



## 2024–2025 Student Course Catalog

Welcome to the One Schoolhouse 2024–2025 Course Catalog! At One Schoolhouse, we offer a wide variety of summer and school-year courses across all disciplines. Summer courses are full-year-equivalent, for-credit courses. Fall courses may be taken on their own or combined with a spring activism, design, or research seminar for a full-year credit. You can navigate to the course descriptions by clicking the links below or by scrolling through the catalog, which is organized by discipline.

We believe that online learning is essential for college readiness. Our courses are designed so that students learn relevant and challenging course material, engage constructively in a diverse and changing world, and build academic maturity. If you have any questions, please contact us at 202-618-3637 or [info@oneschoolhouse.org](mailto:info@oneschoolhouse.org). We look forward to partnering with you!

### Summer 2024

[Algebra I](#)  
[Algebra II](#)  
[AP® Computer Science Principles](#)  
[AP® Precalculus](#)  
[Biology](#)  
[Calculus](#)  
[Chemistry](#)  
[Geometry](#)  
[Physics](#)  
[Precalculus](#)  
[US History](#)  
[World History](#)  
[World Religions](#)

### 2024-2025

[Arts & Humanities Courses](#)  
[Computer Science Courses](#)  
[Language Courses](#)  
[Math Courses](#)  
[Science Courses](#)  
[Social Science Courses](#)

[Abnormal Psychology](#)  
[Advanced Computer Science: Coding with Python](#)  
[Advanced Computer Science: Applied Data Science](#)

[Advanced Computer Science: Game Design](#)

[AP® African American Studies](#)  
[AP® Art History](#)  
[AP® Biology](#)  
[AP® Calculus AB](#)  
[AP® Calculus BC](#)  
[AP® Chemistry](#)  
[AP® Chinese Language and Culture](#)  
[AP® Chinese Language and Culture - Heritage Speakers](#)  
[AP® Computer Science A](#)  
[AP® Computer Science Principles](#)  
[AP® English Literature and Composition](#)  
[AP® Environmental Science](#)  
[AP® European History](#)  
[AP® French Language and Culture](#)  
[AP® Human Geography](#)  
[AP® Latin](#)  
[AP® Macroeconomics](#)  
[AP® Microeconomics](#)  
[AP® Music Theory](#)  
[AP® Physics 1](#)  
[AP® Physics 2](#)  
[AP® Physics C: Mechanics & AP® Physics C: Electricity and Magnetism](#)  
[AP® Psychology](#)  
[AP® Spanish Language and Culture](#)  
[AP® Spanish Literature and Culture](#)

[AP® Statistics](#)  
[AP® US Government and Politics & AP® Comparative Government and Politics](#)  
[AP® US History](#)  
[AP® World History: Modern](#)  
[American Sign Language - Beginning I](#)  
[American Sign Language - Beginning II](#)  
[American Sign Language - Intermediate I](#)  
[Anatomy and Kinesiology](#)  
[Artificial Intelligence](#)  
[Business and Economics](#)  
[Calculus](#)  
[Chinese - Beginning I](#)  
[Chinese - Beginning II](#)  
[Chinese - Intermediate I](#)  
[Chinese - Intermediate II](#)  
[Chinese - Advanced I](#)  
[Chinese - Advanced II](#)  
[Criminal Justice Reform](#)  
[English](#)  
[Entrepreneurship & Business Innovation](#)  
[Forensic Science](#)  
[French - Beginning I](#)  
[French - Beginning II](#)  
[French - Intermediate I](#)  
[French - Intermediate II](#)

[French - Advanced I](#)  
[French - Advanced II](#)  
[Geometry](#)  
[Global Health](#)  
[Happiness! The Psychology of What Makes Life Worth Living](#)  
[Introduction to Computer Science](#)  
[Latin - Beginning I](#)  
[Latin - Beginning II](#)  
[Latin - Intermediate I](#)  
[Latin - Intermediate II](#)  
[Latin - Advanced](#)  
[Linear Algebra](#)  
[Marine Science](#)  
[Multivariable Calculus and Differential Equations](#)  
[Neuroscience](#)  
[Physics](#)  
[Spanish - Beginning II](#)  
[Spanish - Intermediate I](#)  
[Spanish - Intermediate II](#)  
[Spanish - Advanced](#)  
[Statistics](#)  
[US History](#)  
[World History](#)

## 2024 Summer Courses

Summer courses are intensive, for-credit opportunities for ambitious students. Students participating in these courses should plan to devote 20-25 hours per week for all eight weeks to their course. Students receive grades and comments in these classes, which are the equivalent of year-long, high-school courses. Because of the pacing and intensity of for-credit summer courses, students must have the ability to login and complete work for their course daily; students must be available and have internet access from June 17th until August 9th – this is nonnegotiable! See our calendar [here](#).

