All Advanced and IB classes to have a space for prerequisites.

PORTLEDGE SCHOOL

Course Descriptions

2022-2023

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Introduction

These descriptions are intended to help students select courses for next year. Students are reminded that the school may withdraw any course described herein if the number of students signing up is insufficient, or if changes in personnel or scheduling difficulties preclude its being offered. If a course is oversubscribed, priority is given to the older students as much as is possible within the constraints of scheduling. Oversubscription in elective courses might also be resolved by a lottery if an additional section cannot be created. Every effort will be made, however, to meet the students' needs and interests.

Portledge's graduation requirements include the following during the Upper School years: 4 credits in English; 4 credits in Mathematics; 3 credits in Lab Sciences; 3 credits in History; 2 credits during high school years in French, Mandarin or Spanish, culminating in at least level 3; at least two courses from among offerings in the Visual Arts, the Performing Arts, and Computer Science; and a required non-credit course in Health. A student needs to earn at least 18 credits to qualify for graduation. Most Portledge graduates earn far in excess of that number in order to enhance college-acceptance prospects. Students are expected to take a minimum of 5 credits each year. Lighter course loads must be approved in writing by the Upper School Division Head.

The 9th grade curriculum includes 5 core required credits (English, Mathematics, History, Science, and World Languages). Students are encouraged to take at least one course from among the Visual Arts, the Performing Arts, and Computer Science areas.

The 10th grade curriculum includes 5 core required credits (English, Mathematics, History, Science, and World Languages) plus a non-credit required Health course.

Any student enrolled in an Advanced Placement (AP) course is required to take the AP exam.

IB Diploma candidates must take all core courses in IB. Non Diploma candidates can elect IB courses depending upon instructor approval and available space. Students enrolled in the IB Diploma are required to take all IB assessments.

NON-CORE ELECTIVES

Non-Core courses are considered supplementary to the normal course load. The credits awarded for successful completion are not counted toward meeting the 18 credit minimum graduation requirement. Similarly, grades earned in Non-Core courses are not computed into the computation of placement on the Honors List.

Introduction to Chess

(9th, 10th, 11th, 12th - ½ cr/1 Semester)
Pass/Fail.
Can be taken multiple semesters if applicable.

This non-Core elective provides an in-depth study of the game of chess from a science, art, and game perspective. Using chess as the primary conduit, the class provides an effective means for intellectual development and logical thinking. Students learn its rules, notation, use of the chess clock and basic chess principles, as well as strategy, tactics, and endgame play. The class reinforces essential problem-solving techniques through lectures and discussion, followed by tournaments and match situations, and advanced game theory.

Advanced Chess: 1, 2, and 3

(9th, 10th, 11th, 12th - 1 cr/yr)
Prerequisite: Introduction to Chess or permission of Instructor.

This full year course is designed for students who intend to become rated or highly skilled players. There will be 3 levels of Advanced Chess: 1, 2 and 3, all offered as separate classes that can be taken when the previous level is completed. Level 3 is the highest level chess class and will cover advanced themes normally studied by serious tournament players. All aspects of chess will be covered in the 3 classes including detailed opening systems, middlegame themes and endgame theory. Students will be assessed on a regular basis with daily homework assignments. The use of chess clocks and score keeping will be required. Players will be encouraged to compete in local rated chess tournaments. Students will each obtain online accounts at both Chesslang and Chess.com where progress can be monitored. Students in this class will potentially become members of the U.S. Chess Federation and obtain national ranking.

Childhood Education

(9th, 10th, 11th, 12th - ½ cr/1 Semester)
Pass/Fail.

This course will serve as an introduction to the practice and theory of Childhood Education and Child Development. Upper School students will be matched with a class in the Middle School for the purposes of observing, analyzing, and supporting during the class cycle. During separate, scheduled weekly meetings, all enrolled Upper School students will meet with the facilitator/teacher to reflect on their experiences and observations from their fieldwork. This class session will include, but not be limited to, reading, discussions, and presentations on the many dimensions of Middle School Education (philosophies, learning abilities, global educational systems, etc.).

COMPUTER SCIENCE

Computer Science Principles

(9th, 10th, 11th, 12th - 1 cr/yr)
Prerequisite: Algebra 1 or permission from the department.

Computer Science Principles (CSP) introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. Rather than focusing the entire course on learning one particular software tool or a single programming language in depth, the course is designed to focus on the conceptual ideas of computing and help students understand why certain tools or languages might be utilized to solve particular problems. The goal of CSP is to develop in students the computational practices of algorithm development, problem solving, and programming within the context of problems that are relevant to the lives of today's students. Students will also be introduced to topics such as interface design, big data and privacy, limits of computers, and societal and ethical issues. Do you want to learn some basic HTML, CSS, JS and build fun apps while learning about computing and technology? This class is for you!

Introduction To Coding

(9th, 10th, 11th, 12th - ½ cr/1 Semester)
Prerequisite: Algebra 1 or permission of department. CSP is recommended, but not required.

Introduction to Coding will focus on teaching students fundamental coding principles including variable declaration, basic syntax, data types, control structures, application testing, and debugging. This course will help students develop software skills associated with a text-based coding language and how to use an integrated development environment (IDE). It will also build upon students' creativity, logic, problem solving, project planning, and collaborative skills. Do you want to learn more about object-oriented text-based coding? Come join this single semester course offered in fall or spring!

IB ITGS (Information and Technology in a Global Society)

(11th, 12th- 1 cr/yr)

This one-year course considers the local and global issues associated with information technology systems. Students examine a series of real world scenarios including business, education, health care, the environment, politics and government where technology is used to organize and act on data. In each unit, students consider the existing technology with an eye for its real world applications and the social and ethical questions it raises. The major project of the year requires students to identify a person in their life who has a problem that can be solved with an Information Technology solution, and then create and implement the solution (e.g. a website, promotional video, graphic design project, program, database, etc.). Additionally, there is a formal IB external assessment at the end of the year. Do you like to discuss and debate? Are you interested in how technology impacts your daily life? This is a course for you! *This course can be taken as part of the IB Diploma program or as a single course.*

Robotics

(9th, 10th, 11th, 12th - 1 cr/yr)
Prerequisites: parent permission to attend the FIRST Tech Challenge competition.

Students will design, build and program robots, applying real-world math and science concepts, following the engineering design process.. This course develops problem-solving, organizational, and project management skills as teams compete in the yearly FIRST Tech Challenge competition. Students will learn about basic mechanical elements, the logic of coding a robot, and how to use CAD to design custom parts. In addition to class time, this course has 3-5 after school and weekend commitments, and a robotics competition in late January that students are expected to attend. Want to learn about the engineering design process and how to build and code robots? Sign up for Robotics!
This course cannot be used to fulfill the 3 year lab science requirement.

Robotics 2

(10th, 11th, 12th - 1 cr/yr)
Prerequisites: Robotics, parent permission to attend the FIRST Tech Challenge competition.

This course will continue to develop the student's understanding of the engineering process and further explore programming languages -- coding syntax, testing, and debugging. Students will expand their understanding of robotics using TETRIX, goBILDA, REV and raw materials to construct mechanical elements. More focus will be placed on CAD skills in this course. Students in Robotics 2 will also be asked to take on a leadership role in an area of specialization to help peers in the Robotics course who are new to robotics design, construction and programming. In addition to class time, this course has some afterschool and weekend commitments, and a robotics competition in late January, that students are expected to attend.
This course cannot be used to fulfill the 3 year lab science requirement.

Robotics 3

(11th, 12th - 1 cr/yr)
Prerequisites: Robotics 2, parent permission to attend FIRST Tech Challenge competition.

This course will continue to develop the student's understanding of the engineering process and further explore programming languages -- coding syntax, testing, and debugging. Students will expand their understanding of robotics using TETRIX, goBILDA, REV and raw materials to construct mechanical elements. More focus will be placed on CAD skills in this course. Students in Robotics 3 will also be asked to take on a leadership role in an area of specialization to help peers in the Robotics course who are new to robotics design, construction and programming. In addition to class time, this course has some afterschool and weekend commitments, including two qualifier competitions in January, that we expect students to attend.
This course cannot be used to fulfill the 3 year lab science requirement.

Website Design and Development

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

Website Design and Development introduces students to the foundational concepts of HTML5, CSS3, and JavaScript. Students will learn how to design websites with wireframing and then use VS Code to completely develop various website projects. No prior coding experience needed. Do you want to learn how to build real websites completely from scratch? This class is for you! Offered in the spring or fall.

ENGLISH

English 9 and 9A

(9th - 1 cr/yr)
Required course

This course is designed to complement the freshman Ancient History course while functioning independently to explore the theme of self-realization. The purpose of the course is to continue to build on close critical reading skills and effective writing skills. Emphasis is placed on literary analysis. Vocabulary will be examined within the context of the literary selections. Titles may include *The Curious Incident of the Dog in the Night-time*, *The Catcher in the Rye*, *The Secret Life of Bees, Siddhartha*, *The Odyssey*, and *Julius Caesar*.

English 10 and 10A

(10th - 1 cr/yr)
Required course

The purpose of the course is to continue to build on close critical reading and annotation skills as well as effective writing skills. Particular emphasis is placed on literary analysis. Vocabulary will be examined within the context of the literary selections. Titles which will be studied may include *Night*, *The Adventures of Huckleberry Finn*, *Lord of the Flies,* and *Macbeth*. Selections in short stories and poetry will include works written from a wide variety of cultural, racial, and gender perspectives.

English 11

(11th - 1 cr/yr)

English 11 will continue the broad survey of literature begun in the tenth grade. Students will focus on developing effective language skills by reading and writing about such works as *Fahrenheit 451*, *The Great Gatsby*, and *Othello*, as well as short stories and poems from a variety of cultural, racial, and gender perspectives. Students will experiment with various approaches to writing, including comparison-contrast, formal literary analysis, and close-reading. They will study context specific vocabulary and grammar and usage rules in conjunction with their writing.

English 11A

(11th - 1 cr/yr)
Prerequisite: permission of the department.

English 11A will offer students the opportunity to interact with and critically analyze a wide variety of texts representing different genres, themes, periods, styles, and cultural milieus. The reading may include the intensive study of *1984, The Great Gatsby, A Doll's House*, and *The Things They Carried*, as well as non-fiction essays written from a variety of cultural, racial, and gender perspectives by such authors as Jonathan Swift, Sherman Alexie, Frederick Douglass, Amy Tan, George Orwell, Chimamanda Ngozi Adichie, Richard Rodriguez, and Virginia Woolf.

IB English Year 1

(11th - 1 cr/yr)
Prerequisite: permission of the department.

IB English Year 1 will follow the first year International Baccalaureate Language A: Literature curriculum, which offers students the opportunity to interact with and critically analyze a wide variety of texts representing different genres, themes, periods, styles, and cultural milieus. The reading may include *Antigone*, *The Interpreter of Maladies, A Doll's House*, and *The Bluest Eye*, among others. Students who are pursuing the IB Certificate or the IB Diploma should sign up for this class.

