of art, slide studies, online research, and class discussions.

**ART HISTORY STUDIO SEMINAR: 1860 TO TODAY**

Winter Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

This course explores the major art historical movements from the Post Impressionism to the Contemporary world of art. Taught in conjunction with the SPS gallery, students study the history and techniques of various artists through research, visual analysis, and in-studio projects. A general unit will start with a full exploration of a period in the history of art followed by the creation of a work in the style of that era by employing historic materials and techniques. The course is taught in the Crumpacker Gallery and utilizes the exhibition space, permanent school collection, and gallery studios. This offering is designed for those who have no experience, or confidence, in their artistic abilities, while at the same time allowing students in advanced level art courses to explore their personal work through new and different media. Projects include, but are not limited to, oil and encaustic methods, printmaking in both intaglio and lithography, photo transfer, sculpture, and non-objective painting. Historical analysis is done through working with actual works of art, slide studies, online research, and class discussions.

**ART HISTORY MUSEUM AND CURATORIAL STUDIES**

Spring Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

Using the Crumpacker Gallery as a classroom, this course explores what is required for the collecting, handling, cataloging and exhibiting of art. Students work with the gallery director and staff as they learn the various tasks needed to curate an exhibit. The St. Paul's Permanent Collection is an important resource and teaching tool in this course. Visits to nearby museums and galleries to view exhibits and to meet with gallery directors and curators are scheduled throughout the term. Students work in the gallery lab/studios to explore techniques of restoration and presentation. The course will culminate in a proposal for future exhibits at St. Paul's School. Gallery staff will work with students to locate and to arrange summer gallery or museum internships.

## ARTS: MUSIC

The Music Program at SPS is primarily performance based, with vibrant choral and instrumental ensembles involving over 20 percent of the student body. The music curriculum is designed in part to support student participation in the ensembles by enhancing their skills through private lessons and musicianship classes as part of the Applied Music Program. Students may enter the Applied Music Program at any level, and may take *Applied Music* as many years as they wish.

Participation in at least one School ensemble (Choir, Wind Ensemble, Orchestra) is a requirement for enrollment in *Applied Music*. However, any qualified musician may participate in any ensemble without being enrolled in the *Applied Music* class. In such cases, we strongly encourage students to take non-credit private lessons. A fee is charged for non-credit music lessons. Aside from the normal Arts fee schedule, lessons for those enrolled in *Applied Music* are free.

All music classes and lessons are taught by highly trained professional musicians.

## MUSIC COURSES

### APPLIED MUSIC 1

Full Year: 3 credits

This course is offered to musicians who are new to SPS and the ensemble program, and fulfills the one-year Arts graduation requirement through participation in one or more of the School's ensembles (Choir, Orchestra, Small Ensembles). The year-long *Applied Music 1* curriculum consists of two basic musicianship classes (BMC), one private or group lesson on a chosen instrument, and two or more evening ensemble rehearsals each week. Ensemble rehearsals are typically held on Tuesday and Thursday evenings for 90 minutes each. Grades are based on performance in BMC, lessons, and ensemble participation. Each term, a 5-10 minute skill evaluation (jury) is required. Musicians who do not pass the audition for an ensemble – or play an instrument for which there is no ensemble offered – will be assigned to evening practice sessions during ensemble meeting times. Students must pass the BMC portion of *Applied Music 1* to receive credit for the course.

Although the standard arts fee applies, private and group lessons are free of charge to all students enrolled in *Applied Music*.

### NON-CREDIT MUSIC

Full Year: 3 credits

[This course may be taken for more than one year.]

Private, year-long instruction is available to all students who want to study music for no credit/no grade. Daily practice is expected. Music studied in this course is based on individual needs and abilities and may include a broad spectrum of styles and genres, based on personal interests. A fee is charged for these lessons. As the School retains contracted music teachers annually based on the full academic year registrations received, early withdrawal from these music lessons does not release the family of their financial obligations for the remainder of the academic year. Please know that students may choose the options of Non-Credit Music lessons for the full academic year, for the Winter and Spring Terms, or for the Spring Term only.

## **APPLIED MUSIC [2–5]**

Full Year: 3 credits

*Prerequisite:* Applied Music 1.

[This course may be taken for more than one year.]

This course is a continuation of the *Applied Music* curriculum and is offered to students who have fulfilled the basic musicianship requirement by successfully completing *Basic Musician-ship Class* and *Applied Music 1*. Students enrolled in this class receive two private lessons, or one private and one group lesson per week, and must participate in one or more Major Ensemble. More advanced students are encouraged to participate in smaller “splinter” groups such as Madrigal Choir, Chamber Music, Jazz Ensemble, or other small ensembles coordinated by members of the Music Program faculty. Each term, a 5-10 minute skill evaluation (jury) is required. *Applied Music* satisfies the School’s Arts graduation requirement.

## **MUSIC THEORY**

Full Year: 3 credits

*Prerequisite:* Applied Music 1 with BMC.

This is an introductory course for students who wish to enhance their understanding of how music is structured and created. A detailed study of melody, rhythm, and harmony, in conjunction with the analysis of works by master composers, emphasizes the integration of hearing and writing. These skills are developed through daily exercises in composition and ear training. This course is the equivalent of a first-year college course and prepares students for the Advanced Placement Exam in Music Theory.

## **MUSIC COMPOSITION: PRIVATE STUDY**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Applied Music 1 and permission of the Director of Music.

[Full year recommended; option of one or two lessons per week.]

Using the basic knowledge of music theory, writing and performing original compositions is the aim of this credit course. Proficiency on an instrument, preferably keyboard, or in voice is recommended. No previous experience in composition is necessary, but a willingness to explore and experiment is essential in order to realize the goals of this course.

## **APPLIED MUSIC HONORS**

Full Year: 3 credits

*Prerequisite:* Completion of Applied Music and invitation from the Director of Music.

[Service Learning component.]

This course is offered to qualified Sixth Form music students who wish to continue in the Music Program at a highly rigorous level and who have satisfied the requirements of *Applied Music*. It is designed for those music students who have the capacity and inclination to work independently and creatively. In addition to following the *Applied Music* curriculum, a student in this course is expected to do significant written research according to the instrument of study in the fall, participate in the School’s Service Learning program with an applicable reflection paper in the Winter Term, present a 30-minute solo recital in the Spring Term, and perform in Chapel during the school year. Students enrolled in this Honors course will be expected to meet on a regular basis to discuss the objectives of the course.

## ARTS: THEATRE

The Theatre Program at St. Paul's School is broad and challenging; it provides multiple entry points allowing for diversity in backgrounds, interests, and levels of experience. A four-year sequential acting track will provide the serious acting student true preparation for college. While the study of theatre is often centered on acting as the principal means of expression and exploration, the interdisciplinary nature of the subject is evident throughout the curriculum, with academic rigor and creativity central to the values of the program. Opportunities for learning include coursework in musical theatre, film/tv acting, Shakespearean acting, directing and playwriting. The study of contrasting dramatic works from Arthur Miller to Caryl Churchill and Shakespeare to Neil Simon is used to develop performance abilities, as the practical exploration of text through performance builds a deep understanding of text, theme, and the playwright's craft.

## 100-LEVEL THEATRE COURSES

### FOUNDATIONS IN ACTING

Fall Term: 1 credit

This course serves as an introduction to all subsequent acting classes. It is designed for beginning level students who want to explore theatre as their arts commitment and is a platform from which students can follow a multi-year performance path. The course focus is on basic acting techniques of ensemble playing, working off a partner, improvising and playing truthfully under imaginary circumstances of the play. Students will learn by doing that there are no rights or wrongs, only stronger choices - choices that are arrived at through play, impulse, analysis, and commitment.

### IMPROVISATION

Winter Term: 1 credit

Designed for beginning level students who are interested in improvisational theatre, the primary objective of the course is to utilize improv as a means to provide students with the opportunity to improve self-confidence, spontaneity, creativity, and collaborative skills. Students will participate in daily exercises, theatre games, and collaborative assignments while exploring various forms of short and long form improv.

### CONTEMPORARY SCENE STUDY

Spring Term: 1 credit

This course is designed for those who are new to acting or have some related experience. Students build acting techniques and tools that will be applied to their scene work while exploring how to apply their backstory to characters by working on contemporary scenes. Emphasis is placed on learning how to make the best physical, emotional, and vocal choices. Students will work on playing truthfully, developing imaginary circumstances, and heightening their character's actions. Students will learn how to score a role and create strong given circumstances. At the end of the term, an evening of scenes will be presented for an invited audience.

## 200-LEVEL THEATRE COURSES

### **METHOD ACTING: LIVING TRUTHFULLY ON STAGE**

Fall Term: 1 credit

*Prerequisite: Two 100-level acting courses or permission of the Director of Theatre.*

This course will introduce students to training and rehearsal techniques that seek to encourage sincere and emotionally expressive performances formulated by a number of different theatre practitioners. Developed by the Russian actor/director, these techniques are built on Stanislavski's system which is often referred to as Method Acting. This class begins by introducing elements of realistic acting using off-text improvisation, playing objective, and other Stanislavski influenced exercises. The exercises of three Stanislavski acting teachers Lee Strasberg, Sanford Meisner, and Uta Hagen will be explored to develop skills in moment-to-moment acting and inner character life.

### **ACTING SHAKESPEARE**

Winter Term: 1 credit

*Prerequisite: One acting course or permission of the Director of Theatre.*

This course challenges students to learn about Shakespeare through Shakespeare, using active approaches to the study of classical works to help actors discover the possibilities within texts. With a strong focus on classical verse, students will develop skills in performing verse using soliloquies, scenes, and sonnets. Beginning with the study of verse at its purest, the class will work on textual deconstruction and practical delivery of Shakespeare's sonnets to learn the rules of verse and build vocal and breathing techniques needed for Shakespearean acting.

### **MUSICAL THEATRE PERFORMANCE**

Spring Term: 1 credit

*Prerequisite: Musical audition or permission of the Director of Theatre.*

This course explores the craft of a musical theater performer by focusing on acting and singing in character. Students will learn and rehearse 16-bar audition pieces, scene into song, solos, and duets from Broadway musical theater repertory. Emphasis is on developing honesty, ease, and expressiveness in musical theater performance. A professional musical theater guest-artist will lead a workshop. The course will culminate with an evening showcase performance.

## 300-LEVEL THEATRE COURSES

### ADVANCED ACTING TECHNIQUE 1

Fall Term: 1 credit

*Prerequisite:* Method Acting: Living Truthfully on Stage or *permission of the Director of Theatre.*

This course builds upon work started in Method Acting. Active and experiential pedagogies will be used to gain deeper practical understanding of the Stanislavski technique - the inner connections between self, the imaginary world of the character, and the immediate reality. The process evolves from sensory awareness and structured improvisation to script analysis and advanced character creation. Acting students will work directly with directing students in this highly collaborative course which will culminate in a scene showcase.

### ACTING FOR THE CAMERA

Winter Term: 1 credit

*Prerequisite:* Two acting courses or *permission of the Director of Theatre.*

This course introduces students to the basics of acting in TV and film productions for single-camera techniques. Emphasis is placed on experiential learning through studio lab coursework and projects, which are designed to give the student actor foundational skills and techniques employed in acting for the camera.

### FUNDAMENTALS OF DIRECTING & PLAYWRITING

Spring Term: 1 credit

*Prerequisite:* Two acting courses or *permission of the Director of Theatre.*

The first half of the term will focus on directing skills including how to analyze a play, how to audition, and how to employ the basic tools of directing: composition, picturization, and blocking. This second half of the term explores key playwriting skills such as storytelling, structure, dialogue, characterization, and the role of objectives and obstacles in building a story arc. Students will develop short plays to be showcased as a rehearsed reading at the end of the term.

### ADVANCED ACTING SHAKESPEARE

Winter Term: 1 Credit

*Prerequisite:* Acting Shakespeare.

This course develops on the grounding found in *Acting Shakespeare*. Active and experiential pedagogies will be used to explore and gain an understanding of Shakespeare's works. This course will challenge students to build a strong platform of understanding of performance methods in verse. The course culminates with specific focus placed on advanced duologues from the Shakespearean cannon.

### ADVANCED MUSICAL THEATRE PERFORMANCE

Spring Term: 1 credit

*Prerequisite:* Musical Theatre Performance.

In this course, active and experiential activities will be used to explore and gain an understanding of musical theater performance skills. Advanced students will be challenged to build a stronger and more reliable skill set to perform a wider variety of musical theater repertoire.

## 400-LEVEL THEATRE COURSES

### ADVANCED ACTING TECHNIQUE 2

Fall Term: 1 credit

*Prerequisite:* Advanced Acting Technique 1.

In this course, that builds on Advanced Acting Technique 1, active and experiential pedagogies will be used to explore more advanced acting techniques. Students will be challenged at a high skill set level.

### ADVANCED ACTING FOR THE CAMERA

Winter Term: 1 credit

*Prerequisite:* Acting for the Camera.

This course develops on the grounding found in *Acting for the Camera*. Active and experiential pedagogies will be used to explore and gain an advanced practical understanding of film and tv acting.

### ADVANCED DIRECTING

Fall Term: 1 credit

*Prerequisite:* Two acting courses and Fundamentals of Directing & Playwriting.

[Available only to Sixth Formers.]

For the advanced level theatre student, Advanced Directing is the culmination of work over their theatre career at St. Paul's, building on skills developed in prior theatre classes. Working with the advanced actors co-enrolled, student directors will begin exploration of the skills needed to lead a group of actors through a set of auditions. They will also learn how to approach the process of casting a play. The course follows the process of a production from casting through rehearsal and performance. The course will prepare students to direct a short, one-act play in the Spring Term.



## HUMANITIES

The interdisciplinary Humanities curriculum helps students develop the passion for inquiry essential to a healthy and examined life. Students are challenged to become engaged citizens and responsible leaders in an increasingly complex and globalized world. They creatively interact with and draw connections between diverse “texts.” Faculty collaboration and ongoing innovation are hallmarks of the Humanities program. The interdisciplinary study is based on a developmentally appropriate model that fosters an understanding of self, community, the natural world, and the divine, while students develop critical thinking, writing, reading, and research skills.

### HUMANITIES WRITING PROGRAM

The Humanities Department strives to enable students to become confident, proficient, assured writers in the fields they pursue in college and in their lives beyond. Students are expected to write frequently with clarity, efficiency, integrity, and originality across a wide range of genres. Accordingly, writing assignments are diverse, engaging a variety of media. Because good writers are good readers, students read and explore a variety of voices and texts, thereby developing their own voices and learning that writing is about discovery and has multiple purposes in the world at large. Students learn to process and reflect upon their own thinking and writing, as teachers help students create a set of developmentally appropriate skills that individualize the writing process. Through their writing, students develop necessary habits such as problem-solving, creative thinking, and curiosity. Learning and practicing these habits encourages students to think critically and write articulately about themselves and their world.