## Summer Algebra I

*Prerequisite: Successful completion of Pre-Algebra or equivalent*

*Offered: All-genders; Full-year course credit*

Algebra I provides the core foundation for all higher-level mathematics courses. This course covers a full year of Algebra I in eight weeks with a primary goal of helping students transfer their concrete mathematical knowledge to more abstract algebraic concepts using variables. Students explore algebraic expressions, multi-step equations, linear functions, rational expressions, and quadratic functions. They discover how to

write, solve, and graph linear and quadratic equations, and they will develop fluency with rational numbers, various expressions, and analyzing and solving linear equations and inequalities. Students experience these concepts tabularly, graphically, and algebraically, and reinforce their understanding through example problems, practice assignments, and real-world applications where they solve problems and create new conjectures. Assessments include unit tests and quizzes, discussion prompts, and group and individual application problems. By the end of the course, students have gained proficiency in critical thinking, pattern recognition, graphing techniques, and the clear communication of mathematical ideas.

### **Summer Algebra II**

*Prerequisite: Successful completion of Algebra I and Geometry*

*Offered: Girls only and all-genders; Full-year course credit*

In Algebra II, students enrich their algebraic and geometric skills to form the foundation for key concepts in advanced math courses. This course covers a full year of Algebra II in eight weeks by addressing algebraic functions and equations of lines and higher order polynomials. Building on their work with linear and quadratic functions, students extend their repertoire of functions to include piecewise, polynomial, radical, exponential, logarithmic, and rational functions. Students also study arithmetic and geometric sequences through the application of linear and exponential functions. The course concludes with an introduction to trigonometry beyond the right triangle. Algebraic content is taught from the graphical, numerical, analytical, and verbal perspectives with specific attention paid to the connection among these representations. Assessments include unit tests and quizzes, self-graded assignments, discussion prompts, and group and individual application projects. By the end of the course, students have gained proficiency in critical thinking, pattern recognition, analytical approaches, and communication skills.

### **Summer AP® Computer Science Principles**

*Prerequisite: None, although prior programming experience is recommended*

*Offered: All-genders; Full-year course credit*

This course investigates the "big ideas" found in our digital world. Using the Python programming language, students develop and demonstrate fundamental concepts of computer programming that can be applied across a variety of projects and languages. Students explore different means of representing information digitally and how our digital world has evolved. They create computer programs to solve authentic problems or for personal interest, such as unique musical pieces, math calculators, and

data summations. Students discuss the current state of technology and its role in our everyday lives, discerning the positive and negative influences of innovations in computer and network technologies on society, culture, and economics. Throughout, students develop their skills in computational thinking, logical reasoning, and describing processes through algorithms and abstraction. Finally, students demonstrate their learning by creating a portfolio for submission to the College Board and are prepared for the AP® Computer Science Principles Exam in May. Students planning to submit their portfolio tasks and sit for the AP® Exam maintain access to online support and exam prep materials until the exam in May.

### **Summer AP® Precalculus**

*Prerequisite: Successful completion of Geometry and Algebra II or equivalent*

*Offered: All-genders; Full-year course credit*

AP Precalculus® centers on functions modeling dynamic phenomena and addresses the algebraic and trigonometric concepts that lay the foundation for either level of AP® Calculus or its equivalent. This research-based exploration of functions is designed to better prepare students for college-level calculus and provide grounding for other mathematics and science courses. In this course, students study a broad spectrum of function types that are foundational for careers in mathematics, physics, biology, health science, business, social science, and data science. Throughout this course, students develop and hone symbolic manipulation skills, including solving equations and manipulating expressions, for the many function types throughout the course. Students also learn that functions and their compositions, inverses, and transformations are understood through graphical, numerical, analytical, and verbal representations, which reveal different attributes of the functions and are useful for solving problems in mathematical and applied contexts. In turn, the skills learned in this course are widely applicable to situations that involve quantitative reasoning.

We recommend that students register for an AP® Calculus course (or a comparable alternative) in the academic year following this summer course. This will allow them to further refine the skills necessary for achieving success on the AP® Pre-Calculus exam which is administered only in May.

### **Summer Biology**

*Prerequisite: Successful completion of 8th grade*

*Offered: All-genders; Full year course credit*

In this introductory biology course, students investigate fundamental requirements for life: homeostasis, evolution, inheritance, and the interdependence of living systems. Guided by Next Generation Science Standards, each integrated unit is organized around an anchoring phenomenon that introduces students to a real-world question or problem. As students seek to explain each phenomenon, they engage in three-dimensional tasks that challenge them to make sense of the content they are learning and apply it to the problem at hand. They piece together their knowledge to gain a deep understanding of how the natural world works. Instead of focusing on a set of distinct topics and facts, this course emphasizes thinking scientifically about the connections between topics and their applications. In addition to learning the fundamental concepts of biology, students develop problem-solving and critical-thinking skills through planning and carrying out inquiry-driven investigations, analyzing data, and constructing explanations.

