



**ST. MARK'S SCHOOL**  
**Course Catalog 2020-2021**

# St. Mark's School Course Catalog 2020-2021

## Diploma Requirements

For incoming students, course placement is contingent upon departmental approval in consultation with the Dean of Academics.

**Arts:** Incoming III and IV Formers are required to take a one-year course or two consecutive years of participation in the St. Mark's choir, orchestra, or jazz ensemble.

Incoming V Formers are required to take a one-semester course. (Options include Studio I, Theater or Music Studio.)

**English:** All students will take English each year at St. Mark's.

**History:** Incoming III Formers: Global Seminar followed by United States History (typically in V Form year).

**Language:** Completion of one language through Level III

**Mathematics:** Completion of Math through Algebra II

**Religion:** Incoming III and IV Formers are required to take two semesters comprising of one semester of Judaism, Christianity, and Islam, and one elective.

Incoming V Formers are required to take one semester of Judaism, Christianity, and Islam.

**Science:** Incoming III Formers are required to take Physics followed by one additional lab science in a later year.

Incoming IV Formers are required to take one lab science during their St. Mark's career.

**St. Mark's Saturdays:** All students are required to take three trimesters each year. (see p. 4)

**Lion Term:** This is an annual requirement for all students. (see p. 5)

## Student Course Load

All III Form students are required to take six courses each semester. All other Forms are required to take a minimum of five courses per semester, but with permission of the Dean of Academics, students on honors may take six courses.

## Honors and High Honors

A student who receives a cumulative grade average of B+ or higher in a cumulative Window (quarter) with no C range grades or below, will have an honors designation for that marking period.

A student who receives a grade average of A or higher in a cumulative Window (quarter) with no C range grades or below will have a high honors designation for that marking period.

## The Independent Studies Program of Advanced-Level Courses

Independent Study projects (ISPs) are Advanced, semester-based courses, available on a limited basis to students in good academic standing who have exceeded the course of study currently offered in the St. Mark's curriculum. Students who would like to extend their exploration of a discipline through an ISP will work with a faculty mentor to develop a curriculum and submit their proposal for approval to the Dean of Academics. Students approved for an ISP will meet twice each week with their faculty mentor. Credit is awarded upon completion of a representative culminating project, and a public presentation of work to the community. (*Fall ISP's must be proposed and approved in the spring of the preceding academic year, and Spring ISP's by the end of the first marking period of the same academic year.*)

## Special Diplomas

### **St. Mark's Classics Diploma**

The Classics Diploma may be earned by qualified students who complete three years of one classical language and two years of the other. Classical Diploma students travel with the department to either Greece or Italy on the biennial Classical Diploma trip. Classical Diploma students design a final project in the second semester of Greek II. ( see p. 11 )

## St. Mark's Global Diploma

The Global Diploma provides the opportunity for those students whose passion lies in the area of global citizenship to deepen their understanding of this topic. Global Diploma candidates will participate in a cohort that meets regularly and encourages reflection on their course of study and local and global engagement. Students will also complete a capstone experience that allows them to translate their curricular and extracurricular experiences to responsible action in the real world. Ideally, students will join the cohort by the end of their first year at St. Mark's School so appropriate course planning can begin. Students interested in this opportunity should meet with Dr. Appell-Warren to begin the planning process.

## St. Mark's Curriculum

St. Mark's seeks to develop students' abilities in key areas. Students attending St. Mark's are challenged:

To learn deeply and think critically.

To be resilient and resourceful.

To be creative problem-solvers with an understanding of the importance of inquiry.

To develop intellectual self-confidence and curiosity.

To communicate and listen effectively.

To operate with integrity and honesty.

To develop necessary skills to live in a diverse community and global world.

To develop healthy habits of mind, body, and spirit.

The St. Mark's curriculum is built on several pillars of pedagogy and learning designed to challenge and support our students:

**College Preparation:** Students will gain the necessary skills to be successful in a collegiate setting. Our younger students begin with basic skills and move on to higher order skills development as they advance through the curriculum. They enhance their ability to master developmentally appropriate skill sets such as critical and analytical thinking, logical argumentation, effective writing, and close observation. Students are exposed to a foundational core curriculum designed to sharpen skills and habits of mind upon which to build their secondary school and college careers.

**Diverse Curricular Offerings:** Students encounter a diverse and wide ranging curriculum. Our diverse faculty work collaboratively and also maintain pedagogical freedom that enriches student learning experiences.

**Collaborative Learning:** Our students and faculty work closely together and are engaged in collaborative work across the curriculum. Group work is a part of course design, and students are encouraged to extend cooperative work to other areas outside of the classroom.

### **Spiritual Center**

Built into our curriculum is the two-semester religion requirement signaling the importance of intellectual inquiry of spiritual matters and discussion of ideals such as ethics, integrity, compassion, and spiritual cultivation.

**Exploring the World Beyond Campus:** Our students are encouraged to discover the world beyond Southborough. Teachers explore global perspectives within our curriculum and regularly engage our students beyond the classroom on local day trips or by taking students to countries abroad.

**Advanced Course Offerings:** Consistent with the national dialogue about trends shaping the future of education, St. Mark’s has undertaken an in-depth curriculum review, including a thorough examination of Advanced Placement’s role in the School’s academic program. Starting in the fall of 2014, we designated our most rigorous courses as Advanced, rather than AP. These courses meet or exceed the challenge of the Advanced Placement curriculum and allow for greater flexibility in curriculum design. This approach best supports the educational goals identified in our strategic plan, *St. Mark’s School: 2020*. Students who receive departmental permission to enroll in Advanced courses will not be required to take AP examinations. Teachers of Advanced courses in disciplines offering an AP examination will consult with students seeking to develop an appropriate preparation plan for AP testing.

## **St. Mark’s Saturdays**

St. Mark’s Saturdays offer students and faculty an innovative opportunity to engage in relevant, developmentally appropriate experiential, service learning, and instructional coursework. At the core of each St. Mark’s Saturdays offering is a belief in the power of experience to transform student understanding. As students progress through the curriculum of St. Mark’s Saturdays, they will further develop academic and social-emotional competencies through hands-on work with authentic, “real-world” challenges. To the greatest degree possible, St. Mark’s Saturdays offerings will leverage the physical and intellectual resources of the surrounding area, including opportunities to use the broader community as our classroom. Courses meet on Saturdays in three seasons—fall, winter, and spring.

### **III FORM CORE (Required Fall only)**

This course devotes instruction and activities to examine the key questions for the III Form experience: What is my story and where did I come from? What support and resources do I have and need? How do I center myself? *(Required for all III Formers)*

#### **IV FORM CORE** *(Required Spring only)*

This course devotes instruction and activities to examine the key questions for the IV Form experience, acting as a bridge to the Lion Term Community Service partnerships: What do I value/care about and why do I care? How do I enhance empathy? How can I learn from others? *(Required for all IV Formers)*

#### **V FORM CORE** *(Required Winter only)*

This course devotes instruction and activities to examine the key questions for the V Form experience, including supporting the beginning of the college search process and preparing for purposeful immersion into an area of genuine interest for Lion Term: What is purpose and what is my purpose? What impact do I want my purpose to have? How does purpose guide my path? *(Required for all V Formers)*

#### **VI FORM CORE** *(Required Fall only)*

This course devotes instruction and activities to examine the key questions for the VI Form experience, with an emphasis on supporting the college application process and guidance for navigating life after St. Mark's: What is a life of consequence? What do the skills and tools that I have accrued lead me toward?*(Required for all VI Formers)*

#### **V FORM SATURDAY “Purposeful Action”** *(Required Spring only)*

During the St. Mark's Saturdays spring term, all V Form students will enroll in “Purposeful Action,” a preparatory experience for V Form Lion Term. This class will provide the students to work collaboratively to develop their own unique experiential pathway with the support of faculty mentors. *(Required for all V Formers)*

#### **VI FORM SATURDAY “Lives of Consequence”** *(Required Winter only)*

During the St. Mark's Saturdays winter term, all VI Form students will enroll in “Lives of Consequence,” a preparatory experience for VI Form Lion Term. This class will provide the framework for students to develop a meaningful and rewarding Lion Term plan. *(Required for all VI Formers, with the exception of VI Form students enrolled in FIRST Robotics: Team 3566)*

## **Lion Term**

Lion Term is a program during which students will have a form-based experience focused on the desired educational learning outcomes for intellect, character, and leadership outlined in the SM2020 Strategic Plan.

#### **III Form Lion Term “Self Awareness”**

III Form Lion Term is an opportunity for III Formers to develop grit, personal responsibility, and a sense of community as a Form through interaction with the natural world and service to Brantwood Camp. Lion Term further supports the questions of III Form experience: What is my story and where did I come from? What support and resources do I have and need? How do I center myself? *(Required for all III Form Students)*

#### **IV Form Lion Term “Community Awareness”**

IV Form Lion Term is an opportunity for students to serve the local community while developing their leadership and collaboration skills, building empathy for others, and understanding the commitment to service. Lion Term

further supports the questions of IV Form experience: What do I value/care about and why do I care? How do I enhance empathy? How can I learn from others? *(Required for all IV Form Students)*

### **V Form Lion Term “Purposeful Action”**

V Form Lion Term is an opportunity for students to inquire deeply into a topic they care about and to cultivate the 21st-century skills of curiosity, critical thinking, collaboration, and communication. Lion Term further supports the questions of V Form experience: What is purpose and what is my purpose? What impact do I want my purpose to have? How does purpose guide my path? *(Required for all V Form Students)*

### **VI Form Lion Term “Lives of Consequence”**

VI Form Lion Term is an opportunity for students to enact their intellectual, academic, and individual narratives as a culmination of their St. Mark's experiences. Lion Term further supports the questions of VI Form experience: What is a life of consequence? What do the skills and tools that I have accrued lead me toward? *(Required for all VI Form Students)*

### **Lions Roam**

Lions Roam is a one-semester or year long course that will integrate a “Lions Roam” embedded immersion component, making use of Lion Term to travel abroad related to the context of the course. The 2020–2021 Lions Roam embedded immersion course will be “Pilgrimage in Literature, Film, and Art: Lions Roam to England and Scotland.” This course is listed as an offering of the English and Religion departments. *(Open to Forms IV, V, and VI. See page 29 for more information).*

## **Arts**

Organizations today operate in a highly competitive, global environment. Creativity is crucial as the primary mechanism by which organizations innovate to remain relevant in a rapidly evolving landscape.

Creative people imagine new ideas and bring them into reality. They develop the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions through critical thinking, experimentation, and risk-taking.

At St. Mark's, the arts are integral to age-appropriate development of the creative self in adolescents. In addition to traditional arts ideals such as the pursuit of truth and beauty or the raising of social commentary, art study builds a sense of self and self-identification as a creative person. Whether through drawing, acting, sculpting, singing, or playing music, art study guides students toward the discovery of their own creative process; this, in turn, leads to enhanced higher-level, formal, critical, and abstract thinking and access to the expressive self. These are transferable skills, as relevant to the studio as they are to a genetics laboratory or business incubator.

**Successful completion of a full-year course (two years for music ensembles) fulfills the arts graduation requirement.** Placement in upper-level or advanced art courses is by permission of the instructor. Previous art experience prior to arriving at St. Mark's does not guarantee enrollment in upper-level courses. Students who enter St. Mark's in the **V Form have a one-semester minimum arts requirement.**

## Studio Art

### **Studio I (Year)**

The ability to observe critically and to record what you see is a skill that naturalists, architects, and designers have historically relied on in their fieldwork. Digital technology has created a “grab and go” approach to our thinking with little risk. Working with pencil, paper, linoleum, carving tools, and drypoint, we learn to record the visual world with accuracy and the unique “voice” of each individual’s hand. Joining composition, contrast, line, surface, and color, we will investigate our surroundings and explore new directions in the development of ideas. A core principle of this course is that art is a language of communicating ideas that can be used to investigate important issues, be they scientific, mathematical, or social. Studio I assumes no prior experience but accepts students with considerable experience who have not worked extensively on large paper or from life.

### **Studio II (Year)**

Students enter this class with extensive drawing and observational experience and a working knowledge of color theory. We shift from a knowledgeable description of the observable world toward interpretative thinking and working. Risk-taking is encouraged in the process of developing a personal, expressive use of materials, technique, craft, and a deeper exploration of content. Drawing media such as colored pencil and watercolor are explored along with print media such as drypoint and color reduction woodcut, blending on-site fieldwork with studio practice. *(Prerequisite: Studio I and/or Departmental permission by portfolio)*

### **Advanced Studio Art (Year)**

Students in this course focus on issue-based content along with experimental approaches to image-making. Students choose and combine materials and technical skills to serve ideas of their making, developing a new and original body of work over the course of the year. Additionally, they learn how to write personal statements about their work and to present their ideas to a public audience. It is highly recommended that Advanced Studio III students take a fall or winter ACA to allow extended time in the afternoons to establish and develop new directions in their work and thinking. *(Prerequisite: Studio II and/or Departmental permission by portfolio)*

### **Ceramics I (Year)**

This course uses clay as a means of exploring issues of creative problem-solving. Assignments range from traditional functional pottery forms to figurative and abstract clay sculptures. Techniques include coil, slab, extruded, press molds, reductive carving, and wheel throwing. In the application of each technique, students also explore possibilities for surface texture and glazing. Students will be introduced to the basics of electric and Raku firing. Through structured assignments and self-designed projects, students increase self-awareness, self-confidence, and discipline by means of the basic processes of working with clay and the challenge of visual expression.

### **Ceramics II (Year)**

This course is open to students who have taken Ceramics I or who have previous clay experience equivalent to a yearlong class. This course emphasizes individual expression in clay and will involve advanced work in the wheel and hand-building. Students will be encouraged to design their own ideas for some projects, staggered with specific assignments that will build breadth to their ceramic portfolio. *(Prerequisite: Ceramics I and/or Departmental permission by portfolio)*

**Advanced Ceramics (Year)**

Students in this course will explore advanced techniques in hand-building and wheel work. Hand-building techniques may include coiling, extruding, pressing, and reductive carving. Wheel work will range from functional thrown work to sculptural objects. Assignments are designed to challenge students technically, aesthetically and conceptually. Through extensive independent work, students will design and create an exhibition of work that shows their exploration and development of personal ideas. *(Prerequisite: Ceramics II and/or Departmental permission)*

**Sculpture I (Year)**

Sculpture I students learn to sculpt in various materials including plaster, clay, wire, wood, and found objects. Assignments range from the abstract to the realistic. Students will be challenged to investigate decisions made in the creative process and problem solving that affect the communicative qualities of their work. By studying the principles and elements of sculptural design and by hands-on experience with a variety of materials and tools, students will acquire technical skills and confidence in self-expression.

**Advanced Art History I (Fall)**

This interdisciplinary course that explores history and culture through examination of architecture, sculpture, painting, and new media from the ancient world through the present day. Working chronologically, including comparative examples from today's visual culture we examine the rich traditions of Africa, South America, Europe, and Asia through the lens of religion, kingship, inventions, and the manipulation of materials. Trade routes, colonization, and powerful empires had profound influence on the art made in the ancient and medieval world, and created visions of democracy and aesthetics still in use today. *(Open to Forms V and VI. This class is cross listed with History.)*

**Advanced Art History II (Spring)**

The spring semester of this interdisciplinary course begins with the Renaissance through the Baroque and modern eras. Topics in Renaissance and Baroque art and architecture will lead students to the evolution of arts in America, including art, architecture, photography, and decorative arts. The study of visual culture helps us to understand ourselves through the artists who speak to us today, communicating in media that transcends language to define a global culture as well as a preservation of cultural identity emanating from an island nation facing climate change or perhaps a nation at war. This course involves extensive reading, writing, and research. Throughout the semester, students will incorporate the discovery and prior knowledge of European and American history and culturalism which serve as broader tools in understanding the art history of these time periods and geographic areas. *(Open to Forms V and VI. This class is cross listed with History.)*

## Music

### **Ensembles: Choir, Jazz Band and Orchestra (Year)**

Student musicians will meet with Jazz Band, Orchestra, or Choir for the two full rehearsals each week. Participation at this level involves individual practice and encouragement to take a private lesson weekly. There is minimal written work.