Creative Writing

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

This elective course offers students an opportunity to write stories, essays, plays and poems. Students are encouraged to experiment with a variety of styles. Students in this course will be responsible for the production of *Xanadu*, the literary/art magazine.

English 12

Each senior is required to take one credit of English, which will consist of one or more of the following courses:

IB English Year 2

(12th - 1 cr/yr)
Prerequisite: permission of the department, IB English Year 1

IB English Year 2 will follow the second year International Baccalaureate Language A: Literature curriculum. Building on the skills and concepts from IB English Year 1, students will interact with and critically analyze a wide variety of texts representing different genres, themes, periods, styles, and cultures. Major texts may include *Fences, Twelfth Night*, *The Importance of Being Earnest, Narrative of the Life of Frederick Douglass*, *Things Fall Apart*, *The Things They Carried*, *A Streetcar Named Desire, and The Great Gatsby,* as well as the poetry of Seamus Heaney. Students who are pursuing the IB Certificate or the IB Diploma should sign up for this class.

English 12: Modern World Literature

(12th - ½ cr/1 Semester)

The purpose of this course is to explore the non-Western World through the works of modern writers. This course differs from other English courses in that we will read many books relatively quickly. Selections may include *Boxers & Saints* (China), *Things Fall Apart* (Nigeria), *Persepolis* (Iran), *Dawn* (Kurdistan), *How the Garcia Girls Lost Their Accents* (Dominican Republic). For each title, students will be given suggestions for further reading. Students are required to engage in further reading for at least one of the works studied in class. This additional reading will be the basis of an independent research paper.

English 12: Memoir

(12th - ½ cr/1 Semester)

The purpose of this course is to appreciate the genre of memoir through close examination of multiple shorter and longer examples of the form. Each of the major works, *The Glass Castle*, *Educated*, and *Girl, Interrupted*, explore the vibrant personal stories of a variety of authors from all walks of life. The texts explore universal themes, such as the role of a parent, the importance of education, and the stigma of mental illness. After studying many examples of the genre, students will write a memoir focusing on a time period in their lives which strongly influenced who they have become today.

English 12: Cautionary Tales

(12th - ½ cr/1 Semester)

The purpose of this course is to explore how humanity can learn and grow from moral conflict. Each of the major works is thematically linked and present complex ethical situations through the plights of the protagonists. The major texts, *Frankenstein*, *The Handmaid's Tale,* and *The Kite Runner*, vary in genre and include a group of diverse authors writing about a range of characters facing both unique and universal challenges. The texts examine moral dilemmas, such as the obligations of a "father," the role of government in the lives of its citizens, and the moral responsibilities of a friend.

English 12: Exploring the Graphic Novel

(12th - ½ cr/1 Semester)

The purpose of this course is to explore the graphic novel as a literary medium. Long neglected as a childish or trivial pulp form of literature, the medium has consistently grown in the past few decades to encompass multiple, diverse viewpoints. These stories can span the intimate and the grandiose, the surreal and the supernatural. This course will begin with an exploration of an understanding of the genre and medium. Students will learn common terminology, such as understanding the gutter, panels, and polyptychs, as well as how different art styles can affect the reader's engagement. There will be a conscious effort to include diversity in authors, artists, genres, styles, and subjects. At the end of the course, students will select a graphic novel of their own choosing and create an original project based on it.

English 12: The Evolution of the Modern Horror Story

(12th - ½ cr/1 Semester)

What scares us, and why? How much of our fears come from a primal place, and how much depends upon the context of what is frightening in the world we see around us? This course aims to explore those questions by tracing the evolution of horror media from the pivotal formation of the Gothic genre up to present-day horror hits. Students will read literature from various centuries and regions in order to see how horror media shifts across time, place, and surrounding mindsets/schools of thought. Reading material will be supplemented with films, television, and internet media as these genres become relevant and revolutionary to the horror genre. We will discuss why tropes like the scary mansion and the family curse exist, what various creatures (vampires, werewolves, zombies, etc.) represent across varying media appearances, how horror can be based on the unfathomable or the mundane, and many more topics! By the end of the course, students will have experimented with the horror genre by completing a series of short, creative pieces, as well as a larger, final writing project.

English 12: The History of Art and Literature

(12th - ½ cr/1 Semester)

This course will be a combination of Art and Literature. We will analyze, interpret, and create artwork based on famous art throughout the ages. We will cover Art History and Literature from the Prehistoric Era through the Modern Period from around the world. In addition to the artwork, students will also learn about the many fascinating stories that inspired/were inspired by art. The course will include an emphasis on visual literacy, developing both critical thinking skills, and an appreciation of works of art and their stories.

English 12: Creative Writing (Fiction/Nonfiction)

(12th - ½ cr/1 Semester)
This course will target each element of storytelling and the process of writing (generating ideas, writing, editing, and publishing). The first half of the course will focus on non-fiction genres with an eye toward helping students generate material for their college applications. In the second half of the course, students will explore the craft of studying, crafting, and workshopping fictional pieces. Students in this course will help in the production of *Xanadu*, the literary/art magazine.

English 12: Creative Writing (Poetry)

(12th - ½ cr/1 Semester)

This class will focus on reading and writing poetry in various forms, including written, spoken word, and music lyrics. Through a combination of exploring various poets and poetic genres, crafting and workshopping their own poems, and learning to explore and develop their voices, the course aims to help students become more confident readers and writers of poetry. Students in this course will help in the production of *Xanadu*, the literary/art magazine.

HISTORY

The aims of the history courses are:

- To develop an understanding of, and continuing interest in, the past.
- To develop an awareness in the student that human attitudes and opinions are widely diverse and that a study of society requires an appreciation of such diversity.
- To develop an understanding of history as a discipline and to develop historical consciousness including a sense of chronology and context, and an understanding of different historical perspectives.
- Develop key historical skills, including engaging effectively with sources.

History 9: Ancient Civilizations

(9th - 1 cr/yr)

This course emphasizes the key events in the development of civilization from 700 BCE through 1500 CE. Major attention is focused upon the connections between civilizations in Asia, Africa, and Europe that lead to the modern era. Frequent discussions about current events will link to the topics and content of the class. Students are expected to approach the work from the point of view of a historian, and they are taught critical thinking skills used to direct this process. The use of primary and secondary sources enhances the content of this course. Students work on their writing skills throughout the year through structured workshops to organize strong essays, ensuring that they leave the course comfortable in their historical writing ability. In the third trimester, students are required to complete a research paper under the guidance of the teacher. They follow a structured process and work almost entirely in school.

History 9A: Advanced Ancient Civilizations

(9th - 1 cr/yr)

This course emphasizes the key events in the development of civilization from 700 BCE through 1500 CE. Major attention is focused upon the connections between civilizations in Asia, Africa, and Europe that lead to the modern era. Frequent discussions about current events will link to the topics and content of the class. Students are expected to approach the work from the point of view of a historian, and they are taught critical thinking skills used to direct this process. The use of extensive primary and secondary sources enhances the content of this course. Students consistently work on their analytical writing skills through frequent essay writing, and extended responses that challenge them to think, and write like a historian to evaluate the values and limitations of sources. In the third trimester, students are required to complete a research paper under the guidance of the teacher and librarian. They follow a structured research process and work almost entirely in school.

History 10: Modern World History
(10th - 1 cr/yr)

This is a survey course of major developments that shaped the growth of civilization around the world from the 1500s to modern times. In order to understand varying perspectives of events within world history, the curriculum will cover colonization and subjugation throughout the world, the development of different systems of government, worldwide revolutions, and the practice of imperialism. Major emphasis is then given to the origins and global impact of the First World War and the rise of totalitarian states. In the third trimester, students are required to complete a research paper under the guidance of the teacher and the librarian. They follow a structured research process and work almost entirely in school.

History 10A: Advanced Modern World History
(10th - 1 cr/yr)

This is a survey course of major developments that shaped the growth of civilization around the world from the 1500s to modern times. Throughout the course, students are expected to analyze both primary and secondary sources, to provide varying perspectives regarding events that shaped the modern world. In order to understand the quest for self-government, students view the emergence of political doctrines against a changing backdrop of intellectual and scientific inquiry, colonization, and the dichotomy of absolutism and self-government. Major emphasis is given to events after the era of Reformation, including the revolutionary era and its global impact, industrialization, the two world wars, and the polarization of the Cold War. In the third trimester, students are required to complete a ten-page research paper under the guidance of the teachers and the librarian. They follow a structured research process. The advanced section of this course combines extensive primary and secondary works with the assigned texts at an accelerated pace.

Juniors are required to take United States History; the AP, Regular, and IB courses all fulfill this requirement. Sections will be finalized by the department.

History 11: United States History
(11th - 1 cr/yr)

This course covers both Domestic and Foreign Policy of the United States, including major political, economic, social, and cultural events from 1865 through 2000. Emphasis is placed upon honing skills such as analysis of primary and secondary sources, historical investigation, research skills, written communication, as well as, public speaking.

AP United States History
(11th - 1 cr/yr)
Prerequisite: permission of the department.

This course is a rigorous study of the political, economic, social, and cultural topics and concepts from the discovery of the Americas through the modern era. It is designed to develop in each student a thorough understanding of the significance of the major events and individuals in American history. Preparation for the AP Exam is enhanced through regular practice with document based questions and free response

essays. In addition to the various texts, reading is extensively from primary and secondary sources. A summer reading list must be completed in preparation for this course.

IB History of the Americas

(11th - 1 cr/yr)
Prerequisite: permission of the department.

The first of a two-year course, the History of the Americas focuses on in depth investigation of varying, yet connecting topics. Throughout the year, students will study aspects of history, with a heavy focus on causation and critical analysis. Three in depth themes such as , *Independence Movements (1763-1830), The United States Civil War: Causes and effects (1840-1877), and Civil Rights and Social Movements in the Americas post- 1945* will be of focus throughout the year. The purpose of the course is to provide varying perspectives regarding events that shaped the world. By broadening the curriculum from the United States, to one that encompasses both North and South America, students will gain a deeper appreciation for multiple perspectives and how interconnected society truly is.

In addition to the course content, students should be aware that this course focuses heavily on document analysis, compare and contrast style essays and a historical investigation. **Summer work is expected.**

**After completing the History of the Americas, IB Diploma Candidates will then take IB World History in their senior year. Exams covering both years take place in May of their senior year.*

IB Economics

(11th, 12th - 1 cr/yr)

The aims of the IB Economics course at SL level are to enable students to develop a critical understanding of a range of economic theories, models, ideas and tools in the areas of microeconomics, macroeconomics and the global economy; to apply economic theories, models, ideas and tools and analyze economic data; to understand and engage with real-world economic issues and problems facing individuals and societies; and to develop a conceptual understanding of individuals' and societies' economic choices, interactions, challenges, and consequences of economic decision-making.

This course falls under the Individuals and Societies structure of the IB Diploma Program. Therefore it *may* be used to fulfill that domain at the Standard Level, or for a Diploma student to double up in this area.