### HUMANITIES CORE COURSES

#### HUMANITIES III

Full year: 6 credits (2 credits per term)

Humanities III introduces students to what will be a four-year experience that expects collaboration, student-centered learning, and richly interactive discussions. A key aspect of this program is its focus on a very wide range of “texts.” A text, in our use of the term, might be a novel, a movie, a poem, a map, an African mask, a vase from Ancient Greece, a historical ruler, a painting, a propaganda poster and so on. We teach students to “read” such texts and to become adept at making significant connections between them. We seek to inspire in students an appreciation for the way in which terms such as man, woman, nature, God, and city differ in societies, and are not simple words at all. We also use the idea of “self as text” in order to encourage students’ personal understanding of their own complex cultures and an appreciative curiosity about the cultures of each other. We focus on the individual, exploring the archetype of the “hero’s journey.” We look at the societies that human beings create, asking – what happens when we live together? We explore questions of power, leadership, and the place of the individual in the society. We examine how different societies and cultures have interacted and come into conflict (or, less frequently, into cooperation) across history, and we pay attention to the experience of individuals in times of change and turmoil – what happens when humans are caught within a society in conflict? Throughout their studies, students continuously develop their critical and creative thinking skills through close reading, writing, discussion, and presentations. Students work in a variety of other creative media throughout the year, including creating plays, movies, documentaries, short stories, and more.

## HUMANITIES IV

Full year: 6 credits (2 credits per term)

In Humanities IV, students explore the complex relationship between individuals and their communities through a varied and integrated disciplinary approach. Building on the conception of the self considered in *Humanities III* and anticipating the examination of the forces and beliefs shaping our modern world studied in *Humanities V*, *Humanities IV* investigates why individuals choose to come together in community, how they cope with tension and change, and how communities develop and evolve. Considering specific periods in American history, students explore primary and secondary texts, such as historical documents, artwork, and literature. Discussion and activity-driven classes encourage students to develop a curiosity about the United States, develop their own perspectives, and value others' viewpoints. Students practice writing as a critical means of self-expression with emphasis on analytical and creative writing. Varied assessments foster skill building – including critical reading, research, visual image analysis, and public speaking. A major research project examining some aspect of American history or culture is conducted in the Spring Term.

## HUMANITIES V

Full year: 6 credits (2 credits per term)

In Humanities V, students engage in a rich interdisciplinary study of the human experience in the modern world. Extending the studies of self and community explored in *Humanities III* and *IV*, *Humanities V* examines the forces and ideologies that have shaped the modern world, the conflicts that arise between differing ideologies, and the challenges and responsibilities of living in the 21st century. Students explore connections across cultures, timelines, borders, and “canons” in a quest to answer the question “how then shall we live?” Through a close examination of diverse texts, students imaginatively and rigorously recreate the context both informing and informed by these works. Students refine the skill of close reading and develop critical vocabularies for various disciplines. Beyond the expository essay, students engage in a variety of other assessments to develop greater appreciation for and control of the nuances of language and self-expression. Focused on creating a culture of collaborative learning, the teacher models and facilitates the development of critical listening and effective speaking skills. The course culminates in a year-end capstone project of the student's choice.

## HUMANITIES ELECTIVES

Elective courses are open to Fourth, Fifth, and Sixth Form students with these prerequisites:

- 300-level electives offer course content, context, and homework based on the School's guidelines for Fourth and Fifth Formers. Fourth and Fifth Form students must have earned an Honors grade in Humanities III and/or Humanities IV, and new Fourth or Fifth Form students must have the approval of the Humanities Department Head and the Dean of Studies to enroll in a 300-level elective.
- 400-level electives offer course content, context, and homework aimed at Sixth Formers, though qualified Fifth Formers and exceptional Fourth Formers may apply. Fourth Form students must have earned a High Honors grade in Humanities III, Fifth Form students must have earned an Honors grade in Humanities IV, and new Fourth and Fifth Form students must have the approval of the Humanities Department Head and the Dean of Studies to enroll in a 400-level elective.
- Spring Term 300-level electives are not available to Sixth Form students.
- Priority for enrollment in 300-level electives will be given to qualified Fourth and Fifth Form students. Priority for enrollment in 400-level electives will be given to Sixth Form students.
- The Humanities electives are 400-level courses unless otherwise noted.

## THE AFRICAN DIASPORA

Spring Term: 1 credit

This course will explore the African diaspora in the Americas, Eurasia, and Africa. It will be chronological and thematic in its organization, and treat the experience of people from the African diaspora as exemplary of the human experience in general. The course will range from the global to the local, tracing patterns, parallels, connections, and transformations in the lives of people of African descent. Through reading a variety of primary and secondary source texts; viewing and listening to speeches, broadcasts, and personal accounts; and viewing online or live artistic and cultural works and performances students will gain knowledge and insight into the following: how members of the African diaspora have understood and defined their identity; how members of the African diaspora have resisted imperialism; and how members of the African diaspora have maintained and created cultural practices. We also aim to ask and understand the following questions: What experiences have members of the African diaspora shared; what experiences have been different; what are the lived experiences of members of the African diaspora today, and how are they manifested through gender roles, political and economic status, religious beliefs, educational backgrounds, and cultural norms?

## AMERICAN FILM AND CULTURE, 1950s AND 60s

Fall Term: 1 credit

This course focuses on the historical and cultural forces of two consecutive decades in the United States: the 1950s and 1960s. With a thematic approach, the class explores issues of the American family, gender roles, race, and other defining cultural values that have shaped modern America. To supplement the historical readings, classic American films are used as cultural centerpieces to enrich discussions and essays. Some of the films used in past classes include *Rebel Without a Cause*, *High Noon*, *Cool Hand Luke*, *The Graduate*, and *Dr. Strangelove*.

## AMERICAN FOREIGN POLICY

Spring Term: 1 credit

This course asks students to examine the paradigm that governs American foreign policy and the key moments in history when the paradigm has shifted. In our study of foreign policy decisions, this course examines America's role as an imperial power, the role of human rights in America's foreign policy decisions, the relationship between the United States and the United Nations, and the concept of America as the world's global police. Students are expected to pay particular attention to current events. There are several research projects as a major component of this course.

## AMERICAN GOVERNMENT

Winter or Spring Term: 1 credit

The objective of this course is to introduce you to the institutions, processes, and actors that comprise the American political system at the national level, as well as to engage you in empirical and critical thinking regarding the nature and quality of American democracy. The course begins with an examination of the ways we can systematically examine American politics, and then turns to the structure of American government with an emphasis on the divisions of power between levels of government and branches of government. We'll investigate the legislative and executive branches of government, looking specifically at the workings of the Congress, presidency, and bureaucracy, and how these institutions engage in policy making and policy execution. The role of American elections and the combination of forces that lead to policy change also will be examined. We will end the course by considering the American judicial system and its role in our system of government. Current events will be incorporated regularly and used as lenses into the issues we are studying.

## **AMERICAN RELIGIOUS HISTORY**

Fall Term: 1 credit

[NCAA English core course; satisfies the diploma requirement in religious studies.]

The religious landscape of America has been lively, contested, and diverse since the founding of the nation. While Christianity, in many different manifestations, has been the dominant force in the history of America, other religions – including Native religions, other major traditions such as Judaism, and religio-philosophical traditions like Transcendentalism – have been a part of American history since the days of the earliest settlers. This course will examine the role of religion and religions in the history of the United States, from the founding of Virginia (1607) through the antebellum period (1865). This course builds on material from Humanities IV and will deepen students' understanding of the role of religion(s) in shaping American politics, self-understanding, and pluralism. The course will develop students' religious literacy, especially in their ability to discern the fundamental intersections of religious, social, political, and cultural life; and their ability to identify how religions are dynamic and internally diverse. Though primarily historical in nature, given that nature of the primary source material that students will read, the course will also require students to practice to literary and philosophical skills that they have been honing in the Humanities core courses.

## **ASIAN-AMERICAN LITERATURE**

Spring Term: 1 credit

[NCAA English Core Course]

This course examines historical and cultural contexts of Asian-American experiences through literature. How do Asian-American writers generate texts and media within international culture? How does American literature represent intersectional identities? How do American writers and thinkers from various Asian cultures situate their cultural histories within the American narrative? How are Asian-American voices part of contemporary American culture? Students in the course will study literature from diverse authors and examine both the influences of that literature and how it influences contemporary society.

## **BASEBALL: "AMERICA'S PASTIME"**

Spring Term: 1 credit

This course will look closely at how the game of baseball has mirrored American social, political, and economic currents. The course will follow a chronological timeline, from the rise of the major leagues in the 1870s through the modern era, paying particular attention to the game's impact on individuals and families; racial discrimination and integration; labor relations; urbanization; roles of women; treatment of gay athletes; and implications of performance-enhancing drugs.

## **BOARDING SCHOOL LITERATURE**

Spring Term: 1 credit, 300-level course

[NCAA: English core course.]

Boarding schools are consistently chosen as the setting for novels, short stories, and poems. Something about this concentration of teenagers makes for an appealing backdrop to examine the human condition. In this course, students read literature about boarding schools – such as *A Separate Peace* by John Knowles, *Prep* by Curtis Sittenfeld, and *Old School* by Tobias Wolff – and try to articulate just what it is about the adolescent experience at boarding

school that makes this literature so enthralling. Additionally, students use their own experiences in conjunction with the texts to both broadly explore the utility of boarding schools in a constantly evolving societal landscape and to more narrowly examine St. Paul's School, its community, and its culture.

### **BRAHMA TO BUDDHA**

Fall or Winter Term: 1 credit

[Satisfies the diploma requirement in religious studies.]

This course introduces students to two of the world's great religions: Hinduism and Buddhism. Students will engage in an in-depth study of the mythology, philosophy, imagery, and devotional practices of the two belief systems. Art, music, dance, myth, yoga, and meditation will all figure prominently in our course of study, as will field trips to Hindu and Buddhist temples.

### **CIVIL RIGHTS AND CIVIL LIBERTIES**

Winter Term: 1 credit

[NCAA: English core course.]

This course investigates the rights and liberties provided by the US Constitution – in other words, the limitations the American people have placed on their government – both past and present. Topics will include some of the following: affirmative action, racial equality, gender equality, privacy, reproductive autonomy, medical care decisions, voting, same-sex marriage, free speech, religious freedom, search and seizure, and the rights of the accused. Readings will include both abridged decisions of the US Supreme Court as well as commentary on those decisions.

### **CONTEMPORARY AMERICAN FICTION**

Spring Term: 1 credit

[NCAA: English core course.]

This course surveys the trends and writers of the last forty years in American fiction, considering, among other things, the ways in which contemporary fiction has emerged out of the traditions studied in *Humanities IV* and *Humanities V*. The course focuses on multiple genres, aspects of form in contemporary prose fiction, and recurring themes involving individual identity in the conformist culture of contemporary America. Students will leave the course with a sense of some of the many directions of contemporary American fiction as well as a desire to read more works by writers who have spurred their interest through their brief encounter with them. Authors may include Joseph Heller, Jack Kerouac, Toni Morrison, Julie Otsuka, Kurt Vonnegut, and Alice Walker.

### **CONTEMPORARY BLACK LITERATURE**

Fall Term: 1 credit

[NCAA: English core course.]

This course will evaluate the representations of the Black identity through various pieces of literature as they arise across various cultures, countries, and ideologies that make up the Black community. Students will examine diverse narratives that attempt to peek into the diverse and intersectional identities of Black folk as articulated in novels, short stories, memoirs, and essays. Readings may include *Americanah* by Chimamanda Ngozi Adichie, *Drinking Coffee Elsewhere* by ZZ Packer, *How to Be Black* by Baratunde Thurston, *Between the World and Me* by Ta-Nehisi Coates, and other various readings.

## CONTEMPORARY ETHICS

Fall Term: 1 credit

[NCAA English core course.]

This course is a discussion-based seminar focusing on questions concerning academic frameworks for contemporary ethics. The term begins with an overview of the modern framework for ethics (e.g. consequentialism, deontological ethics, virtue ethics) before examining the nuances of contemporary writers through the study of thought experiments. Students will discuss the practical application of ethical philosophies. Writing exercises will focus on demonstrating knowledge of ethical principles according to established philosophers and applying those principles to real-world scenarios.

## CONTEMPORARY WORLD LITERATURE

Winter Term: 1 credit

[NCAA: English core course.]

This course examines a diverse selection of recent fiction from authors around the world, exploring new trends in multiple genres. Selected works will offer students the chance to explore differing perspectives on universal themes: love and loss, faith and hope, identity and alienation, and more. Students will hone their analytical writing skills, as well as use the readings as the inspiration and models for their own creative writing. Selected authors may include Margaret Atwood, Jhumpa Lahiri, Mark Haddon, Yann Martel, Orhan Pamuk, J.M. Coetzee, Jose Saramago, Julian Barnes, Gabriel Garcia Marquez, Leila Ahmed, and more.

## CREATIVE NONFICTION

Winter Term: 1 credit

[NCAA English core course.]

This workshop course familiarizes students with writing the personal narrative. The course covers pieces by several writers, famous and relatively obscure, that evidence many of the myriad techniques available to students as writers who aspire to examine themselves and their stories engagingly. Examination of the required pieces focuses on the features of each essay that best engage readers and convey authentic stories and messages. Our writing in personal narrative emphasizes vulnerability and revision. You, the writer, are the source of your best material.

## CREATIVE WRITING

Fall, Winter, or Spring Term: 1 credit

[NCAA: English core course.]

This course is designed to help young writers experiment in order to find an original voice. To develop their stamina, students work over the term towards a final portfolio of pieces in several media, which they can revise right up to the end. Its focus enables students to find their own writing voice, having an opportunity to try out poetry, fiction, personal writing, creative non-fiction, and script writing. In addition, for Sixth Formers the course yields interesting material that might be useful for the process of developing college essays, but it will not specifically prepare students for that task. Students are taught how to read texts, not in terms of literary analysis but in terms of their usefulness as writers, regularly work-shopping their drafts with the rest of the group and studying new techniques and processes through a variety of assignments. The class also has the chance to work with visiting writers who come to St. Paul's School as Schlesinger writers-in-residence or Conroy visitors.

## DYSTOPIAN LITERATURE

Winter or Spring Term: 1 credit

[NCAA: English core course.]

Could a utopian society ever exist, and why does a search for the perfect world typically backfire? How do authors use dystopian literature as a form of social commentary on their own societies, and how effective is this form of criticism? How are decades-old social commentaries relevant to our society today? In this course, we will strive to answer these questions as we study the works of Orwell and Atwood, among others. In addition, we will look at the way this genre has evolved with the emergence of several contemporary YA dystopian literature series. Besides novels, short stories and films/TV series may also be used.

## ESSAY WRITING

Fall Term: 1 credit, 300-level course

[NCAA: English core course.]

This course is designed to help young writers refine their prose by experimenting with non-fiction essay writing. Students work over the course of the term reading various models of essay writing by professional writers and exploring their own voices to create clear, concise, engaging prose. For Sixth Formers the course may generate good material for college essays, although this is not the goal of the course. Some of the various prose models students examine and write themselves include sharing a narrative, illustrating an idea, explaining a process, comparing and contrasting, using definition, arguing persuasively. Throughout the term, students learn ways to generate ideas, keep an active journal, help one another in regular in-class writing workshops, and discover the value of the revision process.