In order to build consistency and excellence in our ensembles, it is hoped that students who have an interest in music will remain in their respective ensembles throughout their St. Mark's career. ***However, the arts diploma requirement may be fulfilled by two consecutive years of participation in the Choir, Orchestra, or Jazz Band.***

### **Music Studio I (Fall)**

Music Studio I give students an opportunity to build intensive practice time into their schedules, allowing them to make significant musical progress in one year. Since the course is self-paced, students of all levels are welcome to participate, whether learning a new instrument as a beginner or furthering advanced skills. Students focus not only on "learning songs" but on key skills: reading pitches and rhythms, using key signatures and sight singing. All students will learn the elements of intentional practice, that is, how to practice efficiently for maximum progress. Students document their progress in the use of these techniques in weekly practice videos. Practicing is also the primary homework responsibility, with a goal of two-and-one-half hours per week of practice outside of class times. Additionally, Music Studio students are required to take a weekly private lesson with one of St. Mark's adjunct music faculty (extra fee, covered by financial aid). Students perform for each other in class, in informal concerts, student showcase recitals, and for outside evaluators in assessments. The class is open to all music students of all grade and experience levels, in all instrumental and vocal styles. Taking Music Studio I and II in consecutive semesters will fulfill the arts requirement. *(Open to all forms)*

### **Music Studio II (Spring)**

Music Studio II is a continuation of the fall semester Music Studio I course. Taking Music Studio I and II in consecutive semesters will fulfill the arts requirement. However, with departmental permission, students may elect to take only the spring semester Music Studio II course. They will follow the same curriculum of weekly lessons, practice and performance as in the Music Studio I course, but this one-semester course will not fulfill the arts credit requirement. This may be particularly useful for students who may have taken Music Studio or another arts course in previous years or who have a substantial musical background and who need to prepare college auditions, recordings, competitions, or a recital. *(Prerequisite: Music Studio I or Departmental permission)*

### **Global Sounds "Music of World Cultures" (Fall)**

What makes music sound American? Chinese? Ghanaian? One of the most fascinating ways to peer into the cultures of the world is by examining the traditional music of those cultures. In some cases, the ancient folk music is still played as it was thousands of years ago. In others, it has evolved or been incorporated into modern, global musical contexts. In other cultures, it has disappeared entirely.

This course does not require that you be a musician, only that you are curious about listening to new kinds of music. We will start with learning skills of intentional listening so we are prepared to experience the music more deeply than "I liked it" or "I didn't like it". Armed with these skills, we will listen to music of all the major geographic areas of the world: Oceania, South Asia, Southeast Asia, East Asia, the Middle East, West and Sub-Saharan Africa, Europe, the Caribbean, South America, North America.

Students will listen to music, read about the cultures from which the music grew, visit video sites, and go on two field trips: one to Tufts University to experience the Javanese gamelan (percussion orchestra) and the other to Boston in a visit to the GBCCA Chinese Ensemble comprised of ancient Chinese folk instruments. Students will also write journal entries about their exposure to the various musical forms with the goal of teasing out cultural and stylistic connections. *(Open to all forms. Meets criteria for Global Citizenship Diploma course of study.)*

### **Sounds of Faith: The Music of World Religions (Spring)**

In "Sounds of Faith: The Music of World Religions", we will listen to the different types of music associated with the practice of world religions. We will also try to understand why religions might ban music outright or forbid certain types of music. We will watch dance and ritual action when it is associated with the music. In doing so, we will come to understand the theological, cultural and artistic components of music in each religion studied.

We will start by learning skills of intentional listening so we are prepared to experience the music more deeply. Through this deep listening we will train ourselves to discern the elements of each music -- rhythm, melody, harmony, instrumentation, vocal styles -- and also whether it is integrally connected to dance or ritual.

Most of the time we will use recorded music and video for our study. We will also meet with musicians from various traditions, possibly including a Jewish cantor (music leader) and Islamic muezzin (the person who leads the call to prayer). We will also see and hear the music being made live in the context of sacred services, which may include a Native American Pow Wow, a Jewish Shabbat service, an Anglican High Mass, an Islamic call to prayer, and the chanting of Kirtans in the Hindu vedic tradition. *(Open to IV, V and VI Formers. This course is cross listed with Religion.)*

### **Advanced Music Theory (Year)**

In Advanced Music Theory, students who have substantial musical background develop specific skills in composition, analysis, and aural perception. While the emphasis is placed on the theory (reading, writing, aural and written analysis) of tonal music of the western European Common Practice Period (1600–1900), students are also exposed to earlier modal music, music of non-western cultures and modern atonal music that illustrates the various experimental composition techniques of the 20th century. While this course is not taught specifically to the AP Music Theory exam, students will build the skills they need to take the test with some additional outside preparation. The degree to which the course focuses on coverage of the AP curriculum will be determined by class consensus. *(Open to IV, V, VI Formers who have completed Music Studio, or with Departmental permission)*

## **Theater**

### **Theater I “Introduction to Theater” (Year)**

This course introduces students to the fundamentals of acting and character construction as a gateway to understanding the complex world of Theater and Drama. Students will begin by exploring the theatrical space and how to effectively manipulate the setting to convey a message to an audience. Our study will then move through the process of building well-rounded, realistic theatrical characters, establishing a foundation in Stanislavsky-based method acting. Students will participate fully in an actor’s workshop approach, rehearsing and performing multiple monologues and scenes from classic and contemporary scripts, culminating in the public performance of “The Perfect Scene.” Throughout the course, students will also explore areas of improvisation, script analysis, directing, playwriting, voice and physical training, stage management, and scenic design. Additionally, students will learn about theater from around the world and study how plays and theatrical productions can be used in different contexts, outside the walls of a traditional theater, for entertainment, education, and social change.

### **Special Topics in Theater Arts (Fall & Spring Semesters)**

This course allows students to further their study of Theater and Acting and continue to develop skills in rehearsal and performance, while also introducing students to the art and craft of directing, ensemble performance, long form improvisation, contemporary and classical dramatic theories, technical theater, dramaturgy, playwriting, and/or filmmaking. Each semester dives deep into a subtopic of theater arts, while also building upon the foundations of character and scene study. Students will work independently and collaboratively throughout the semester on a variety of formal and informal performances and assessments. Work in this course may be supplemented by viewings of professional plays (in Boston or New York), guest artist visits, master classes, and/or participation in dramatic arts festivals. Each course of study is determined in collaboration between the instructor and the students. Courses of study are chosen to allow students to take multiple versions of the course over several semesters, including the topics listed below. *(Prerequisite: Theater I and/or Departmental permission)*

#### **Shakespeare on Stage (Offered Fall 2020)**

In Shakespeare on Stage, students will explore the works and legacy of one of the most prolific playwrights of all time. Throughout the first half of the course, students will read, analyze, and perform a selection of Shakespeare's most famous Tragedies, Comedies, and Histories, such as Hamlet, Romeo and Juliet, Measure for Measure, Taming of the Shrew, Winter's Tale, and Titus Andronicus. Students will explore the fundamentals of Shakespearean actors, including effective recitation of iambic pentameter and blank verse. Students will also engage in the study of stage combat, ultimately choreographing their own version of an iconic Shakespearean sword fight. Additionally, students will view a live theatrical performance in Boston or New York. Finally, during the second half of the course, we will shift our focus towards modern reflections on Shakespeare's plays, including "Rosencrantz and Guildenstern are Dead", "Shakespeare in Love", "Gary, a Sequel to Titus Andronicus", and Young Jean Lee's reimagining of "King Lear". *(This class is cross listed with VI form English.)*

#### **Director's Lab (Offered Spring 2021)**

The Director's Lab is a deep dive into the fundamentals and stylistic possibilities of Directing for stage and film. Through hands-on script development and mini-performances, students will learn basic principles of proximity, emotional display, rhythm, and tempo in order to create specific and impactful visuals on stage. We will meet with professional stage and film directors to understand the ever evolving landscape of modern directing. Additionally, we will explore the fundamentals of lighting, scenic design, and costume design. Students will explore specific styles of performance, such as expressionism and absurdism, as well as dramaturgy, and learn how to properly research the setting and cultural components of a given script. Finally, each participant will develop an individualized style and approach for collaborating with actors towards a fully realized production. Students will conclude the course by selecting and ultimately directing a one act play for the Student Directed One Acts.

Improv and Sketch Comedy Writing and Performance *(Not offered in 2020-2021)*

Original & Devised Playwriting *(Not offered in 2020-2021)*

Advanced Acting Theories (Meisner, Adler, Uta Hagan, etc.) *(Not offered in 2020-2021)*

Filmmaking *(Not offered in 2020-2021)*

Irish Drama *(Not offered in 2020-2021)*

Political and Social Action Theater *(Not offered in 2020-2021)*

Monologue and Solo Performance *(Not offered in 2020-2021)*

# Classics

The Classics Department offers courses emphasizing the culture and history of antiquity as seen through the written and material remains of ancient Greece and Rome. We use the reading approach to language learning, which immerses students in the genres of history, poetry, oratory, and philosophy in Latin and Greek from the very beginning of their study through to the advanced levels. St. Mark's offers a Classical Diploma to students who complete three years of one classical language and two years of the other, who travel to either Greece or Italy on the biennial Classical Diploma Trip, and who complete a final capstone project in the field of Classical studies. Classical Diploma students design this final project together in the second semester of Greek II. We accept credits in either language earned before a student's entrance to St. Mark's; placement is contingent upon departmental approval in consultation with the dean of academics. Advanced courses may be taken with departmental permission following completion of the appropriate prerequisites.

## Latin

### **Latin I ( Year )**

This course serves as an introduction to the Latin language and Roman culture. We teach Latin via the reading method in the Classics Department at St. Mark's. The reading method teaches fundamental Latin grammar and vocabulary within the context of a Latin text. The text also provides a means by which students can explore Roman culture through a number of projects that focus on history, mythology, and culture. The end of the year culminates in the production of a short play, created and performed cooperatively by the students of the course.

### **Latin II ( Year )**

This course continues the study of Latin morphology and grammar with a continued emphasis on reading and translating. By the second semester, students are prepared to read and discuss long passages of continuous text. We study the major topics of Rome's mythical beginnings through adapted passages from Livy's *Ab Urbe Condita*, classical mythology, and Roman identity in Caesar's *Gallic War*. (*Prerequisites: Latin I or Departmental Permission*)

### **Latin III ( Year )**

This course serves as an introduction to two of the major genres of Latin literature, prose and poetry. As we read, students work at their own pace through grammar and morphology modules. The structure of these modules allow students to reinforce and build upon their foundation of morphology and grammatical constructions by mastering these topics within the context of the literature studied. Texts may include selections from Petronius's *Satyricon*, Caesar's *De Bello Gallico*, Cicero's *In Catilinam*, and Livy's *Ab Urbe Condita*. In the spring, the focus shifts to poetry and literary style. Students study Roman culture and mythological tradition while reading selections from Ovid's *Metamorphoses*. Prerequisites: *Latin II*

### **Honors Latin III ( Year )**

This course is a prerequisite for students who are planning to take the Advanced Latin course. Students are introduced to rhetoric and the prose of the Late Republic while reading selected orations from Cicero and the historiography of Sallust. In the spring semester, students explore the culture and history of Imperial Rome through the poetry of Horace, Ovid, and Virgil. Students gain familiarity with a variety of metrical and literary devices and complete writing assignments (in English) of varying lengths on topics related to their readings. Upon completion of this course, students may, with departmental permission, continue on to Advanced Topics in Latin Literature. (Prerequisites: *Latin II and Departmental Permission* )

### **Latin Workshop “Readings in Latin Literature” ( Fall & Spring semesters)**

Looking for more Latin? Latin Workshop is a course for any student who has completed coursework through level III. The content of this course is dependent upon the interests and levels of the students enrolled. Texts that survey a historical period, a particular genre, or Latin author will be matched to this theme. Students will work through readings of their choosing in a self-paced environment while translating one common text together during our single block each week. This course may be taken as a semester or year-long course. (*Prerequisite: Latin III or Latin III Honors*)

### **Advanced Topics in Latin Literature ( Year)**

This course explores in more depth the period of Roman literature known as the Golden Age. Students read passages from Virgil’s *Aeneid* and consider questions related to Roman identity, heroism and the complex relationship between myth, history and art. (*Prerequisite: Latin III Honors*)

### **Roman Philosophy and Religion ( Not offered in 2020-2021 )**

In this class, students learn about the main tenets of ancient Roman philosophical thought and religious practice. The first part of the course explores the origins of Roman religion—its ritual practices and the development and influences of foreign beliefs and cults. The second half considers the major philosophical schools of Epicureanism and Stoicism on Roman society and traces their role in the transition to Christianity in the 1st century. All readings are in English. (*Open to IV, V, and VI Forms. This class is cross-listed with Religion.*)

## **Greek**

### **Greek I (Year)**

This course serves as an introduction to the ancient Greek language and culture. We teach Greek via the reading method in the Classics Department at St. Mark’s. The reading method teaches fundamental Greek grammar and vocabulary within the context of a Greek text. Beyond morphology and grammar, the reading method offers a text environment that promotes discussion about cultural, mythological and historical topics pertinent to 5th century Athens.

### **Greek II (Year )**

This course completes the introduction to Greek grammar and morphology, via the reading method. In the second half of the course, students select a text of either Attic or Homeric prose to read, translate, and discuss. The students of this course design, implement, and present a project-based learning experience known as the Classical Diploma Capstone project. Successful completion of this project is a requirement for students who earn the Classical Diploma. (*Prerequisite: Greek I*)

### **Greek III “Special Topics in Greek Literature” (Year )**

Depending on the interest of the students and the discretion of the instructor, students may read and translate selections from the Greek New Testament, tragedies by Sophocles or Euripides, selections from Homer’s *Iliad* or *Odyssey*, or readings in Greek philosophy or history. (*Prerequisite: Greek II*)

## **Computer Science and Robotics Courses**

Computer science is a field that brings together disciplines like logic, mathematics, probability, engineering and linguistics and with that focus uses the computer as a problem-solving tool. Computer science studies range from theoretical foundations to human-computer interfaces. This rapidly changing and dynamic field is deeply integrated into the natural sciences, engineering, business, and the arts.

Robotics is a fascinating new world that combines mechanical building, electrical know-how, and computer science skills to create machines that can perform tasks autonomously and at times seemingly “think” for themselves.

Our computer science and robotics courses have been designed to provide a firm grounding for a broad range of students: For those students who will go on to do in depth study in one or more of these disciplines, the St. Mark’s courses in computer science and robotics will provide them with the skills to get a head start. For students who will progress to other disciplines, the computer science and robotics courses will provide insight into using computational and digital solutions in their chosen field.

Our offerings are designed to be as open as possible while still allowing deeper exploration in computer science and robotics. Students can investigate these disciplines in different course combinations.

Possible CS/Robotics course progression include the following:

- CS I (python) followed by CS II (HTML/CSS Javascript). Then Java I/II or Advanced Topics in CS (placement test required).
- Java I followed by Java II. Followed by Advanced Computer Science (Department permission or placement test)
- Topics in Robotics and DIY Circuits Engineering either CS I/II or Java I/II
- CS I followed by Java I. Followed by Topics in Robotics and DIY Engineering
- Advanced Topics in Computer Science

Many different possible combinations of courses are possible and are not limited by the above examples. Course pathways all center around the interests, experience and other schedule needs of the student.