### **Summer Calculus**

*Prerequisite: Successful completion of Pre-Calculus*

*Offered: All-genders; Full-year course credit*

This single variable calculus course covers the entire AP® Calculus AB curriculum with specific focus on the “A” content of the AP® Exam. Students practice conceptual reasoning and learn how to present a solution algebraically, geometrically, numerically, and tabularly. Students develop a clear understanding of calculus concepts using AP® Exam multiple-choice and free-response questions as checkpoints and guidelines. By the end of the course, students are able to read and interpret graphical data accurately, use words to explain their reasoning, and provide context for final answers. Major topics include limits, derivatives, related rates, optimization, integrals, volume, and their applications. This personalized course features discussions, reflections, and projects that help students master skills in an engaging way. It is designed for the ambitious math student looking to either develop a strong foundation in calculus, preview the AP® Calculus AB curriculum over the summer, or advance to AP® Calculus BC the following school year.

### **Summer Chemistry**

*Prerequisite: Successful completion of Algebra I*

*Offered: All-genders; Full year course credit*

This course utilizes the principles of chemistry to help explain the physical world around us. Emphasis is on developing effective problem-solving skills, gaining an understanding of fundamental chemistry concepts, and effectively communicating scientific

information. Students study the basic principles of matter including measurements, atomic theory, bonding, chemical reactions, stoichiometry, acids and bases, solutions, and thermochemistry. The laboratory program challenges students to think analytically, make observations, draw logical conclusions, and communicate in writing. Technology is incorporated throughout the summer through virtual laboratories, topic presentations, and a project involving the animation of a chemical reaction.

### **Summer Geometry**

*Prerequisite: Successful completion of Algebra I*

*Offered: Girls only and all-genders; Full-year course credit*

Geometry forms the foundation for key concepts in advanced math courses. This fast-paced course covers a full year of Geometry in eight weeks by addressing traditional geometric topics including lines, angles, proofs, polygons, circles, and triangles. Students explore concepts directly through their own investigations, make and test conjectures about what they observe, and apply these conjectures to solve real-world problems and create new conjectures. Students use multiple and varied tools—from folded paper, to straightedge and compass, to interactive geometry software—for the investigations. Students develop cooperation, problem-solving, spatial reasoning, and communication skills. Assessments include quizzes and tests, discussion prompts, and both group and individual projects. By the end of the course, students have gained proficiency in logic, pattern recognition, spatial reasoning, and tech tools.

### **Summer Physics**

*Prerequisite: Successful completion of Algebra I*

*Offered: All-genders; Full-year course credit*

This full-year physics course provides an integrated, algebra-based survey of topics in high school physics. Students explore principles of Newtonian mechanics, energy, waves, sound, and simple circuits through inquiry-based and conceptual investigations. Skills are developed through the use of modeling, graphing, diagramming, symbolic algebra, and data analysis. Laboratory exercises are used to enhance the investigation of each topic, and technical writing is developed to communicate experimental work. Developing the ability to reason qualitatively and quantitatively through the lens of real-world application is the principal focus.

### **Summer Precalculus**

*Prerequisite: Successful completion of Geometry and Algebra II or equivalent*

*Offered Girls only and all-genders; Full-year course credit*

This course covers a full year of precalculus in eight weeks, covering the algebraic and trigonometric concepts that lay the foundation for AP® AB Calculus or its equivalent. Students graph and solve polynomial, rational, exponential, and logarithmic functions, while applying these functions to model the relationship between different quantities in the real world. They explore the unit circle, solve trigonometric equations, and study abstract applications by proving trigonometric identities. Students then examine and apply algebraic representations of matrices, vectors, sequences and series, and conic sections in order to understand the patterns and behaviors associated with these concepts. The course concludes with an introduction to calculus through limits. Students also have the option of studying polar coordinates, parametric functions, and derivatives. Students demonstrate mastery through traditional and alternative assessments, discussion prompts, reflection on their learning, group collaboration, and individual application activities.