## FEMINIST LITERATURE AND MEDIA

Spring Term: 1 credit

[NCAA: English core course.]

What and who is a feminist? Who benefits from the historical and contemporary Feminist Revolution? What is my own Feminist Philosophy? This course looks at the rise of feminist movements throughout history and across continents, and the evolution of the movement to the contemporary landscape, analyze accompanying feminist literature both historical and contemporary and culminate in an action-based project at the end of the term. By the end of the term, students will have crafted their own Philosophy of Feminism that will inspire their action-based term projects. In addition to reading the seminal works Simone de Beauvoir's *The Second Sex* and Bell Hooks' *Feminism Is for Everybody*, students also venture into contemporary feminist theory and literature. Students examine the works of Chimamanda Ngozi Adichie with *Dear Ijeawele, Or a Feminist Manifesto in Fifteen Suggestions* and *We Should All Be Feminists*, Roxane Gay's essay collection *Bad Feminist*, and other relevant works.

## FOUNDATIONS IN PHILOSOPHY

Fall Term: 1 credit

[NCAA English Core Course]

This course will be a broad and approachable introduction to the four major areas of philosophy: logic, epistemology, metaphysics, and ethics. Questions to be addressed include: What is philosophy and how is it done? What is knowledge and how do we know what we know? What is reality? Are some things more real than others? How can we justify our value judgements? What is an argument, and how can we tell good arguments from bad? Attention will be given to the ways in which the study of philosophy relates to, and informs, other disciplines like science, math, history, and art. Reading will be taken from ancient and modern sources, and from Western and non-Western authors. The course will provide useful background for students wishing to take other electives in philosophy (at SPS or at college), but the primary focus will be to introduce the four main areas of the field. Assignments will include class presentations, quizzes, and formal writing.

## FUNDAMENTALS OF ECONOMIC THEORY AND PRACTICE

Fall, Winter, or Spring Term: 1 credit

The three-fold design of this non-mathematical introduction to economics provides students an overview of the discipline that can serve as a background for courses in related subjects, a foundation for further study in economics, and a knowledge base for becoming an informed worker, consumer, and citizen. While briefly examining the history of economics and some of its seminal thinkers, the course concentrates on understanding basic economic theory (macro and micro), developing a practical knowledge of the workings of principal economic institutions (e.g., the Federal Reserve system, the stock market, the banking sector, etc.), and appreciating the subtleties of national economic policy, especially in light of current economic challenges.

## GOD IS GREEN: LITERATURE OF RELIGION AND ECOLOGY

Winter Term: 1 credit

[NCAA English core course; satisfies the diploma requirement in religious studies.]

This seminar class will include exploration of both contemporary and ancient texts that address the topic religion and ecology, such as writing by Norman Wirzba and Thomas Berry, as well as sacred scriptures. Students will consider what it means to be a creature, the role of humans in the environment through religious traditions and historical realities, and the bounds of human relationships. Other topics may include major trends in environmental theology, community organizing, and rights beyond humans. Experiential learning will also be a key component of the course; it will include outdoor excursions on campus and beyond, including to communities of worship engaged in a lived eco-theology such as Church of the Woods.

## HISTORY OF AMERICAN JOURNALISM

Fall Term: 1 credit, 300-level course

From the first instance of censorship in 1690 to yesterday's news, journalism has been the backbone of American politics and culture. This course explores the beginnings of journalism, the first amendment, and the role of freedom of the press in shaping American democracy. Additionally, the course examines the shifting forms of journalism in recent years and the role of technology and social media including citizen journalism and fake news. Students will write both analyses of current news coverage and their own narrative journalism. Possible texts include Sacco's *Journalism*, Daly's *America: A Narrative History of a Nation's Journalism*, Gladstone's *The Influencing Machine*, and more.

## LITERATURE OF THE AMERICAN FAMILY

Fall Term: 1 credit

[NCAA: English core course.]

This course studies twentieth-century perspectives of the American family through contemporary fiction and nonfiction. Issues examined include how families define themselves, how they are shaped by external forces, and how individuals respond to roles they are assigned within the family. In the past few years works have included Norman MacLean, *A River Runs Through It*; Julia Alvarez, *How the Garcia Girls Lost their Accents*; Michael Dorris, *A Yellow Raft in Blue Water*; and John Cheever, *The Stories of John Cheever*.

## POLITICAL PHILOSOPHY

Winter or Spring Term: 1 credit

[NCAA: English core course.]

*Political Philosophy* is the study of people in societies, focusing on the claims they have on each other in the form of rights and obligations, and their demands for justice, equality, and liberty. It is concerned with an analysis of the state and related institutions. This course studies questions about sovereignty (the power and authority assumed by the ruler) and political obligation (the duty and submission assumed by the ruled). Students examine questions such as: Under which conditions can political obligation arise and what is its extent? Are freedom and equality compatible? What is justice: An idea, an ideal or simply a routine legal process? What connection is there between justice and law? What is a law? How are laws justified and are there aspects of human life that laws should not attempt to regulate? Should we always obey the law or are there conditions under which breaking the law is justifiable?

## PRACTICAL POLITICS

Fall Term: 1 credit

This course offers students the opportunity to learn more about how politics “really” works, considering the electoral process in both a theoretical and a practical manner. Students will develop an increased understanding of why candidates run for office, why people support these candidates, and how the process shapes the overall effectiveness of the American political system. The course includes a service learning component in which students engage in the course material by going into the Concord community and learning through working for a campaign, a get-out-the-vote organization or any of various other groups that support the election process. This education in the field, along with classroom study of applicable texts, films, and current events, will enrich the discussions that stand at the heart of the course and will challenge students to think carefully about the democratic process and how politics functions in the United States.

## RELIGION AND LITERATURE

Fall, Winter, or Spring Term: 1 credit

[NCAA: English core course; satisfies the diploma requirement in religious studies.]

*Religion and Literature* builds on the fundamental human questions introduced in the Humanities Core Courses through a more focused exploration of how those questions have been addressed in religious literature. “Religious literature” refers to much more than sacred texts (such as the *Bible* or the *Qur’an*) and includes novels, memoirs, poetry, autobiography, and more. This course examines the religious dimension of literary works, as well as the influence of literature on individuals’ and communities’ understanding of religion. Students will gain both greater facility with core literary skills (especially the close reading of texts, an awareness of the historical context of given literary works, and using a variety of interpretive approaches), as well as improve their religious literacy (by examining both the category of religion and delving more deeply into particular religious traditions).

## RELIGION, RACE, AND GENDER

Winter Term: 1 credit

[NCAA: English core course. Satisfies the diploma requirement in religious studies.]

This course examines the interrelationships between religion, race, and gender in American history and culture. Its content connects to components of the SPS Integrated Curriculum, from the LINC courses and from *Fifth and Sixth Form Seminar*. The course contributes to two specific forms of students’ religious literacy: the way that religions shape and are shaped by their social/historical contexts; and the ways in which religions are internally diverse. Students will think and write critically about the ways that sacred texts, the body, and material culture together shape our changing understandings of gender and race; examine the ways that understandings of gender and race influence who has authority within particular religious contexts; engage in literary analysis of sacred texts; conduct a research project on a topic their own choosing.

## SCIENCE, PHILOSOPHY, AND RELIGION

Winter or Spring Term: 1 credit

[NCAA English core course; satisfies the diploma requirement in religious studies.]

Science and religion are arguably the two most influential human forces in the world today. In fact, most people ground their claims about truth and reality, and derive their reasons for action, in one or the other or some combination of both. Interestingly, many people take it for granted that science and religion are locked in a state of conflict, and that sooner or later one will finish the other off. This course will investigate the historical, logical, and philosophical relationship between science and religion. Questions to be addressed include: What makes science scientific, and what makes religion religious? Are science and religion really in conflict, and if so, why? Are they mutually supporting? Can one be both an adherent to modern science and a person of an ancient faith? To what extent is belief in God rational and justifiable, and to what extent does it need to be? What should we think when various religious traditions conflict? What should we think in the face of religious paradoxes such as the Problem of Evil and the Problem of Free Will? We will also give particular attention to some infamous interactions between science and religion (e.g., the Galileo affair, Darwin’s publishing of *Origin of Species*, the Scopes Monkey trial), trying to discern in each instance what the conflict was fundamentally about. Texts might include: *A Very Short Introduction to Science and Religion* (Dixon); *Dialogue on Good, Evil, and the Existence of God* (Perry); *Contact* (Sagan); and selections from Aquinas, Maimonides, Ibn Rushd, Stephen J. Gould, Richard Dawkins, Alister McGrath, Richard Swinburne, William James, and many others.

## SHAKESPEARE'S TRAGIC HEROES

Fall Term: 1 credit

[NCAA: English core course.]

William Shakespeare is widely acknowledged as a master of the English language and an astute observer of human nature and behavior. This course focuses on the tragic heroes of these great Shakespearean tragedies: *Hamlet*, *King Lear*, *Macbeth*, *Coriolanus*, and *Julius Caesar*. Using these plays as a lens, students will examine several important questions about the human condition: What is the nature of good and evil? Why do good people do evil things? Can good triumph over evil? What is the connection between conscience and action? What is the balance between reason and passion? In addition to reading the plays, students will watch both live and filmed productions, and write extensively about the content and form of the great masterpieces.

## THE SHORT STORY

Spring Term: 1 credit, 300-level course

[NCAA: English core course.]

This elective focuses on the exploration of the medium of the short story. Students read a variety of short fiction, both individual stories and collections by various authors. In their examination of these texts, students consider character, plot, resolution, and theme as influenced by the form and constraints of the genre. Students respond to the stories by writing analytical essays, their own short stories, and book reviews of works they have read.

## SOCIAL JUSTICE: CLASSISM AND SEXISM

Winter Term: 1 credit

[NCAA: English core course.]

This course is designed to have students understand and think critically about social difference and social injustice in the world in general, and in their own lives in particular. Specifically, the course will examine classism and sexism in depth and explore how these issues affect our lives. By the end of the course, students ought to be able to act as agents of knowledge and change within and outside of their school communities.

## SOCIAL JUSTICE: RACE AND RELIGION

Winter Term: 1 credit

This course is designed to have students understand and think critically about social difference and social injustice in the world in general, and in their own lives in particular. Specifically, the course will examine race and religion in depth and explore how these issues affect our lives. By the end of the course, students ought to be able to act as agents of knowledge and change within and outside of their school communities.

## THE VIETNAM WAR

Winter Term: 1 credit

This course will provide students with the opportunity to examine in great detail one of the most important world events in the last sixty years, the conflict in Vietnam. Specific topics such as the life of the “grunt” and turmoil on the home front will be explored, as well as larger questions about the nature of war itself in the second half of the twentieth century. In an effort to answer questions about the war as it really was, versus that seen in popular literature and film, the class will consider a broad selection of media, as well as a variety of historical texts and essays. Documentaries and motion pictures to be studied include *Hearts and Minds*, *The Hanoi Hilton*, *The Green Berets*, *Apocalypse Now*, *Platoon*, *Full Metal Jacket*, *Born on the 4th of July*, *Casualties of War*, and others. Works read will include, but are not limited to, excerpts from Philip Caputo’s *A Rumor of War*, Truong Nhu Tang’s *A Vietcong Memoir*, Tim O’Brien’s *The Things They Carried*, Robert Mason’s *Chickenhawk*, Michael Herr’s *Dispatches*, Stanley Karnow’s *Vietnam: A History*, and a selection of essays from *Major Problems in the History of the Vietnam War*.

## WORLD WAR II

Fall or Winter Term: 1 credit

[NCAA: English core course.]

This course provides a historical overview of the Second World War so that students may effectively analyze literary works about specific aspects of the conflict. Beginning with an understanding of the Germans’ hatred of the Treaty of Versailles following their defeat in World War 1, students then take a look at the rise of Hitler in the 1930s as well as the growing isolationism in the U.S. prior to the Japanese attack on Pearl Harbor in December 1941. While this course does not review each World War II battle, significant military events (e.g., D-Day) will be studied alongside corollary elements of the war (e.g., Japanese internment; the Holocaust). Using film, oral histories and other primary sources, plus historical analysis written by leading historians, this course aims to spark students’ long-term interest in what Jackson J. Spielvogel asserts “was clearly Hitler’s war” (Spielvogel 849).

## LANGUAGES

The mission of the Languages Department is to develop in students the language skills that will enable them to gain a firsthand appreciation and understanding of other people's languages, literature, histories, and cultures. Students learn to respond creatively and critically to the challenges and opportunities for communication in the world today. Our ultimate goal is to help students cultivate a healthy vision of the future that includes not only themselves but past and present peoples from around the world.

As an objective framework for our mission statement, we have adopted the five goals as set forth by the American Council for the Teaching of Languages:

- Communication: Communicate in languages other than English.
- Cultures: Gain knowledge and understanding of other cultures.
- Connections: Connect with other disciplines and acquire information.
- Comparisons: Develop insight into the nature of language and culture.
- Communities: Participate in multilingual communities at home and around the world.

Six languages are offered – two classical and four modern – with Honors sections available. The Classical Honors Program attracts students who achieve a high level of competence in Latin and Greek.

The School Year Abroad program (SYA) offers students studying French, Spanish, and Chinese opportunities to improve their language skills dramatically in an immersion setting. Exchanges with the Seikei School in Japan; the École Alsacienne in Paris, France; and the Humboldt Gymnasium in Leipzig, Germany, offer similar benefits for one term of study abroad.

Enrollment in language courses is subject to permission of the department head.

## CHINESE COURSES

### CHINESE 1

Full Year: 3 credits

This is an immersion course for beginners. Students learn to express themselves and understand others by focusing on topics closely related to their daily life. The four tones and the pronunciation are introduced through the rhythmic verses in order to help students to develop a natural ear and tongue for the language. The pedagogy known as TPRS (Teaching Proficiency through Reading and Storytelling) serves as a backbone for both oral comprehension and reading skills. Students also write the characters daily as they build up the foundation by practicing the strokes, stroke orders, and radicals. The course evokes a high energy level with each and every in-class activity.

**CHINESE 2**

Full Year: 3 credits

*Prerequisite:* Chinese 1.

This course is a continuation of *Chinese 1*. Using increasingly complex vocabulary and sentence structures, students respond to a variety of functions: formulating questions, describing, and narrating. Students read and write short compositions on a weekly basis. Cultural aspects of the language are emphasized through projects. Students are expected to have a combination of typing and writing characters regularly, as a supplement to intensive handwritten character writing.

**CHINESE 2 HONORS**

Full Year: 3 credits

*Prerequisite:* Chinese 1.

The course is designed for students who have a solid mastery of the grammar and vocabulary covered in *Chinese 1*. Students continue to build essential vocabulary in order to read and write level appropriate passages, develop speaking skills, and become acquainted with aspects of Chinese culture and society. In addition, the study of syntax is quite intense in this class and students are expected to express themselves with grammatical precision. Homework, essays, and chapter tests are completed in pencil.