### **Computer Science I (Fall)**

This course provides an introduction to computer programming and organization, using the Python programming language. With on-computer tools, like PyCharm and online coding tools, like Trinket.io and Repl.it, students gain basic python programming skills using libraries, such as Python's Turtle graphics library. With fundamentals mastered, like data types, loop constructions, and knowledge of if/then logic, the student works to program one or two games, that involves on screen motion and graphics. The games may vary, but programming a game, like a "lunar lander", "hangman," or other games, allows students to hone their skills and build more complex logic, more intricate subroutines and more exciting results. Through this gaming work, the students will also gain additional experience handling strings and simple Python data structures like lists and dictionaries. Students will also learn how to store and share their programming work on cloud services, such as GitHub. In the final part of the course, the students jump into the world of microprogramming, where they can also use their growing Python programming knowledge. Each student will set up their own Raspberry Pi microprocessor and learn how to connect to it from their own computer through a desktop sharing system like the VNC (Virtual Network Computing) server. With their Raspberry Pis, the students work on a final project, such as program games with more intensive graphics, e.g. using the Python Pygame library, making an interactive electronics project, e.g. using the Raspberry Pi GPIO (General Purpose I/O) pins and corresponding Python libraries, or do other interactive programming using tools such as Node Red, a programming tool to handle communication between devices on the "Internet of Things" (IoT). The goal, no matter what the programming challenge, is for students to see the power of computing and allow them to master basic computer programming concepts with exercises that encourage student engagement. *(No prior programming experience is expected or required)*

### **Computer Science II "Webpage development HTML, CSS and Javascript" (Spring)**

Computer Science II follows CS I and investigates the world of text-based programming through front-end Web development. In CS II, students learn how to code in HTML, CSS, and Javascript and with this knowledge, students will learn how to design and code interactive websites. Students in the course will program websites using the current tools for web development (HTML, CSS and JavaScript) and learn how web pages work in different browsers (Chrome, Firefox, Explorer). Students will also master the technical vocabulary (e.g DOM Document Object Model) to communicate web-building and programming ideas to others.

Learning how to code is empowering, fun and an important skill that will work its way into how you see the web in everyday life. Topics covered include: Page Layout and HTML (Hyper Text Markup Language) Basics; CSS (Cascading Style Sheet) Basics; JavaScript Basics (Variables, Conditionals); JavaScript Functions; Intro to jQuery (a Javascript programming framework). A final project will be to make an interactive web page of the student's design. With student interest, the class may also explore alternative ways of making Web pages, such as with the Python programming language and Python framework, Django *(Prerequisite: Computer Science I or Departmental permission)*

### **Computer Programming with Java I (Fall)**

This course takes a project-based approach to provide a rigorous introduction to the fundamentals of computer programming using the Java computer programming language. Java is an object-oriented programming language and the basics of creating classes and objects in Java is provided. Students will be introduced to Java variables, and control structures like if/then statements and program loops. Data structures such as arrays will be introduced. Students will use their programming skills to tackle challenges like sorting numbers, computing solutions to mathematical puzzles and other projects.

Animation basics such as frames, timers and threads will also be introduced. A game, such as Brickbreaker, Pente, or other game of class choosing, with animated graphics will also be created which can be run on a web page. Java I is a beginning programming course, open to all, but please note Java I has a subject matter and workload that is somewhat more rigorous than the introductory work of Computer Science I. If you want to jump into coding with a

text-based, professional coding language, or you have had some basic experience with languages like Python and you want to try Java, this course is for you. *(No prior programming experience is expected; however, Departmental permission is required)*

### **Computer Programming with Java II “Intermediate Java Programming” (Spring)**

This course continues the work started in Computer Programming with Java I. Students here will have a good understanding of the basics of object-oriented programming and how to create a simple Java program consisting of multiple interacting objects. Topics in this course will expand on the basics and move into areas such as data structures (e.g. stacks, heaps, queues), algorithm construction and determining the efficiency of a program. More complex programs of student interest will be developed as final projects. *(Prerequisite: Computer Programming with Java I or Departmental permission)*

### **Advanced Topics in Computer Science (Year)**

Advanced Topics in Computer Science is a course for those students who have some programming experience and who wish to do more. This year-long Java programming course stresses above-all an algorithmic approach and “thinking like a computer scientist” to solve programming problems. An algorithm can be looked at as a step-by-step plan, or method, to solve a problem. If the algorithm is efficient and clever, the “plan” can be implemented in code to solve hard problems like organizing vast sets of numbers, planning the shortest route through a complicated map, or predicting the next president of the United States, (e.g. based on household purchase data). Developing the skill to create an efficient algorithm is a great aim for a student. The skill of “thinking like a computer scientist” can be applied in many other areas. In using an algorithmic approach, students can look carefully and critically at various solutions and pick the one that works “best.” Algorithmic solutions can be tested empirically by running programs for time (the fastest implementation wins) or by looking at them mathematically, such as by looking at the number of times the algorithm needs to run for a given set of data. The “Big O” (Order of N) analysis which analyzes the upper limit behavior of algorithms is just one way of classifying which algorithm works “best.” Study of data structures goes hand-in-hand with work in designing algorithms, so Advanced Topics in Computer Science will give students experience in developing programs with data structures such as: arrays and linked lists and abstract data types such as stacks, queues, trees and graphs. Approaches such as “divide and conquer,” “dynamic programming” and recursion will be explored in exercises and in larger projects. Implementations of sorting methods such as Selection Sort, Insertion Sort, Bubble Sort, Shellsort, Quicksort and Merge Sort will be explored as a way to test different algorithmic approaches. The students will work on nightly programming assignments and create larger programming projects, such as games and other interactive applications following this algorithm-design approach. Special topics such as web-based applications or phone application building may be explored, based on student interests. Students on entry will show a good comfort level in setting up Java program (in an editor such as Eclipse) and in program-building using control statements (e.g loops and conditionals), subroutines (Java methods), and object-oriented elements like classes. *(Prerequisite: Java II and permission from the Department or equivalent programming experience and good performance on a Department placement exam given in May)*

### **Robotics and DIY Engineering with Design Thinking (Year)**

Robots are made to do things--The way a robot looks and acts is expressly determined by its purpose. Imagine making a robot that would help a person, such a child with muscular dystrophy or other diseases move around the world--the robot would be there to help the child do what every kid wants--move freely, play, have fun and enjoy life. How would you start to design such a robot? What are other kinds of robotic devices that you would like to design that could change the world? Is it possible to make models of such robots using DIY (“Do-It-Yourself”) building and prototyping techniques?

This course has been developed to help you begin to master the elements of robot and DIY building using concepts of “Design Thinking”. With design thinking techniques you will develop skills of collaboration, cooperation, problem-solving, and empathy while researching and working to create devices such as one that can assist a student who has a debilitating disease or injury. You will use your growing design thinking skills to help in solving real-world problems. While working through such problems you will also become skilled in robotic design. Robotic design incorporates both software and hardware (motors, sensors and other elements) to work either in autonomous or user operated (teleoperated) ways to do tasks. Students will develop skills in building robotics and teleoperated devices. Machines that can do specific tasks autonomously are robotic, but a close relative is a teleoperated device that a user can operate (e.g. remotely) to do tasks. Both aspects of design and building will be explored. Through the process of robotic building, you will also master techniques for DIY building and prototyping using the machines of the St. Mark’s Fab Lab. The Maker Movement has been revolutionizing prototyping, product-making (bringing new products) to market, and manufacturing. St. Mark’s has very good Maker-facilities in the Fab Lab (on the first floor of the STEM building). Tools available include, a laser cutter, 3D printers and two mini CNC (Computer Numerical Control) machines. Laser cutting is a technology that uses a laser to cut and etch materials, like acrylic, cardboard, brushed metal and other specific materials. 3D printers is an “additive” process that allows the creation of a physical object from a three-dimensional digital model, typically by building up many thin layers of a material like plastic in succession. In contrast, CNC machines are “subtractive,” in that they start with a block of material and then carve the shape from the block of materials (like a sculptor). In working through our projects you will learn the basics of running all of these machines (laser cutters, 3D printers and CNC machines) safely and you will also learn to use the computer design software needed to create designs for the machines, like Adobe Illustrator (for 2D designs) and Onshape (for 3D Designs). *(No prior programming or building experience is expected or needed)*

## English

The English Department seeks to develop sensitive and critical readers and writers who view reading and writing as modes of discovery, thought, and communication. In our approach to reading, we challenge students to be honest with the text and to read with precision, attentive to nuances of tone and voice, image and symbol, plot and theme. We encourage our students to become lifelong readers, capable of responding to literature as an artistic form and as a means of understanding one’s self and others. As students move through the reading program, they receive a balanced and broad exposure to world literature.

Central to the department’s approach to writing is a shared emphasis on the composing process. Students learn the basic skills in moving from the sentence to the paragraph to the critical essay. As these skills develop, we encourage each student to develop his or her personal writing voice, to take intellectual risks, and to understand the intended audience. We place special emphasis on revision. Frequent conferences and written comments on papers assure both discussion of student work and mentoring through the process of drafting and revision.

***Standard department policies:***

We balance uniform goals with a diversity of offerings and teaching styles. Grammar is taught at lower levels.

Students are frequently graded. Common writing requirements are set at each level.

Vocabulary study is stressed through vocabulary books, word lists from required readings, and regular assessments.

We emphasize listening and speaking skills through class discussion, dramatic reading, and oral reports.

## III Form English

**Writing Workshop (Year)**

This course, the first in the St. Mark's English sequence, occupies a distinct place within the English curriculum. As the title suggests, this is a process-oriented class that places the writing process at the center. There is early focus on the mechanics of writing (e.g., spelling, punctuation, capitalization and grammar), transitioning to the techniques of writing (e.g., note-taking, brainstorming, outlining, bibliographies), and finishing with formal writing, where students learn to select topics, draft, edit, give and receive responses, revise, redraft, and refine their writing at a manageable pace. Students will typically rework at least two drafts of a piece, welcoming responses from peers, and conferencing with the teacher before turning in a draft for review and assessment. This course is where students will work as real writers do:

Finding topics which interest them

Sharing their works-in-progress with each other

Giving and receiving peer responses to ideas, style, and structure of pieces

Learning how to give constructive criticism to themselves as well as to their peers

Learning skills and techniques of writing in the context of their own stories, poems, and pieces

Learning new methods of expressing ideas through hearing what others have written,

Sharing the insights they've gained in their writing

Students will begin to hone their reading and comprehension skills in this course through their and their peers' writing. *(Required for III Formers)*

## IV Form English

### **Survey of Literary Genres (Year)**

This course seeks to create more astute, perceptive readers and more powerful, controlled writers by focusing on extending the depth of students' understanding of literature and writing. Students tackle a variety of literary genres including short stories, drama, nonfiction, the novel, and poetry. Class discussions concentrate on the effectiveness of each genre to communicate ideas in unique ways. Our writing focus will include diverse assignments in different genres as well, including autobiography, description, and narrative work. Other pieces concentrate on analysis and argument in critical literary essays. All of these assignments help students to improve their clarity, organization, word choice, style, and grammar. Students learn how to develop a good thesis and how to structure and support their ideas on paper as they produce longer writings, moving from a topic to an argument, incorporating compelling evidence, and properly citing sources. Through class workshops, conferences with their teachers, and frequent revision, students also learn to evaluate their thinking and to become more rigorous critics of their writing. *(Required for IV Formers)*

## V Form English

**The American Literature or Books Without Borders** curriculum challenges students to develop and utilize their ability to read and respond to literature formally. All American Literature classes will have three core texts and all Books Without Borders classes will have three core texts: *two of those texts will be a core for both courses*. While requiring students to communicate their responses to material in a number of ways (through participation in class discussion, group exploration, and creative writing), American Literature or Books Without Borders follows up the writing skills developed in the previous year with a strong emphasis on *four core types of essay*: passage analysis, comparative, persuasive, and personal. Teachers address the various aspects of essay construction: paying careful attention to the text, formulating interpretive responses to the material, constructing an outline, substantiating perceptions, using textual evidence, writing, and revising. Through such careful attention to the process of critical writing, this course seeks to give students mastery of the vocabulary of critical analysis, the skills of critical interpretation, and the presentation of critical argument. American Literature and Books Without Borders emphasize preparations for the SAT II Subject Test in Literature, including a review of literary terms and practice tests. *Both American Literature and Books Without Borders teachers will be working with the History and Social Sciences department for collaboration with V Form United States' history classes. (Required for V Formers)*

### **American Literature (Year)**

This course is an introduction to the American literary tradition from the Puritan era to the present. Students learn to read and analyze poems, stories, essays, plays, and novels carefully, with attention to style and content. Each text is addressed within the cultural and literary contexts of its period; its antecedents and influences on later writers are also explored. *Authors include (but are not limited to): Mark Twain, Frederick Douglass, Ralph Waldo Emerson, J.D. Salinger, Toni Morrison, Flannery O'Connor, Emily Dickinson, Nathaniel Hawthorne, Henry David Thoreau, Ken Kesey, Herman Melville, Benjamin Franklin, Arthur Miller.*

### **Books Without Borders (Year)**

This course focuses on works that are extraordinarily rich in literary quality and that raise topics of pressing importance to all. The course includes an intensive study of representative works from various genres, cultures, and periods, concentrating on works of recognized literary merit and social influence. We will read and analyze works that look backward, critically assessing earlier thought, as well as forward and the works that are shaping new worlds that influence our own. *Core Texts and Additional Texts May Include:* Shakespeare—*King Lear, Othello*, Achebe—*Things Fall Apart*; Otsuka—*The Buddha in the Attic*; O’Brien—*The Things They Carried*; Fitzgerald—*The Great Gatsby*; Rhys—*Wide Sargasso Sea*; Morrison—*The Bluest Eye*; Camus—*The Stranger*; Austen—*Pride and Prejudice*; Hwang—*M. Butterfly*; Satrapi—*Persepolis*; Cisneros—*The House on Mango Street*; Conrad—*Heart of Darkness*; Erdrich—*Love Medicine*; See—*Snow Flower and the Secret Fan*; Voltaire—*Candide*; Ginsberg—*Howl*; Hosseini—*The Kite Runner*; Adichie—*Americanah*.

## VI Form English

### **VI Form Writing Seminar (Fall)**

Writing Seminar will attempt to sharpen the clarity, efficiency, and power of student expression by closely examining and engaging in many types of writing, from journalism and advertising to classic essays and more philosophical work. We begin with shorter, personal narratives, moving our writing into the arena of essay writing by providing a model that works for the college essay. Additionally, we will carefully review the thinking and formatting involved in the art of argumentative essay writing, engaging in cost/benefit analysis and establishing a useful template for college writing. Topics for consideration range from the St. Mark’s Mission Statement to the merits of movies and music.

### **Getting LOST I (Fall)**

The use of an island for the setting establishes the critical element of place. In some works, the island itself becomes a character. This course will focus on the ramifications of living on or being stranded on an island. We will examine the motives, actions, and purpose of individuals in isolation and how the human condition is affected by living on an island. Also, students will study how societies form while being, essentially, separated from “society.” The students will grapple with issues including survival, power struggles, individual and group motivation, group contagion, and paranormal conditions. All of these topics are guided by the ABC drama *LOST*, and the *LOST* influences of psychology, philosophy, mythology, and sociology. Major texts may include: *The Tempest* by Shakespeare, *Lord of the Flies* by William Golding, *The Island of Dr. Moreau* by H.G. Wells, *Island* by Aldous Huxley, and short story selections from *Island* by Alistair MacLeod.

### **Creative Short Fiction Writing (Fall)**

Can you create and solve a conflict in fewer than 5,000 words? Learn the power of being succinct with distilled emotion in this course. Learn how to affect people quickly and powerfully. This creative writing class is designed to broaden your knowledge of the relatively recent literary form called the “short story” and to focus on the development of original short stories. The course is run as a writer’s workshop with writer-led feedback sessions and weekly writing assignments. You read a selection of stories from skilled authors, explore the various facets that compose a short story, and complete in-class writing exercises paired with longer, more intense, original writing out of class. Students experiment with form and style, breaking all of the age-old rules of writing in order to craft fresh

sentences, puissant moments, and unforgettable stories. By the end of the course, you will have a collection of 8-10 revised and accomplished short stories. This collection, submitted in portfolio form, will serve as a final project. You will be required to submit at least one original story to SM's literary magazine, the *Vindex*, and possibly to take part in an organized public reading, showcasing your unique literary voice.