IB Economics can also be taken as a stand-alone course elective. *This course will be offered based on staffing needs.*

IB World History

(12th - 1 cr/yr)
Prerequisite: Completion of IB History of the Americas (for IB Diploma candidates seeking HL designation). Permission of the department for elective candidates for both 11th and 12th grades.

Throughout this course students will focus on specific case studies regarding *the Causes, Practices and Effects of War*, leading to in depth analysis. In addition to the case studies, the course will look specifically at two topics for greater understanding. Possible topics include: *Societies in Transition (1400-1700), Independence Movements (1800-2000), Authoritarian States (20th Century), and The Cold War: Superpower tension and rivalries (20th Century)*. The concentration of the two topics will be somewhat driven by student interest and teacher expertise. In addition to the course content, students should be aware that this course focuses heavily on document analysis, compare and contrast style essays and historical investigation. **Summer work is expected.**

**After completing IB History of the Americas, IB Diploma Candidates will then take IB World History in senior year. Exams covering both years take place in May of senior year.*

AP Psychology

(11th, 12th schedule permitting - 1 cr/yr)
Prerequisite: permission of the department.

The course will work to introduce students to the study of the behavior and mental processes of human beings and other animals. Students will learn about the ethics and methods psychologists use in their science and practice. Topics of study will include history of psychology, research methods, biological understanding of behavior, sensation/perception, consciousness, learning, cognition, motivation and emotion, developmental psychology, personality, testing and individual differences, abnormal behavior and its treatment, and social psychology (as delineated in the College Board AP Psychology Course Description).

Advanced American Studies

(11th as elective ONLY, 12th - ½ cr/1 Semester)

Advanced American Studies is a seminar style course that focuses on the lived experiences of Americans in the 20th century and beyond. Utilizing a diverse assortment of sources including personal narratives, poetry, podcasts, visual arts, and documentaries, students will explore what it means to be an American through various mediums. There is an emphasis on informed discussion, and project based, investigative, independent work. Units of study include an overview of Civics and the Constitution, Media Literacy, Immigration and Borders, and Protest Movements. A particular area of focus in the course is social justice on its own, but it is also interwoven throughout the units identified. The course is designed for students to connect their understanding of the past to current events with the hope of fostering discussions led by the class and facilitated by the teacher. As this is a seminar style course, it has been created for seniors specifically, as the curriculum is delivered similarly to that of a college seminar. Therefore, priority will go to the senior class first, before being offered as an elective option for juniors.

MATHEMATICS

The Mathematics Department offers a diversity of mathematics courses to upper school students. Students must take mathematics each year. Seniors will have several choices for their fourth year of math. They are Calculus AB or BC, Precalculus, Calculus, IB Math or Applied Mathematics. Students should check with their math teacher or Mrs. Corby in order to select the appropriate sequential course.

Algebra 1

(9th - 1 cr/yr)

This course deals with the fundamental operations of algebra. Some of the topics included are: algebraic operations, linear equations and inequalities, polynomials, word problems, factoring, systems of equations, graphing lines and inequalities, radicals and exponents, rational expressions, functions, and quadratic equations.

Geometry

(9th, 10th - 1 cr/yr)
Prerequisite: Algebra 1

This course deals with the study of the properties of two and three dimensional shapes; the symmetry, congruence and similarity of these shapes, and uses logical argument in formulating deductive proofs.

Geometry A

(9th - 1 cr/yr)
Prerequisite: Algebra 1A or entrance exam with permission of the department.

This in-depth formal study of Euclidean geometry is supplemented by topics in analytic and transformation geometry, trigonometry and algebra. Emphasis is placed upon developing both appreciation of the axiomatic structure of mathematics and ability to think logically through the construction of formal proofs. Topics include lines and angles, parallel and perpendicular lines and planes, congruent and similar polygons, right triangles, circles, area and volume, constructions and loci and some coordinate geometry and transformations.

Algebra 2

(10th, 11th - 1 cr/yr)
Prerequisite: Algebra 1

This course begins with a review of topics from Algebra 1 and then proceeds to include: complex numbers, quadratic equations, functions, relations, systems of equations and inequalities, and probability. Algebra 2 has a component which meets the trigonometry requirement. Students completing this course may take the SAT Subject Test in Mathematics, Level I.

Algebra 2A

(10th, 11th - 1 cr/yr)
Prerequisite: Geometry A or permission of the department.

This course is an intensive study of advanced algebra and trigonometry designed to give students the necessary background for mastery of more advanced mathematics. The emphasis is on the structure of mathematical systems as well as on algebraic, computational, and problem-solving skills. Algebra 2A has a component which meets the trigonometry requirement. Students completing this course are prepared to take the SAT Subject Test in Mathematics, Level I.

Applied Mathematics

(11th, 12th - 1 cr/yr)
Prerequisites: Geometry and Algebra 2

This course combines algebraic and graphical approaches with practical business and personal finance. The focus is on applications that connect mathematics to the real world. The material stresses how algebraic thinking patterns and functions connect to finance and business dealings. Topics will include the stock market, banking, business, consumer credit, automobile ownership, purchasing a home, budgeting and retirement planning.

AP Statistics

(10th, 11th, 12th - 1 cr/yr)
Prerequisite: Algebra 2 or permission of the department.
Not offered in 2022-2023.

AP Statistics will introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to four broad conceptual themes:

1. Exploring Data: Describing patterns and departures from patterns
2. Sampling and Experimentation: Planning and conducting a study
3. Anticipating Patterns: Exploring random phenomena using probability and simulation
4. Statistical Inference: Estimating population parameters and testing hypotheses

Precalculus

(11th, 12th - 1 cr/yr)
Prerequisite: Algebra 2

This 1 year, 1 credit course provides students with a clear understanding of functions as a solid foundation for subsequent mathematics courses. Students will explore new topics such as logarithmic functions, exponential functions, trigonometry, probability theory and matrices and extend material covered in previous mathematics courses.

Advanced Precalculus

(11th, 12th - 1 cr/yr)
Prerequisites: Algebra 2 or 2A and permission of the department.

For the student who will study calculus and/or who has a strong aptitude or an interest in mathematics, this course integrates the algebraic, geometric and trigonometric skills necessary for calculus. The course assumes knowledge of trigonometry and introduces differential calculus. Students completing this course may take the SAT Subject Test in Mathematics, Level II. Precalculus AB leads to the AB Calculus AP exam; Precalculus BC leads to the BC Calculus AP exam. The Department determines the sectioning for these courses at the end of Advanced Precalculus.

Calculus

(12th or permission of the department - 1 cr/yr)
Prerequisite: Precalculus

This course uses a graphical approach to introduce differential and integral calculus. The course presents the rules for derivatives and integrals with a focus on using them in applications.

AP AB Calculus

(12th or permission of the department - 1 cr/yr)
Prerequisite: Precalculus A and permission of the department.

This course is an introduction to differential and integral calculus. Topics studied include functions; limits; analytic geometry; differentiation, applications of differentiation; integration, applications of integration; and transcendental functions. This course prepares students to take the Advanced Placement Calculus AB examination.

AP BC Calculus

(12th or permission of the department - 1 cr/yr)
Prerequisite: Pre-Calculus A and permission of the department.
Not offered in 2022-2023.

This course includes all of AB Calculus topics as well as parametric, polar and vector functions, and series (the concept of series, series of constraints, Taylor series). This course prepares students for the BC Calculus AP exam.

IB Math Applications and Interpretation Year 1

(11th, 12th - 2 yrs - 1 cr/yr)
Prerequisites: Algebra 1, Algebra 2, and Geometry.

Applications and interpretation with an emphasis on statistics, modelling and use of technology are appropriate for those with an interest in the applications of mathematics and how technology can support this. SL will be appropriate for students who would previously have taken Mathematical studies SL. Current HL mathematics statistics and discrete option content will form part of the HL course. This subject is aimed at students who will go on to study subjects such as social sciences, natural sciences, statistics, business, some economics courses, psychology, and design.

IB Math Applications and Interpretation Year 2

(11th, 12th - 1 cr/yr) Prerequisites: Algebra 1, Algebra 2, and Geometry, plus IB Math Applications and Interpretations Year 1 or permission of the department.

Applications and interpretation with an emphasis on statistics, modeling and use of technology – appropriate for those with an interest in the applications of mathematics and how technology can support this – SL will be appropriate for students who would previously have taken Mathematical studies SL – current HL mathematics statistics and discrete option content will form part of the HL course. This subject is aimed at students who will go on to study subjects such as social sciences, natural sciences, statistics, business, some economics courses, psychology, and design.

IB Math Analysis and Approaches Year 1

(11th, 12th - 1 cr/yr)
Prerequisites: Algebra 1, Algebra 2, Geometry (preferably all advanced and permission of the department.)

Analytic methods with an emphasis on calculus – appropriate for pure mathematicians, engineers, scientists, economists, those with an interest in analytic methods – current HL mathematics calculus option content will form part of the HL course. This subject is aimed at students who will go on to study subjects with substantial mathematics content such as mathematics itself, engineering, physical sciences, or some economics courses.

IB Math Analysis and Approaches Year 2

(11th, 12th - 1 cr/yr)
Prerequisites: Algebra 1, Algebra 2, and Geometry (preferably all advanced and permission of the department), plus IB Math Analysis and Approaches Year 1 or permission of the department.

Analytic methods with an emphasis on calculus – appropriate for pure mathematicians, engineers, scientists, economists, those with an interest in analytic methods – current HL mathematics calculus option content will form part of the HL course. This subject is aimed at students who will go on to study subjects with substantial mathematics content such as mathematics itself, engineering, physical sciences, or some economics courses.

Multivariable Calculus

(1 cr/yr) Prerequisite: BC Calculus and permission of department

This course covers vectors and their applications, derivatives of multivariable functions, multivariable optimization, multiple integrals, coordinate systems, and partial derivatives.

MUSIC

9th Grade Chorus & Concert Chorus

(9th Grade Chorus - ½ cr/1 Semester)
(10th, 11th, 12th Concert Chorus - 1 cr/yr)

All students with a strong desire to sing as part of an ensemble are encouraged to participate in Upper School Chorus. The Concert Chorus will both perform in two major concerts per year, as well as the Thanksgiving Assembly and Graduation Ceremony. In addition to learning a repertoire of choral literature, students will study proper singing technique, sight singing, and will learn choral rehearsal and performance procedures. Special select groups may be formed within the choral ensembles as interest and ability warrant. Students are encouraged to re-enroll in chorus in subsequent years, as different literature will be studied.

Select Chorus

(10th, 11th, 12th - 1 cr/yr)
Co-requisite: Must also be enrolled in US Chorus. *Exceptions considered with department approval.*
By audition only in spring 2022.

The ensemble will study a broad range of musical choral literature including, but not limited to: 20th Century music, jazz, and American folk. Students will work to build 4-part harmonies and complex chords. The chorus will generally perform unaccompanied. Members of the group will strengthen their reading and listening skills with a heavy emphasis on sight-singing. The accompanying exercises will enhance each student's ability by providing an opportunity to understand the sound and feel of each interval. The Select Chorus will perform at the Winter and Spring US concerts with the possibility of also performing at other events throughout the year.