### **Summer US History**

*Prerequisite: Successful completion of one year of high school social studies or permission from the administration*

*Offered: All-genders; Full-year course credit*

This course is a full-year credit social science course surveying the history of the United States of America. The course begins with an examination of America before Columbus. Having established an understanding of how Native Americans managed and used the land, the course turns to European conquest and colonial America, including how the stage was set for a plural and diverse modern America. The heart of the course centers around the themes of the American Revolution; the rise of democracy, the Republic, and the Constitution; the Civil War and Reconstruction; and how territorial expansion and industrialization laid the foundation for the movements and conflicts of the 20th and 21st centuries. In order to develop a broad understanding of continuity and change in American history, students build a contextual understanding of the major events within each era while exploring political, social, cultural, economic, and religious trends in the United States. Through critical analysis, research, and writing, collaborative activities, creative synthesis applications, and traditional and alternative assessments, students demonstrate understanding of cultural implications and historical context and develop a chronological and thematic appreciation of American history.

### **Summer World History**

*Prerequisite: Successful completion of 8th Grade*



*Offered: All-genders; Full-year course credit*

This world history course focuses on the significant events, individuals, ideas, and processes which shaped world development and subsequently laid the foundation for our contemporary world. While students analyze historical patterns and connections that span multiple regions and time periods, ranging from the earliest civilizations through the end of the 20th century, the course takes a thematic approach. Students examine patterns of population; economic networks and exchange; power, authority, and governance; resistance, revolution, and reform; conflict and peace; expressions of identity; and developments in science, technology and the environment. Emphasis is placed on historical thinking skills such as source analysis, contextualization, argumentation, comparison, and chronological reasoning. Additionally, students have opportunities to develop their communication and collaboration skills while learning to connect local issues to global ones. At the end of the course, students will have the knowledge and skills necessary to thrive in an increasingly interconnected world.

### **Summer World Religions**

*Prerequisite: Successful completion of one year of high school social science or permission from the administration*

*Offered: All-genders; Full-year course credit*

This course is a full-year credit social science course examining the major religious traditions of the world. In the first half, students explore the history and beliefs of the major religions of the world today—Buddhism, Hinduism, Islam, and Judeo-Christianity—before examining the intersection of cultural, political, and socio-economic forces that influence and are influenced by faith traditions. With this foundation, students take deep dives independently and collaboratively into faith practices of their choosing in the second half of the course, such as New Age Religions, Paganism, Shinto, Sikhism, Taoism, Zoroastrianism, or the beliefs of indigenous peoples of Africa, the Americas, or Australia. Students demonstrate understanding through critical analysis, research papers, and alternative assessments.



## **2024-2025 Courses**

### **Arts & Humanities Courses**

#### **AP® African American Studies**

*Prerequisite: Successful completion of one year of high school social studies*

*Offered: All-genders; Full-year*

AP® African American Studies is an interdisciplinary course that examines the diversity of African American experiences through direct encounters with authentic and varied sources. Students explore key topics that extend from early African kingdoms to the challenge and achievement inherent in the contemporary moment. Given the interdisciplinary character of African American studies, students in the course will develop skills across multiple fields, with an emphasis on developing analytical skills in a range of fields, including history, literature, visual arts, and data science. The course foregrounds the diversity of Black communities in the United States within the broader context of African cultures and the African diaspora.

#### **AP® Art History**

*Prerequisite: Successful completion of one year of high school social studies*

*Offered: All-genders; Full-year*

Students in AP® Art History examine and critically analyze major forms of artistic expression from diverse cultures spanning 27,000 years. By investigating an image set of 250 works, students develop a contextual understanding of art history from a global perspective. Influences such as patronage, politics, class, belief systems, gender, ethnicity, and cross-cultural interactions inform students' analysis of the style and content of art. Emphasis is placed on analytical and critical thinking skills, the language of art history, and the methods used by art historians to interpret art objects. Students experience, research, discuss, and write about art, artists, and art making. Upon completion of this course, students have the tools to recognize important works of art and historical styles as well as understand historical and cultural context. In preparation for the AP® Art History Exam in the spring, students take and practice with AP-style writing and assessments.

#### **AP® English Literature and Composition**

*Prerequisite: Successful completion of two years of high school English or permission from the administration*

*Offered: All-genders; Full-year*

Students enrolled in AP® English Literature and Composition have the opportunity to practice what it means to listen as well as speak with authentic voices. They consider fiction, drama, poetry, and short stories from the 1600s to the present, discovering how each work portrays some facet of the universal human condition and analyzing the interplay between diverse individuals, nations, and cultures expressed in those works. Students look closely at the interplay between content (the story a writer wants to tell or the moment he or she wants to capture) and form (the way the story or moment is offered to the reader) to enhance understanding of the texts. Students gain the necessary skills for success on the AP® English Literature and Composition Exam in May. Equally important, they amass indisputable proof of the global interdependence that characterizes the modern world.