### **Gothic Literature: Blood Lust and Other Monstrous Appetites (Fall)**

Deep into that darkness peering, long I stood there, wondering, fearing, doubting, dreaming dreams no mortal ever dared to dream before." Edgar Allan Poe's chilling musings allow a glimpse into the heart of horror, and it was this obsession with fear and phantasms that held the imaginations of many writers in the eighteenth and nineteenth centuries. The struggle with one's humanity has led to some of the most ghastly portrayals of abnormality. This fall semester course will focus on the emergence of these archetypal "monsters" in Victorian and Romantic literature. In addition to examining the stylistic elements of gothic fiction, we will research and explore the thematic thread of the "monstrous other" and related topics, such as the lust for blood and power; pleasure and excess; and the fractured identity. We will read a variety of authors and texts from the genre including Poe, Wilde, Louis Stevenson, Le Fanu, James, Shelley, Byron, and Coleridge. Assessments for the course will include periodic reading quizzes, participation in class discussions, short research papers, creative projects, longer analytical essays, and structured visual presentations. The semester will culminate in a final project that incorporates multiple creative and analytical formats.

### **James Baldwin: Life, Fiction, and Essays (Fall)**

This course is an introduction to the life and writings of one of the greatest African-American writers of the 20<sup>th</sup> century: James Baldwin. Baldwin wrote a stunning variety of novels and short stories, but he is most remembered as an essayist who wrote about his own life in the larger context of the Civil Rights era. He was actively involved in the major debates of this era, approaching political, social, and artistic issues in deeply personal and often surprising ways. We'll also explore Baldwin's less-known international life, considering the impact on his writings of long residences in France and Turkey. We'll watch two exceptionally fine documentaries about Baldwin, as well as view the recent film, *If Beale Street Could Talk*.

As a final class project, we will consider a writer called "the new James Baldwin": Ta-Nehisi Coates. By the end of the class, students will know much about what this phrase might mean and whether they think it aptly applied. This is the class for you if you want to explore African American literature and history from a fascinating and unique perspective, if you are interested in finding out more about the great writers and leaders of the 1960's, if you want to learn about how to live a full and impactful life, if you are looking for models of personal writing. Students should expect to complete a variety of short assignments and longer essays. They will also do some reflective writing about their own experiences. Readings include: *Go Tell it On the Mountain*, *The Fire Next Time*, *Notes of a Native Son*, *Nobody Knows My Name*, *The Amen Corner*, "Sonny's Blues", *If Beale Street Could Talk*.

### **Pilgrimage in Literature, Film, and Art: Lions Roam to England and Scotland (Fall)**

From Cave Paintings, to the Book of Job, the Islamic Haj, or Chaucer's Canterbury Tales, human beings seek answers to life's most difficult questions through a journey with the sacred. Whether the journey is inward or physical, pilgrimage has shaped the human search for meaning. This course will seek to walk the pilgrim's path through literature, film, art and travel in order to explore the great spiritual questions of life. The course will culminate with a pilgrimage in Canterbury, England to follow in the footsteps of the ancient men and women of Chaucer's Canterbury Tales, traveling North to the Iona Peninsula of Scotland to study Celtic Spirituality. Ultimately students will create a spiritual capstone through either music, film, photography, poetry, or a medium of their choice. (*Open to IV, V, and VI Formers selected through the Lions Roam application process in Spring 2020. Accepted students must enroll in the fall and spring offerings of the course. The fall semester of this course fulfills one semester credit of VIth Form English for VI formers only.*)

### **Shakespeare on Stage (Fall)**

In Shakespeare on Stage, students will explore the works and legacy of one of the most prolific playwrights of all time. Throughout the first half of the course, students will read, analyze, and perform a selection of Shakespeare's most famous Tragedies, Comedies, and Histories, such as Hamlet, Romeo and Juliet, Measure for Measure, Taming of the Shrew, Winter's Tale, and Titus Andronicus. Students will explore the fundamentals of Shakespearean actors, including effective recitation of iambic pentameter and blank verse. Students will also engage in the study of stage combat, ultimately choreographing their own version of an iconic Shakespearean sword fight. Additionally, students will view a live theatrical performance in Boston or New York. Finally, during the second half of the course, we will shift our focus towards modern reflections on Shakespeare's plays, including "Rosencrantz and Guildenstern are Dead", "Shakespeare in Love", "Gary, a Sequel to Titus Andronicus", and Young Jean Lee's reimagining of "King Lear". (*This class is cross listed with Art.*)

### **Literature on Trial (Fall & Spring)**

Combining persuasion and literary analysis, this course will explore the intersection between law and literature. Students will brainstorm "crimes" or civil wrongs committed by characters from selected literary and philosophical readings, will work together to act as the prosecution, defense, appellant or appellee for the selected characters, and will incorporate ideas from varied sources to research their case(s). This will culminate in persuasively written "briefs" to complement their "trial and appellate" work. This course will provide an opportunity to think about the law in a new way, to read engaging works of fiction and nonfiction, and to examine the law from a humanistic and philosophical perspective.

### **Reading & Writing The Memoir (Fall & Spring)**

Everyone has a story to tell, including you! Whether your life is wildly unconventional or relatively normal, there is bound to be something fascinating about it. This class looks at how we recount the events, places and people that shape our lives, through the reading and writing of memoir. Throughout the semester, we will read a wide variety of contemporary and popular examples of memoir and discuss the primary elements that comprise a memoir. Close study of the texts listed below will inspire our discussions and serve as a model for our own writing. Assessments will include class discussions, journal entries, analytical essays, and personal narratives. Texts may include: *On Writing: A Memoir of the Craft* (King), *Maus* (Spiegelman), *Girl, Interrupted* (Kaysen), *Look Me in the Eye: My Life with Asperger's* (Robison), *The Glass Castle* (Walls), *A Long Way Gone: Memoirs of a Boy Soldier* (Beah), and selections from *Modern American Memoirs* (Dillard & Conley).

### **Cold War, Cool Culture II (Spring)**

This course will extend the thematic work covered in *Cold War, Cool Culture* as we explore literature and film from the 1960s through the Reagan Era. With a variety of essays and reviews for background readings, we will discuss changes in how Cold War social and political tensions are revealed through Hollywood feature films. We will cover issues such as representations of masculinity/femininity, atomic anxiety, the domestic setting, the emergence of the counterculture, and U.S./Soviet relations leading to the end of the Cold War. Films will include: *From Russia with Love*, *The Graduate*, *Easy Rider*, *Five Easy Pieces*, *Dirty Harry*, *Close Encounters of the Third Kind*, *Apocalypse Now*, *Firefox*, *WarGames*, and *Red Dawn* (1984). Literature will include *Heart of Darkness* by Joseph Conrad and *Cat's Cradle* by Kurt Vonnegut.

### **The Netflix Writers' Room (Spring)**

The Netflix Writers' Room creates and writes the first season of a binge-worthy tv show. We will examine the process that any network goes through to establish and produce a tv show, with specific emphasis on ABC's development of *LOST*. We will then follow a similar process. As a class, the students will form a "Writers' Room," in which all of the students collaborate on brainstorming ideas and writing episodes for a full premiere season of a show of the class' design. Mimicking a writing staff for any television series, we will form a writing "team" in which we are all involved in formulating the plots and ideas for the show. The major guiding text will be *The TV Showrunner's Roadmap: 21 Navigational Tips for Screenwriters to Create and Sustain a Hit TV Series* by Neil Landau. We will also study actual *LOST* scripts and the DVD *Inside The Writers' Room with the Writers of LOST*. To create authentic episode scripts, we will use the software Final Draft.

### **Rebels with a Cause (Spring)**

In this course, students will study the rebellious actions of characters and probe to understand the motives and reasoning behind their actions. What is it that suppresses them? Is it government, society's laws, or a personal grudge? Perhaps a moral stand? We will examine what they stand for and how they rationalize their rebellion. Students must bring an open mind to the readings and be able to defend against or argue for the protagonists, using the text for support in each case. Major texts may include: *In the Time of Butterflies* by Julia Alvarez, *A Clockwork Orange* by Anthony Burgess, *Fight Club* by Chuck Palahniuk, *Wicked* by Gregory Maguire, *One Flew Over the Cuckoo's Nest* by Ken Kesey, *The Awakening* by Kate Chopin, and *The Crucible* by Arthur Miller. Films may include *The Truman Show*, *Dead Poets' Society*, *Eternal Sunshine of the Spotless Mind*, and *Into the Wild*.

### **News That Stays News: Poetry Writing (Spring)**

Poetry, as described by Ezra Pound, is "news that stays news." Think of it as the whole reflected world seen in a dewdrop, the potential in a tulip bulb. Think of it as moral philosophy. Think of it, simply, as S.T. Coleridge did, as the "best words in the best order." This course is designed to introduce you to and broaden your knowledge of the sometimes ineffable world of poetry. Your texts will consist of the anthology *Sleeping on the Wing*, as well as supplementary handouts with poems of various cultures, eras, forms, and styles. In a true workshop experience, we will experiment with formal poetry, free verse, and specific poetic techniques by writing and sharing. Writing will include original poems, journaling, and response papers. You will be required to submit at least one original poem to SM's literary magazine, the *Vindex*, and possibly to take part in an organized public reading, showcasing your unique literary voice.

### **Caribbean Literature (Spring)**

This course is an introduction to the fiction, poetry and autobiographical writing of the Caribbean region. We'll read Caribbean literature as an expression of the "New World," inviting comparisons and contrasts to American literature in its treatment of colonialism, independence, slavery, and modernity in a globalized world. Our focus will be on the writers of the English-speaking Caribbean, including Jean Rhys, Jamaica Kincaid, Derek Walcott, C. L. R. James, and V. S. Naipaul. We'll also read shorter pieces by writers from the French and Spanish-speaking islands and Haiti. Students can look forward to several excellent films, a sampling from the instructor's vast collection of music, and a trip to a Caribbean restaurant in Boston.

### **The Art of the Short Story (Spring)**

In quickened, condensed versions of human experience, short stories can cramp the reader into narrow, particular, often disturbing circumstances. These very constraints upon time and emotion replicate the most important, revealing parts of our lives, exactly why a good short story can strike us as expansive, universal, encouraging and true. The class will discuss a great range of stories by dozens of authors, from a "classic" lineage of Turgenev,

Chekhov, Hemingway, and Carver to Salinger and more modern, irreverent work by TC Boyle and Lorrie Moore. Students will complete a project according to the frameworks that we establish for the components of stories, ultimately teaching the story of their choice to the rest of the class.

### **Native American Literature: Voices of the Past, Present, and Future (Spring)**

As a group of people whose culture is both ancient and only recently documented, Native Americans hold a unique place in the American literary canon. The majority of America's Indian tribes were, prior to the introduction of European settlers and explorers, largely non-literate. That being said, the amount of literature by Native authors and on subjects of Native interest has grown exponentially in the past two centuries, especially in the last three decades. As the Indigenous voice continues to grow in volume and diversity, it is important that readers become familiar with trends of past works and examine closely the ways in which Native American culture is being further explored in contemporary literature. In this spring semester course, students will explore a wide range of genres, from novels to poetry to film. They will focus on prominent authors such as Sherman Alexie, Daniel H. Wilson, and Louise Erdrich. They will also examine how Native American identities have been shaped by and expressed in pop culture, culminating in an analysis of Chris Eyre's seminal film *Smoke Signals*. Students will use a variety of resources to enrich their understanding of national and local Native American tribes and literature; there will be several opportunities to travel to local cultural centers and tribal events. In addition to nightly reading assignments, periodic reading quizzes, weekly vocabulary quizzes, and group and individual projects, students will also construct a final project that demonstrates an understanding of the material and how it connects to larger aspects of Native American life.

## History & Social Sciences

R.G. Collingwood, a British philosopher, suggested that history is an inquiry that helps humans understand who we are by instructing us about what we have done. At St. Mark's, the History and Social Sciences Department exposes students not only to important historical facts, but also to the imaginative process of understanding and evaluating the significance of those facts in the light of the present day. This process is a catalyst for intellectual growth, for it broadens and enriches one's perception of human activity as it sharpens one's powers of analysis and communication. It also prepares our students to be more effective global citizens.

Students become acquainted with the past in varying ways: through texts, primary sources, autobiographies, narratives, passages from literature, and works of art. While most classroom time is organized around discussion of assigned readings and lectures, teachers pay specific attention to the skills students must develop. Those include various proficiencies in reading and writing and the organizing of material with techniques such as outlining and note taking. In addition, the department works with students to extend their abilities to work diligently, think critically, solve problems creatively, work collaboratively, and self-advocate with confidence and integrity.

The process of historical research begins early and continues throughout the curriculum. In the Global Seminar course, students progress from smaller research projects closely directed by their teachers to the more complex and independent research papers that students produce by the end of the year. In the United States History survey courses, students present a significant, researched historical essay on a subject of their choice. This project is prepared over a period of weeks during which the student and teacher work

together in the library on the paper’s research and preparation. The Global Seminar and the United States History survey courses are the departmental graduation requirements. All other courses are elective, with continuing study of history recommended for students as they progress between the two required courses.

***Suggested Pathway for Historical Studies at St. Mark’s School***

Form III	The Global Seminar <i>(This is a year-long required course in the III Form year)</i>
Form IV	The Atlantic World, 1300–1800 <i>(spring)</i> Advanced World History <i>(year)</i>
Form V	United States History <i>(year)</i> Advanced United States History <i>(year)</i> <i>(One of the two courses is required for graduation)</i>
Form VI	Advanced United States Government <i>(year)</i> Microeconomics <i>(fall semester)</i> and/or Macroeconomics <i>(spring semester)</i> Psychology I <i>(fall semester)</i> and/or Psychology II <i>(spring semester)</i> The Rise and Fall of the Third Reich <i>(fall semester)</i> Advanced Studies in Global Citizenship <i>(year)</i> History Research Fellowship <i>(fall semester)</i> Conflict and Reconciliation in the American South and Israel/Palestine since 1945 <i>(spring semester)</i>

**The Global Seminar (Year)**

The Global Seminar sets the foundational stage for students’ understanding of global citizenship. Through an examination of ongoing aspects of globalization, students will gain an understanding of the larger forces at play in the 21st century’s interconnected and interdependent world. Topics covered will include: the history of globalization, trade and economics, infectious disease, peacekeeping, human rights, technology, the environment and sustainability, and gender politics. Significant world events will be addressed as they occur, and students will be encouraged to hone their understanding of interconnected systems as they strive to understand current events within local and global contexts. Perspective taking, a sense of common humanity, a sense of individual and collective responsibility, and a commitment to social justice and equity—all core values of global citizenship—will be explicitly addressed throughout the course.