Concert Band or String Orchestra

(9th, 10th, 11th, 12th - 1 cr/yr)

Wind, percussion and string instrumentalists are offered the opportunity to advance their technical proficiency and to develop the skills necessary for ensemble playing. Rehearsals will be supplemented by in-school group lessons. A variety of compositions, from classical arrangements to contemporary works and film scores, will be learned and polished for performances during the school year, including Winter and Spring concerts. Small select ensembles may be formed for interested, able musicians. Students are encouraged to start in 9th grade and continue throughout Upper School.

Solo and Chamber Music Performance

(9th, 10th, 11th, 12th - ½ cr/yr)
Co-requisite: enrollment in the Band, Orchestra, or Chorus (or permission of the department.) *Exceptions considered with department approval.*
Prerequisite: NYSSMA level 5 (or department approval through audition).
Availability dependent upon staffing and enrollment.

Musicians interested in solo and small chamber music will practice their own repertoire both as a soloist as well as collaborate with other musicians on arrangements created specifically for the group based on individual instrument and skill level. Musicians will also have access to practice rooms during free periods to work on solo or chamber music in a collaborative way guided by a music teacher. There will be culminating performances throughout the year, as well as opportunities for performance both on and off campus.

Digital Audio, Music and Recording

(9th, 10th, 11th, 12th - ½ cr/1 Semester)
Availability dependent upon staffing and enrollment.

Students will learn about various aspects of audio engineering, composition, and studio recording. Recording studio techniques and music production will be covered through programs such as ProTools and Garageband. Concepts of microphone selection, microphone placement, effects, recording and mixing will be covered. Live audio set-up and production will occur for various events on-campus such as concerts, recitals, or musicals, as well as off-campus occasions. Interested students must be available to set up and record at least two (winter/spring) live evening performances.

Music Theory + Survey: Music In Our Lives

(9th, 10th, 11th, 12th - ½ cr/1 Semester).
Availability dependent upon staffing and enrollment.

This course is open to all students with an interest in music and especially those interested in IB Music. Students will examine the role and importance of music in our lives with a focus on the musical elements used to create the works studied. Topics covered will include classical, jazz, popular, and theater music, music of other cultures, form in music, and music theory. The course will make use of the Portledge Media lab and will include an introduction to music technology: students will learn the operation of the synthesizer, music sequencing, recording, and other skills involving music technology. This is a non performing music course. Students will complete a paper on a topic in which they have a special interest.

IB Music Year 1

(11th, 12th 1 cr/yr)
Co-requisite: enrollment in the Band, Orchestra, or Chorus (or department approval)
Prerequisite: Music Theory + Survey or permission of the department.

In the first year of this two year course, students explore, experiment, and present music. They will also learn a variety of vocabulary related to music theory which they use to analyze and write about musical compositions in four Areas of Inquiry (1) Sociocultural/political, (2) listening and performance, (3) dramatic impact, movement, entertainment, and (4) music technology in the digital age. Students prepare performances, compositions, research, and journaling with pieces from the mentioned Areas of Inquiry across 3 contexts that range from PersonaL/familiar to Global/unfamiliar. The course will involve listening to compositions and then analyzing their musical elements such as forms, instrumentation and cadences. Students are expected to regularly practice their instruments as well as work with computers to have a rounded understanding of music in all its capacities.

IB Music Year 2

(12th 1 cr/yr)
Availability dependent upon staffing and enrollment.
Co-requisite: enrollment in the Band, Orchestra, or Chorus (or permission of the department.)
Prerequisite: IB Music Year 1, Music Theory + Survey, or permission of the department.

In the second year of this two year course, students continue to analyze, create, and perform music in all contexts across the Areas of Inquiry. All students will apply their practice and research into several portfolio style items such as writing program notes to accompany a performance, playing their instrument in the style of another instrument, and producing their own electronic music. All students will be assessed for the Exploration, Experimentation, and Presentation requirements. Additionally, HL Students will devote a significant amount of time to their Contemporary Music Maker project, which is to realise an actual musical collaboration and present a 15 minute video explanation of the process along with a performance.

Jazz Combo

(9th, 10th, 11th, 12th - 1 cr/yr)
Availability dependent upon staffing and enrollment.
Co-requisite: Enrollment in band for drums, saxophone, trumpet, trombone and enrollment in orchestra for bass. *Exceptions considered with department approval for IB diploma students.*
Prerequisite: Permission of the department.

Jazz Combo is open by audition to those students who play saxophone, trumpet, trombone, piano, guitar, bass, and drums (other instruments may be considered by petition). Students must be taking private lessons currently on their instrument and must play at an intermediate level or higher. The ensemble performs classic jazz literature. Students will learn techniques of improvisation and will work towards playing together as a unit. The ensemble will perform at the Winter and Spring concerts on campus and will have off-campus opportunities to perform as well. Auditions will be held during the spring preceding the school year in which the course will be taken.

SCIENCE

All students must complete three years of laboratory science at Portledge School. The department determines placement in advanced and regular sections based on past performances in science classes, the recommendations of a student's previous instructor, standardized test scores and, depending upon the course, the student's aptitude in mathematics. The department tries to identify the most able students for advanced classes which proceed at a faster pace and explore the subject material in greater depth with abstract thinking. Students are encouraged to take the appropriate SAT subject test in June. The usual laboratory sequence includes, in this order, courses in biology, chemistry, and physics. **Additional science electives, IB and AP courses may be available to students and vary from year to year based on student enrollment and staffing availability.** Students are encouraged to take a science course each of their four years in the upper school.

Core Lab Sciences

The following courses can *be used to fulfill the 3 year lab science requirement.*

Biology

(9th - 1 cr/yr)
A survey/laboratory approach covering a wide variety of topics in the life sciences, this course emphasizes the relationship between structure and function and the interrelationships among organisms. Topics include cells and cell biology, ecology, genetics, organismal biology, evolution and natural selection.

Biology A

(9th - 1 cr/yr)
Prerequisite: Science 8A, permission of the department.

A survey/laboratory approach covering a wide variety of topics in the life sciences, this course emphasizes the relationship between structure and function and the interrelationships among organisms. Topics include all of those listed for the standard Biology course. The course moves at a faster pace, goes into greater depth, and requires more independent study skills. Students are required to read challenging journal and magazine articles, write detailed lab reports, and present projects to the class. An important goal of the course is the development of laboratory skills and scientific thinking. Labs are used to explore and reinforce concepts. Problem solving and critical thinking are used in this course, so strong critical reading skills are expected.

Research Methods In Experimental Biology A

(9th - 1 cr/yr)
Prerequisite: Strong content knowledge of biology; knowledge of chemistry encouraged; permission of the department.

Science Research Methods is a directed study course to give students a mentored research experience while applying their content knowledge in biology. Emphasis will be on examining the core research process, taking the students step-by-step from determining the question to be answered, performing experiments and analyzing data, and evaluating the process and product. This will be done through guided and instructional research followed by student designed research projects. Reading of primary and secondary research articles to gain exposure to some methodology used in biological research in areas of ecology, molecular biology, and bioinformatics will be emphasized. Guest speakers will enhance the course and students will be asked to present their research and to develop a paper in the form of a scientific article.

Chemistry

(10th, 11th, 12th - 1 cr/yr)
Prerequisite: 1 year of Biology.

A laboratory course for students who want to understand the structure of matter, its properties, composition and the changes that matter undergoes without heavy reliance on mathematical relationships of chemical reactions. Topics will include the structure of the atom, chemical formulas, types of chemical reactions, phases of matter, gas laws, bonding, solutions, acids, bases and salts, electrochemistry and nuclear chemistry. The emphasis in this course will be on understanding concepts, although problem solving will require some basic algebra. Labs will provide "hands-on" experience for in-depth exploration of chemical laws and principles. Occasionally, technology will be integrated into the lab experiments

Chemistry A

(10th, 11th, 12th - 1 cr/yr)
Prerequisite: 1 year of Biology and permission of the department.

This laboratory course aims to develop an understanding of the behavior of substances under various conditions. Topics include all of the topics listed for the standard Chemistry course. The course moves at a faster pace, goes into greater depth, and requires more independent study skills. Atomic structure and the behavior of electrons are used to investigate the properties of elements and to elucidate the nature of chemical bonds. Mathematical relationships during reactions, reaction rates, chemical equilibrium, acid-base reactions and redox chemistry are explored. An important goal of the course is the development of laboratory skills. Labs are used to explore and reinforce concepts. Problem solving is used in this course, so strong mathematical skills are expected, students should be in Algebra 2 or a more advanced math course. Occasionally, technology will be integrated into the lab experiments. Students are encouraged to take the SAT Chemistry subject test in June.

Physics: Mechanics

(11th, 12th - 1 cr/yr)
Prerequisite: 1 year each of Biology and Chemistry.

This laboratory course is geared to students who want to increase their knowledge of the physical world without the use of advanced mathematics. Using a modeling approach this course will investigate the broad topic of mechanics. The course will address moving with constant velocity, uniform acceleration, behavior of a particle when the sum of the force acting on it equals zero, behavior of a particle subject to a net force, projectile motion, uniform circular motion, energy storage and transfer and momentum. Experimental work helps demonstrate the interrelationship between theory and fact.

Physics: Mechanics A

(11th, 12th - 1 cr/yr)
Co-requisite: Pre-Calculus
Prerequisite: 1 year each of Biology and Chemistry.

This laboratory course is geared to students who want to increase their knowledge of the physical world with the use of Algebra 2, trigonometry, and some Calculus. Topics include all of the topics listed for the standard Chemistry course. This course moves at a faster pace, goes into greater depth and requires independent study skills. The development of quantitative analytical skills through mathematical problem-solving is emphasized. Laboratory experiments to apply conceptual knowledge will be performed. Critical thinking about abstract concepts is developed.

IB Environmental Systems Studies

1 year course (11th, 12th - 1 cr/yr)
Prerequisites: 2 years of US Science: Advanced Biology or Research Methods in Experimental Biology; Advanced Chemistry or AP Chemistry; or departmental approval for any exceptions to listed prerequisites.

Given the accelerated pacing of this course, it is recommended only for students with strong historical grades in the sciences. First-year diploma candidates who wish to maintain flexibility in terms of science offerings in their senior year may consider requesting this course; non-diploma candidates seeking a significant challenge in a science course may consider requesting this course. This is a one year course in Environmental Science designed to be the equivalent of an introduction to Environmental Science course taken during the first year of college. The goal of this course is to provide opportunities for students to study the scientific principles and concepts of environmental science and sustainability and to understand the interrelationships of the natural world, the processes that underlie the Earth, and the human dependence on ecosystem services. Students will identify and analyze natural and human-made problems and examine and develop alternative solutions for resolving and/or preventing them. The topics include foundations of ESS; ecosystems and ecology; biodiversity and conservation; and, water, aquatic food production systems and societies, soil systems, terrestrial food production systems, and societies; atmospheric systems and societies; climate change and energy production; and, human systems and resource use. Work will include reading textbook material and current articles and conducting empirical studies, field work, laboratory experiments, case studies and projects.