### **AP® European History**

*Prerequisite: Successful completion of one year of high school social studies*

*Offered: All-genders; Full-year*

AP® European History is designed to be the equivalent of a two-semester introductory college European history course. In this course, students investigate, discuss, and analyze significant events, individuals, developments, and processes in four historical periods that shaped Europe from approximately 1450 to the present. Students develop and use the same skills, practices and methods employed by historians: analysis of historical evidence, contextualization, comparison, causation, change and continuity over time, and argument development. The course is designed around six themes that students explore throughout the year in order to make connections among historical developments in different times and places: interaction between Europe and the world, poverty and prosperity, objective knowledge and subjective visions, states and other institutions of power, the individual and society, and national and European identity. By the end of this course, students are able to explain the complex challenges of today through the lens of European hegemony, have improved their analytical and evaluative writing skills, and have gained the necessary skills for success on the AP® European History Exam in May.

### **AP® Music Theory**

*Prerequisite: Ability to read at least one clef of music and proficiency in an instrument or voice*

*Offered: All-genders; Full-year*

AP® Music Theory is an intensive, fast-paced course which aims to increase students' overall musicianship and prepare them for the AP® Music Theory Exam. Students begin

to look at music on a deeper level and relate theory to their personal instrument, experiencing growth in performance and technicality. There are both aural and analytical components to the class: students learn to sight sing, analyze a variety of genres, and strengthen their ear. Students have the chance to compose and perform original compositions as well as explore different fields of the music world. AP® Music Theory starts with the basics (clef reading, scales, and chords) and continues all the way up to a college-level theory course (harmonic and form analysis, modulation). This is a crucial course for students looking to pursue music professionally or for anyone who wants to pursue their passion in music. AP® Music Theory students often pass out of entry-level theory classes in college and use this course to help them on theory entrance exams.

### **AP® US Government and Politics & AP® Comparative Government and Politics**

*Prerequisite: Successful completion of one year of high school social studies*

*Offered: All-genders; Full-year*

AP® US Government and Politics and AP® Comparative Government and Politics is a year-long course that provides students with an in-depth understanding of the American government as well as various political systems around the world. The fall focuses on American government, including how different agencies within the government interact and how these agencies and their policies affect the daily lives of Americans. The spring covers AP® Comparative Government and Politics, which is an introduction to the methodology of comparative politics and an in-depth look at six different states: Iran, Nigeria, China, Russia, Mexico, and Great Britain. Students understand what factors contributed to the development of the American political system as well as the structure of the US government and the American political process. They also recognize major comparative political concepts and how to apply them. Finally, students are able to compare political institutions and processes from across the world and form sound conclusions based on those comparisons. This course prepares students for both AP® Exams in the spring.

### **AP® US History**

*Prerequisite: Successful completion of one year of high school social studies or permission from the administration*

*Offered: All-genders; Full-year*

AP® US History and US History is a full-year credit social studies course surveying the history of the United States of America. The course begins with an examination of America before Columbus. Having established an understanding of how Native

Americans managed and used the land, the course turns to European conquest and colonial America, including how the stage was set for a plural, diverse, and unequal modern America. The heart of the course centers around the themes of the American Revolution; the rise of democracy, the Republic, and the Constitution; the Civil War and Reconstruction; and how territorial expansion and industrialization laid the foundation for the movements and conflicts of the 20<sup>th</sup> and 21<sup>st</sup> centuries. In order to develop a broad understanding of continuity and change in American history, diverse perspectives are centered in this course. Students build a contextual understanding of the major events within each era while exploring political, social, cultural, economic, and religious trends in the United States. Through critical analysis, research, writing, collaborative activities, creative synthesis applications, and traditional and alternative assessments, students demonstrate understanding of cultural implications and historical context and develop a chronological and thematic appreciation of American history. Students planning to prepare for the AP exam in May are offered regular pathways to practice exam style questions.

### **AP® World History: Modern**

*Prerequisite: Successful completion of 8<sup>th</sup> grade; one year of high school social studies recommended for AP enrollment*

*Offered: All-genders; Full-year*

In this World History course, students investigate, discuss, and analyze significant events, individuals, developments, and processes from approximately 1200 CE to the present. Students cultivate the skills used by historians when they analyze historical sources, make connections and comparisons, and craft historical arguments. The course is designed around six themes: humans and the environment, cultural developments and interactions, governance, economic systems, social interactions and organization, and technology and innovation. Emphasis is placed on historical thinking skills such as source analysis, contextualization, argumentation, comparison, and chronological reasoning. By the end of this course, students are able to explain the complex challenges of today through the lens of historical events and have improved their analytical and evaluative writing skills. Additionally, students in the AP track will have gained the necessary skills for success on the AP® World History: Modern Exam in May.