Over the course of the year, students will learn and use essential skills that will help them be successful at St. Mark’s and beyond. Students will acquire good habits of organization and daily preparation and develop proficiency in communication of their ideas in spoken, written, and electronic forms. Students will learn the skills of researching and writing an analytic paper and the class will encourage students to take an active and collaborative role in their learning through individual and group projects. *(Required for all III Formers)*

### **The Atlantic World, 1300–1800 (Spring)**

This course will look at the histories of the four continents that border the Atlantic Ocean. We will focus on the centuries that bracket the moment of contact that established ongoing networks of exchange and communication across the Atlantic—exchanges that would dramatically alter each continent’s (and the world’s) culture, society, demographics, economy, environment, and politics. The course will begin with an in-depth exploration and comparison of Sub-Saharan African kingdoms, empires, and stateless societies; Incan, Aztec, and North American civilizations; and post-plague Western European nations. We will then look at the Portuguese and Spanish exploration ventures and perceptions of “the Other” evident in documents and art from each region. Finally, we will analyze the myriad consequences of extended contact between the continents of the Atlantic: forced and willing migration, the slave-based “Atlantic system,” ecological exchange, and political revolutions, among others. Students will practice reading, interpreting, and critically analyzing both primary and secondary sources; conducting research and writing a persuasive essay; and employing historical evidence in effective oral presentations and discussions. Enrollment in Atlantic World is recommended (*but not required*) for students considering Advanced U.S. History and will prepare all students for work in United States history in general. (*Open to IV Formers and others with Departmental permission*)

### **Advanced World History (Year)**

This year-long course will begin with a brief survey of the foundations of civilizations, followed by a thematic approach to the study of the world between 1200-to the present day. The crux of the course will be an examination of the modern world from around 1450 CE to today with an emphasis on varying points of view from around the globe. Students will gain invaluable skills of analysis, critical thinking, and historical interpretation as we explore each new period, and will come to understand how the foundations were laid for the diverse and interconnected world we now inhabit. Topics include: how geography shapes societies, religious systems and their spread, political structures, social stratification, trade and cultural exchange, the impact of technological innovation and intellectual production, and the causes and consequences of war and revolution. Students will learn through critical thinking projects (both individually and in groups), critical readings of primary and secondary sources, debates and discussions and myriad writings (including Document Based Questions) culminating in a research paper at the end of the year. (*Open to Forms IV, V, and VI with Departmental permission, based upon the student’s performance in previous history courses, particularly The Global Seminar, and overall academic performance at St. Mark’s.*)

### **United States History (Year)**

This course, which fulfills the School’s graduation requirement in history, takes a discussion based approach to the traditional survey course of American History from the colonial period to the 1970s. Students will engage with research projects of ever-greater challenge as the class progresses. Assessments will emphasize the skills of library research and citation, written and oral historical argumentation, analysis of primary sources, and evaluation of historiography, culminating in a final independent research paper of substantial length. (*Open to V and VI Formers, IV Formers with Departmental permission*)

### **Advanced United States History (Year)**

This course is designed for the student with a particular interest and demonstrated skills in history, offering a more intense and faster-paced investigation of U.S. history—from the colonial period through the 1980s. Students will work with complex primary source material, practice their presentation, debate, and writing skills, and will complete the year with an independent research paper. Enrollment in a history course in the IV Form year is strongly recommended for students considering Advanced U.S. History. (*Open to V and VI Formers with Departmental permission, which will be based upon the student’s performance in previous history courses, overall academic performance at St. Mark’s, and interest in historical studies*)

### **Advanced United States Government and Politics (Year)**

This course examines the U.S. political system. It provides an analytical perspective on the U.S. government (the structure and function of institutions in this political system) and politics (how Americans select their representatives and how the representatives operate). The course will explore the historical roots and constitutional underpinnings of U.S. government, how individuals behave and participate in government, how political parties, interest groups and the media interact with government, how the institutions of national government (congress, the presidency, the bureaucracy, and the courts) operate, how government formulates and implements public policy, and the historical development of civil rights and civil liberties. As we look at these subjects, we will also develop students' skills and abilities, including their: (1) writing and speaking skills; (2) note-taking skills; (3) abilities to read, comprehend, analyze, and critique both primary and secondary materials; (4) collaborative capabilities; and (5) abilities to present and defend cogent arguments. Students will do this through a variety of assignments, including debates and research projects. Finally, the course will spend time studying current events as they touch upon the U.S. political system. *(Prerequisite: U.S. History and Departmental Permission, which will be based upon the student's performance in prior history courses and overall academic performance at St. Mark's)*

### **Microeconomics (Fall)**

Often referred to as the bottom-up view of the economy, microeconomics focuses on the decisions made by individual households and firms. The objective of this course is to introduce the models and theories of the discipline, thus equipping students with the analytical tools needed to comprehend economic trends. The course will begin with an overview of basic economic concepts such as scarcity, opportunity cost and the supply and demand model. From there, the course will shift to a focus on microeconomic topics, including consumer choice theory, firm costs and various market structures. Frequent attention will be paid to applying the concepts discussed in class to current events. Finally, the course will participate in a stock market simulation. *(Open to V and VI Formers)*

### **Macroeconomics (Spring)**

From the frequent debates on Capitol Hill concerning tax policy to the recent financial meltdown on Wall Street, the study of macroeconomics has much to contribute to our understanding of modern day America. The objective of this class is to introduce the models and theories of the discipline, thus equipping students with the analytical tools needed to comprehend economic policy. To this end, the course will begin with an overview of basic economic concepts such as scarcity, opportunity cost and the supply and demand model. From there, the course will shift to a focus on macroeconomics topics, including inflation, unemployment, fiscal policy, and monetary policy. Frequent attention will be paid to applying the concepts discussed in class to current events. Finally, the course will participate in a stock market simulation. *(Open to V and VI Formers)*

### **Psychology I "Thinking Critically with Psychological Science" (Fall)**

Psychology I is a semester-long course with the purpose of providing an introduction to the many different perspectives from which psychologists try to understand human behavior. The course begins with an introduction to the science of psychology and an investigation of its historical roots. After tracing to development of psychological thought through the years, students use the scientific method to understand and conduct psychological research, examine the relationship between structure and function in the brain, and tangle with the age-old question about the influence of nature and nurture. At the conclusion of the course, students will be able to use the different lenses of psychology to think critically about their lives and the realities within which we exist, hopefully seeing that we as humans are more alike than we are different. *(Open to V and VI Formers)*

### **Psychology II “Applications in Everyday Life” (Spring)**

Psychology II is a semester-long course that builds upon the foundation of Psychology I by looking at the practical applications of psychological science in everyday life. Students are exposed to the basic concepts of learning, memory, language, and thought. Conversations surrounding these topics seek to enhance their understanding of conditioning intelligence, studying, critical thinking, and forgetting. By reading classic studies in social psychology such as the Stanford Prison Experiment and the Milgram Obedience Study, students learn about how the actual, imagined or implied presence of others can influence an individual’s thoughts, feelings, and behaviors. The course closes with a case study project in which students examine a client file, diagnose using the DSM-V, and create an effective treatment plan. The topics of study in Psychology II do not overlap with those studied in Psychology I. Thus the student who elects to take both courses will experience a broad survey of modern psychology. Students who only elect to take Psychology II will not be disadvantaged but rather enhanced by classmates whose foundational knowledge may be greater than their own. (*Open to V and VI Formers*)

### **The Rise and Fall of the Third Reich (Fall)**

This semester course will focus on the history of Nazi Germany from 1919–1945. Class themes will explore origins and appeal of National Socialism, the collapse of the Weimar Republic, Nazi voting patterns, anti-Semitism in Germany, dissent in the Third Reich, racial ideology, Hitler’s War, and the implementation of the Final Solution. Students will analyze critical historical readings, primary documents and artworks, films, and class discussions to enhance their knowledge of the Third Reich. (*Open to V and VI Formers and others with Departmental permission*)

### **Conflict and Reconciliation in the American South and Israel/Palestine since 1945 (Spring)**

Through a comparative exploration of conflict and reconciliation (or the failure of reconciliation) in the postwar American South and Israel/Palestine, students will gain a deeper understanding of two cultures structured around the societal ideas of ethnicity, race, religion, and/or the “other.” We will also examine how these societies remember their pasts and how those memories shape the present conflict and possible reconciliation. We will examine these issues in two dramatically different regions, while also paying close attention to similarities across them. Students will learn about the many complexities behind the development of conflict and responses to that conflict. In the American South, we will focus on the postwar Civil Rights Movement and its historical roots. In Israel, we will explore the postwar division of Palestine and the country’s ongoing struggles with that division. (*Open to V and VI Formers.*)

### **Advanced Studies in Global Citizenship (Year)**

This course is for students who are excited to explore in depth the challenges facing us in the 21st century. The course will include gaining the theoretical background needed to understand the forces at play in the interconnected world today as well as a deeper knowledge of the diverse cultures in the world and the ways in which they have adapted to their environments. Students will work collaboratively on projects that will range from an exploration of a specific culture to a project where students research an NGO aid project, analyze its effectiveness and, redesign it, and then write a proposal for implementation that will be reviewed by a team of outside experts. The final project will entail identifying a challenge present in the world today and designing a solution. Students signing up for this class are expected to be able to work both independently and collaboratively. Students should possess strong critical thinking skills as well as strong research and writing skills. Hands-on learning through project-based learning and design thinking methodologies will be an integral part of this class, as will asynchronous and synchronous meetings with experts in the field. This course is required for Global Diploma Candidates. (*Open to V and VI formers*)

### **St. Mark's History Research Fellowship: An Advanced Topics Course in History (Fall)**

Students wishing to pursue college-level, independent historical research are invited to apply for the History Department Fellowship program. Fellows will begin the semester in guided discussions about the historian's craft and initially. Each student will then design and carry out an independent research project on a topic of their choice that will result in a substantial academic paper and an oral presentation. Fellows are expected to not only exhaust available sources in the St. Mark's and nearby libraries, as well as on the Internet, but they are also expected to explore available off campus sources, such as archival resources. While students will have some autonomy in selecting their research topics and strategies, the research will take place in a structured environment and with significant faculty guidance. *(Open to VI formers who have completed a United States History course and a program application. Research fellows will be selected through an application process that will take place in the spring of 2020. Interested students should contact the History and Social Sciences Department chair.)*

## Lions Roam

Developed in alignment with our Global Citizenship Initiative, Lions Roam immersive travel takes place each spring in Lion Term, and is embedded in the curricular cultural contexting work of a semester or year long course. Students selected for this course will also be expected to participate in occasional evening and weekend events throughout the year to help with their preparation for an immersive travel experience. Students will be selected through an application process, with materials due **March 4**. Interested students should contact Director of Global Citizenship, Dr. Appell - Warren.

### **Pilgrimage in Literature, Film, and Art: Lions Roam to England and Scotland (Fall and Spring)**

From Cave Paintings, to the Book of Job, the Islamic Haj, or Chaucer's *Canterbury Tales*, human beings seek answers to life's most difficult questions through a journey with the sacred. Whether the journey is inward or physical, pilgrimage has shaped the human search for meaning. This course will seek to walk the pilgrim's path through literature, film, art and travel in order to explore the great spiritual questions of life. The course will culminate with a pilgrimage in Canterbury, England to follow in the footsteps of the ancient men and women of Chaucer's *Canterbury Tales*, traveling North to the Iona Peninsula of Scotland to study Celtic Spirituality. Ultimately students will create a spiritual capstone through either music, film, photography, poetry, or a medium of their choice.

In Iona, students will study Celtic Spirituality, practice Celtic prayer and meditation through the teachings of Jamie Phillip Newall, John O'Donohue, and Esther De Waal, in order to "deepen awareness of the Sacred in all things, to nurture spiritual practice in relation to this wisdom, and to translate this study and practice into compassionate action." *(Open to IV, V, and VI Formers. Accepted students must enroll in the fall and spring offerings of the course. The fall semester of this course fulfills one semester credit of VIth Form English for VI formers only. The spring semester of the course fulfills the elective semester of the Religion requirement).*

# Mathematics

The purpose of a St. Mark's mathematical education is to develop students' understanding of and appreciation for the ability to make sense of the world through the lens of mathematics: space and number, logic and pattern. We nurture students' development by challenging them to be creative, critical and tenacious problem solvers, able to both share and reflect on their process and results with clarity and precision. Throughout, we seek to nurture and develop an appreciation for the joy and beauty of mathematics in all St. Mark's graduates. The Mathematics Department has established the following core values: curiosity, tenacity, and clarity. These values inform and guide all that we do. The program has three principal aims: first, to establish skill and confidence in applying mathematical techniques; second, to convey the analytical power of mathematics in modeling practical applications; third, to develop sound reasoning and communication around the logical structure of the subject. The search for patterns, the recognition of analogies, and the development of various strategies for solution provide the student with insight into and understanding of the problem-solving process.

Completion of Algebra I, Geometry, and Algebra II, usually taken in that order, satisfies the diploma requirement. However, the study of the subject through this level represents a minimum and not a goal for anyone interested in continued work in the sciences, mathematics, social sciences, and many other fields. Many students are able to complete a year of calculus and/or statistics. Each year, there are students that study topics beyond statistics and calculus.

Throughout our curriculum, emphasis is placed on each student doing mathematics. We believe it is essential students actively write and speak their mathematics in order to learn to develop sound mathematical reasoning and communication skills. Graphing calculators and computers are integrated into our teaching as they have become useful in exploring and illustrating mathematical content. TI-83 or TI-84 calculators are required for most classes. Placement is contingent upon departmental approval in consultation with the dean of academics. Advanced courses may be taken with departmental permission following completion of the appropriate prerequisites.

The Mathematics Department adheres to the following policies for placement of students in courses and in regards to summer or alternative courses:

Every new student completes a placement test. A student is placed in a course based on the score on this test, their SSAT score, the student's prior course work, and the teacher recommendation.

Placement for returning students is based on their performance in their current courses and the recommendation of their teachers. Students recommended for Honors Algebra II or Honors Precalculus take an honors placement test.

While students are allowed, and at times, encouraged to do summer work in math, the St. Mark's Math Department will only grant credit for summer or alternative course in geometry. Credit will be earned, only if the student satisfactorily completes the course and passes the St. Mark's departmental final exam.

It is our belief that when studying specific mathematics topics for the first time, students should not expect that a summer course or alternative course will provide them with the necessary depth of understanding of the material. Students who have performed poorly in a course, who wish to preview a topic, or who want enrichment are encouraged to do summer or alternative courses.

### **Algebra I Enhanced (Year)**

This course is an introduction to algebra. Extensive attention is given to developing algebraic and graphical problem-solving skills. The coordinate geometry of lines and parabolas, fractions, rational expressions, integral exponentials, and linear and quadratic equations through the quadratic formula are included with an eye toward developing confidence and agility in problem solving. Algebra I Enhanced is designed for students who have already been exposed to some or all of the topics of Algebra I, but who need further reinforcement to support higher levels of study in math. Placement in these courses is determined by the chair of the Math Department based on a placement test and the background of the student.

### **Geometry (Year)**

This course pursues a deepening of the students' understanding of plane and solid geometrical figures and a building of their abilities to analyze and communicate mathematically. Much attention is given to logical structure and the writing of mathematical arguments as well as to geometrical problem-solving.

### **Algebra II (Year)**

This course reviews, then extends, the study of algebra with greater attention toward function. Topics include linear and quadratic functions and relations, polynomial functions, rational expressions, exponents, and logarithms and elementary trigonometry. Students are expected to broaden their problem-solving skills and techniques. Increased attention is given to multiple representations with graphs and charts used to illustrate and enhance algebraic manipulation.

### **Honors Algebra II (Year)**

This is an accelerated course in algebra in which topics are pursued in greater depth as well as at greater speed. Students are expected to have a strong intuition and motivation for the study of mathematics. Extensive work with trigonometric functions is usually encountered, reaching beyond the topics of Algebra II. (*Prerequisites: teacher recommendation, placement test, and Departmental permission*)

### **Statistics, Functions, and Trigonometry (Year)**

This yearlong course is for students who have completed Algebra II. It includes an introduction to the basic concepts of statistics, a review of linear, quadratic, exponential and logarithmic functions and a study of trigonometry. Modeling data using the functions and using statistics to verify the validity of the model is an emphasis. There is extensive use of the software program Fathom. Topics include: descriptive statistics, correlation, quadratic, exponential, logarithmic regression, circular trigonometry, sequences and series. This course will not be sufficient preparation for students to take a calculus course at St. Mark's. At the conclusion of the course, SFT students will be prepared to enter Introduction to Calculus: Data and Change. Strong SFT students may be prepared, with

permission of the Department, to continue on to Precalculus. (*Prerequisite: Algebra II. This course is not open to students who have already completed Precalculus.*)

### **Precalculus (Year)**

Extensive discussion of polynomial, rational, exponential, logarithmic, and trigonometric functions and their properties and applications are encountered. Sequences, series, and limits are also introduced. A graphic scientific calculator is required at this level for its aid in visualization and calculation. Students gain skill in analyzing functions and drawing connections between symbolic, graphic, and numerical representations. This course is primarily designed as a final preparation for the study of calculus. (*Prerequisite: Algebra II and Departmental permission*)

### **Honors Precalculus (Year)**

This is an accelerated course in the elementary functions that includes an introduction to the study of calculus during the second half of the year. Students are expected to have exceptional intuition and motivation for the study of mathematics. (*Prerequisites: Honors Algebra 2, teacher recommendation and Departmental permission*)

### **Mathematical Modeling in the Life and Environmental Sciences (Fall)**

Throughout this course students will be learning to use mathematics to tackle interesting and challenging real world problems. They will learn about the mathematical modeling cycle and ways to best create models and present solutions to problems. While the bulk of the course will be devoted to solving problems related to life and environmental sciences, the students will also learn about existing models for specific situations and will develop tools to use in the modeling process. This course is intended for students who enjoy mathematics, like working collaboratively and wish to apply the mathematics they know to new and interesting problems.