IB Environmental Systems Studies Year 1

2 year course (11th, 12th - 1 cr/yr)
Prerequisites: 2 years of US Science: Biology and Chemistry.

This two-year version of the course is recommended for students with an interest in the course material and a general focus on the humanities in their course of study. First-year diploma candidates who wish to commit to a two-year sequence in this course and do not anticipate a need for flexibility in senior-year science offerings should consider requesting this version of the course; non-diploma candidates seeking exposure to these course materials may also consider requesting this course. This is a two year course in Environmental Science designed to be the equivalent of an introduction to Environmental Science course taken during the first year of college. The goal of this course is to provide opportunities for students to study the scientific principles and concepts of environmental science and sustainability and to understand the interrelationships of the natural world, the processes that underlie the Earth, and the human dependence on ecosystem services. Students will identify and analyze natural and human-made problems and examine and develop alternative solutions for resolving and/or preventing them. The topics, which will be covered over the two-year sequence, include foundations of ESS; ecosystems and ecology; biodiversity and conservation; and, water, aquatic food production systems and societies, soil systems, terrestrial food production systems, and societies; atmospheric systems and societies; climate change and energy production; and, human systems and resource use. Work will include reading textbook material and current articles and conducting empirical studies, field work, laboratory experiments, case studies and projects.

IB Physics Year 1

(11th, 12th 1 cr/yr)
Prerequisite: Chemistry A, Algebra II or higher.

This course is an Algebra-based physics course covering topics including: Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits. All lab work and the Group 4 Project will be evaluated according to the IB assessment standards, using five criteria: design, data collection and processing, conclusion and evaluation, manipulative skills, and personal skills. This course can also be taken by non-IB students.

IB Physics Year 2

(12th - 1 cr/yr)
Prerequisite: IB Physics Year 1 and Algebra II

This course is a second year of a two year sequence that will cover the main principles of physics in depth and will stress problem solving as well as laboratory skills. It is designed to meet the needs of those students wishing to further their study of physics. This course requires a variety of IB assessments.

AP Biology

(10th, 11th, 12th - 1 cr/yr)
Prerequisites: 2 years of US Science: Biology and Chemistry (can be taken concurrently), permission of the department.

AP Biology is designed to be the equivalent of a first year college biology course. The AP course in biology differs significantly from the usual first high school course in biology with respect to the complexity of laboratory work and the time and effort required of students. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. The course will cover three general areas including molecules and cells, heredity and evolution and organisms and populations. The two main goals of AP Biology are to help students develop a conceptual framework for modern biology and an appreciation of science as a process. Essential to this conceptual understanding are a grasp of science as a process rather than as an accumulation of facts; personal experience in scientific inquiry; recognition of unifying themes that integrate the major topics of biology; and application of biological knowledge and critical thinking to environmental and social concerns. Laboratory work including technology and field investigations will be included in this course. Students will take the Biology AP exam in May.

AP Chemistry

(11th, 12th - 1 cr/yr)
Prerequisites: 2 years of US Science: Biology and Chemistry and Algebra 2, and permission of the department.

AP Chemistry is designed to be the equivalent of the general chemistry laboratory course taken during the first year of college for students planning to major in science. Topics will include atomic theory and atomic structure, chemical bonding, gases, liquids and solids, solutions, reaction types, stoichiometry, equilibrium, kinetics, thermodynamics, electrochemistry and nuclear chemistry. All topics will be covered with an emphasis on chemical calculations and mathematical formulations of chemical principles. Proficiency in the use of logarithmic and exponential relationships is expected and therefore it is necessary that the student have successfully completed a second-year algebra course. In addition, students will be required to maintain a thorough, well-organized laboratory notebook in such fashion that chemistry professors at the students' selected institutions can readily review this evidence of their lab experiences. Technology will be integrated into the lab experiments. Students will take the Chemistry AP exam in May and are expected to take the SAT Chemistry exam in June.

AP Physics-C Mechanics

(12th - 1 cr/yr)
Co-requisite: Calculus AB or BC or higher
Prerequisite: 1 year Physics recommended, grade of A in Algebra 2A recommended.
Not offered in 2022-2023.

An Advanced Placement science course that studies Newtonian mechanics. Methods of calculus are used wherever appropriate in formulating physical principles and in applying them to physical problems. This course is designed to be equivalent to an introductory college course in mechanics for physics or engineering majors. Students will take the Physics AP-C exam in May.

Astrophysics

(12th - ½ cr/1 Semester)
Prerequisites: Algebra 1, Earth Science, and 3 years of Upper School Lab Science.

Astrophysics is the scientific discipline dedicated to the study of the physical nature of stars and other celestial bodies, and the application of the laws and theories of physics to the interpretation of astronomical observations. Topics to be covered include: The Solar System, Big Bang Theory, properties of stars, stellar evolution, the interstellar medium, galaxies, Hubble's Law, cosmology, observational astronomy, the history and development of astronomy, Kepler's laws of planetary motion, Newton's laws of motion and gravity, the Earth-moon system, the structure and composition of the planets with an emphasis on comparative planetology, asteroids, comets, the formation of the solar system, the sun and the exploration of space. Emphasis is placed on investigating the methods astronomers use to learn about the universe. Knowledge of basic algebra and Earth science skills are assumed. Students may have an opportunity to gain some college experience during lessons taught by a local university astronomy professor and/or visit a local university's astronomy lab and use their high powered telescopes for "stargazing."

Human Anatomy and Physiology

(11th, 12th - ½ cr/1 Semester)
Prerequisites: 1 year of Biology and 1 year of Chemistry.

Human Anatomy and Physiology is a course for those students interested in science-related fields. Anatomy and physiology is a discussion and laboratory based study of the human body. The study will include molecules, cells, body systems and body processes. Dissection will complement course work. This course is designed for students interested in potentially pursuing biology and health career majors. The course will provide opportunities for students to investigate topics of interest, to conduct experiments, and to develop critical thinking and communication skills. This is a full year course centered around the following topics: Basic Chemistry, Cells and Tissues, Skin and Body Membranes and Body Systems (Skeletal, Muscular, Nervous, Endocrine, Cardiovascular, Lymphatic, Respiratory, Digestive, Urinary and Reproductive).

Non-core Science Electives

*The following courses **cannot** be used to fulfill the 3 year lab science requirement.*

Robotics

(9th, 10th, 11th, 12th - 1 cr/yr)
Prerequisites: parent permission to attend FIRST competition.
This course cannot be used to fulfill the 3 year lab science requirement.

Students will design, build and program robots, applying real-world math and science concepts. Student teams develop strategy and build robots based on sound engineering principles. This course develops problem-solving, organizational and team-building skills as teams compete in the yearly FIRST Tech Challenge competition. In addition to class time, this course has 3-5 after school and weekend commitments, including a Qualifier competition in late January, that we expect students to attend.

Robotics 2

(11th, 12th - 1 cr/yr)
Prerequisites: Robotics, parent permission to attend FIRST competition.
This course cannot be used to fulfill the 3 year lab science requirement.

This course will continue to develop the student's understanding of the engineering process and further explore programming languages -- coding syntax, testing, and debugging. Students will expand their understanding of robotics using TETRIX, Actobotics, REV and raw materials to construct mechanical elements. More focus will be placed on CAD skills in this course. Students in Robotics 2 / 3 will also be asked to take on a leadership role in an area of specialization to help peers in the Robotics course who are new to robotics design, construction and programming. In addition to class time, this course has some afterschool and weekend commitments, including two qualifier competitions in January, that we expect students to attend.

Robotics 3

(11th, 12th - 1 cr/yr)
Prerequisites: Robotics 2, parent permission to attend FIRST competition.
This course cannot be used to fulfill the 3 year lab science requirement.
Not Offered In 2021-2022.

This course will continue to develop the student's understanding of the engineering process and further explore programming languages -- coding syntax, testing, and debugging. Students will expand their understanding of robotics using TETRIX, Actobotics, REV and raw materials to construct mechanical elements. More focus will be placed on CAD skills in this course. Students in Robotics 2 / 3 will also be asked to take on a leadership role in an area of specialization to help peers in the Robotics course who are new to robotics design, construction and programming. In addition to class time, this course has some afterschool and weekend commitments, including two qualifier competitions in January, that we expect students to attend.

Science Research Methods

(9th, 10th - ½ cr/1 Semester)
This course cannot be taken concurrently with Research methods in Experimental Biology A.
This course cannot be used to fulfill the 3 year lab science requirement.

This course is a directed study course targeting freshmen and sophomores to give students a mentored research experience in pure and applied science. Emphasis will be on the core research process and taking the students step-by-step from determining the research question, to performing experiments and analyzing data, and evaluating the process and product. This will be done through guided and instructional research followed by an independent research project. Students will be asked to present their research and to develop a paper in the form of a scientific article.

Independent Research

(11th, 12th - ½ cr/1 Semester)
May be repeated in multiple years.
This course cannot be used to fulfill the 3 year lab science requirement.

Students will identify a topic of interest, learn how to read and analyze primary source research papers, develop the business etiquette for approaching professionals in the field of interest to initiate discussions, prepare a detailed research proposal, plan research methods and analysis, carry out studies, analyze results, and prepare a professional style manuscript describing their findings.

THEATRE ARTS

Intro to Theatre

(9th grade, - ½ cr/1 Semester)

This is an introductory course designed for students to learn beginning acting technique, theory, and basic theatre appreciation and terminology. Fundamentals covered are basic theatre knowledge, history of acting practitioners and playwrights, improvisation, devising techniques, scene work and other performing exercises designed to lay the groundwork for future theatre training in this program. This beginning course will focus on the PROCESS and help develop the skills and emotional freedom to explore and create characters. All students will perform a two person scene final in this class.

Creative Dramatics

(10th grade - 1 cr/yr)
Prerequisite: Intro to Theatre or permission of the department Chair.

Creative Dramatics is a course designed for students to learn advanced acting technique, theory, and theatre appreciation and terminology needed to grasp the concepts of acting and creative performance. Fundamentals covered are monologues, improvisation, scene/character work and public performances designed for future theatre training in this program (IB Theatre). This is a performance class. Students will be asked to read, analyze, and perform plays in-class and for the public. Students will also be asked to collaborate and create and perform theatre pieces based on advanced devised theatre techniques such as: Theatre for Change, Theatre of the Oppressed and Process Drama.

IB Theatre Year 1

(11th, 1 cr/yr)
Prerequisites: Intro to Theatre or Creative Dramatics is strongly recommended.

Students in their first year of IB Theatre sign up for this section. This a two year advanced course and part of the IB Diploma program. Students are required to explore Theatre from the perspective of dramaturg, director, performer, group ensemble, production team and spectator. Assessment is completed in the second year of study, with the first year focused on gaining knowledge and understanding about the topics and preparing for mock assessments.