**CHINESE 3**

Full Year: 3 credits

*Prerequisite:* Chinese 2.

This course builds on *Chinese 2*. Students have regular opportunities for meaningful communication by using more complex structures, vocabulary and idiomatic expressions. The focus of the course is to combine and expand elements previously learned in order to enable students to express themselves more accurately through the story based approach. Students are expected to discuss readings and re-write the story as the written assessment. Cultural aspects of the language are also emphasized. Multimedia aids are used. Students are expected to type regularly, as a supplement to intensive handwritten character writing.

**CHINESE 3 HONORS**

Full Year: 3 credits

*Prerequisite:* Chinese 2 Honors.

This course is designed for students who have a thorough mastery of grammatical structures and vocabulary covered in the second year. Students learn to state their own opinions in longer speeches using more complex structures and vocabulary. Reading skills continue to be developed using a variety of stories. Students are expected to have oral and written assessments regularly according to the content of the stories.

**CHINESE 4**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Chinese 3.

This course pays special attention to developing students' oral and listening competence. Students read more extensively on various topics including short stories and other literary pieces. Idiomatic expressions are introduced through the reading of literary selections. Students are

expected to write regularly. Cultural aspects of the language are emphasized through focused term research projects. Multimedia aids are used on a regular basis. Students are expected to regularly type their essays in supplement to intensive handwritten character writing.

### **CHINESE 4 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Chinese 3 Honors.

This immersion course pays special attention to developing students' oral competence and listening skills through vocabulary, communication, listening exercises, readings and discussions around various themes. Students read more extensively on various topics including newspaper articles, short stories, and other literary pieces. Idiomatic expressions are introduced through literary selections. Students are encouraged to discuss current events and to develop their creativity through projects using posters, videos, oral presentations, etc. Multimedia aides are used.

### **CHINESE 5 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* three terms of Chinese 4 Honors.

This course, designed for more advanced students, further develops overall Chinese language proficiency and knowledge of Chinese culture through movies, discussions, and extensive reading of various texts, including materials from newspapers, magazines, and other authentic documents. Students master advanced-level language structures, expressive styles, and conventions of communication through topics reflecting multiple aspects of Chinese society and culture and the use of various authentic multimedia materials in different linguistic registers.

### **CHINESE 6 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* three terms of Chinese 5 Honors.

The course aims to further develop students' overall Chinese language proficiency and knowledge of Chinese culture. History and current events in China provide the context for in-depth discussion and writing assignments. Students are expected to read various authentic materials ranging from Confucian to expository writings in a modern and contemporary literary style.

### **CHINESE SEMINAR**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* three terms of Chinese 6 Honors.

This course is designed for advanced students who have completed Chinese 6 Honors. The focus is on reading, class discussion, and writing. The materials for this course are chosen mostly from modern literary writings, but classical literary pieces are introduced as well.

## FRENCH COURSES

### **FRENCH 1**

Full Year: 3 credits

This course offers students an introduction to the language and culture of contemporary French-speaking countries. Grammar, vocabulary, and syntax are studied using a film-based textbook with simple dialogues, oral and written drills, building conversational skills. Work in the Language Center reinforces the development of listening and speaking. The class is conducted mostly in French.

### **FRENCH REVIEW**

Full Year: 3 credits

This course offers an introduction to the language and culture of contemporary French-speaking countries to students who need a thorough review of the language. Grammar, vocabulary, and syntax are studied using a film-based textbook with simple dialogues, oral and written drills, building conversational skills. The class is conducted mostly in French from the beginning.

### **FRENCH 1 HONORS**

Full Year: 3 credits

This course is designed for students with a strong basic background in French. Emphasis is placed on refining the listening, speaking, and writing skills of the students. Proficiency is honed through work in the Language Center and the use of a variety of multimedia materials that accompany the text. Grammar is reviewed thoroughly. The class is conducted in French from the beginning.

### **FRENCH 2**

Full Year: 3 credits

*Prerequisite:* French 1, French Review.

This course is the continuation of *French 1* and *French Review*. The basic study of grammar is completed and reading selections and writing exercises of increasing complexity help students work on their language and conversational skills. The cultural component of this course gives students an understanding of the diversity of France and the Francophone world today.

### **FRENCH 2 HONORS**

Full Year: 3 credits

*Prerequisite:* French 1 Honors.

This course continues and consolidates the study of grammar. Readings of increasing difficulty are introduced as the basis for expanded oral and written work through task-oriented and creative writing techniques. Texts studied represent a broad spectrum of cultures and ideas across Francophone societies.

**FRENCH 3**

Full Year: 3 credits

*Prerequisite:* French 2, French 2 Honors.

In this course, emphasis is placed on refining the listening, speaking, and writing skills of students aided by a more complex study of grammatical structures. A variety of multimedia materials accompany a textbook rich in readings and articles that widens the students' knowledge about societal trends in the Francophone world. The short readings and one-act plays enrich the understanding of French, and also provide the basis of discussion, performances, and writing exercises in French.

**FRENCH 3 HONORS**

Full Year: 3 credits

*Prerequisite:* French 2 Honors.

[Service Learning component.]

Using texts and materials that address contemporary societal trends, this course focuses on learning more about and connecting with the Francophone world and its literature. Oral proficiency is emphasized, grammar is thoroughly reviewed, reading skills are honed and analytical essay writing techniques are introduced.

**FRENCH 4**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* French 3.

Cultural and historical Francophone themes are explored through literature, film, and music. Critical reading skills continue to be developed using a variety of texts which include novels, short stories, plays, and poetry. This course emphasizes analytical discussions, writing assignments and projects. Grammar continues to be reviewed with particular attention to its finer points.

**FRENCH 4 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* French 3 Honors.

Francophone cinema, literature and contemporary events serve as springboards for discussion as we delve into issues facing the 21st century French-speaking world. This course explores a wide array of traditions and styles of discourse. Oral and aural proficiency are refined in conjunction with rigorous grammar review. Writing and reading skills are broadened across all genres.

**FRENCH 5**

Fall, Winter, or Spring Term: 1 credit

[Full year recommended.]

*Prerequisite:* French 4.

This course is taught in the same manner as *French 4*. Students continue to strengthen their reading, writing, listening/understanding and speaking skills. Francophone culture and history provide the context for in-depth discussions and writing assignments on literary works, films and news media.

**FRENCH SEMINAR 1**

Fall, Winter, or Spring Term: 3-credit sequence

*Prerequisite:* French 4 Honors.

This course offers a survey of French literature. In fall and winter the students read French literary classics, beginning in the Middle Ages and focusing on one work per century. In spring they study novels from the contemporary Francophone world. The students also view French language films at home and draw connections with the readings. Class discussions focus primarily on close readings and assess the works within their historical and literary contexts. The writings and films additionally serve as springboards for thinking through social constructs and theoretical concepts such as race, gender, sexuality, and intersectionality. The students improve their writing skills through frequent short writing assignments and in class essays. Leading discussions and delivering presentations allows them to fine-tune their speaking abilities.

**FRENCH SEMINAR 2**

Fall, Winter, or Spring Term: 3-credit sequence

*Prerequisite:* French Seminar 1.

*French Seminar 1* and *2* constitute a two-year cycle. Because very few students take both seminars, the structure of the class is the same. Thus, the description of *French Seminar 1* applies equally to *French Seminar 2*. However, because some students do take both seminars, the selection of readings and other materials is different.

**GERMAN COURSES****GERMAN 1**

Full Year: 3 credits

This course offers students an introduction to the language and culture of contemporary German-speaking countries. Grammar, vocabulary, and syntax are studied through oral and written drills and through simple conversations. Work in the Language Center reinforces the development of listening and speaking skills. The class is conducted in German from the beginning.

**GERMAN 2**

Full Year: 3 credits

*Prerequisite:* German 1.

This course is a continuation of *German 1* and is taught in the same manner. The basic study of grammar is completed, and readings of increasing difficulty are introduced as the basis for expanded oral and written work. By the end of the course, students are able to use workable, basic German in normal situations they encounter and are able to enjoy works written in simple German.

**GERMAN 3**

Full Year: 3 credits

*Prerequisite:* German 2.

This is a multifaceted course, designed to introduce students to German culture through literature, history, contemporary politics, music and popular culture. Materials used include shorter literary works such as short stories, novellas, plays, and poetry, as well as film and a variety of news media. Proficiency and grammatical accuracy continue to be emphasized through written and oral exercises.

**GERMAN 3 HONORS**

Full Year: 3 credits

*Prerequisite:* German 2.

This is a multifaceted course, designed to introduce students to German culture through literature, history, contemporary politics, music and popular culture. Materials used include shorter literary works such as short stories, novellas, plays, and poetry, as well as film and a variety of news media. Proficiency and grammatical accuracy continue to be emphasized through written and oral exercises.

**GERMAN 4**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* German 3.

Issues and themes of cultural and historical relevance are explored through literature, film and current events. Critical reading skills continue to be developed using a variety of texts which include plays, lyric poetry, fiction, and news articles. The course emphasizes discussion, analytical papers, and projects. Grammar continues to be reviewed with particular attention to its finer points and the use of idioms.

**GERMAN 4 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* German 3 Honors.

Issues and themes of cultural and historical relevance are explored through literature, film and current events. Critical reading skills continue to be developed using a variety of texts including plays, lyric poetry, fiction, and news articles. The course emphasizes discussion, analytical papers, and projects. Grammar continues to be reviewed with particular attention to its finer points and the use of idioms.

**GERMAN 5 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* German 4 Honors.

This course is a continuation of *German 4 Honors* and is taught in the same manner. Students continue to strengthen their four language skills of reading, writing, listening/understanding and speaking. German culture and history provide the context for in-depth discussions and writing assignments on literary works, film and news media.

**GERMAN SEMINAR**

*Prerequisite:* German 5 Honors

This course is designed for advanced students who have completed *German 5 Honors*. Current events focusing on German-speaking countries, lyric poetry, longer literary works and German film provide the basis for discussions and writing assignments. Reading, writing, listening/understanding, and speaking skills continue to be refined based on the needs of the students.

## GREEK COURSES

### GREEK 1

Full Year: 3 credits

This course provides an introduction to Attic Greek forms, vocabulary, and grammar, employing readings of graduated difficulty. Students also learn Greek mythology, the historical origins of Greek civilization, the geography of Greece and the eastern Mediterranean, and aspects of daily life in ancient Greece.

### GREEK 2

Full Year: 3 credits

*Prerequisite:* Greek 1.

This course begins with a review of Greek grammar, then introduces the more complex verb forms and dependent clauses using the subjunctive and optative moods. Students learn the history of the classical period, including the Athenian Empire and the Persian and Peloponnesian Wars. Toward the end of the course, students encounter readings from prose authors such as Herodotus, Xenophon, Lysias, and Lucian.

### GREEK 3 HONORS

Full Year: 3 credits

*Prerequisite:* Greek 2.

In the Fall Term, this course concludes the introduction to Greek prose with extended readings from texts such as Plato's dialogues and Thucydides' History of the Peloponnesian War. In the Winter and Spring Terms, students are introduced to Greek poetry through selections from Homer's *Iliad* and *Odyssey*, the lyric poets, or Athenian tragedy and comedy.

### GREEK 4 HONORS

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Greek 3 Honors.

This is a reading course with review of grammar as appropriate. Along with translation, students further their skills in analytical writing. This course may include a variety of advanced readings from epics, drama, philosophy, history, or lyrics at the discretion of the instructor.

## LATIN COURSES

### LATIN 1

Full Year: 3 credits

This course provides an introduction to the Latin language and syntax. Graduated readings in Latin explore events in the life of a typical Roman household while also teaching vocabulary, forms, and grammatical constructions. Students also gain an overview of classical mythology, Roman history, daily life, and the geography of the ancient world.

### LATIN REVIEW

Full Year: 3 credits

This course is for students who have some background in Latin. Students obtain a solid foundation in vocabulary, forms, grammatical constructions, and reading comprehension. Students also gain an overview of classical mythology, Roman history, daily life, and the geography of the ancient world.

### LATIN 2

Full Year: 3 credits

*Prerequisite:* Latin 1 or Latin Review.

This course begins with a review of material from *Latin 1*. Students learn more advanced grammatical concepts such as purpose and result clauses, conditional sentences and other uses of the subjunctive, and gerunds and gerundives. Students continue to develop reading proficiency via textual narrative. Students also examine pertinent cultural and historical topics.

### LATIN 2 HONORS

Full Year: 3 credits

*Prerequisite:* Latin 1 or Latin Review.

This course offers an accelerated approach to the language. Emphasis is placed on advanced syntax, including uses of the subjunctive, uses of the cases of nouns, and techniques for translation and reading comprehension. Students study and pursue projects on a wide variety of cultural, historical, and linguistic topics. Toward the end of the course, students encounter readings from prose authors such as Caesar, Livy, and Nepos.

### LATIN 3

Full Year: 3 credits

*Prerequisite:* Latin 2.

This course begins with a brief review of grammar and syntax learned in the previous two years. Students continue to reinforce grammatical concepts and improve their Latin-to-English translation as they read graduated selections from adapted texts by prose authors such as Eutropius, Livy, Nepos, and Caesar. Emphasis is placed on improving sight translation and reading comprehension. The readings also introduce students to major figures, events, and cultural topics from the legends of early Rome and the history of the Roman Republic.

**LATIN 3 HONORS**

Full Year: 3 credits

*Prerequisite:* Latin 2 Honors.

This course offers a rapid review of the fundamentals of grammar combined with accelerated readings from a selection of Latin prose authors such as Caesar, Livy, and Cicero. Through these readings, students trace Rome's development from city-state to world empire and the concomitant evolution of the constitution from the Monarchy through the Republic to the Principate.

**LATIN 4**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Latin 3.

This is a reading-based course focused on selections from the poetry of Catullus, Virgil, and Ovid. Formal review of advanced grammatical concepts will be provided as necessary. The course provides students with an opportunity to analyze Roman texts as they improve their reading comprehension and sight translation skills. Various cultural and historical projects may include studies of Roman poetry, mythology and love in the Roman world, and the reception of the works read in later artists and authors.

**LATIN 4 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Latin 3 Honors.

This is a reading-based course focused on the historical development and aesthetic principles of Roman poetry. Selections from Catullus, Virgil, Horace, and Ovid provide the basis for class discussions. In addition to poetic scansion and literary devices, students will explore the social, cultural, and political context of these authors.

**LATIN 5**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Latin 4.

This course introduces students to the comic literature of ancient Rome through advanced readings chosen for comedy, satire, invective, and the novel and culminates in the production of a play in Latin for performance on Anniversary Weekend. Authors read may include Plautus, Terence, Cicero, Horace, Petronius, Seneca, and Apuleius. Students also consult models from Greek literature in English translation and modern plays and films inspired by Roman originals.

**LATIN 5 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Latin 4 Honors.

This course introduces students to the comic literature of ancient Rome through advanced readings chosen from comedy, satire, invective, and the novel and culminates in the production of a play in Latin for performance on Anniversary Weekend. Authors read may include Plautus, Terence, Cicero, Horace, Petronius, Seneca, and Apuleius. Students also consult models from Greek literature in English translation and modern plays and films inspired by Roman originals.