(*Prerequisite: completion of Precalculus or Departmental permission. This course may be taken concurrently with Precalculus with Departmental permission.*)

### **Mathematical Modeling for Finance and Economics (Spring)**

Throughout this course students will be learning to use mathematics to tackle interesting and challenging real world problems. They will learn about the mathematical modeling cycle and ways to best create models and present solutions to problems. While the bulk of the course will be devoted to solving problems related to finance, economics and business, the students will also learn about existing models for specific situations and will develop tools to use in the modeling process. This course is intended for students who enjoy mathematics, like working collaboratively and wish to apply the mathematics they know to new and interesting problems. (*Prerequisite: completion of Precalculus or Departmental permission. This course may be taken concurrently with Precalculus with Departmental permission.*)

### **Introduction to Calculus: Data and Change (Year)**

This is a yearlong course designed for students coming from our Statistics, Functions, and Trigonometry course. Students will need to work individually and in groups, and the majority of the coursework will be discovery labs, problem sets, class discussions, and projects. They will use computers and graphing calculators to enhance and inform their understanding of the essential concepts of Calculus. Topics to include, but not limited to, statistics, limits, rates, linear approximation, optimization, and accumulation. (*Prerequisites: Statistics, Functions, and Trigonometry; Vth and VIth Form or Departmental permission*)

**Calculus (Year)**

This is an introduction to calculus designed for students who want to study calculus before college, but who do not yet feel prepared for the pace or depth of an Advanced course. The concepts of calculus are studied with problems and results expressed graphically, numerically, analytically, and verbally. Graphing calculators are used to help the students visualize critical concepts (*Prerequisites: Precalculus*)

**Advanced AB Calculus (Year)**

This course develops an understanding of the major concepts of calculus. Applications and techniques of differential and integral calculus are illuminated. Students will develop an understanding of the concepts of calculus and will be provided with experiences that enable them to apply these concepts. The course will emphasize a multi-representational approach to calculus with concepts, results and problems being expressed graphically, numerically, analytically and verbally. Graphing calculators are used to help the students visualize critical concepts. Students enrolled in this course should take a strong role in ownership of the concepts covered in this course and are expected to be able to apply concepts covered in previous courses. (*Prerequisites: Precalculus and Departmental permission*)

**Advanced BC Calculus (Year)**

This course is an extension and enhancement of Advanced AB Calculus. It is a more rigorous course, with a more extensive syllabus, including an introduction to power series expansions, vector calculus, and the calculus of polar curves. Successful completion of this course is roughly equivalent to a full year of college calculus. (*Prerequisites: Honors Precalculus and Departmental permission*)

**Advanced Statistics (Year)**

This course introduces the basic concepts of statistics. Every student will become familiar with the use of the statistical functions found in the more useful graphing calculators. Computer statistical applications are studied using one which is commonly available and well recognized. By completing the course, a student will also be prepared to use statistics in the various pursuits which draw on this mathematical process to study and analyze data. (*Prerequisites: Precalculus and Departmental permission*)

**Advanced Topics in Mathematics (Fall & Spring)**

This course challenges students to study mathematics with a high level of independence and self-direction. The exact course of study is determined in collaboration between the instructor and students. This open-ended approach creates a strong student role in setting direction. Courses of study are chosen to allow students to take multiple versions of the course over several semesters, and have recently included topics below. (*Prerequisite: Advanced AB or BC Calculus and Departmental permission*)

**Linear Algebra (Offered in the fall 2020 semester only)**

This course presents the main concepts and terminology of linear algebra. Topics include matrices, linear equations, determinants, eigenvalues and eigenvectors, vector spaces and linear transformations, and matrix diagonalization. Applications typically include polynomial interpolation, electrical networks, cryptography, computer graphics, Markov chains, and linear programming.

**Abstract Algebra** (*Offered in the spring 2021 semester only*)

This course is an introduction to the principles and concepts of modern abstract algebra. Topics will include groups, rings, and fields, with applications to number theory, the theory of equations, and geometry.

**Multivariable Calculus** (*Not offered in 2020-2021*)

This course re-examines the differentiation and integration processes by looking at it from the perspective of more than one variable. Topics will typically include partial derivatives, level curves, and gradients, double and triple integrals, Lagrange multipliers and optimization in several variables.

**Differential Equations** (*Not offered in 20-2021*)

This course offers an introduction to the theory, solution techniques, and applications of ordinary differential equations. Models illustrating applications in the physical and social sciences are investigated. Linear differential equations and linear systems of differential equations are explored in depth. Some numerical techniques to solve differential equations will be also introduced as well as using power series and the Laplace transform.

**Number Theory** (*Not offered in 2020-2021*)

In this course, students will investigate topics in number theory, which will include: the elementary notions of primes and divisibility, factorization, congruences; quadratic residues and reciprocity; sums of squares; continued fractions and approximations; and selected Diophantine equations.

**Advanced Geometry** (*Not offered in 2020-2021*)

Beginning with a study of Euclid's Elements, students will gain an appreciation for the decisions that Euclid faced in creating order to geometry. Attention will be paid to historical attempts to prove the fifth postulate and the many equivalences that were established over the centuries preceding Gauss, Bolyai, and Lobachevski. Finally, we will replace the fifth postulate and explore the world beyond Euclid, studying the hyperbolic plane. Here we encounter novel approaches to non-intersecting lines, area and trigonometry, an introduction to ideal and ultra-ideal points, and the loss of similarity.

**Probability** (*Not offered in 2020-2021*)

The purpose of this course is to enable students to extend their understanding of statistics, acquire additional modes of mathematical reasoning at an introductory level, and develop skills necessary for the further study of mathematics, and natural and social sciences. Topics will build from basic counting methods to include distribution functions: binomial, geometric, hypergeometric, and Poisson distributions. The other topics that may be covered are uniform, exponential, normal, gamma and beta distributions; conditional probability; Bayes theorem; joint distributions; Chebyshev inequality; the law of large numbers; and the central limit theorem.

**St. Mark's Taft STEM Research Fellowship (Year)**

St. Mark's believes in fostering the multidisciplinary study of science, technology, engineering and mathematics (STEM), understanding that this study extends beyond the walls of the classroom and involves more than the acquisition of information from textbooks. While innovative electives can provide you with the opportunity to understand and appreciate this idea, active participation in authentic research and real-world exposure to the applications and illustrations of STEM topics is far more powerful. The STEM Fellowship aims to provide students such an opportunity through advanced independent STEM research, collaborative work within a team, a focused interdisciplinary approach, mentorship from an expert in the corresponding discipline of study, and the potential

application of research to real-world challenges. This program is intended to provide an opportunity for students to work beyond the Advanced level in their chosen course of study. Further, acceptance and successful participation in this program requires a commitment to an academic endeavor spanning an entire calendar year and requiring significant independent scholarship. The culmination of research will be a public presentation to peers, faculty, and experts in the field. *(Prerequisite: Departmental permission. STEM Research fellows will be selected through an application process that will take place in the spring of 2020)* This class is cross-listed with the Science Department.

## Modern Languages

Modern languages form an integral part of the education of today's youth. The ability to communicate with considerable proficiency in at least one additional modern language is increasingly a necessity of contemporary life. It continues to be true that the study of languages changes one's perspective, not only of different parts of the world, but also of one's own language and culture. At the same time, the study of language provides the opportunity to learn to appreciate differences and to be less ethnocentric.

Learning a new language involves learning grammar, vocabulary, and the cultural structure behind them. In order to accomplish this goal, students must develop their aural, oral, reading, and writing skills from the first day. In more advanced levels, students also develop critical thinking and analytical skills. Placement in Modern Language courses is contingent upon departmental approval in consultation with the Dean of Academics. Promotion from one level to the next requires a demonstration of proficiency based on the ACTFL standards as well as a passing classroom grade. Students who do not demonstrate the target level of proficiency by the end of the school year will be required to do summer work as set by the department. Students who still do not demonstrate the target level of proficiency upon return to school in the fall will be required to repeat the prior level. Exemptions from this will be approved on a case-by-case basis in consultation with the classroom teacher, the department head and the Dean of Academics. Advanced courses may be taken with departmental permission following completion of the appropriate prerequisites.

Because the countries whose languages we offer have a rich history that encompasses different races, ethnicities, religious, and political views, as well as multiple opinions about the role of men and women in society, our courses incorporate topics of discussion around these areas that are age and level appropriate for the students. Ultimately, the aim of the Modern Language Department is to give St. Mark's students thought-provoking instruction in the language or languages they have decided to learn, and to make them stronger students as well as more aware and appreciative of the cultural backgrounds and values of the people whose language they are studying.

In order to accomplish these goals, the Modern Language Department uses very diverse, interactive, and dynamic modern language pedagogy. The Modern Language Department encourages students to travel abroad and to take advantage of our exchange program in Germany, our summer programs in Spain and Chile, School Year Abroad, and the different trips to a wide variety of countries.

# Chinese

## **Chinese I (Year)**

Mandarin Chinese I is a beginning level course for students who have no or little knowledge of Mandarin Chinese. It opens with an introduction to the Chinese alphabet and helps students to refine pronunciation by comparing and contrasting the Chinese alphabet to English. It then proceeds to conversational practice in Chinese, which focuses on developing students' knowledge in basic and expanded vocabulary and grammar rules, as well as promoting communicative skills to acquire and exchange information. The conversation topics include properly greeting people, addressing people by titles and professions, giving and asking individual information, and giving and asking number related information, etc. Teacher developed material is based on *Integrated Chinese Level 1 Part 1* by Yuhua Liu, supplemented by websites and applications. In addition to teacher demonstration, group/partner discussions, skits, projects and other learning activities are included in the program so that students develop their own understanding and advance their skills in reading, speaking, listening, and writing.

## **Chinese II (Year)**

Mandarin Chinese II is designed for students who have completed Mandarin Chinese I or possess equivalent knowledge of the Chinese spelling system, basic words, grammar rules, and sentences. In this course, students will be expanding vocabulary and knowledge of more sophisticated grammar rules and sentence patterns. Topics are expanded to shopping, transportation, weather, food, etc. Students will get in touch with more modern Chinese culture, such as pop music, movies, and authentic writings, making language learning more effective and fun. Teacher developed material is mainly based on remaining lessons in *Integrated Chinese Level 1 Part 1* and additional lessons in *Integrated Chinese Level 1 Part 2*, supplemented by websites and applications. In addition to teacher demonstration, various "hands-on" learning activities such as skits, group/partner discussions, projects are included in the program so that students develop their own understanding and advance their skills in reading, speaking, listening and writing.

## **Chinese III (Year)**

Mandarin Chinese III is designed for students who have completed Mandarin Chinese II, and/or possess equivalent knowledge to communicate and discuss typical daily topics in Chinese. This course will continue to develop students' core skills in listening, speaking, writing, and comprehension through more complex texts. Students will be guided to reduce dependence on Pinyin when they read and write Chinese and pay greater attention to the characters. In this course, students will be provided with more opportunities to understand the cultural aspects of the Chinese language and society through music, movie, drama, authentic writings, news, etc. This course will continue to complete the remaining lessons in *Integrated Chinese Level 1 Part 2*. The topics in this book reflect typical aspects of everyday life, including dining, traveling, playing sports, visiting doctors, etc. Extended study in vocabulary and culture is also available in each lesson. The end-of-year ACTFL proficiency target is Novice 3 for Interpersonal Listening and Speaking and Novice 2 for Presentational Writing, Interpretive Listening and Interpretive Reading.

## **Chinese IV (Year)**

Mandarin Chinese IV is designed for students who have completed Mandarin Chinese III and/or possess equivalent knowledge to communicate and discuss typical daily topics and some social topics in Chinese. This course will use *Integrated Chinese Level 2 Part 1* by Yuehua Liu as the main learning resource. The topics are expanded to wider social aspects, familiarizing students with topics related to customs and conventions, education, geography, the arts, etc. While it will continue to help students broaden vocabulary and master grammar rules related to social life topics, it will also enhance students' acquisition of cultural knowledge and development of cultural awareness. In this course, students will be instructed to participate more in project-based learning activities and further develop research skills. More Chinese language-based resources will be applied to learning activities in addition to the textbook, including news, literary works, movies, TV shows, documentaries, etc. The end-of-year ACTFL

proficiency target is Novice 4 for Interpersonal Listening and Speaking and Novice 3 for Presentational Writing, Interpretive Listening and Interpretive Reading.

**Advanced Chinese** *(Not offered in 2020-2021)*

The course emphasizes developing students' skills in effective and appropriate communication in social contexts and common understandings of Chinese culture. Students will be prepared to demonstrate levels of Chinese proficiency across the three communicative modes (interpersonal, interpretive, and presentational) and the five goal areas (communication, culture, connections, comparisons, and communities). This course will provide students with ongoing and varied opportunities to further develop abilities across a full range of language skills. Students will improve skills in listening, reading, grammar, speaking, and culture, through highly contextualized authentic materials in real-life settings. Students will be provided opportunities to understand Chinese culture and explore the connections between the language and culture, through novels, historical stories and book reviews. More complex reading materials and higher standards for writing will be applied in assessing students' mastery of the knowledge.

## French

**French I** *(Year)*

Students begin their study of French with fundamental building blocks in four key areas of world-language study: listening comprehension, speaking, reading, and writing. Emphasis is on the development of proficient communication within the context of francophone culture. Students learn fundamental grammar as embedded in authentic spoken language and texts. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written French in order to communicate about events taking place in the present and immediate future as well as demonstrate cultural awareness. The end-of-year ACTFL proficiency target is Novice High for Interpretive Listening (IL) and Interpretive Reading (IR).

**French II** *(Year)*

Students in French II work to develop their skills in listening comprehension, speaking, reading, and writing. Emphasis is on the development of increasingly proficient communication, especially interpersonal speaking, within the context of francophone culture. Students learn more nuanced grammar including use of pronouns, adverbs, and reflexive verbs. New skills are applied in the study of French and francophone culture through both collaborative and individual work. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past and present, including correct use of the past and imperfect tenses. The end-of-year ACTFL proficiency target is Intermediate Low for Interpersonal Listening and Speaking (ILS), Interpretive Listening (IL) and Interpretive Reading (IR) .

**French III** *(Year)*

Intermediate level French students who have a strong base in vocabulary, speaking, and listening skills reach a new level of mastery and fluency in this course. Emphasis is on the development of increasingly proficient communication within the context of francophone culture. Through authentic texts and audio materials, students learn advanced grammar as well as cultural awareness. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future and use the conditional, imperative, and subjunctive moods. The end-of-year ACTFL proficiency target is Intermediate Mid for all four skills; Interpersonal Listening and Speaking (ILS) , Presentational Writing (PW), Interpretive Listening (IL), Interpretive Reading (IR).

### **French IV (Year)**

This course focuses on the continued development of communicative competence in the target language and understanding of the culture(s) of the people who speak the language. They gain confidence in creating in the language to express their own thoughts, interacting with other speakers of the language, understanding oral and written communications, and making oral and written presentations in French. They are exposed to more complex features of the language, including the pluperfect, past conditional, past subjunctive, and future perfect, moving from concrete to more abstract concepts. Students are able to understand material presented on a variety of topics related to contemporary events and issues in the target culture(s). The end-of-year ACTFL proficiency target is Intermediate High for all four skills; Interpersonal Listening and Speaking (ILS) , Presentational Writing (PW), Interpretive Listening (IL), Interpretive Reading (IR).