### **English**

*Prerequisite: Successful completion of 8<sup>th</sup> grade or permission from the administration*

*Offered: All-genders; Full-year*

This course fulfills any high school English requirement, with a focus on close reading and writing with clarity and purpose. Students learn to read for understanding and analysis through poetry, short stories, non-fiction, and novels selected by the teacher and through a choice novel that aligns with the students' face-to-face schools. Reading serves as the foundation for writing and discussion, and assignments are designed to encourage critical thinking and connection. Writing is taught as a process (planning, drafting, and revising), and students practice this process through a variety of types of writing, including analytical, persuasive, creative, and personal essays. Students refine their diction and syntax with particular attention to grammar as a tool for precision, style, and meaning. Through close study of paragraph and essay structures, students learn how to articulate and prove a claim with careful unpacking of a text. This course empowers students to become confident readers, writers, speakers, and listeners.

### **US History**

*Prerequisite: Successful completion of one year of high school social studies or permission from the administration*

*Offered: All-genders; Full-year*

US History is a full-year credit social studies course surveying the history of the United States of America. The course begins with an examination of America before Columbus. Having established an understanding of how Native Americans managed and used the land, the course turns to European conquest and colonial America, including how the stage was set for a plural, diverse, and unequal modern America. The heart of the course centers around the themes of the American Revolution; the rise of democracy, the Republic, and the Constitution; the Civil War and Reconstruction; and how territorial expansion and industrialization laid the foundation for the movements and conflicts of the 20<sup>th</sup> and 21<sup>st</sup> centuries. In order to develop a broad understanding of continuity and change in American history, diverse perspectives are centered in this course. Students build a contextual understanding of the major events within each era while exploring political, social, cultural, economic, and religious trends in the United States. Through critical analysis, research, writing, collaborative activities, creative synthesis applications, and traditional and alternative assessments, students demonstrate understanding of cultural implications and historical context and develop a chronological and thematic appreciation of American history.

### **World History**

*Prerequisite: Successful completion of 8<sup>th</sup> grade; one year of high school social studies recommended for AP enrollment*

*Offered: All-genders; Full-year*

In this World History course, students investigate, discuss, and analyze significant events, individuals, developments, and processes from approximately 1200 CE to the present. Students cultivate the skills used by historians when they analyze historical sources, make connections and comparisons, and craft historical arguments. The course is designed around six themes: humans and the environment, cultural developments and interactions, governance, economic systems, social interactions and organization, and technology and innovation. Emphasis is placed on historical thinking skills such as source analysis, contextualization, argumentation, comparison, and chronological reasoning. By the end of this course, students are able to explain the complex challenges of today through the lens of historical events and have improved their analytical and evaluative writing skills.

## **Computer Science Courses**

*One Schoolhouse offers a complete four-year computer science sequence, but students are not required to take these courses in any particular order. For students who do want to take a multi-year sequence, we recommend this order: Introduction to Computer Science, AP® Computer Science Principles, AP® Computer Science A, Artificial Intelligence or Advanced Computer Science. Course prerequisites may be met through prior courses or through extracurricular programming experiences with permission of the One Schoolhouse administration. Please note: Programming requires either a Macintosh or Windows computer. Chromebooks and tablets are not suitable for these courses and teachers will not be able to offer modifications to students who do not have regular access to Macs or PCs.*

### **Advanced Computer Science: Coding with Python**

*Prerequisite: Successful completion of Algebra II and AP CS Principles or permission from the administration; experience with Python or other non-block-based coding program required*

*Offered: All-genders; Fall semester or full year*

Computer Science is behind many of the current innovations such as quantum computing, block chain, and predictive analytics. This course moves past the basics of procedural programming and explores how we can use the Python built-in data structures such as lists, sets, dictionaries, and tuples to program increasingly complex algorithms. Students investigate object-oriented programming using objects and classes with the goal of implementing real world applications of inheritance and polymorphisms. They also explore a variety of libraries that Python has to offer, including

SciPy, Matplotlib, Keras, and TensorFlow. This course is designed for more experienced programmers who aspire to expand and enhance their coding and problem-solving abilities. This is one of our most advanced courses in our CS strand and is specifically designed as an alternative to AP or as a post-AP CS course.

Students wishing to pursue a computer science project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on a topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or are able to defend a position based on their own research.



Students seeking computer science or math credit for this course should select the design seminar.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate.

### **Advanced Computer Science: Applied Data Science with Python and SQL**

*Prerequisite: Successful completion of Algebra II and AP CS Principles or permission from the administration; experience with Python or other non-block based coding program required*

*Offered: All-genders; Fall semester or full year*

Data science is an interdisciplinary field that applies computer science, mathematics, statistics, and machine learning to analyze big data and solve many modern world problems. Data scientists are behind everything from artificial intelligence at Google, to the time and place a hurricane will make landfall, to deployment logistics in the US military, to player selection on sports teams, to the algorithm that determines whether an application will get read at a top choice college. In this course, students will develop skills in computer programming, information technology, and statistics. They will use the Python and SQL programming languages to explore, clean, manipulate, analyze, and visualize big data. Students will also apply the data science pipeline and statistical concepts such as visualization, modeling, and inference to solve real world case study questions and learn how data can drive decision-making in any industry. This is considered an advanced computer science course in our sequence.