## SPANISH COURSES

### INTRODUCTION TO SPANISH

Full Year: 3 credits

This class is designed specifically for students interested in learning Spanish who have never studied or been exposed to a language other than English. This class moves at a slower pace than *Spanish 1*; aside from studying language and culture, this small group of students will spend additional time learning skills that are helpful in acquiring a new language. After *Introduction to Spanish*, students progress to either *Spanish Review* or *Spanish 2*.

### SPANISH 1

Full Year: 3 credits

This course offers an introduction to the language and culture of Spanish-speaking countries. Grammar, syntax, and vocabulary are studied through oral and written drills and through simple conversations. Work in the Language Center reinforces the development of listening and speaking skills. The class is conducted mostly in Spanish.

### SPANISH REVIEW

Full Year: 3 credits

*Prerequisite: Demonstrated ability on placement exam.*

This course offers an introduction to the language and culture of Spanish speaking countries. Grammar, syntax, and vocabulary are studied through oral and written drills and through simple conversations. Work in the Language Center reinforces the development of listening and speaking skills. The class is conducted mostly in Spanish.

### SPANISH 1 HONORS

Full Year: 3 credits

This course offers a thorough, rapid review of basic Spanish grammar followed by a continuation of intensive grammar and vocabulary studies. Exercises and drills, conducted both in class and in the Language Center, are an integral part of the course. A series of short videos reinforces listening skills and provides a context for dialogues in order to strengthen speaking skills. The course introduces students to the literature and culture of Spanish-speaking countries through a study of short literary selections and articles.

### SPANISH 2

Full Year: 3 credits

*Prerequisite: Spanish 1.*

This course is a continuation of *Spanish 1* or *Spanish Review*. A study of basic vocabulary and grammar is completed by the end of the year, and there is a greater emphasis on cultural readings and perspectives. Students further develop communication skills and are able to use basic Spanish in varied situations.

### SPANISH 2 HONORS

Full Year: 3 credits

*Prerequisite: Spanish 1 Honors.*

This intensive course offers a challenging and thorough review of all fundamental Spanish grammar. Advanced vocabulary is introduced, increasing students' capacity for both oral and written proficiency. The course includes adapted selections of Hispanic literature, frequent compositions, and required oral participation.

**SPANISH 3**

Full Year: 3 credits

*Prerequisite:* Spanish 2.

This course is designed to strengthen speaking, listening, reading and writing skills. During the year, students solidify the previously studied grammar and vocabulary and further develop communication skills. Students read and discuss short stories and poems that reflect cultural elements of Spanish-speaking countries.

**SPANISH 3 HONORS**

Full Year: 3 credits

*Prerequisite:* Spanish 2 Honors.

Students in this course are expected to develop a high level of proficiency in Spanish as we emphasize reading, writing, speaking and listening skills. Students read short stories, poems, essays, and articles of major Hispanic authors. Students participate in daily discussions of the literature, including the cultural, social, historical, and political contexts of these works. Compositions are regularly assigned. The course also includes an intensive and fast-paced review of Spanish grammar. Proficiency and grammatical accuracy continue to be emphasized through written and oral exercises.

**SPANISH 4**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Spanish 3.

In this sequence of classes, students explore themes of cultural and historical importance through literature, film, and current events. Students are exposed to a diversity of voices and continue to develop reading skills by reading a variety of texts, which include poetry, fiction, and news articles. In addition, students review and strengthen their reading, writing, listening, and conversational skills. Students are expected to participate actively in discussions of literature and culture.

**SPANISH 4 HONORS**

Fall, Winter, and Spring Terms: 3-credit sequence

[Full year recommended.]

*Prerequisite:* Spanish 3 Honors.

In this course, students expand their active knowledge of Spanish through the study of literature, film, and other media. In the fall we discuss a series of plays; the winter is devoted to short stories; and in the spring, we read poetry and essays. Each term also includes a film. Assessments include expository and creative writing in Spanish, frequent quizzes on class materials, and the performance of spoken exercises. No English is used in the classroom. While occasional grammar review is provided, students are expected to improve their Spanish by constant exposure to and use of the language. The class also includes occasional discussion of strategies for language learning.

**SPANISH 5**

Fall, Winter, and Spring Terms: 3-credit sequence

*Prerequisite: full year of Spanish 4.*

In this course, students continue to explore Latin American culture and history through current events, texts, and film. Students are expected to participate actively in discussions in order to continue to strengthen their communication skills. In addition, students further hone their writing skills through weekly compositions.

**SPANISH SEMINAR 1**

Fall, Winter, and Spring Terms: 3-credit sequence

*Prerequisite: all three terms of Spanish 4 Honors.*

In this course students use literature, film, and other media to strengthen their active use of idiomatic language, a broad vocabulary, and complex sentences. The bulk of class time is dedicated to the close analysis of literary works, although we also discuss historical events, films, visual arts, music, and contemporary politics and society. Topics and materials date from medieval Iberia and colonial Latin America to the contemporary Spanish-speaking world.

**SPANISH SEMINAR 2**

Fall, Winter, and Spring Terms: 3-credit sequence

*Prerequisite: full year of Seminar 1.*

*Seminar 1* and *Seminar 2* constitute a two-year cycle. Because very few students take both seminars, the structure of the class is the same. Thus, the description of *Seminar 1* applies equally to *Seminar 2*. However, because some students do take both seminars, the selection of readings and other materials is different.

## CLASSICAL HONORS PROGRAM

The *Classical Honors Program* offers an advanced course of study in both Latin and ancient Greek with students receiving a special Classical Honors Diploma at graduation.

The *Classical Honors Program* helps students develop a level of language training and critical and analytical skills comparable to that of college students and thereby enhances their opportunities for admission to the most competitive colleges and universities.

The Program provides a curriculum which, while centered in the study of the Latin and Greek languages and literature, acquaints students with the history, art, architecture, and mythology of Greco-Roman civilization and its modern reception.

Students in the Classical Honors Program are expected to continue their study of Latin at the Honors level throughout their time at SPS and to take a minimum of two sequential years of Greek. They are also expected to participate in the Study Tour of Greece and Italy as well as all honors program field trips. Financial aid for some travel expenses is available for those who qualify.

Students already at SPS who wish to join the program need to submit a letter of application. They must have completed an Honors Latin course at SPS with a final grade of High Honors (HH) and at least two terms of Greek with term grades of Honors with Commendation (H+) or above.

*During their years at St. Paul's School, students accepted into the Classical Honors program:*

- Meet and learn from classicists of leading colleges and universities.
- Are invited to guest lectures and plays at nearby institutions as well as on field trips to view the collections of ancient art at museums in Boston, New York, and Washington, D.C.
- Experience the ancient world firsthand by traveling to Greece or Italy during a March vacation (offered every two years). These two-week adventures allow students to visit ancient archaeological sites, witness the art and culture in context, and deepen their understanding of what they learn in the classroom.
- Complete a capstone project during their Sixth Form year.

# MATHEMATICS

The mathematics faculty encourages each student to achieve a working knowledge of and competency in mathematical concepts and related problem-solving strategies. We encourage students to value and develop mathematical habits of mind and to appreciate the role mathematics plays in the world. Teachers promote and maintain classroom environments that encourage student curiosity and responsibility for their own learning.

Students utilize technology in investigation, discovery, analysis, modeling, conjecturing and prediction. We use graphing calculators and computer technologies throughout the curriculum to enhance the learning process. The use of real-world applications illustrates and reinforces mathematical ideas; at the same time, mathematics itself promotes understanding of real-world phenomena.

In addition, students may engage in mathematically oriented extracurricular activities, such as competitions at the local and national level, the School's Mathematics Society, and peer tutoring.

**Enrollment in these courses is subject to permission of the department head.**

## MATHEMATICS COURSES

### **ALGEBRA 1**

Full Year: 3 credits

This course provides students with a solid foundation in their study of mathematics. The course begins with the study of signed numbers, fractions, and operations with literal expressions. We study linear equations, systems of equations, and inequalities. We also consider polynomials, factoring, rational expressions, fractional equations, quadratic equations, and radical expressions. Throughout, applications to problem solving are discussed as a transition into geometry and second year algebra.

### **GEOMETRY**

Full Year: 3 credits

*Prerequisite:* Algebra 1.

This course in Euclidean geometry develops a logical and rigorous mathematical system based on definitions, postulates, and theorems. Deductive proof is the backbone of the course, which includes properties of parallel lines, triangle congruence and similarity, polygons, circles, area, and volume. Additional topics include right-triangle trigonometry and coordinate geometry. Computer applications are utilized to enhance understanding of geometric concepts. Concepts from Algebra 1 are reinforced throughout the course.

## FOUNDATIONS IN ALGEBRA

Full Year: 3 credits

*Prerequisite:* Algebra 1 and Geometry.

This course is intentional in spiraling in review of Algebra 1 and pre-algebra skills, concurrently extending students' prior knowledge of algebraic methods, skills, and concepts. Care is given to identify and remedy areas of past difficulty for students while providing a foundation in Algebra 2 topics. The focus is on linear, quadratic, polynomial, and rational functions. Exponential and logarithmic functions are covered, as time allows. Students are instructed in the use of a graphing calculator, a tool they use to explore and investigate, as well as to model and analyze data.

## ALGEBRA 2

Full Year: 3 credits

*Prerequisite:* Algebra 1 and Geometry.

Students extend their knowledge of methods, skills, and concepts introduced in *Algebra 1*. The focus is on functions—linear, quadratic, logarithmic, polynomial, exponential, and rational. Additional topics include the complex number system. Analytic techniques are emphasized. Students are instructed in the use of a graphing calculator, a tool they use to explore and investigate, as well as to model and analyze data.

## ALGEBRA 2 HONORS

Full Year: 3 Credits

*Prerequisite:* Algebra 1, Geometry, and permission of the Department Head.

This is a rigorous course intended for students of demonstrated ability who have the desire and capability to learn and work independently and to think creatively. The entire content of Algebra 2 is studied in greater depth. Additionally, the course includes the study of matrices, graphing techniques, linear programming, and systems of non-linear equations. The TI-84 graphing calculator is used for exploration, confirmation, and analysis.

## FOUNDATIONS IN PRECALCULUS

Full Year: 3 credits

*Prerequisite:* Geometry and Algebra 2, or Foundations in Algebra.

This course is intentional in spiraling in review of Algebra 2, concurrently extending students' prior knowledge of algebraic and geometric methods, skills, and concepts in preparation for the study of calculus. Care is given to identify and remedy areas of past difficulty for students. Topics include trigonometry, sequences and series, counting and probability, and exponential and logarithmic functions. Graphing technology is used throughout the course to enhance student understanding of mathematical concepts. Real-world applications illustrate and reinforce mathematical ideas.

## PRECALCULUS

Full Year: 3 credits

*Prerequisite:* Geometry and Algebra 2.

Students strengthen their understanding of previously learned topics in algebra and geometry and learn new conceptual notions needed for the study of calculus. Topics include trigonometry, conic sections, sequences and series, counting and probability, and exponential and logarithmic functions. Graphing technology is used throughout the course to enhance student understanding of mathematical concepts. Real-world applications illustrate and reinforce mathematical ideas. By the end of this course, students will have covered the material for the SAT Level 2 subject test in mathematics.

## PRECALCULUS HONORS

Full Year: 3 credits

*Prerequisite:* Geometry, Algebra 2 Honors, and permission of the Department Head.

This is a rigorous course intended for students of demonstrated ability who have the desire and capability to learn and work independently and to think creatively. Students pursue a comprehensive study of the content of Precalculus in greater depth. Additionally, the course includes topics in advanced algebra, mathematical induction, vectors, polar and parametric equations, limits of functions, and rates of change. This material provides strong preparation for calculus. Mathematical dexterity is a focus, particularly in the writing of proofs and creative problem solving. Applications are used throughout to illustrate concepts.

## FOUNDATIONS OF CALCULUS

Fall, Winter, and Spring Term: 3-credit sequence

*Prerequisite:* Precalculus or Foundations in Precalculus.

**Fall Term:** This course provides students with an intuitive approach to the fundamentals of differential calculus. Focusing on algebraic functions, students explore limits, leading to the definition of derivative. The concepts of average and instantaneous rate of change are investigated. We develop the rules of differentiation, including the chain rule and implicit differentiation, and apply them to problems in optimization, related rates, and curve sketching.

**Winter Term:** This course is a continuation of the fall term of *Foundations of Calculus*. As such, the course limits itself to the study of algebraic functions. We will expand upon the differential calculus to introduce the concepts of finding area under a curve, the integral regarded as the antiderivative, and the Fundamental Theorem of Calculus. Applications of integration are also included.

**Spring Term:** Further study of techniques of integration such as integration by substitution and integration by parts will be explored. The calculus of transcendental functions is also studied. Definite and indefinite integrals are used to explore applications such as distance and area and volumes of solids of revolution. Solutions of simple differential equations are obtained analytically and by using slope fields.

## CALCULUS 1 HONORS

Full Year: 3 credits

*Prerequisite:* Precalculus Honors or final grade of High Honors in Precalculus.

This course is suitable for those students with demonstrated ability and interest in mathematics. A solid working knowledge of algebra, geometry and precalculus is necessary. The course builds a solid conceptual understanding of calculus with a focus on proofs. Topics include limits, continuity, and differentiation techniques of both algebraic and transcendental functions. Applications of differentiation include solving optimization problems and related rate problems, curve sketching, and the relationship of position, velocity, and acceleration. Antidifferentiation and the Fundamental Theorem of Calculus are introduced. Techniques include integration by substitution, integration by parts, and trigonometric substitutions. Definite and indefinite integrals are used to explore applications such as distance, area and volumes of solids of revolution. Solutions of simple differential equations are obtained analytically and by using slope fields and Euler's method. Students who successfully complete this course are prepared to take the AB level of the Advanced Placement examination in calculus in May.

## CALCULUS 1-2 HONORS

Full Year: 3 credits

*Prerequisite:* Grades of High Honors in each of three terms of Precalculus Honors.

This course is designed for the highly-motivated mathematics student. Students develop a rigorous, comprehensive study of the concepts and techniques of calculus through a study of theorems, their proofs, and applications. Topics include limits, continuity, and differentiation techniques, applications of differentiation and an introduction to antidifferentiation. Applications of differentiation include solving optimization problems and related rate problems, curve sketching, and the relationships among position, velocity, and acceleration. Techniques include integration by parts, trigonometric substitutions, and partial fractions. Applications of integration include area, volumes, arc length and distance. Solutions of simple differential equations are obtained analytically and using slope fields and Euler's method. An in-depth study of sequences and series includes various tests for convergence, and representation of well-known functions expressed as Taylor and Maclaurin series. Techniques of calculus are applied to parametric and polar equations. Students who successfully complete this course are prepared to take the BC level of the Advanced Placement examination in calculus in May.