IB Theatre Year 2

(12th - 1 cr/yr)
Prerequisites: IB Theatre Y1.

Students in their second year of IB Theatre sign up for this section. All IB Theatre assessments are completed, performed and submitted to IB for grading.

Advanced Theatre

(11th, 12th - 1 cr/yr)
Prerequisite: Successful completion of Intro to Theatre or Creative Dramatics. Permission of the department is required.

Advanced Theatre is an advanced course and will be taught concurrently (i.e. in the same time and place) with IB Theater. Students enrolled in this course will be involved with all aspects of the IB course, but are not required to submit work to IB for assessment. Students may take this course twice. Year two is designated as Advanced Theatre II.

Theatre Performance

(11th , 12th - ½ cr/1 Semester)

9th graders wishing to take a theatre course should be encouraged to sign up for the Intro to Theatre course. This Theatre Performance course is a one semester (**Semester 2**) introductory course designed for students who elect to take a Theatre class to satisfy a graduation requirement. Students will participate and explore basic theatre and acting techniques. Students who take this class must be willing to participate, collaborate and take risks

Musical Theatre

(11th, 12th grade only– 1 cr/yr) Prerequisite: Creative Dramatics and/or Intro to Theatre. Must have Permission of Theatre Department Chair. Students may take this course twice.

Musical Theatre is a class designed for students to learn about the history of Musical Theatre and develop skills needed to perform this art form. This is an advanced, **performance-based class** and students must be willing to engage in all elements covered: musical theatre history, singing, dancing, acting and music theory. Students will be asked to perform vocal solos/duets/group numbers. Students will also be asked to perform in scenes and learn and perform dance combinations from shows. Students may also be asked to participate in outside public performances. As part of this class, students may also be required to participate in occasional after school master classes. These master classes may be taught by a class instructor or an outside industry professional. This will be an after-school commitment and should be factored into your decision on taking this class. Theatre is collaborative in nature and any student interested in this course must be a positive and supportive member of this class and program.

IB CORE

IB Core 1 - 1 semester

(11th - 1/2 cr/yr)

Only open to diploma students offered Fall and Spring semesters. Completion required in Junior year. The two year TOK class raises questions about what it means "to know." Students will write about and create exhibitions on the nature of knowledge in our world by studying the "ways of knowing": sensory perception, language, memory, reason, emotion, intuition, imagination, and faith. In addition to building a foundational understanding of the Theory of Knowledge curriculum, students will also engage with Extended Essay and CAS components of the core.

IB Core 2 - 1 semester Fall

(12th - 1/2 cr/yr)

Prerequisite: TOK 1

In the second year of the Core students continue their in-depth analysis of knowledge. Significant time is devoted to completing the official IB assessments including the TOK essay, Extended Essay and CAS project. This is a required course for Diploma Candidates.

VISUAL ARTS

Students may choose from the courses listed below. All elective courses will include an art history or appreciation component related to each topic. As indicated, not all courses are offered each year. The department has listed all of its courses and the likely years they will be offered in order to assist students who are planning to take visual arts courses over multiple years. For certain art courses, enrollment may be limited. 9th and 10th grade students are permitted enrollment in art electives only as space and scheduling permit, as 11th and 12th graders are given preference..

Art Foundations

(9th - ½ cr/1 Semester)

This course is designed to provide the student with the tools to both better understand art and to actually create art. An in-depth look at the Elements and Principles of Art will provide the vocabulary needed to gain a better understanding of the creative process while also providing an informed way to better appreciate art in a museum or gallery setting. The areas of composition, rendering and expression are explored through an array of mediums, techniques and styles. Emphasis is placed on both creativity and presentation. Projects will be student driven and self determined.

Studio Art 1

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

Note: Students who have a serious interest in the visual arts or who plan on pursuing a career in art should consider enrolling in Studio Art during their sophomore year. Successful completion of this course will help students to develop an art portfolio and prepare them for further exploration in Advanced Portfolio. Studio Art is a prerequisite for Studio Art 2.

Studio Art 2

(10th, 11th, 12th - ½ cr/1 Semester)
Prerequisite: Studio Art 1 or the equivalent for new students.

Studio Art 2 asks students to participate in an intensive exploration of two and three-dimensional media. Emphasis is placed on the art making process, art vocabulary, visual media along with the elements and principles of design. Realism and abstraction will be explored through the processes of drawing, painting, and printmaking. It is assumed that the student's desire to work will reflect the intensity of a serious minded art student. This course will strive to help the student to develop an art portfolio that meets college level portfolio requirements. Field trips to galleries and museums on Long Island or in New York may be included.

Green Architecture

(10th, 11th, 12th - ½ cr/1 Semester)

Students will be introduced to the fundamentals of architectural design, solve conceptual problems, and develop an awareness of architecture's ecological and social relationships with an emphasis on the current

movement in green architecture, that is, energy efficient, ecologically kind structures. Students will develop skills in working with form and spatial relationships though sketching, model construction, and computer-aided designs.

Ceramics

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

This course is presented as an introduction to ceramics. Students will learn the basics of clay construction as they produce works using pinch, coil and slab building techniques with clay. The proper use of clay tools and materials will be intertwined with an examination of the role of ceramics in a variety of cultures. Trips to galleries and museums on Long Island and/or New York may be included.

Filmmaking

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

This introductory, one-semester course will cover filmmaking from ideation to screen. Studying various aspects of pre-production (forming an idea, screenwriting, storyboarding, etc.) through production (working with cameras, lights, actors, etc.) to post-production (editing, foley, credits, etc.), students will gain an appreciation of all that goes into making a movie. Students will learn filmmaking terms and how to apply them in a practical, hands-on manner. They will also learn how to analyze and appreciate classic and current movies, genres, and directors. By the end of this course, students will be able to identify various filmmaking techniques, analyze filmmaker intentions, and have the knowledge to guide the creation of an idea to appear on the silver screen.

Graffiti Art

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

Students will examine the long history of graffiti, the evolution of the art form and its current role in modern culture. Students will choose an alias and create a variety of letter designs. Students will also learn about the current street art movement and create hand cut stencils. Individual evaluation will be based on the strength of individual assignments and participation in class.

Photography/Media

(9th, 10th, 11th, 12th - ½ cr/1 Semester)

This course is intended to introduce students to digital photography. The class will focus on learning how to operate a digital camera and use a computer as a digital dark room. Basic camera use and rules of composition will be stressed. Cameras used will include basic point and shoot digital cameras, the cell phone as a camera and Digital SLRs. Photographs will be corrected and manipulated in Photoshop addressing, color correction, retouching and more. An overview of the history of photography and discussion of influential photographers will be covered. A Digital SLR is not required but highly recommended for serious students.

Sculpture
(9th, 10th, 11th, 12th - ½ credit/1 semester)

This course introduces students to a variety of techniques and materials used in the creation of three-dimensional sculpture. Students will use both additive and subtractive methods to produce works using materials including wood, clay, paper, wire, plaster and mixed media. Written assignments will be required in conjunction with the study of sculptors, past and present. Trips to galleries and museums on Long Island and in New York City may be included.

IB Visual Arts Year 1
(11th, 12th - 1 cr/yr)

IB Visual Arts Y1 Is a studio based course exploring the students' creativity and culminating in the production of two and three dimensional art. Drawing, painting, sculpture and the digital realm will be explored. Students will develop their own artwork through research and thoughtful exploration of the art making process. Students are expected to be motivated and be able to connect and relate to a variety of styles, cultures, and time periods and make connections to their own personal art-making practice. The creative process will be documented in journals in written and visual forms.

IB Visual Arts Year 2
(12th - 1 cr/yr) Prerequisite: IB Art 1

IB Visual Arts Y2 is the second year of a studio based course exploring the students' creativity and culminating in the production of two and three dimensional art. Drawing, painting, sculpture and the digital realm will be explored. Students will develop their own artwork through research and thoughtful exploration of the art making process. Students are expected to be motivated and be able to connect and relate to a variety of styles, cultures, and time periods and make connections to their own personal art making practice. The creative process will be documented in journals in written and visual forms.

IB Film
(11th, 12th - 1 cr/yr)

Students will learn how film creates meaning and will gain the skills to develop ideas through the various stages from conception to finished production. Through the study and analysis of film texts and exercises in film-making, the course explores film history, theory, and socio-economic background. The course develops students' critical abilities, enabling them to appreciate the multiplicity of cultural and historical perspectives in film. To achieve an international understanding within the world of film, students are taught to consider film texts, theories, and ideas from the points of view of different individuals, nations, and cultures. Students also develop professional and technical skills (including organizational skills) needed to express themselves creatively in film. (www.ibo.org).

WORLD LANGUAGES AND CULTURES

In order to meet the graduation requirement, each Upper School student must successfully complete at least 2 credits during their high school years in French, Mandarin or Spanish, culminating in at least level 3. We encourage students to enroll in a language course during all four years. Interested students may study a second foreign language as an elective.

French 1

(9th, 10th or special permission - 1 cr/yr; 3- yr sequence required)
(Permission of the department required if taken as a 2nd Foreign Language)

This is a beginning course for students who are new to learning French and for those who need one more year to solidify their knowledge and usage of the fundamentals. In the course, students learn proper pronunciation and acquire basic vocabulary, grammar, and idioms. An introduction to the geography and civilization of francophone countries gives depth to the program.

French 2

(9th, 10th, 11th - 1 cr/yr; 2-3 yr sequence required)

In this course, students work to increase their competency in all four language skills: listening, speaking, reading and writing. They continue their study of grammar and vocabulary and practice their skills in a variety of ways, such as conversations in class, activities with audio-visual materials (including feature films), oral presentations, and short essays. They also reach a deeper understanding of the culture and history of the francophone world. Successful completion of the course qualifies the student to enroll in French 3 in the following school year.

French 2A

(9th, 10th, 11th - 1 cr/yr; 2-3 yr sequence required)

French 2A students follow the French 2 curriculum, with enrichment: the student must undertake the study of more complex grammar structures, complete additional reading and writing assignments, and do more independent work. Successful completion of the enrichment program in Level 2A is a prerequisite to French 3A.

French 3

(10th, 11th, or permission of the department - 1 cr/yr, required course)

This course builds on the content of French 2 by providing reinforcement of basic concepts as well as further grammar study, emphasizing the *subjunctive* and *conditional* moods. Students build upon their vocabulary, practice with idiomatic expressions, and generally have opportunities to gain fluency when expressing themselves in French. By studying various aspects of French-speaking societies in-depth, students begin to make subtle comparisons with their own culture and experience. In this course, we continue our exploration of francophone literature, cinema, and news reports.

French 3A

(10th, 11th, or permission of the department - 1 cr/yr, required course)
Prerequisite: Permission of the department.