### **Advanced French “The Francophone World” (Year)**

In Advanced French - the Francophone World, students will develop their own unique course of study, designed to foster comprehension of the complex history of French colonial rule and the evolution of the Francophone world after World War II. After studying *Le Silence de La Mer* (Vercors) as a catalyst for understanding the importance of World War II in France and for French colonies, we will move into regional units - Indochine, Maghreb, Amérique, Afrique - during which students will have the opportunity to choose from novels, films, newspapers, news podcasts, and other French language resources to deepen their knowledge. Students may choose different resources and assessments for each region with the goal that they will use a different resource (film, novel, podcasts, cultural articles) and complete a different assessment (essays, critique, short/long presentations, multimedia recordings) for each region. Students will also work together to demonstrate, as a class, their knowledge about the history of each region in a digital format. Following the regional studies, we will study the concept of Négritude, developed by Francophone scholars from Senegal, Martinique, and French Guyana and a brief exploration of the literary movement called Créolité, which offers a critique of Négritude. Through this work, students will analyse questions of identity as affected by language, nationality, family, and history. Finally, students who choose to prepare for the AP exam will have coursework specifically designed to prepare them for the AP format, while those opting not to take the test will have a long-term project based on the modern Francophone experience in France. The end-of-year ACTFL proficiency target is Advanced Low for all four skills (Interpersonal Listening and Speaking, Presentational Writing, Interpretive Listening, Interpretive Reading). Note: This class may be taken prior or subsequent to Advanced French: Contemporary Issues and Advanced French: Contemporary Themes as the content does not overlap. (*Prerequisites: Completion of a Level IV (A- average or higher) or Advanced language class, proficiency of at least Intermediate High as measured by ACTFL, and a teacher recommendation.* )

## German

### **German I (Year)**

The focus of this student-centered course is to develop speaking skills. The class is conducted primarily in German, and a German-only textbook is used. A high level of student participation is expected as students work with authentic cultural material to develop their vocabulary and their communication skills. The development of reading, writing, and grammar skills is secondary and is designed to support the students' ability to express themselves in simple but correct German.

### **German II (Year)**

Students continue to work on developing their vocabulary and their speaking skills, and emphasis on developing reading and writing skills is gradually added. This class is conducted primarily in German and a German-only textbook is used. Students will work on becoming more independent speakers of German. Grammar is taught in support of communication skills and by the end of the second year, all basic grammar has been covered.

**German III (Year)**

Students continue to work on developing their speaking skills and becoming more independent and self-reliant in expressing their opinions and defending them in a variety of situations. Students learn to express themselves with more complex German. A more formal and traditional review of German grammar is introduced through a German-only textbook supplemented with other authentic texts. Students work on developing more sophisticated writing skills and they will read texts dealing with contemporary issues.

**German IV (Year)**

This course, primarily a composition and communication course, stresses practical communication skills. Students will increasingly use authentic written, auditory and visual materials in their work. As authentic materials, these reports, articles, radio and television broadcasts are intended for German audiences. Students will develop their reading, listening, speaking and writing skills while working with these sources. Vocabulary building and grammar review will be continued.

## Spanish

**Spanish I (Year)**

Students learn to express themselves in simple but accurate Spanish. The course aims to develop communication skills and an awareness of the cultural diversity of the Spanish-speaking world. The class is conducted primarily in Spanish. Different kinds of authentic and audiovisual materials are used to enhance the exposure of the students to real-life situational interactions and culture. Although the main focus of the course is oral communication, attention will also be given to reading and writing skills. The end-of-year ACTFL proficiency target is Novice High for Interpretive Listening (IL) and Interpretive Reading (IR).

**Spanish II (Year)**

The study of basic Spanish is completed in this course. Students will be fully immersed in a Spanish speaking environment. Considerable review of first-year Spanish is accomplished in the early weeks of the course to meet the needs of new and continuing students. Readings and conversational material of increasing sophistication are introduced to prepare the students for the third level. Different kinds of authentic and audiovisual materials are used to enhance the exposure of the students to real-life interactions and culture. While great attention will continue to be on interpersonal communication, part of the aim of the course is to improve the writing and reading skills of the students. The end-of-year ACTFL proficiency target is Intermediate Low for Interpersonal Listening and Speaking (ILS), Interpretive Listening (IL), and Interpretive Reading (IR).

**Spanish III (Year)**

This course continues to develop language skills for practical communication in Spanish with an emphasis on the four skills: reading, writing, speaking, and listening. Students use these skills as they make connections to different Spanish speaking cultures and their own. The language is taught in a full immersion environment, and students should use Spanish in all communication with the instructor both in and outside of class. A variety of authentic texts and resources—poems, short stories, short films, newspaper articles, etc.—supplement the textbook and internet activities. The end-of-year ACTFL proficiency target is Intermediate Mid for all four skills; Interpersonal Listening and Speaking (ILS), Presentational Writing (PW), Interpretive Listening (IL), Interpretive Reading (IR).

**Spanish IV (Year)**

This course focuses on the continued development of communicative competence in the target language and understanding the culture(s) of the people who speak Spanish. It assumes that students have successfully completed a Level III Spanish course and are demonstrating Intermediate-Mid Proficiency as defined by ACTFL. An emphasis

is placed on spoken and written communication (conversation and composition). Students will gain confidence in creating with the language to express their own thoughts, interacting with other speakers of the language, understanding oral and written communications, and making oral and written presentations in Spanish. Students will also demonstrate comprehension of authentic materials presented on a variety of topics related to contemporary events and issues in the target culture(s). Upon successful completion of this course, students will be prepared to enroll in Advanced Spanish Language. The end of the year ACTFL proficiency target is Intermediate High for all four skills; Interpersonal Listening and Speaking (ILS) , Presentational Writing (PW), Interpretive Listening (IL), Interpretive Reading (IR).

### **Advanced Spanish Language and Cultures (Year)**

The Advanced Spanish Language and Cultures course is intended for students who wish to fully engage themselves in the target language and attain a high level of linguistic proficiency and cultural understanding. Students are encouraged to immerse themselves in the language as much as possible both inside and outside of the classroom. Class is conducted completely in Spanish, and all communication with the course instructor, including email and extra-help, will be conducted in Spanish. Students will attain a high-level of proficiency and sophistication in reading, writing, listening, and speaking skills. We will integrate these skills as much as possible throughout the year and make connections to a variety of cultures, including the students' own. In making these connections and comparisons, the students will gain an understanding of their place in an ever-changing global community. Students will be challenged to increase their communicative abilities, to organize and express their thoughts and opinions, to analyze and think as global-minded citizens of the twenty-first century, and to gain an appreciation for both languages and cultures. *(Prerequisite: successful completion of Spanish IV or a minimum AAPPL proficiency of Intermediate High. Under exceptional circumstances, students may request to move from Spanish III directly to Advanced Spanish. This is typically only a reasonable path for a Heritage speaker or a student with significant immersion experience.)*

### **Advanced Topics in Spanish Literature (Year)**

The Advanced Spanish Literature and Culture course provides an opportunity for students to learn to read critically, write and speak clearly, and become acquainted with the characteristics of major literary movements and to situate them in their cultural and historical contexts. Units are theme-based and include poetry and prose from various time periods and Spanish speaking cultures. The works are both accessible and interesting and provide an opportunity to reinforce language skills. Students will be encouraged to go beyond factual recall and to engage in deep analytical thinking. To further their understanding of what we read, opportunities will be provided for students to relate audiovisual materials and artistic representations to course content. Students will also create their own artistic representations to further their interpretation of the works: they will draw, create short films, and paint a mural to enhance their relationships with the works. The course is conducted completely in Spanish. *(Prerequisite: successful completion of Advanced Spanish Languages and Cultures and a minimum AAPPL proficiency of Advanced Low. Under exceptional circumstances, students may request to enroll concurrently in both Advanced Spanish classes.)*

## Religion

St. Mark's School religion courses are designed to help students understand that there are multiple viewpoints in the world on how to make meaning of human existence and on how best to regulate human behavior and interaction. Students learn how to understand, speak and write about abstract and highly charged concepts such as faith and worldview. They are also taught how to discuss these concepts both critically and respectfully with people who might see the world quite differently than themselves—an increasingly vital skill in the “global village” of the 21st century.

### **Judaism, Christianity and Islam (Fall & Spring)**

This course explores the scriptures, histories, beliefs and practices of those whom the Qur'an calls "The People of the Book": Jews, Christians and Muslims. What assurances, hopes and fears bind these faiths together? What has divided them, often to the point of bloodshed? The answers to these questions are multifaceted and require careful study and appreciation of the contending scriptural claims, the merging and diverging histories, and the diverse forms of worship and practice that have developed in these three faiths over the millennia. In this course, students will dramatically improve their scriptural literacy, their understanding of the religious impulse, and their confidence in bringing their own thoughts and experiences to bear on some of the most analytically elusive and yet deeply meaningful questions in human history. They will also have the opportunity to experience the contemporary manifestations of these three religions, visiting local places of worship—a Jewish temple, a Christian church, and a Muslim mosque to cap their study of each religion. *(Open to IV, V, and VI Formers. All students are required to take Judaism, Christianity and Islam as part of fulfilling their Religion requirement)*

### **Ethics and Morality (Fall & Spring)**

What does it mean to be a good person, or to live a good life? How should an individual or a society decide what is right and wrong; which actions are obligatory, optional, or prohibited? Are there universal and eternal moral truths, or is everyone's opinion on moral questions equally valid? These are some of the questions that humans have asked throughout all times and places, and that philosophers and theologians alike have struggled to answer. In this course, students will study a sampling of western philosophical ethical traditions. They will be encouraged by class projects and discussions, to think for themselves, to engage controversy intelligently, and to form their own reasoned and defensible positions on important and challenging issues facing society today, such as environmental sustainability, economic justice, capital punishment, and war. Film, literature and current events will be used as resources alongside the text, and lively but reasoned and respectful discourse will be a primary mode of learning. *(Open to IV, V and VI Formers)*

### **The Quest "The Search for Meaning in Literature, Art and Film" (Fall)**

Many traditions conceive of spiritual life as a journey or quest—a pilgrimage. This is not only true of art and literature that is overtly spiritual or religious, but also of secular works. This course will ask students to engage with a variety of different media and consider the commonalities and differences between spiritual journeys within different traditions and during different eras. Why is it that humans seek something beyond themselves? How do external experiences, circumstances, and landscapes shape our interior quest and vice-versa? Can all humans be thought of as participating in some sort of pilgrimage? What is it that humans are really striving for? As students examine these ideas, they will also turn a critical eye toward their own journey or quest, finding new and creative ways to express that journey. *(Open to Forms IV, V, and VI)*

### **Advanced Religion "Modern Philosophy and the Challenges of Unbelief" (Fall)**

There was a time in the Western world when the existence of God was assumed by all "rational" people, leaving atheists with a lot of explaining to do. Over the last four centuries, however, secularism and atheism have posed increasingly resonant challenges to the notion of a "God," leading Nietzsche to assert, at the end of the 19th century, that God was effectively "dead." What mortal challenges has modernity posed to theism in the last four centuries, and what challenges does it still pose today? When and how did belief in the existence of God come to be considered a laughable—even a dangerous—proposition? And how have believers chosen to respond? We will trace the ascendance of atheism, together with the theistic reaction it has provoked, from the time of René Descartes to the present day, with help from philosophers and theologians such as Hume, Kant, Freud, Hitchens, Kushner, C.S. Lewis, Tillich, and Khaled Abou el-Fadl. Contemporary fiction that explores issues of faith and doubt, such as Salzman's *Lying Awake*, Martel's *Life of Pi*, and the poetry of Philip Larkin, W.H. Auden, Emily Dickinson, William Blake and others, will help inform our study. *(Open to Forms V and VI)*

### **Social Justice in Local and Global Contexts (Spring)**

The course aims to develop students' "social justice literacy" and broaden their understanding of their own identity as well as the identity of others, both from within and outside their communities and cultures. Students will have the

opportunity to examine a variety of topics and issues through the lens of various social categories, including gender, ethnicity, ability, nationality, and race, as they develop their knowledge and understanding of critical social justice, both historically and in contemporary society. Students will also consider ways they can act to disrupt the social injustice that exists in local and global contexts. *(Open to IV, V and VI Formers)*

### **Eastern Religious Thought (Spring)**

Eastern religious thought differs radically, in many ways, from the monotheistic religions that originated in the Ancient Near East. Hinduism, Buddhism, Confucianism, and Taoism are Western designations for several distinct but related ways of “seeing and being” that offer enduring answers to perennial human questions about ultimate reality and satisfy the universal human desire for self-transcendence. As speculative as it may sometimes appear to many Westerners, Eastern religious thought is immensely practical and is meant to be practiced. This course will survey several of the great Eastern ways of seeing and being, focusing on the mythology, philosophy, imagery and devotional practices of contemporary practitioners. Besides periodic tests and other assignments, students will also keep a journal of written responses to focused questions arising from their reading and class discussions. The course will end with a final paper and presentation on a topic of the student’s choosing. *(Open to Forms IV, V, and VI)*

### **Sounds of Faith: The Music of World Religions (Spring)**

In "Sounds of Faith: The Music of World Religions", we will listen to the different types of music associated with the practice of world religions. We will also try to understand why religions might ban music outright or forbid certain types of music. We will watch dance and ritual action when it is associated with the music. In doing so, we will come to understand the theological, cultural and artistic components of music in each religion studied.

We will start by learning skills of intentional listening so we are prepared to experience the music more deeply. Through this deep listening we will train ourselves to discern the elements of each music -- rhythm, melody, harmony, instrumentation, vocal styles -- and also whether it is integrally connected to dance or ritual.

Most of the time we will use recorded music and video for our study. We will also meet with musicians from various traditions, possibly including a Jewish cantor (music leader) and Islamic muezzin (the person who leads the call to prayer). We will also see and hear the music being made live in the context of sacred services, which may include a Native American Pow Wow, a Jewish Shabbat service, an Anglican High Mass, an Islamic call to prayer, and the chanting of Kirtans in the Hindu vedic tradition. *(Open to IV, V and VI Formers. This course is cross listed with Art.)*

### **Pilgrimage in Literature, Film, and Art: Lions Roam to England and Scotland (Spring)**

From Cave Paintings, to the Book of Job, the Islamic Haj, or Chaucer’s Canterbury Tales, human beings seek answers to life’s most difficult questions through a journey with the sacred. Whether the journey is inward or physical, pilgrimage has shaped the human search for meaning. This course will seek to walk the pilgrim’s path through literature, film, art and travel in order to explore the great spiritual questions of life. The course will culminate with a pilgrimage in Canterbury, England to follow in the footsteps of the ancient men and women of Chaucer’s Canterbury Tales, traveling North to the Iona Peninsula of Scotland to study Celtic Spirituality. Ultimately students will create a spiritual capstone through either music, film, photography, poetry, or a medium of their choice. *(Open to IV, V, and VI Formers selected through the Lions Roam application process in Spring 2020. Accepted students must enroll in the fall and spring offerings of the course. The spring semester of this course fulfills the elective semester of the Religion requirement).*

### **Religion in Modern America (Not offered Fall 2020, Offered odd numbered years)**

This class will examine the growth of religious diversity in the United States. How is religious liberty practiced in modern times? How are issues of faith and religious freedom negotiated in a complex, multicultural society? How is the United States shaping and being shaped by an increasingly diverse range of religious communities? Using a combination of case studies and current events, this course will explore native and U.S.-founded religious traditions

as well as those brought to the United States through the post-1965 wave of immigration. Students will be expected to complete nightly readings, journal entries, and group work related to course topics. (*Open to Forms IV, V and VI*)

**Roman Philosophy and Religion** (*Not offered Fall 2020, Offered odd numbered years*)

In this class, students learn about the main tenets of ancient Roman philosophical thought and religious practice. The first part of the course explores the origins of Roman religion—its ritual practices and the development and influences of foreign beliefs and cults. The second half considers the major philosophical schools of Epicureanism and Stoicism on Roman society and traces their role in the transition to Christianity in the 1st century. All readings are in English. (*Open to IV, V, and VI Forms.*) (*This class is cross-listed with Classics*)

## Science

The need to understand and apply science has never been more essential to society than it is in the 21st century. Advancements in medicine, technology, and access to information have changed the landscape of our world. Further, the impact of humans on our environment has made the question of sustainability a crucial topic of study. As a result, science education is critical to the development of both informed citizens and the preparation of our next generation of scientists and engineers. The science program at St. Mark's School aims to develop students who are scientifically literate, create opportunities for the interdisciplinary study of STEM (science, technology, engineering, and mathematics), and provide an exemplary preparation for collegiate level science. In an effort to meet these goals the program engages students in the process of science through the study of core concepts such as energy and matter, form and function, cause and effect, the use of models, and observation of patterns. Students explore these ideas while developing the practices that are central to the scientific enterprise itself such as observing, questioning, testing, analyzing, applying, designing, developing evidence-based arguments, and communication skills. Each course is designed around a core set of ideas and grounded in context, all of which provides students with an increased understanding of the natural world, empowers students to propose solutions to dynamic problems, and better equips students to make informed decisions based upon science.