## CALCULUS 2 HONORS

Full Year: 3 credits

*Prerequisite:* Calculus 1 Honors.

This course is a continuation of the study of calculus begun in *Calculus 1 Honors*. Students extend their techniques of integration, solve first order separable differential equations, and learn how to calculate arc length and surface area. Connections between calculus and other disciplines are studied while also extending differentiation and integration techniques to polar and parametric functions. An in-depth study of sequences and series includes various tests for convergence and representation of well-known functions expressed as Taylor and Maclaurin series. Students who successfully complete this course are prepared to take the BC level of the Advanced Placement examination in calculus in May.

## MULTIVARIABLE CALCULUS HONORS

Full year: 3 credits

*Prerequisite:* Calculus 1-2 Honors or Calculus 2 Honors.

Applications of mathematics in physical and social sciences, economics, and statistics often involve multiple variables. This course extends the ideas of single-variable calculus to multi-variable situations. Students learn to use vectors, partial derivatives, and multiple integrals to solve complex, multi-concept problems. Students will also investigate elements of mathematical reasoning to develop proof writing skills. The use of mathematical graphing software is integrated throughout the course, along with the use of LaTeX to elevate the presentation of the mathematics. The course culminates with two-dimensional vector calculus and Green's Theorem, with exploration of three-dimensional vector calculus as time permits.

## STATISTICS

Full Year: 3 credits

*Prerequisite:* Precalculus, Foundations of Precalculus, or permission of the Department Head.

Statistics is the science and art of learning from data in order to understand our uncertain world. When studying statistics, students never ask “when am I going to use this?” because we find statistics everywhere in daily life, from sports and presidential polls to climate change and the development of new medicines. In this year-long course, students are exposed to four broad conceptual themes: Exploring Data (describing patterns and departures from patterns), Sampling and Experimentation (planning and conducting a study), Anticipating Patterns (exploring random phenomena using probability and simulation), and Statistical Inference (estimating population parameters and testing hypotheses). Students participate in several projects. Students will also use data analysis software to model statistical problems. Students who wish to take the Advanced Placement exam in May should take the Honors class or study the remaining topics on their own.

## STATISTICS HONORS

Full Year: 3 credits

*Prerequisite:* Precalculus Honors or permission of the Department Head.

This is a rigorous course intended for students of demonstrated ability who have the desire and capability to learn and work independently and to think creatively. The entire content of *Statistics* will be covered in greater depth. In this Honors course, students will learn about four broad conceptual themes: Exploring Data (describing patterns and departures from patterns), Sampling and Experimentation (planning and conducting a study), Anticipating Patterns (exploring random phenomena using probability and simulation), and Statistical Inference (estimating population parameters and testing hypotheses). Students will participate in several projects to analyze current issues. To develop effective statistical communication skills, students will be required to prepare frequent written and oral analyses of real data. Statistics Honors is the high school equivalent of an introductory college statistics course and students will be prepared to take the Advanced Placement exam in May. This course also readies students for further study of statistics in science, economics, sociology, psychology, medicine, math, engineering, political science, geography, business, education, and more.

## INTRODUCTION TO STUDY DESIGN AND DESCRIPTIVE STATISTICS

Spring Term: 1 credit

*Prerequisite:* Algebra 2.

Which studies and surveys should we believe? How do we collect and generate reliable data? What are appropriate ways of describing and presenting data? How are statistics erroneously employed to misrepresent reality? This course introduces students to reliable and unreliable ways in which data is collected and generated (through sampling, experimentation, and simulation), and how to become literate in reading, displaying and interpreting data and statistics. The course will focus on how data can be used to address real questions and on statistical literacy.

**PROBABILITY**

Spring Term: 1 credit

*Prerequisite:* Algebra 2.

Questions of probability arise naturally in any number of areas: What is the likelihood that it will rain today? Should I take this bet? What is the chance that the Red Sox will win the World Series? This course is designed to help students answer some of those questions knowledgeably and accurately. Beginning with counting principles, the course progresses through such topics as conditional probability and independence, random variables, the normal distribution and the binomial distribution.

**MATHEMATICS SEMINAR HONORS**

Fall, Winter, or Spring Term: 1 credit

*Prerequisite:* Multivariable Calculus Honors or Multivariable Calculus Honors concurrent with Mathematics Seminar Honors.

*Mathematics Seminar Honors* is designed to introduce students to post-calculus mathematics. The content of each term is independent of the content of previous terms, and will depend upon the interests of the faculty and students. Recent syllabi have included group theory, representation theory, and their applications to chemistry; cryptography with an emphasis on number theory and linear algebra; and writing and analyzing proofs while exploring topics such as equivalence relations and the cardinality of infinite sets.

**MATHEMATICAL PROBLEM SOLVING**

Spring Term: 1 credit

*Prerequisite:* Algebra 2.

In order to expand and explore new problem-solving skills, every class will be filled with a variety of group and solo activities to engage the students. Much of the focus of the course will be on Japanese-style logic puzzles like KenKen and Nurikabe. Students will learn to solve such puzzles, as well as create their own. By the end of the course, students will have learned over twenty different types of logic puzzles, each of which will help them develop different aspects of their critical thinking skills. The course will culminate with a presentation, as each student will research a different type of logic puzzle which they will master and teach to the class.

## SCIENCES

Our mission is to inspire our students to joyfully and skillfully pursue scientific literacy through active inquiry as an essential part of the broader integrated curriculum at St. Paul's School. The Science Department feels strongly that an understanding of scientific principles is essential for responsible citizenship.

We feel that creativity is an essential aspect of the scientific process. We encourage students to realize that rote knowledge of physical laws is secondary to the ability to design an experiment or recognize connections among phenomena. We teach a conceptual appreciation of the behavior of nature and leverage it throughout the core sequence of *Physics First*, *Chemistry*, and *Biology*.

Our department develops a respect for data and written scientific communication through laboratory exercises and project work. We use computers, fabrication facilities, the observatory, School grounds, and field trips to provide students with experiences and perspectives of the natural world and the changing abilities of humanity.

Enrollment in science courses is subject to permission of the department head.

### SCIENCES COURSES

#### PHYSICS FIRST

Full Year: 3 credits

*Physics First* is designed for all entering Third Form students and forms the first of a three-year foundation series. Classical studies of motion, forces, energy, electricity, magnetism, and sound and light are coordinated with the impact that such knowledge has had in defining the modern technological world that we inhabit. Students explore the beauty and simplicity of the fundamental laws that explain our universe. Since experimentation is key to all science, great emphasis is placed on laboratory work. In the fall term, students focus is on Newton's Laws, momentum and energy, and the interplay between forces and their impact on linear motion. Students are encouraged to ask questions and create projects to seek answers while learning to work together in small groups, allowing for the free flow of creative ideas. In the winter term the course progresses to circular motion, force, motion, vibrations, waves and electrostatics. Spring term finds students venturing into the study of electromagnetic fields, electrical circuits, motors, generators, light and optics. The final assessment in *Physics First* is a group project based on real life applications of a physical problem, with a formal poster presentation and peer review.

## PHYSICS

Full Year: 3 credits

*Prerequisite: co-enrollment in Algebra 2 or higher.*

[Not available to students who have completed *Physics First*.]

Students investigate the physical world using both traditional and computer-based data acquisition and analysis. This course introduces students to the major topic areas of physics, focusing on conceptual understanding and analytical problem-solving techniques. Extensive laboratory explorations, performed in small groups, are used to introduce concepts, which are then reinforced through discussion and problem work. Incorporating a more mathematical approach than *Physics First*, *Physics* begins with the study of mechanics including uniform motion, Newton's Laws, momentum, energy, circular motion, and gravitation. This is followed by electrostatics, magnetism, DC circuits, and wave motion, including resonance, sound, and wave optics. The Spring Term concludes with the study of ray optics as students experiment with mirrors and lenses and more complex optical devices. Working knowledge of algebra is assumed.

## HONORS PHYSICS

Full Year: 3 credits

*Prerequisite: co-enrollment in Precalculus or higher.*

**Fall Term: *Mechanics.*** An accelerated introduction to Newtonian Mechanics for students with strong math backgrounds who are seeking a deeper understanding of their physical world. Topics include linear and projectile motion, Newton's Laws, energy, and momentum. Laboratory exercises and classroom demonstrations are used throughout the course to solidify conceptualization and instill respect for data. Concepts are also strengthened through work in group tutorials developed specifically for students at this level as well as student-driven projects at the conclusion of the term.

**Winter Term: *Electricity and Magnetism.*** An accelerated introduction to Electricity and Magnetism for students with strong math backgrounds who are seeking a deeper understanding of their physical world. Topics include electrostatics, circuits, magnetism, and electromagnetic induction. Laboratory exercises and classroom demonstrations are used throughout the course to solidify conceptualization and instill respect for data. Concepts are also strengthened through work in group tutorials developed specifically for students at this level as well as student-driven projects at the conclusion of the term.

**Spring Term: *Extended Topics.*** An accelerated introduction to non-linear physical motion for students with strong math backgrounds who are seeking a deeper understanding of their physical world. Topics will build off of the previous terms of *Honors Physics* and will include rotational motion, simple harmonic motion, waves, and light. Laboratory exercises and classroom demonstrations are used throughout the course to solidify conceptualization and instill respect for data. Concepts are also strengthened through work in group tutorials developed specifically for students at this level as well as student-driven projects at the conclusion of the term.

## PHYSICS 2: LIGHT AND OPTICS

Fall Term: 1 credit

*Prerequisite: a year-long physics course.*

Students will investigate the phenomenon of light as both a particle and a wave. They will build on their previous understanding of the electromagnetic spectrum to examine topics including wave interference, diffraction, and optics. Through hands-on inquiry experiences, data collection experiments, and project-based learning, students will learn through a variety of teaching and learning techniques.

## PHYSICS 2: FLUID AND THERMODYNAMICS

Winter Term: 1 credit

*Prerequisite: a year-long physics course.*

Students will investigate the physics of fluids and heat. They will build on their previous understanding of the waves and heat to examine topics including pressure-volume-temperature relationships in fluids, the laws of thermodynamics, and the methods of heat transfer. Through hands-on inquiry experiences, data collection experiments, and project-based learning, students will learn through a variety of teaching and learning techniques.

## PHYSICS 2: SUBATOMIC, QUANTUM, AND RELATIVITY

Spring Term: 1 credit

*Prerequisite: a year-long physics course.*

Students will investigate a few of the branches of modern physics. They will build on their previous understanding of physics to examine the areas of subatomic physics, quantum physics, and special and general relativity. Through hands-on inquiry experiences, data collection experiments, and project-based learning, students will learn through a variety of teaching and learning techniques.

## THE PHYSICS OF RENEWABLE ENERGY

Winter Term: 1 credit

*Prerequisite: a year-long physics course.*

This course will help students develop both a conceptual and quantitative understanding of the most prominent forms of renewable energy, as well as innovative new forms used in the world today. Photovoltaics, wind, hydro, geothermal, and concentrated solar power technologies will all be explored. Students will read seminal papers from read peer-reviewed journal articles in the field, and the course will conclude with students developing a prototype for their own form of renewable energy.

## ADVANCED PHYSICS

Full Year: 3 credits

*Prerequisite: successful completion of a full year of high school physics and a full year of calculus.*

This is a college-level course that relies heavily on the use of calculus and builds on the concepts developed in *Physics First*, *Physics*, or *Honors Physics*, going into greater depth and detail. We will study Newtonian mechanics, electricity and magnetism, waves and oscillations, and a few topics in modern physics if time permits. Laboratory exercises and classroom demonstrations are used throughout the course to solidify conceptualization, build theoretical modeling skills, develop explanations, and instill respect for data. Computer programs (such as excel and python) are used for data analysis, mathematical modeling and numerical integration. Students develop writing skills to produce journal-quality lab reports. Students who successfully complete this course are prepared to take the *AP Physics C: Mechanics* and the *AP Physics C: Electricity and Magnetism* advanced placement examinations in May.

**CHEMISTRY**

Full Year: 3 credits

This course emphasizes scientific observation and investigation. Chemical principles and concepts are introduced through laboratory experiments and are expanded in lecture and class discussion. Students learn to observe, question, test, problem solve and draw conclusions. Selected experiments require both cooperative and individual investigation. Topics include properties of matter, bonding, chemical periodicity, stoichiometry, thermochemistry, kinetics, acids and bases, equilibria, and oxidation-reduction. This course is taken prior to taking *Biology*.

**HONORS CHEMISTRY**

Full Year: 3 credits

*Prerequisite:* co-enrollment in Algebra 2 Honors or higher and recommendation from Physics First teacher.

This course is an introductory chemistry course that covers an expanded curriculum of chemistry. The final grade in *Honors Chemistry* will consist of term work, cumulative exams, and a lab practical. Topics include properties of matter, bonding, chemical periodicity, stoichiometry, thermo-chemistry, kinetics, equilibria, acids and bases, and oxidation-reduction. The expectations and pace of *Honors Chemistry* are such that by the end of this course students will have covered the material for the SAT II subject test in chemistry. This course is taken prior to taking *Biology*.

**CHEMISTRY 2: QUANTITATIVE ANALYSIS**

Fall Term: 1 credit

[Not open to students who have taken *Advanced Chemistry*.]

*Prerequisite:* Honors Chemistry or successful completion of Chemistry with a final grade of Honors or higher.

How do chemists determine how much of a substance is present in a sample of unknown composition? In this laboratory-based course, students study various methods of quantitative analysis, including titration, gravimetric analysis, and spectrophotometry to gain a better understanding of analytical chemistry.

**CHEMISTRY 2: ORGANIC CHEMISTRY**

Winter Term: 1 credit

*Prerequisite:* Advanced Chemistry, Honors Chemistry, or Chemistry with a final grade of Honors or higher.

This laboratory-based course introduces students to organic nomenclature and the chemical and physical properties of fundamental functional groups including hydrocarbons, alcohols, carboxylic acids, and esters. Properties of bio-chemical compounds such as fats, oils, and carbohydrates will also be examined.

**CHEMISTRY 2: REACTION RATES AND EQUILIBRIUM**

Spring Term: 1 credit

[Not open to students who have taken *Advanced Chemistry*.]

*Prerequisite:* Honors Chemistry or Chemistry with a final grade of Honors or higher.

This course expands on the basic knowledge of reaction rates and equilibrium developed in first-year chemistry. Through experimentation, students are introduced to rate laws and mechanisms as well as special applications of equilibrium including buffer solutions and solubility equilibria.

## ADVANCED CHEMISTRY

Full Year: 3 credits

*Prerequisite: a full year of Chemistry with a grade of High Honors or a full year of Honors Chemistry with a grade of Honors or better.*

Intended for those students who desire a more challenging study of chemistry, this advanced course parallels that of a college chemistry course and prepares students for the Advanced Placement examination in chemistry. The course builds on the concepts developed in *Chemistry* or *Honors Chemistry*, going into greater depth and detail. The course challenges students in the laboratory and emphasizes cooperative learning through problem solving and laboratory investigations. Areas of study in the Fall term include a review of stoichiometry, atomic structure, chemical bonding, molecular geometry, and properties of matter including gas laws, intermolecular forces, and solutions. The laboratory portion of *Advanced Chemistry* is designed to introduce students to the techniques used in analytical chemistry.