In this course students are expected to learn and use the most advanced structures possible to create authentic and sophisticated writing and speech. In addition to the exploration of the *conditional* and *subjunctive* moods (in all tenses), grammar lessons may include the aspect of adjectives, the infinitive mood, the relative pronouns, the literary past tense, the passive voice and indirect discourse. In addition to the excerpts from our textbook(s), students will read classic French short stories as well as a novel or play, and continue their exploration of poetry and film. The work they do will develop the competencies they will need to demonstrate on the IB exams.

French 4CC: Conversation & Culture

(11th, 12th - 1cr/yr)
Prerequisite: French 3 or 3A.

This course is a continuation of French 3 (or of French 3A for those who wish to opt out of the Advanced track), offering practice at a high beginner/intermediate level. Students will gain confidence using the language by daily practice drilling grammar concepts that have been taught in previous French courses. In addition, students learn the vocabulary needed to converse about the topics in the curriculum. While students do some reading (often as a class) and some writing (to reinforce their command of grammar), the emphasis is placed on oral communication. The class explores various cultural themes through short reading selections, internet websites, songs, poems, and movies. Each individual student is encouraged to investigate those aspects of the francophone world that correspond to his or her personal interests. An open exchange of ideas and information is a key element of the course; students will be responsible for at least one oral presentation per term.

French 5CC: Conversation & Culture

(11th, 12th - 1cr/yr)
Prerequisite: A Level 4 French course.

This course is a continuation of French studies offering practice at a high beginner/intermediate level. Students will gain confidence using the language by daily practice drilling grammar concepts that have been taught in previous French courses. In addition, students learn the vocabulary needed to converse about the topics in the curriculum. While students do some reading (often as a class) and some writing (to reinforce their command of grammar), the emphasis is placed on oral communication. The class explores various cultural themes through short reading selections, internet websites, songs, poems, and movies. Each individual student is encouraged to investigate those aspects of the francophone world that correspond to his or her personal interests. An open exchange of ideas and information is a key element of the course; students will be responsible for at least one oral presentation per term.

IB French Year 1

(11th - 1 cr/yr)
Prerequisite: successful completion of a level 3A French course, or permission of the department.

This course, for students who have reached the intermediate level, is part of the two year sequence in the IB program. Students enrolled in this course will prepare for exams taken in the second year of the two year sequence. Students will explore themes such as science & technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. The grammar concepts learned in previous courses are reviewed, and some advanced grammar topics are introduced. All students will engage in tasks used in IB assessments, and thereby improve their interpersonal, analytical, and presentational communication skills in French.

IB French Year 2

(12th - 1 cr/yr)
Prerequisite: successful completion of IB French IB Year 1.

This is the second year of the two year sequence in the IB program. Students who select "SL" will take their exams at the Standard Level. In the second year, all students continue their exploration of themes such as science & technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. HL students must also read a piece of authentic French language literature (for HL, a minimum of 2 works must be studied during this two-year course.) All students engage in the kinds of tasks used in IB assessments so that they are prepared to sit for the exams, which are administered at various points throughout the school year, culminating in May. Students wishing to sit for the French AP exam should also sign up for this course.

IB French Ab Initio Year 1

(11th - 1 cr/yr)
Prerequisite: Must not have had more than 1 previous year of instruction in French.

First year in a 2 year sequence of language study. The Ab Initio course is offered at SL only. This is a language acquisition course designed for students with no previous experience in—or very little exposure to—the target language (for example, a student may have never studied this language previously, or may have completed no more than a Level 1 course in the language). Language ab initio students develop their receptive, productive and interactive skills while learning to communicate in the target language in familiar and unfamiliar contexts. Students develop the ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet. While the themes are common to both language ab initio and language B, the language ab initio syllabus additionally prescribes four topics for each of the five themes, for a total of 20 topics that must be addressed over the two years of the course. The ability to work independently is important for those who wish to succeed in this course.

IB French Ab Initio Year 2

(12th - 1 cr/yr)
Prerequisite: must have taken AB Initio Year 1 in the previous year.

The second year in a 2 year sequence of language study. Language ab initio students develop their receptive, productive and interactive skills while learning to communicate in the target language in familiar and unfamiliar contexts. Students develop the ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet. While the themes are common to both language ab initio and language B, the language ab initio syllabus additionally prescribes four topics for each of the five themes, for a total of 20 topics that must be addressed over the two years of the course. The ability to work independently is important for those who wish to succeed in this course.

Spanish 1

(9th, 10th, or special permission - 1 cr/yr; 3 year sequence required)
(Permission of the department required if taken as a 2nd Foreign Language.

This is a beginning course for students who are new to Spanish and for those who need one more year to solidify their knowledge and usage of the fundamentals. In the course, students learn proper pronunciation and acquire basic vocabulary, grammar, and idioms. An introduction to the geography and civilization of Spanish-speaking countries gives depth to the program.

Spanish 2

(9th, 10th, 11th - 1 cr/yr; 2-3 year sequence required)

In this course, students work to increase their competency in all four language skills: listening, speaking, reading and writing. They continue their study of grammar and vocabulary and practice their skills in a variety of ways, such as conversations in class, activities with audio-visual materials (including selections from feature films), oral presentations, and simple writing assignments. They also reach a deeper understanding of the culture and history of the Hispanic world. Successful completion of this course means the student is ready to advance to Spanish 3 in the following school year

Spanish 2A

(9th, 10th, 11th - 1 cr/yr; 2-3 yr sequence required)

Spanish 2A students follow the Spanish 2 curriculum, with enrichment: the student must undertake the study of more complex grammar structures, complete additional reading and writing assignments, and do more independent work. Successful completion of the enrichment program in Level 2A is a prerequisite to Spanish 3A.

Spanish 3

(10th, 11th, or permission of the department - 1 cr/yr; required course)

This course builds on the content of Spanish 2 by providing reinforcement of basic concepts as well as further grammar study, emphasizing the different uses of past tenses, and the *subjunctive* mood. Students build upon their vocabulary, practice with idiomatic expressions, and generally have opportunities to gain fluency when expressing themselves in Spanish. By studying various aspects of Spanish-speaking societies in-depth, students begin to make subtle comparisons with their own culture and experience. In this course, we continue our exploration of Hispanic literature and cinema.

Spanish 3A

(10th, 11th, or permission of the department - 1 cr/yr; required course)
Prerequisite: Permission of the department.

This course allows students who have reached the intermediate level to practice and develop all four language skills. Students are expected to learn and use the most advanced structures possible to create authentic and sophisticated writing and speech. In addition to the exploration of *conditional* phrases and the *subjunctive* mood (in all tenses), grammar lessons may include the infinitive, special uses of the future tense, and ways of marking time. In addition to the excerpts from our textbook(s), students will become used to reading Spanish-language newspapers and they will be exposed to classic short stories, a novel or play, and more examples of poetry and film. The work they do with these texts—which includes performing dialogues and debates, preparing topics for oral presentation, writing personal essays, and completing researched-based projects -- will develop the competencies they will need to demonstrate on the AP and/or IB exam at the end of their senior year.

Spanish 4CC: Conversation and Culture

(11th, 12th - 1 cr/yr)
Prerequisite: Permission of the department.

This course is a continuation of Spanish 3 (or of Spanish 3A for those who wish to opt out of the Advanced track) designed to provide practice at a high beginner/intermediate level. The comprehensive grammar review book (*Repaso,* Glencoe) and on-line grammar exercises are among the course materials. In addition, students learn the vocabulary needed to converse about the topics in the curriculum. While students continue to work on all four language skills, the emphasis is placed on oral communication. The class explores various cultural themes through short reading selections, songs, poems, and movies. Each individual student is encouraged to investigate those aspects of the Spanish-speaking world that correspond to his or her personal interests. An open exchange of ideas and information is a key element of the course; students will be responsible for at least one oral presentation per term.

Spanish 5CC: Conversation And Culture

(11th, 12th - 1 cr/yr)
Prerequisite: A Level 4 Spanish course or permission of the department.

This course is a continuation of Spanish designed to provide practice at a high beginner/intermediate level. The comprehensive grammar review book (*Repaso,* Glencoe) and on-line grammar exercises are among the course materials. In addition, students learn the vocabulary needed to converse about the topics in the curriculum. While students continue to work on all four language skills, the emphasis is placed on oral communication. The class explores various cultural themes through short reading selections, songs, poems, and movies. Each individual student is encouraged to investigate those aspects of the Spanish-speaking world that correspond to his or her personal interests. An open exchange of ideas and information is a key element of the course; students will be responsible for at least one oral presentation per term.

IB Spanish Year 1

(11th - 1 cr/yr)
Prerequisite: successful completion of a level 3A Spanish course, or permission of the department.

This course, for students who have reached the intermediate level, is part of the two year sequence in the IB program. Students who select "SL" will prepare for exams at the Standard Level, taken in the second year of the two year sequence. All students explore themes such as science & technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. The grammar concepts learned in previous courses are reviewed, and some advanced grammar topics are introduced. All students will engage in tasks used in IB assessments, and thereby improve their interpersonal, analytical, and presentational communication skills in Spanish.

IB Spanish Year 2

(12th - 1 cr/yr)
Prerequisite: successful completion of IB Spanish Year 1

This is the second year of the two year sequence in the IB program. In the second year, students continue their exploration of themes such as science & technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. Students engage in the kinds of tasks used in IB assessments so that they are prepared to sit for the exams, which are administered at various points throughout the school year, culminating in May. HL students must also read a piece of authentic Spanish language literature (to be in HL, a minimum of 2 works must be studied during this two-year course.) Students wishing to sit for the Spanish AP exam in May should also sign up for this course.

Mandarin 1

(9th, 10th, 11th - 1 cr/yr)

This is a beginning course for students who are new to Mandarin and for those who need one more year of study to solidify their knowledge. Students will learn how to write in pidgin and recognize Chinese characters. They will develop proper pronunciation, acquire basic vocabulary, grammar, and idioms. An introduction to the geography and to the customs and traditions of China throughout the calendar year gives depth to the program.

Mandarin 2

(9th, 10th, 11th - 1 cr/yr; 2-3 yr sequence required)

This course for students at the advanced beginner level is designed to increase their competence in Chinese language skills. They practice through conversations in class, activities with audio-visual materials, oral presentations, and short pieces of writing. Students will also reach a deeper understanding of the culture and history of China. Successful completion of the course qualifies the student to enroll in Mandarin 3 in the following school year.

Mandarin 3

(10th, 11th or permission of the department; 1 cr/yr)

This intermediate course builds on the content of Mandarin 2 by providing reinforcement of basic concepts as well as further grammar study. Students build upon their vocabulary, practice with idiomatic expressions, and generally have opportunities to gain fluency when expressing themselves in Mandarin. By studying various aspects of Chinese society in-depth, students begin to make comparisons with their own culture and experience. In this course, we continue our exploration of authentic materials including film clips, poetry, and news reports.