Students wishing to pursue a data science project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- **Spring Activism Seminar:** In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel

idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.

- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or are able to defend a position based on their own research.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate.

### **Advanced Computer Science: Game Design**

*Prerequisite: Successful completion of AP Computer Science A or equivalent; successful completion of 9<sup>th</sup> grade*

*Offered: All-genders; Fall semester or full year*

Computer scientists are creatives, problem-solvers, puzzlers... and tech junkies. The fundamental purpose of programming is to solve a real-world problem, and if done well, the design is elegant, useful, usable. Moreover, if done really well, then it can be addictively fun. So how does that happen? At the intersection of art and science sits game design, a field of computer science that draws on graphic design, programming, math, and psychology to create the experiences we enjoy so much in video games, virtual reality apps, and all kinds of digital media. This class introduces students to the tools of a game designer using the game engine Unity, the C# programming language, and resources from a variety of fields to explore what it takes to design a game. Students build on their prior computer science experiences to apply programming and

design skills in this challenging and creative interdisciplinary course. This is the most advanced course in our CS strand and is specifically designed as an alternative to AP or as a post-APCSA course.

Students wishing to pursue a computer science project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on a topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or are able to defend a position based on their own research.

Students seeking computer science or math credit for this course should select the design seminar.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate. Additionally, sufficient RAM and GPU are essential for processing and graphics. Check here to view the Unity Editor system requirements: <https://docs.unity3d.com/2021.1/Documentation/Manual/system-requirements.html>

### **AP® Computer Science A**

*Prerequisite: Successful completion of a One Schoolhouse computer science course or permission from the administration*

*Offered: Girls only and all-genders; Full-year*

The AP® Computer Science A course introduces the key concepts of programming in Java. The analytical, critical-thinking, and problem-solving skills that students develop in this course transfer to programming in other languages as well. This course is designed with the idea that programming should be fun, engaging, and intuitive. Students learn to apply the main principles of object-oriented software design and programming using classes and objects, constructors, methods, instance and static variables, inheritance, class hierarchies, and polymorphism. Students work creatively and collaboratively with their classmates to discuss ethical and social issues relating to the use of technology and develop a solid foundation from which to launch into a wide range of computer science areas. This course prepares students for the AP® Computer Science-A Exam in May.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate.

### **AP® Computer Science Principles**

*Prerequisite: None, although prior programming experience is recommended*

*Offered: Girls only and all-genders; Full-year*

This course investigates the “big ideas” found in our digital world. Using the Python programming language, students develop and demonstrate fundamental concepts of computer programming that can be applied across a variety of projects and languages. Students explore different means of representing information digitally and

how our digital world has evolved. They create computer programs to solve authentic problems or to explore personal interests such as unique musical pieces, math calculators, and data summations. Students discuss the current state of technology and its role in our everyday lives, discerning the positive and negative influences of innovations concerning computer and network technologies to society, culture, and economics. Throughout, students develop their skills in computational thinking, logical reasoning, and describing processes through algorithms and abstraction. Finally, students demonstrate their learning by creating a portfolio for submission to the College Board and are prepared for the AP® Computer Science Principles Exam in May.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate.

### **Artificial Intelligence**

*Prerequisite: Successful completion of at least one year of high school math*

*Offered: All-genders; Fall semester or full year*

From virtual personal assistants like Siri and Alexa to autonomous vehicles that navigate and drive themselves, Artificial Intelligence (AI) is embedded in all kinds of technology and makes everyday objects act in human-like ways. Beginning with AI's foundation in data science, this course explores the world of AI, its key technologies, and the concerns guiding its use. Students model machine learning algorithms using block-based and Python programming languages and design intelligent agents to solve real-world problems. Topics include natural language processing, image processing, deep neural networks, data science life cycle, computation thinking, and predictive analytics. Students leave this course having gained an understanding of how AI can help us make better decisions and build "smarter" technology.

Students wishing to pursue an artificial intelligence project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or are able to defend a position based on their own research.