The St. Mark's science curriculum builds from a physical science foundation. Entering III Form students begin with Physics. Physics provides an introduction to numerous science-specific skills that serve as a foundation for the subsequent study of chemistry and biology. In Physics the students uncover the behavior of matter and energy while developing their scientific, mathematical, and academic skills within a structured and developmentally appropriate environment. Incoming IV Formers are placed either in Physics or Chemistry based upon their concurrent math course and previous science experience.

Completion of two yearlong laboratory science courses is required for graduation; however, it is encouraged that students take physics, chemistry, and biology to achieve greater scientific literacy. Elective science courses may be taken following the completion of the graduation requirement. Electives

allow students the opportunity to delve deeper into specific sub-disciplines and to acquire significant firsthand experience in the laboratory, in the field, with scientific design, and literature.

Advanced Science courses may be taken following the appropriate prerequisites and receiving Departmental permission. Advanced Science courses in physics, chemistry, environmental science (*not offered in 2020-2021*) and biology are reflective of a first-year college course. The science program at St. Mark's is structured in order to provide those students for whom science is a passion the flexibility within their academic program to design their own unique pathway of study within the science curriculum.

## Core Science Pathways

### **Physics (Year)**

This course covers the major concepts in physics and complements these studies with engineering design challenges. There will be extensive focus on developing good problem solving techniques, learning about engineering methodology and design, and introducing proper communication, collaboration, and writing habits. Topics covered include kinematics, the laws of motion, momentum, energy, the properties of waves, and electricity and magnetism. Experimental design, data analysis and their use in making engineering decisions are a main feature of the course. During designated "build days" students have the opportunity to apply their knowledge in an engineering context that focuses on making and learning from mistakes in an authentic setting (the engineering-design cycle). Students complete several of these design challenges over the year and are encouraged to relate the concepts learned in class to 21st century themes and events. (*Open to III and IV Form Students*)

### **Chemistry (Year)**

This course introduces the major principles of chemistry through an applied science approach. Students will study many of the topics discussed in a traditional chemistry course through the lens of chemistry in the earth system. Chemistry topics include, but are not limited to thermodynamics, atomic structure, chemical formulas, bonding, chemical reactions, solutions, solubility, acid and base chemistry and gas laws. The chemistry topics are then ultimately interconnected with many earth science topics such as plate tectonics and climate change. Content will weave through both qualitative and quantitative themes, allowing students to draw conclusions from both observations and hard data. Course work will include hands on inquiry, collaboration, lab investigations and lab reports, project development, article analysis, traditional assessment, and performance assessment. Students are placed in this course based on their performance in physics and/or interest. (*Prerequisite: Physics*)

### **Honors Chemistry (Year)**

Honors Chemistry is an interactive introduction to the discipline of chemistry. In covering topics such as atomic structure, the periodic table, bonding, stoichiometry, gas laws, thermodynamics, and acids and bases, students develop an appreciation for the chemistry present in the world around them. As students, they are challenged to grow as problem-solvers both in the laboratory and in classroom settings. Small group work is emphasized as a way to encourage discussion of topics, as well as provide opportunities for students to learn collaboratively. Work in the laboratory enhances understanding of content, while laboratory reports provide students a venue in which to develop their technical writing skills.

Students in the Honors course should feel comfortable moving through the material in class at a quicker pace, as well as possess greater comfort with self-directed learning. The Honors Chemistry class is strongly recommended

for students interested in taking Advanced Chemistry. (*Prerequisite: High Honors grade in Physics, enrollment in or completion of Honors Algebra II, and departmental permission*)

### **Biology (Year)**

The study of Biology has never been as complicated or exciting as it is today. Rapid advancements in the body of scientific knowledge require that students learn to engage with the content rather than passively receive knowledge. We believe that students learn science best by doing science—by actively engaging in experiments, observations, and structured inquiry. As much as possible, class time will be focused on active participation. Students will learn how to self-pace and self-direct their own learning by utilizing a variety of content sources (videos, podcasts, primary and secondary literature, animations, etc). This class will also focus significant time on further developing academic skills such as analytical writing, evidence-based argumentation, quantitative reasoning, and asking precise, probing questions.

Thematic units include: (1) the adolescent brain; (2) disease, from molecules to populations; (3) biodiversity, evolution, and human affairs; (4) the biology of cancer; and (5) ecosystems and sustainable resource use. Each unit will culminate in a final project that will encourage application of new knowledge and understandings of real-life applications, often without one specific right answer. (*Prerequisite: Completion of Honors Chemistry or Chemistry*)

### **Environmental Science (Year)**

Environmental Science is a yearlong course intended for students interested in learning about the environmental issues that shape the world we live in. Students can expect to develop knowledge and skills necessary to understand environmental problems and to evaluate responses to those problems from the perspective of a global citizen. Course content will include the fundamentals of the carbon, water, and nitrogen cycles; ecological communities; population growth; and the structure of Earth. Whenever possible, we will explore new concepts via hands-on work in the field or the lab. We will engage with coverage in the news of current events connected to issues like climate change, pollution, resource exploitation, and public health. Students will be assessed on their ability to extract information from resources, explain concepts, and analyze issues during in-class performance assessments. Student engagement in the learning process, including habits like completing work outside of class, meeting checkpoints for larger assignments, reflecting on learning, and revising work, will also be included in the course grade. (*Prerequisite: Successful completion of Chemistry and Biology (Biology may be taken concurrently)*)

## **Advanced and Elective Science Courses**

### **Engineering: Structures and Materials (Not offered 2020-2021)**

Structures and Materials provides a one-semester introduction to mechanical engineering. Using a thematic approach, students will work together on solving a semester-long challenge that could involve a project like designing and building a “green” electric race car, a device to assist people with impaired mobility, or an invention designed to solve a problem in a developing country. Throughout, the students will perform many design/test cycles and keep track of efficiencies of performance relative to energy, weight, and/or cost. Inverting the traditional ratio of lecture to lab time, students spend a major portion of their class time involved in hands-on work, directed toward solving the challenge. No prior knowledge of use of tools or work safety is assumed, but will be an ongoing

component of the course. Students will be introduced to the concepts of mechanical stress and strain, then perform experiments to determine Young's modulus, yield strength and ultimate strength of representative materials. They will discover modeling and simulation CAD software, and then build prototypes they will subsequently test. (*Open to all Forms. Prerequisite: Physics*)

### **Physical Science: Air and Space (Fall)**

This class will address topics related to human beings innate and passionate need to explore and discover. Through this course, students will explore what it means to discover and push the limits of their world. Course work will be a mix of a more traditional survey type astronomy course and coursework focused on other space exploration principles.

In the survey course setting, students will work on understanding topics related to basic astronomical concepts, astrophysics, astrochemistry, and astrobiology. Students will understand definitions and functions of astronomical bodies, the solar system, the Milky Way, star formation, and basic universe theory. They will explore concepts and issues related to Earth's atmosphere and apply those to understanding how other planets' and moons' atmospheres operate. The remainder of the course will be focused on exploration techniques related to space and our atmosphere. Students will learn about how known planets and moons are analyzed and explored and how new stars, planets, and other celestial bodies are discovered through multiple techniques. (*Prerequisites: Physics, Chemistry, and Biology; one course could be taken concurrently*)

### **Physical Science: Space Technologies (Spring)**

This class will focus on addressing topics related to the technology and tools necessary to explore space. Students will briefly examine the history behind space technology and how it was developed over the last 70 years. Attention will then shift to the International Space Station and the technology that keeps it running and the astronauts aboard alive, focusing specifically on the life support systems and the resupply and crew transport methods. The course will then shift into a heavy focus on engineering and the engineering design cycle, related to three major areas of space technology: rocketry, rovers, and satellites. The rocketry segment will allow students to learn the basic design points of rockets, along with 3D printing and laser cutting a custom nose cone and fins. Once students understand the basics, they will attempt to complete the current year's TARC challenge (a national rocketry competition for high school students). During the rover segment, students will build a rover using plans from NASA's Jet Propulsion Lab and learn some basics of electronics and mechanics necessary to operate it. Lastly, students will tackle building their own CubeSat, a small satellite, and understand the impact that satellites have on science, communications, and navigation. (*Prerequisites: Physics, Chemistry, and Biology; one course could be taken concurrently*)

### **Advanced Biotechnology (Fall)**

This is an elective science class for students who have successfully completed Biology and are motivated to examine this emerging and rapidly evolving field. The Biotechnology elective is highly student-directed. Therefore, students who enroll in this course should be prepared to take initiative for their learning, work independently and collaboratively, and develop as self-directed learners. Students build skills and construct an understanding of various biotechnological tools and technologies as they focus in on an area of authentic interest such as DNA and forensics, genetic modification, disease, or evolution. Students also are expected to explore biotechnology through an interdisciplinary lens—thus allowing learners to consider how our changing understanding of life and our ability to manipulate life impacts society in areas such as, but not limited to, ethics, law, psychology, economics, and politics. A digital portfolio will be used to manage and demonstrate learning over the course of the semester. The course will culminate with the development and presentation of a student-designed Capstone Project. (*Prerequisite: High Honors grade in Biology or Honors grade in Advanced Biology*)

### **Physiology (Spring)**

Are you interested in understanding the science of exercise? Whether you are preparing for a college athletic career or simply interested in maintaining a healthy lifestyle this course aims to provide you with the knowledge to make

educated choices. This course will examine four primary topics: (1) How and why the body utilizes specific fuel types (carbohydrates, lipids, and proteins) during and after training sessions, (2) The physiological responses of major body systems (muscular, respiratory, cardiovascular, endocrine, and immune) during and after exercise, (3) Training guidelines that optimize endurance and strength adaptations, and (4) The role of exercise in health and well-being. At the end of this course, you should be able to explain the science behind training adaptations for endurance and strength, the role nutrition plays in athletic training, and the effects of exercise on your health. In this course, you will be expected to engage in student-led discussions of popular and primary literature, participate in exercise physiology labs, and demonstrate your understanding of mechanisms and principles in application. You will be encouraged to make this course personal to you through the identification of a research focus relevant to your training interests, goals, or challenges. *(Prerequisite: Successful completion of Biology or Advanced Biology)*

### **Advanced Physics: Mechanics (Year)**

Advanced Physics is a second year physics course designed to cover the major topics of Newtonian-based Mechanics including: kinematics, Newton's Laws, Energy, Momentum, Circular Motion, Gravity and Simple Harmonic Motion. In addition, the final portion of the course addresses select topics in electricity and wave motion. Coursework emphasizes students' ability to apply math (including calculus, trigonometry and algebra) to problem solving based on their conceptual understanding of the physics principles. In addition, this course emphasizes lab skills with the goal of developing students' ability to conduct independent investigations, analyze data by methods such as linearization, and construct the mathematical relationships of the laws of physics from their work. Labs and problem set work promote cooperative learning, while independent progress will be assessed by tests, quizzes and one-on-one student meetings. *(Prerequisites: Physics; successful completion of Calculus or concurrent enrollment in Calculus, and Departmental permission)*

### **Advanced Chemistry (Year)**

Advanced Chemistry is a second-year chemistry course that builds on the fundamentals covered in Chemistry. The course requires students to think critically and engage with chemistry in a way that mimics a first year college-level course, with an emphasis on quantitative reasoning. Topics covered include gases, equilibrium, acid-base chemistry, thermodynamics, kinetics, chemical bonding, and atomic structure. The laboratory component of the class emphasizes proper lab technique, data analysis, and scientific writing. The pace and content of the Advanced Chemistry course requires students to effectively engage in independent study, collaborative scholarship, and take advantage of all available resources. *(Prerequisites: A- or higher in Honors Chemistry and Precalculus (may be taken concurrently) and Departmental permission).*

### **Advanced Biology (Year)**

This course provides the opportunity for students with the authentic interest and academic discipline to study biology at the Advanced level. Students will develop a deep understanding of the Core Concepts in modern biology as a structure upon which they will examine specific relevant topics in a theme-based approach. Students also examine biological issues through multiple lenses thus exploring the many factors that affect our understanding and perception of science. The Advanced Biology course is designed for study at an accelerated pace and in a dynamic structure; successful students effectively engage in independent study, collaborative scholarship, visible thinking, self-evaluative, and reflective practices, and take advantage of available resources. Students are expected to learn deeply using varied resources and demonstrate their understanding in multiple formats. Coursework will include reading from a college-level text, inquiry-based lab work, analysis of novel problems, construction of evidence-based explanations, the use of models to understand complex phenomena, and a significant focus on communicating science. A digital portfolio will be used to manage and demonstrate learning over the course of the semester. Over the course of the year, students develop the academic skills and mindsets necessary to progress as effective self-regulated learners. *(Prerequisite: Honors Chemistry with grade of A- or higher, Biology with grade of A- or higher, and Departmental Permission)*

**Advanced Environmental Science (Not offered in 2020-2021)**

Advanced Environmental Science is a full-year, interdisciplinary course that aims to prepare students to contribute to the collective process of confronting environmental problems. Major themes we will cover include cycles of matter, climate change, and ecosystem function. Students will learn to use models to explain systems, explore evidence of human impacts on these systems, and assess potential solutions to environmental problems. Throughout the course, students will take ownership of their learning by tracking their efforts in a portfolio and engaging in increasingly self-directed work. Students who complete the course should feel prepared to act confidently as they encounter questions of sustainability and stewardship, whether they do so in pursuit of further coursework in the environmental sciences or in their lives as citizens of a changing world. *(Prerequisite: Chemistry with grade of A or higher or Honors Chemistry with grade of B or higher, Biology with grade of A or higher or Advanced Biology with grade of B or higher, and departmental permission)*

**St. Mark's Taft STEM Research Fellowship (Year)**

St. Mark's believes in fostering the multidisciplinary study of science, technology, engineering and mathematics (STEM), understanding that this study extends beyond the walls of the classroom and involves more than the acquisition of information from textbooks. While innovative electives can provide you with the opportunity to understand and appreciate this idea, active participation in authentic research and real-world exposure to the applications and illustrations of STEM topics is far more powerful. The STEM Fellowship aims to provide students such an opportunity through advanced independent STEM research, collaborative work within a team, a focused interdisciplinary approach, mentorship from an expert in the corresponding discipline of study, and the potential application of research to real-world challenges. This program is intended to provide an opportunity for students to work beyond the Advanced level in their chosen course of study. Further, acceptance and successful participation in this program requires a commitment to an academic endeavor spanning an entire calendar year and requiring significant independent scholarship. The culmination of research will be a public presentation to peers, faculty, and experts in the field. *(Prerequisite: Departmental permission. STEM Research fellows will be selected through an application process that will take place in the spring of 2020) This class is cross-listed with the Math department.*