Areas of study in the winter term include kinetics, chemical equilibria, acid-base chemistry, solubility equilibria, and thermochemistry. Students are expected to refine their analytical techniques in the laboratory.

Areas of study in the spring term include oxidation-reduction and thermochemistry. The Fall and Winter Terms are reviewed to assist students in preparing for the Advanced Placement examination in chemistry. The year in *Advanced Chemistry* culminates in independent research projects on topics of the students choosing.

## BIOLOGY

Full Year: 3 credits

*Prerequisite: One year of Physics and Chemistry.*

*Biology* is designed to build on the physics and chemistry knowledge base while developing an inquiring point of view toward living systems in the context of a changing environment. Laboratory experiments heighten and integrate events at the molecular, cellular, and population levels of organization. Specific topics include cell structure and function, biochemical mechanisms, genetics, evolution, systems, and ecology. Scientific thinking and communication are emphasized throughout the course.

## EVOLUTIONARY BIOLOGY

Spring term: 1 credit

*Prerequisite: Biology; or co-enrolled in Biology.*

Evolution is a fundamental component of our understanding of life that underlies all other concepts that we study in life science. Students will explore how evolution occurs, the evidence that supports our understanding of evolution, and where we are witnessing evolution today. The course will examine the work of several scientists in the field as well as how their work fits together informing our current understanding of evolution. Students will learn about both microevolution as well as macroevolution through historical and current examples. Students will apply these concepts to current applications of evolution in today's world.

**EMBRYOLOGY**

Winter term: 1 credit

*Prerequisite:* Biology; or co-enrolled in Biology.

This course offers students an introduction to comparative embryology—the study of different embryos and developmental stages. In this course, students will learn the basic terminology of embryology while also observing and studying the developmental process in several invertebrate and vertebrate models. Also, students will be introduced to the concept of how evolutionary changes in genes can affect phenotype, and in turn, resulting in certain similarities and differences of the developmental characters of different embryos. In the integrated lab sections of this class, students will have hands-on opportunities to examine different stages of early embryonic development in both vertebrate (chick and zebrafish) and invertebrate (nematode and mud snail) embryos. Students will compare and contrast the development of these embryos with human embryonic development, and how each of these species are related evolutionarily. Also, they will learn about a few real-life teratogens that affect human embryonic development. Upon completion of this class, students will have the basic toolkit to appreciate and understand how the development of one species can shed light on how it has evolved, when compared to development of other species.

**TROPICAL BOTANY**

Fall Term: 1 credit

*Prerequisite:* Biology; or co-enrolled in Biology.

This course offers students an introduction to botany, evolutionary biology, and tropical ecology. Students will learn the basics of horticulture, aquaculture, and hydroponics while working in a tropical greenhouse environment. Students will spend class time learning plant biology, anatomy, and systematics. To implement this knowledge in a greenhouse environment, students will also learn about soil chemistry, photosynthesis, and plant adaptation to a tropical environment. Throughout term, students will learn horticultural concepts and apply this knowledge in a working greenhouse conducting open-ended labs. In addition, students will visit both commercial and research greenhouses to meet professionals and researchers. Upon completion of this class, students will have a deep knowledge of botanical concepts, a working knowledge of how to maintain and propagate a wide variety of plants, and applied skills in both hydroponics and aquaponics.

**HUMAN ANATOMY & PHYSIOLOGY**

Full Year: 3 credits

*Prerequisites:* One year of Biology and Chemistry.

This is a full-year, upper-level biology course designed to provide an understanding of the structure and function of the major human organ systems. Topics of study include neuroendocrine homeostatic control mechanisms, musculoskeletal, cardiorespiratory, digestive, immune, renal, and reproductive systems. Disease states and adaptive physiological responses to stress, exercise, and nutrient intake are considered throughout the course. Laboratory activities include microscopy, organs and cat dissections, case studies, and evaluation of human physiological responses. Scientific thinking and communication are emphasized throughout the course.

## **MARINE BIOLOGY: LIMNOLOGY – FRESHWATER ECOSYSTEMS**

Fall Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

This course investigates the freshwater ecology of lakes, ponds, streams, and rivers. Using the natural resources of our campus, students examine the different aquatic habitats that are inherent to New Hampshire. Energy flow, nutrient cycling, pollution and ecosystem stability are just some of the topics under investigation. Students will have the opportunity to wade into the waters surrounding school to sample water quality, survey invasive species populations and examine, collect and identify different species of aquatic flora and fauna. Students will also have a chance to work with aquaculture and begin to grow specimens here in the Lindsay center greenhouse. Field trips will include visits to a larger body of freshwater, water treatment facility, and Trout hatchery.

## **MARINE BIOLOGY: OPEN OCEAN**

Winter Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

This course examines the open ocean in all its vastness, depth and power. Creatures of the open ocean will be at the heart of this course including marine mammals and deep-sea inhabitants. Ocean currents, tides and water movement will be examined as we consider the role humans play in this gigantic ecosystem. Mammalian diving physiology, sharks, skates and rays will also be an important part of our studies. We end the term looking at the global impact of humans on our greatest asset: the world's oceans. Students enrolled in Marine Biology Open Ocean will have the unique opportunity to participate in a multi-day field trip to Marine Lab in Key Largo, Florida or The Island School in Eleuthera, Bahamas. Both trips include a hands-on study of coral reefs, mangroves and saltwater ecosystems along with an in depth look at the sustainability of our natural aquatic resources.

## **MARINE BIOLOGY: COASTAL BIOMES**

Spring Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

This course examines the marine environments closer to shore including coral reefs, mangroves, estuaries and rocky coastlines. Students will learn how to identify fish, study the interconnectedness of the sea and the land and investigate the complex relationships found in each of these biomes. Human influence and fisheries management will be major themes throughout the term.

## **EXERCISE PHYSIOLOGY: BIOCHEMISTRY OF METABOLISM AND SPORTS NUTRITION**

Fall Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

[Students taking the full-year Human Anatomy & Physiology course should not enroll in this term course.]

*How do the foods we eat influence cellular metabolism, physiological health, and human performance?* This is a one-term, upper level biology course. Students investigate the biochemistry, digestion, and metabolism of proteins, carbohydrates, and fats. Exploration of the interaction between nutrition and exercise on health, disease, fitness training, and athletic performance is emphasized. Laboratory investigations include anatomical dissections, biochemical analysis of foods, dietary assessments, and evaluation of metabolic rate during rest and exercise. Students will read original research, design experiments to address their own physiology and sports nutrition questions, and report their findings in end-of-term presentations or portfolios.

**EXERCISE PHYSIOLOGY: CARDIORESPIRATORY ADAPTATIONS TO EXERCISE**

Winter Term: 1 credit

*Prerequisites:* One year of Biology and Chemistry.

[Students taking the full-year Human Anatomy & Physiology course should not enroll in this term course.]

*How does exercise alter our cardiorespiratory physiology and health?* This is a one-term, upper level biology course. Students begin the term by investigating normal cardiorespiratory function and health. This is followed by an exploration of the cardiorespiratory responses to acute exercise, as well as the physiological adaptations to chronic exercise (training) and selected stressors such as high-altitude training, aging, and disease. Laboratory investigations include anatomical dissections, blood pressure, electrocardiogram and pulmonary analyses, and treadmill measurements of oxygen consumption (VO<sub>2</sub>) and anaerobic threshold. Students will research and investigate the effects of one selected stressor on cardiorespiratory function and report their findings in end-of-term presentations or portfolios.

**EXERCISE PHYSIOLOGY: NEUROMUSCULAR ADAPTATIONS TO EXERCISE**

Spring Term: 1 credit

*Prerequisites:* One year of Biology and Chemistry.

[Students taking the full-year Human Anatomy & Physiology course should not enroll in this term course.]

*How do resistance training and exercise alter neuromuscular physiology and health?* This is a one-term, upper level biology course. Students begin the term by investigating how skeletal muscle normally develops and functions. This is followed by an exploration of the neuromuscular responses and physiological adaptations to chronic exercise (resistance training) and selected stressors, including the use of muscle building aids and supplements, as well as changes in muscle physiology with aging and disease states. Laboratory investigations include anatomical dissections, muscle metabolism and fiber type assessment, and measurements of muscular strength, endurance, and flexibility. Students will investigate, evaluate and compare reports of muscle physiology changes presented in the popular press with research published in scientific literature.

**MOLECULAR BIOLOGY**

Full Year: 3 credits

*Prerequisites:* One year of Biology and Chemistry.

This is an upper-level biology course designed to build a strong foundation in biochemistry upon which students learn hot topics in molecular biology. During the Fall Term, topics include essential biochemistry, the central dogma of molecular genetics, DNA repair, molecular evolution and the origin of life, aging, and cellular senescence. The Winter Term of Molecular Biology covers a variety of hot topics in molecular biology including epigenetics, cancer, stem cell and developmental biology, gene editing, and more. Students also investigate topics covered by mastering molecular laboratory techniques such as aseptic technique, DNA purification, PCR, and gene sequencing. Students also investigate the genetics and treatment of cancer through cell culture experiments while developing and refining their molecular techniques. Students will develop important skills including reading and writing scientific journal articles, presenting in a formal scientific manner, breaking down molecular mechanisms, and applying their content knowledge to novel situations. During the Spring Term, students identify a question they want to investigate and design a research plan based on the techniques they have mastered over the course of the year. The class will review the proposals and a few projects will be selected and carried out based on merit, feasibility, and interest. The project will conclude with a finished manuscript that follows the guidelines of a peer-reviewed journal.

## **ENVIRONMENTAL SCIENCE: EARTH SYSTEMS**

Fall Term: 1 credit

*Prerequisite: one year each of Biology and Chemistry.*

Students will be introduced to the basic concepts that inform issues in environmental science. Core concepts include an introduction to geology and a review of basic biology and chemistry through the field of biogeochemistry. The term will end with an introduction to soil biology and environmental issues related to agriculture.

## **ENVIRONMENTAL SCIENCE: SUSTAINABLE SOCIETIES**

Winter Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

Students will focus on human aspects of environmental science. The term will begin with a discussion of the ecological consequences of human over-population. From here, we will move towards aligning economic theory with sustainable development at a local, national, and global scale. Lastly, in the context of sustainable development, we will discuss the social, technical, and ecological aspects of energy development and usage on a global scale.

## **ENVIRONMENTAL SCIENCE: ENERGY AND TECHNOLOGY**

Spring Term: 1 credit

*Prerequisites: One year of Biology and Chemistry.*

Students will begin by looking at land use history at St. Paul's and the New England region. We will move from this historic perspective to a more modern look at forestry and land use practices throughout the region, utilizing our extensive grounds as a living laboratory. Lastly, we will spend time working through the major causes and consequences of climate change while students are designing and conducting independent research projects that should integrate the major themes of the course.

## **INTRODUCTION TO ASTRONOMY**

Fall or Spring Term: 1 credit

This is a one-term course that is designed to give students an introduction to observational astronomy. In the classroom, the basic principles of astronomy are taught, including the layout of the heavens, a study of the Solar System, a history of astronomy, and the basic principles of telescopes. At the Hawley Observatory, students work independently at least one clear night a week learning the constellations, phases of the moon, and how to use a telescope to find objects that are invisible to the naked eye. Upon completion of this course, students are then encouraged to take *Stellar Astronomy* and *Galactic Astronomy*.

## **STELLAR ASTRONOMY**

Winter Term: 1 credit

*Prerequisite: Introduction to Astronomy.*

This course builds upon the *Introduction to Astronomy* course and is focused upon the nature of stars in our universe as we know it. During the regularly scheduled daytime classes, students will study the sun, how stars evolve, and how spectra are used to determine the properties and components of stars. A minimum of one clear night a week will be spent at the observatory collecting observations that will be used to complement the study of stars. Full use of the Hawley Observatory telescopes is available. Additional equipment used to support student-initiated projects includes digital cameras, filters, spectrometers, and sophisticated software for image processing.

**GALACTIC ASTRONOMY**

Spring Term: 1 credit

*Prerequisite:* Introduction to Astronomy.

This course builds upon the *Introduction to Astronomy* course and is focused upon the nature of galaxies in our universe as we know it. During the regularly scheduled daytime classes, students will study the variety of galactic structures in our universe and how those structures might have evolved since the Big Bang. A minimum of one clear night a week will be spent at the observatory collecting observations that will be used to complement the study of galaxies. Full use of the Hawley Observatory telescopes is available. Additional equipment used to support student-initiated projects includes digital cameras, filters, and sophisticated software for image processing.

**INTRODUCTION TO ARTIFICIAL INTELLIGENCE**

Fall Term: 1 credit

In this course, classical artificial intelligence topics such as knowledge representation; search algorithms; and learning expert systems are explored. Students study the possibilities for understanding language, thought, and consciousness. Students also learn the basics of programming and become proficient at developing recursive problem-solving and search programs.

**COMPUTER PROGRAMMING USING JAVA**

Fall Term: 1 credit

This course teaches the fundamentals of programming using Java. Topics covered will include loops, methods, conditionals, logic gates, and parameters. Students will solve a variety of problems through computer programming. After students complete this course, they will be ready to take *Computational Thinking*.

**COMPUTER PROGRAMMING USING ARDUINO C**

Fall, Winter, or Spring Term: 1 credit

This course introduces students to the foundations of computer programming while allowing time to explore areas of student interests. Students will learn to code a Teensy 3.2 microcontroller using the Arduino-C language and a PRT28 motherboard. (Students who have taken Physics First will be familiar with this language and hardware, which were incorporated in the class beginning with the 2020-2021 academic year.) Programming topics include computer mathematics, data types and variables, serial communications, functions, logical statements, loops, recursion, random numbers, and arrays. While most of the coding lessons involve solving traditional problems for the desktop computer, learning to code with the microcontroller and motherboard gives the programmer the ability to control real-world objects such as LEDs, buzzers, servomotors, actuators, environmental sensors, and LCD screens. Because the Arduino-C language is subset compatible with the C and C++ programming languages, this course satisfies the prerequisites for the Computational Thinking course, which utilizes the Java language.

**COMPUTATIONAL THINKING**

Winter term: 1 credit

*Prerequisite:* Computer Programming Using Java or Computer Programming Using Arduino C.

This course teaches the fundamentals of object-oriented programming using Java. Topics covered will include computer number systems, Strings, arrays, recursion, and object encapsulation. The course stresses the understanding of problem solving in terms of algorithmic development. The course prepares students to take Advanced Programming in Java.

## **ADVANCED PROGRAMMING IN JAVA**

Spring term: 1 credit

*Prerequisite:* Computational Thinking.

This course allows students to write and examine more complex programs consisting of multiple classes. Topics covered will include the construction of classes, inheritance, polymorphism, searching and sorting. The course stresses the understanding of problem solving in terms of efficient algorithmic development. Students will be prepared to take the AP CS-A after taking the series of Introduction to Programming, Computational Thinking, and this course.