Mandarin 4CC

(11th, 12th - 1 cr/yr)

Students in Mandarin 4CC have reached the intermediate high level. The course is a continuation of Mandarin 3, offering practice in particular with interpersonal communication. Students will gain confidence using the language by daily practice drilling concepts that have been taught in previous Mandarin courses. The class explores various cultural themes through short reading selections, internet websites, songs, poems, and movies. Each individual student is encouraged to investigate those aspects of Chinese culture that correspond to their personal interests. An open exchange of ideas and information is a key element of the course; students will be responsible for at least one oral presentation per term.

IB Mandarin Year 1

(11th - 1 cr/yr)
Prerequisite: successful completion of an intermediate level Mandarin course, or permission of the department.

This course, for students who have reached the intermediate level, is part of the two year sequence in the IB program. Students enrolled in this course will prepare for exams at the Standard Level, taken in the second year of the two year sequence. Students will explore themes such as science and technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. The grammar concepts learned in previous courses are reviewed, and some advanced grammar topics are introduced. All students will engage in tasks used in IB assessments, and thereby improve their interpersonal, analytical, and presentational communication skills in Mandarin.

IB Mandarin Year 2

(12th - 1 cr/yr)
Prerequisite: successful completion of Mandarin IB Year 1

This is the second year of the two year sequence in the IB program (which also prepares students for the Advanced Placement examination in Mandarin Language and Culture should they wish to sit for it in May). In the second year, students continue their exploration of themes such as science & technology, world issues, and social relationships by reading articles, poetry, and prose, listening to and watching news programs and films, and doing research projects. All students engage in the kinds of tasks used in IB assessments so that they are prepared to sit for the exams, which are administered at various points throughout the school year, culminating in May.

Language, Culture, and Society - not offered in 2022-2023

(9th, 10th, 11th, 12th - 1 cr/yr)

This interdisciplinary course, taught in English, offers students who are exempt from language study or who are studying English as a foreign language at Portledge the opportunity to reflect on the role of language in their own lives, in their society, and in the world. A wide array of sources (historical, linguistic, journalistic, literary, sociological, etc.) will be studied in order to gain a better appreciation of the languages that exist in the world today, their evolution, and their influence both on our lives and on our societies. Students will engage in projects and activities that stimulate their critical thinking and their creativity. Students who are exempt from studying a second language should enroll in this course.

NOT FOR CREDIT

Health

(10th)
Pass/Fail
A required non-credit course.

This tenth grade required class is designed to address common challenges high school students face as well as provide information about fundamental topics in order to be a successful Portledge student. It is Portledge's belief that adolescents are able to make appropriate and healthy decisions when they are afforded the space for self-reflection when confronted with difficult situations and ethical dilemmas. Classes will be taught through a variety of formats around topics including, but not limited to: mental health, nutrition, CPR training, substance use, and human sexuality. This class enables students to critically think, converse, and reflect on these issues with their peers in a safe and engaging manner of discussions, lectures, activities, and media content which will set them up for a successful and healthy teenage and Portledge high school experience.

Yearbook Production

(9th, 10th, 11th, 12th - a non-credit activity that is scheduled into the school day).

This non-core offering involves students in every aspect of the production of Collage, the Portledge Yearbook. The book is produced through desktop publishing utilizing InDesign and Photoshop software. Students are involved in layout, planning, text, photography, advertising, meeting deadlines, and exhorting all members of the Class of 2023 to become active contributors to various aspects of the Yearbook. Yearbook staffers are required to be available to work on the book for a minimum of 3 periods per week. Weekend and after school participation may be required at times. Enthusiasm, perseverance, organizational and time-management skills are all prerequisites for this endeavor.

PHYSICAL EDUCATION

Physical Education

(Required for 9th, 10th, 11th, 12th - not for credit)

Each semester each student must fulfill a state-mandated physical education requirement by participating in a varsity sport (or junior varsity if available), an in-school PE class, or by getting an exemption approved by the Athletic Director.

Athletic Offerings by trimester:

Fall:	Winter:	Spring:
Crew (Co-Ed)	Basketball (Boys)	Badminton (Co-Ed)
Cross Country (Co-Ed)	Basketball (Girls)	Baseball (Boys)
Soccer (Boys)	Hockey (Boys)	Softball (Girls)
Soccer (Girls)	Hockey (Girls)	Golf (Boys)
Tennis (Girls)	Squash (Co-Ed)	Golf (Girls)
Volleyball (Girls)		Lacrosse (Boys)
		Lacrosse (Girls)
		Tennis (Boys)
		Track (Co-Ed)

ARTS SCHOLAR COURSE REQUIREMENTS

Music Arts Scholar Course Requirements

- A Music Arts Scholar must demonstrate a commitment to choral or instrumental music by participating in a performing ensemble during each semester of his/her Upper School career.
- A Music Arts Scholar must elect at least one academic course in music. Courses include Music Survey/Music Theory 1, IB Music SL and HL, Digital Music and Recording. All courses are based on enrollment.
- A Music Arts Scholar must participate in at least one spring NYSSMA Solo Evaluation Festival at Level IV or higher during his/her Upper School career and earn a rating of "good" or better.
- A Music Arts Scholar's cumulative average for all music courses taken must be above a B+.
- A Music Arts Scholar must be a positive, contributing musician with a good record of lesson attendance.
- A Music Arts Scholar must attend, or perform in, the Musical Showcase (1st Wed. in April).
- Arts Scholar designation will be conferred by vote of the music faculty upon completion of the requirements in the senior year.

Theatre Arts Scholar Course Requirements

- A Theatre Arts Scholar must demonstrate a commitment to participating or performing in at least one Upper School play or musical each year of their Portledge career.
- A Theatre Arts Scholar must take at least two (2) academic courses in Theatre.
- A Theatre Arts scholar must be an active member of the Drama Club for at least two (2) years and be willing to participate in workshops, field trips and other theatrical activities on and off campus.
- A Theatre Arts Scholar must assist in at least one (1) Lower School or Middle School production during their Portledge career. Duties can include: Assistant Director, SM, ASM, crew, or other duties deemed necessary by the Director.
- A Theatre Arts Scholar's cumulative average for all Theatre courses taken must be no lower than B+.

Visual Arts Scholar Course Requirements

- A Visual Arts Scholar must complete a minimum of three elective credits (six one-semester courses)in the Visual Arts during their four years of Upper School.
- A Visual Arts Scholar's cumulative average for all visual art courses, beginning with Art 9 and including all art electives, must be no lower than B+. The transcripts of students entering Portledge after 9th grade will be reviewed to determine whether previous coursework may be applied towards fulfilling the Arts Scholar requirements for visual arts.
- Beginning in ninth grade and continuing through eleventh grade, a Visual Arts Scholar candidate must participate in both the winter and spring art exhibitions each year. A candidate may fulfill this requirement if currently enrolled in an art elective during the date of the exhibition or alternatively, by submitting one or more works, created independently, to an art department member for approval and inclusion in each exhibition.
- During the spring of his or her senior year, a Visual Arts Scholar candidate must prepare a body of his/her own works, between 5-10 pieces, for inclusion in the annual graduating Visual Arts Scholar exhibition, traditionally held in April. Art teachers will guide the student in the selection of works. Students are expected to be an active participant in this process. *Visual Arts Scholar candidates are required to attend this final exhibition and be available to answer questions about their works on exhibit.
- A Visual Arts Scholar must submit a work of art for consideration in the annual Heckscher Museum "Long Island's Best", juried art competition at least once during their upper school years. The guidelines for this high school juried art competition are shared on the Heckscher Museum's website and may be reviewed with upper school art teachers.

STEAM SCHOLAR REQUIREMENTS

The STEAM Scholar Program is a planned, multi-year program of study in Science, Technology, Engineering, Arts and Math; it is open to all high school students, but we recommend that you begin the process by tenth grade. A student wishing to become a STEAM Scholar may be nominated by a member of the STEAM Review Board or complete the application process outlined below for Review Board consideration and approval.

STEAM Review Board:

Mrs. Chiu	Science Department Head
Mr. Coleman	Upper School Science/Engineering Teacher
Mr. Corby	Upper School Math Teacher
Mr. Krause	Middle & Upper School Art Teacher
Dr. Muratore	Upper School Science and Director of STEAM
Mr. Nelson	Middle & Upper School Technology Teacher

Name: _____ **Current Grade:** _____ **Advisor:** _____

Application Date: _____ **Graduation Year:** _____

Nominating Faculty Member: _____

Self Nomination Process:

Students who choose to self nominate must submit a written statement expressing their interest in STEAM and their goals as a STEAM student at Portledge. Students should also note the applicable courses they have taken and plan to take throughout their Portledge career to meet the requirements. This essay should be one page maximum, double spaced, submitted with this application.

A student who is accepted into the program will be considered a STEAM Scholar Candidate and be identified as such throughout their upper school years. Students are assigned a STEAM Scholar Advisor (a Review Board member) to guide them through his or her progress in meeting the requirements of the STEAM Scholar program.

STEAM Scholar Requirements:

- **A STEAM Scholar must complete a minimum of five credits from the courses included in the table below. These credits should be interdisciplinary, so a student is expected to take Science, Technology, Engineering, Art, and Math courses (5 Total)**

Students with scheduling problems may petition the department to substitute up to 1 credit with an approved alternative STEAM course. Lists will also be revised as new courses are introduced and current courses are modified or discontinued.

- **A STEAM Scholar's cumulative average for all STEAM selected courses must be no lower than B.** The transcripts of students entering Portledge after 10th grade who have taken equivalent STEAM approved courses will be reviewed to determine whether previous coursework may be applied towards fulfilling the STEAM Scholar requirements.

- **During the fall of his or her junior year a STEAM Scholar Candidate should have a full draft of his or her multimedia digital portfolio** (i.e., a Google drive folder with evidence of STEAM projects and a brief video).The portfolio should be largely completed by the end of junior year.

- **STEAM related community service or STEAM related mentorship of other students.**

Steam Scholar Application Form

The candidate understands the requirements of the STEAM Scholar Program and that failure to complete all stated requirements could make him or her ineligible for receiving the award. Please sign this application and make a photocopy. Keep one and return a copy to a member of the STEAM Review Board.

Student Name: _____ Student email: _____

Student Signature: _____ Date: _____

Parent Signature: _____ Date: _____

Home Phone: _____ Parent email: _____

Courses Counted Toward STEAM Scholar Program

Science	Technology	Engineering	Art*	Mathematics
AP Science ☐	Computer Science Principles ☐	Second Technology course** ☐	Visual Arts ☐	Calculus ☐
IB Science ☐	Introduction to Programming ☐		Theatre ☐	AP Math ☐
Independent Research ☐	IB ITGS ☐	** (excluding Robotics 2 or 3)	Music ☐	IB Math ☐
Physics Mechanics A ☐	Robotics ☐		*(excluding 9th grade courses)	
Astrophysics ☐	Green Architecture ☐			
Biochemistry ☐				

For STEAM Board Use only:

☐ The applicant has completed the application process and received STEAM Review Board approval.

STEAM Scholar Advisor: _____

Date of Acceptance: _____ Board Member Signature: _____

☐ Completed Digital Portfolio

Date of Completion: _____ Board Member Signature: _____