## **PHYSICAL COMPUTING AND ROBOTICS**

Winter Term: 1 credit

*Prerequisite:* Computer Programming Using Arduino C or Computational Thinking.

Students will build upon their coding foundations by learning to write code from scratch that will control physical devices such as LEDs, diode lasers, piezo buzzers, audio transducers, LCD screens, servomotors, relays, actuators, robots, and a wide range of input devices and sensors. Students are also introduced to electronics, circuits, soldering, and mechanical engineering concepts and tools. Students will have time and freedom to create, build, and program several robotic applications that will perform routine and autonomous tasks, usually incorporating basic feedback control systems. Some applications include sound and light shows, robotic dance, motion detection, line-following robots, obstacle avoidance, tabletop navigation, facial expressive robotics, and robotic art. This is a self-directed course that is project-oriented and driven largely by student interests. The language used in this course is Arduino-C, and the Teensy 3.2 microcontroller and PRT28 motherboard allow for an easy interface between the virtual and real world.

## **COMPUTER SCIENCE TOPICS**

Fall or Winter Term: 1 credit

*Prerequisite:* Computer Programming Using Java or Computer Programming Using Arduino C.

This open-ended course will focus on topics of interest to students who have completed the necessary courses. The topics and projects assigned will be designed based on the students' prior programming experience. Collaborative skills to work in teams to complete larger programming projects will also be developed.

## **ADVANCED COMPUTER SCIENCE TOPICS**

Spring term: 1 credit

*Prerequisite:* Advanced Programming in Java or Computer Science Topics.

This open-ended course will focus on topics of interest to students who have completed the necessary courses. Possible areas of study might include: data structures and system design, computer logic and machine interfacing, software design, or databases. Students in this course will be expected to do a considerable amount of independent study.

**ENGINEERING DESIGN [1–3]**

Fall Term: 1 credit

Students will learn about the Engineering Design process through the completion of 3 major projects as well as shorter group projects. The initial project involves designing and building a game out of wood, and then modeling it using a variety of CAD software options. Final designs are 3d-printed. The second project involves groups creating VEX Robots designed to solve the annual VEX Robotics Challenge. Finally groups of students must design a Sea Perch-style UAV for a final competition in the School's pool. Through these projects students will learn and practice problem-brainstorming techniques and best-practices for successful group work. Students will use the MIT 2.007 Design and Manufacturing Course notes to learn about deterministic design and basic machine components.

This course can be taken multiple times, in order to broaden a student's experience at solving problems using the engineering-design process. Students taking the course a second time are expected to work on more advanced projects and serve as teachers/mentors to the new students.

**ENGINEERING PROJECTS**

Spring Term: 1 credit

*Prerequisites:* Engineering Design, USFIRST Robotics, Artificial Intelligence, or Robotics.

The Spring Term course allows students to work on large-scale engineering projects to further their understanding of the engineering design process.. Students can propose software or hardware design projects.

This course can be taken multiple times, in order to broaden a student's experience at solving problems using the engineering-design process. Students taking the course a second time are expected to work on more advanced projects and serve as teachers/mentors to the new students.

**USFIRST ROBOTICS ENGINEERING TEAM [1–3]**

Winter Term: 1 credit

The students in this class are part of the St. Paul's School Team 1512 FIRST Robotics team. The objective of this course is to engage the students in a challenging problem that allows them to put their group-work and deterministic-design techniques learned in the fall into practice. Near the start of the Winter Term, specifications for the international FIRST Robotics competition will be received and studied. In January, the students will travel to the kickoff event in Manchester to learn about the new challenge. The remainder of the Winter Term will be spent designing, manufacturing, and programming the team's entry. At the end of the Winter Term, the team will enter its Robot in various regional competitions. Essential to the course will be the completion of periodic self-reflection journals which allow the students to reassess and refine their problem-solving and engineering-design techniques. At the end of the competitions, our students are required to write a final journal where they critically evaluate all the design solutions they saw at the competition.

Based on student interest and scheduling, students in this course are also able to enter and attend local VEX Robotics competitions.

This course can be taken multiple times, in order to broaden a student's experience at solving problems using the engineering-design process. Students taking the course a second time are expected to work on more advanced projects and serve as teachers/mentors to the new students.

## ENGINEERING PROJECTS [1–3]

Spring Term: 1 credit

*Prerequisites:* Engineering Design; USFIRST Robotics; or Artificial Intelligence & Robotics.

This course allows students to work on large-scale engineering projects to further their understanding of the engineering design process. Students can propose software or hardware design projects. Student projects have included:

- creating Smart-phone programs and interfacing the programs with data bases
- designing/building new robotics systems
- perfecting winter-term competition robots
- designing/building a better ballet pointe shoes and basketball free-throw tutors
- designing and building musical stairs

This course can be taken multiple times, in order to broaden a student's experience at solving problems using the engineering-design process. Students taking the course a second time are expected to work on more advanced projects and serve as teachers/mentors to the new students.

## APPLIED SCIENCE AND ENGINEERING PROGRAM

The program provides an opportunity for in-depth and personal development for those students who have shown an interest and aptitude for engineering, computer science or applied sciences. The program is designed to create further chances for exploration in the field, leading to the successful completion of a research internship in engineering, technology, or applied sciences and preparing interested students to continue with their science study at college and beyond.

During the fall and winter of the Fifth Form year, students will engage in a non-credit *Applied Science and Engineering* prep course designed to support students in their search for an acceptable summer internship. If the student has met all of the periodic milestones in this process and has secured an acceptable internship position by the end of the Winter Term he/she will be considered by the *Applied Science and Engineering* committee for acceptance into the *Applied Science and Engineering Program*, and into the Spring Term *Applied Science and Engineering Seminar*. Parents must also provide information supporting the student's plan. The program is limited to 12 students.

*Students accepted into the program are expected to complete three steps:*

- *Applied Science and Engineering Seminar* course during the Spring Term of the Fifth Form year
- A summer internship of at least 4 weeks
- *Applied Science and Engineering Capstone* during the Fall Term of the Sixth Form year, with an option to extend into the Winter and/or Spring Term(s).

Due to the involved nature of this process, students must sign up for an alternate spring course, which will be dropped if the student is accepted into the *Applied Science and Engineering Seminar* (similar to the Independent Study Program application process).

## APPLIED SCIENCE AND ENGINEERING SEMINAR

Spring Term: 1 credit

This course is the first in the Applied Science & Engineering Program. Students interested in the Program should register for this course during the course-selection process in the Spring of their Fourth Form year. During the Fall and Winter terms of their Fifth Form year, students must complete the non-credit Applied Science & Engineering Prep Seminar. In addition, students must secure a summer externship before the end of the Winter Term of their Fifth Form year and must be selected by the Applied Science & Engineering Committee in order to enroll in this course. Students must also maintain a grade of Honors or higher (term and yearlong) in all Fourth and Fifth Form Mathematics and Science classes.

Additional prerequisites depend on the type of externship:

- Biology externships: Chemistry and either completion or current enrollment in Biology.
- Engineering/Computer Science externships: Conceptual Physics or Chemistry. At least one Engineering, Computer Science or Artificial Intelligence course.
- Other externships: prerequisites depend on field of interest (determined by the Director).

In the *Applied Science and Engineering Seminar*, students will work to prepare for their externships. They will complete a variety of projects throughout the Spring term that will help them develop skills necessary for their summer externships. All students will complete research to become more familiar with the topics relevant to their summer experience. Biology students will learn a variety of molecular laboratory techniques as well as reading scientific journal articles provided by their labs. Engineering and computer science students will master a relevant programming language, complete machine shop and CAD techniques, and learn a variety of relevant software, such as MATLAB. Students in other fields will be assigned relevant tasks in accordance with their field of interest. In addition, students learn important lessons on how to act in the lab environment and how to interact with colleagues in preparation for their summer experience.

## APPLIED SCIENCE AND ENGINEERING CAPSTONE

Fall and Winter Term: 1 credit

*Prerequisite: Completion of the Applied Science and Engineering Seminar and a summer externship between Fifth and Sixth Form years.*

The Fall term Capstone course is required for all students in the *Applied Science and Engineering Program*. Students who completed a biology externship are required to sign up for the Fall and Winter terms. After the completion of the Fall term, the Applied Science and Engineering Committee will determine whether student projects warrant a second term.

The *Applied Science and Engineering Program* experience culminates in a Sixth Form science capstone project based on the student's externship research. Over the summer, students coordinate with their organization and their assigned St. Paul's faculty mentor to determine a capstone project which is both rigorous and feasible. Students complete a capstone proposal which outlines their project before they return to school in the Fall. Upon their return to campus, students carry out their capstone projects under the supervision of the Applied Science & Engineering Faculty. Further, students present their progress at weekly lab meetings and receive feedback from Program mentors and other students. Students also get the opportunity to share their summer and capstone research with the school community.

## INTERDISCIPLINARY STUDIES

Interdisciplinary courses are designed to more fully integrate understanding from multiple disciplines. Having established proficiency with the habits of mind and skills of the traditional disciplines, students in these courses are presented with an opportunity to form stronger connections between multiple areas of study and ways of thinking. These courses are created collaboratively with teachers in different departments, exemplifying how we want our own students to work with one another.

Enrollment in these courses is subject to permission of the Dean of Studies.

### INTERDISCIPLINARY STUDIES COURSES

#### **ART HISTORY STUDIO SEMINAR: 1200 TO 1860**

Fall Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

This course explores the major European art historical movements from the Gothic to Impressionism. Taught in conjunction with the SPS gallery, students study the history and techniques of various artists through research, visual analysis, and in-studio projects. A general unit will start with a full exploration of a period in the history of art followed by the creation of a work in the style of that era by employing historic materials and techniques. The course is taught in the Crumpacker Gallery and utilizes the exhibition space, permanent school collection, and gallery studios. This offering is designed for those who have no experience, or confidence, in their artistic abilities, while at the same time allowing students in advanced level art courses to explore their personal work through new and different media. Projects include, but are not limited to, creating and painting with raw pigments using tempera, oil, and encaustic methods, preparation of board and canvas supports using Medieval and modern techniques, printmaking in both intaglio and lithography, and exploring oil painting by glazing and impasto methods. Historical analysis will be done through studying actual works of art, slide studies, online research, and class discussions.

#### **ART HISTORY STUDIO SEMINAR: 1860 TO TODAY**

Winter Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

This course explores the major art historical movements from the Post Impressionism to the Contemporary world of art. Taught in conjunction with the SPS gallery, students study the history and techniques of various artists through research, visual analysis, and in-studio projects. A general unit will start with a full exploration of a period in the history of art followed by the creation of a work in the style of that era by employing historic materials and techniques. The course is taught in the Crumpacker Gallery and utilizes the exhibition space, permanent school collection, and gallery studios. This offering is designed for those who have no experience, or confidence, in their artistic abilities, while at the same time allowing students in advanced level art courses to explore their personal work through new and different media. Projects include, but are not limited to, oil and encaustic methods, printmaking in both intaglio and lithography, photo transfer, sculpture, and non-objective painting. Historical analysis is done through working with actual works of art, slide studies, online research, and class discussions.

**ART HISTORY MUSEUM AND CURATORIAL STUDIES**

Spring Term 1 credit

[This course does not fulfill the arts graduation requirement; available only to Fifth and Sixth Formers or Fourth Formers with departmental approval.]

Using the Crumpacker Gallery as a classroom, this course explores what is required for the collecting, handling, cataloging and exhibiting of art. Students work with the gallery director and staff as they learn the various tasks needed to curate an exhibit. The St. Paul's Permanent Collection is an important resource and teaching tool in this course. Visits to nearby museums and galleries to view exhibits and to meet with gallery directors and curators are scheduled throughout the term. Students work in the gallery lab/studios to explore techniques of restoration and presentation. The course will culminate in a proposal for future exhibits at St. Paul's School. Gallery staff will work with students to locate and to arrange summer gallery or museum internships.

**COMPUTING ACROSS DISCIPLINES**

Spring Term: 1 credit

Through full immersion into computing technology, this fun course inspires students to hone their creativity, communication skills, and critical thinking proficiency required to quickly adapt to our computerized world of rapidly changing technology. This critical thinking process and responsible use of technology applies to all disciplines, whether STEM, humanities, or the arts. This course begins with the history and evolution of computing, then provides an overview of the fundamental principles of computing while emphasizing the responsible use of technology. Students will learn the fundamental concepts of input, processing, output, data transmission, and storage to set the stage for exploring computer applications across a full range of disciplines and careers from the arts to engineering. Through a final project, students will employ an explicit process for learning and applying technology responsibly to solve a problem, communicate a social issue, or create art. Students will develop a final presentation and reflection that communicates their project, the technology used, and the potential impacts (both positive and negative) that their project has on the greater community.

**FOOD, ENVIRONMENT, AND SOCIETY**

Spring Term: 1 credit

If we are what we eat, then what are we? In this course, students investigate the science and ethics of our relationships with food to try to answer this question for themselves. The course considers where our food comes from, the evolution of our diets, industrial and sustainable food systems, GMOs and food labeling, animal welfare, the ethics of meat eating, political and economic policies influencing food choice and price, and the biochemistry of food and flavor, among other topics. Students learn from farmers, chefs, advocates, and one another through regular discussions of course readings, multimedia content, class trips, and practical activities, including educating the School on important issues in sustainable food and practicing what it takes to cultivate a meal together.

**IN TUNE WITH NATURE**

Spring Term: 1 credit

*Prerequisite:* Biology or currently enrolled in Biology.

This course will be a literary and scientific study of the natural world. Looking closely at the natural world around us, journaling about our own observations, and conducting scientific field studies are the essentials of this course, as we read and discuss the work of a number of nature writers to help inspire our own writing and reflection. How can we learn to become more environmentally aware through our close observations, labwork, reading, and discussions about nature? What makes celebrated nature writers and why are they such accomplished writers? How do we model that in our own writing? What changes could the SPS community make to become a more self-sustaining community? How do we become agents for change? Students will explore these and other questions.

**THE SCIENCE OF MINDFULNESS AND MEDITATIVE PRACTICE**

Fall Term: 1 credit

This interdisciplinary course explores the spiritual, psychological, and medical aspects/benefits of mindfulness/meditation. The course includes research-based inquiry into case studies as well as the neurology behind the amazing benefits of mindfulness/meditation. Students will spend one day per week actually practicing. We will shift from mindfulness-based activities to guided and silent meditation from week to week. We will have at least two guest speakers from the psychosocial and medical fields. The major assessment occurs during the last two weeks of the course when each student will present a case study in which subjects used mindfulness to overcome various spiritual, psychological, and/or medical challenges. Ongoing assessment will include weekly journal entries, participation, and student led discussions based on the topic for each week..

We admit qualified students of any race, color, disability, religious affiliation, national and ethnic origin, and sexual orientation to all rights, privileges, programs, and activities generally accorded or made available to students at our school. We do not discriminate in violation of any law or statute in the administration of our educational policies, admission policies, scholarship and financial aid programs, and athletics or other school-administered programs.



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