## **Introduction to Computer Science**

*Prerequisite: None*

*Offered: All-genders; Full-year*

The goal of this course is to introduce students to some of the major areas of computer science as well as develop their programming skills to produce useful solutions and creative artifacts. Throughout the course, students conduct research and investigate current issues and innovations enabled by the application of computer science, such as virtual reality, robotics, cloud computing, cybersecurity, the Internet of Things, and e-commerce. Students learn fundamental computer programming concepts using a simple but powerful block-based programming language to implement methods, functions, parameters, arguments, if-else statements, and loops in a creative and animated environment. Students then explore a Java-like language that incorporates an electronic sketchbook with graphics, animation, and object-oriented programming

concepts, while utilizing a more traditional, text-based coding methodology. This course prepares students for all other One Schoolhouse computer science courses.

Please note: This course cannot be completed without a computer running a Windows or Macintosh operating system. Chromebooks, iPads, smartphones, and tablets are not adequate.



## Language Courses

### **For students beginning their study of a language:**

Introductory courses vary by language. Please read carefully to ensure students are placed in the correct entry-level course.

- **American Sign Language (ASL):** The entry level course is ASL – Beginning I
- **Spanish:** The entry level course is Spanish – Beginning II
- **Chinese, French and Latin:** Students with no prior knowledge of the language may register for either Beginning I or Beginning II. When choosing which introductory course to select, please keep the following in mind:

Students best placed in Beginning I courses are:

- Enrolled in either middle school or high school
- Unfamiliar with parts of speech or noun functions in English
- Building skills in time-management and self-advocacy
- Interested in exploring language skills and cultural contexts
- Required to complete Beginning II (or its equivalent) before taking Intermediate I

Students who succeed in Beginning II courses are:

- In high school (completion of eighth grade is a prerequisite for all Beginning II courses)
- Proficient in identifying parts of speech and noun functions in English
- Generally responsible in managing time, assignments, and priorities
- Comfortable with a brisk pace of instruction
- Planning to reach an advanced level of language study in high school

### **For students who have already begun to study a language**

Please request the appropriate course sequence document from One Schoolhouse. After reviewing the topics and material covered in our courses, please register your student for the course that seems most appropriate for them. We consider registrations in our language courses to be preliminary placements.

In the first two weeks of the school year, each student enrolled in language courses completes a pre-course assessment and meets with their teacher. If the student meets expectations in those activities, we consider their placement confirmed. If the student either exceeds the course expectations, or is not able to meet those expectations, we will do our best to move them to the course that the teacher feels is most appropriate.

## **American Sign Language – Beginning I**

*Prerequisite: None*

*Offered: All-genders; full year*

Explore the world of silent communication through hands and facial expression. American Sign Language is a unique course that has all students starting with the same working English language-based proficiencies, which allows students to be integrated into non-verbal exchanges within the first week of class. This course introduces students to Deaf and deaf cultures, beginning with deaf names, fingerspelling, and numbers. Once students have the basics of letters and numbers, they move on to the five sign parameters: hand shape, palm orientation, location, movement, and facial expressions. Like all languages, students also learn parts of speech and sentence word order and types. Learning happens in cultural context as students explore the history and physiology of deafness, including discrimination experienced by the hard of hearing. Upon completion of this course, students are ready for ASL - Beginning II.

## **American Sign Language – Beginning II**

*Prerequisite: Successful completion of at least one year of high school ASL*

*Offered: All-genders; full year*

Students continue their journey into the Deaf World in Beginning II. In this course, students continue developing basic knowledge and understanding of conversational ASL and cultural features of the language and community. Students reinforce their skills of fingerspelling and numbers while learning new vocabulary. Topics covered include school days, sports, daily schedule, describing people, being out around town, food, jobs, animals, around the house, complaints, traveling, things to do, and scheduling. Aspects of deaf culture are integrated into the lessons. Upon completion of this course, students are ready for ASL - Intermediate I.

## **American Sign Language – Intermediate I**

*Prerequisite: Successful completion of at least two years of high school ASL*

*Offered: All-genders; full year*

At the Intermediate I level, students further their exploration into the Deaf World by learning more vocabulary, including the in-depth use of classifiers while taking a deeper look into various grammatical structures and rules provided in this language. Students learn how to communicate about food and daily items, how to plan a trip or things to do, and how to converse about difficult subjects such as health and medical issues or accidents and tragedies. Finally, students delve deeper into the application of the

vocabulary for story-telling as they continue their education into more aspects of deaf culture. Upon completion of this course, students are ready for ASL - Intermediate II.

### **Chinese – Beginning I**

*Prerequisite: None*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of Chinese at One Schoolhouse. Please review [course selection guidance](#) before registering. This course is intended for students who have no prior experience with the Chinese language. This course develops students' competence in communication and cultural awareness through an exploration of the role of Chinese in societies around the world and through regular engagement in real-life language scenarios. Students spend the first three quarters learning about the cultures, history, and influences that Chinese has had throughout the world and explore issues facing Chinese-speaking communities and peoples today. Quarter 4's emphasis is on students' ability to understand and be understood in Chinese through guided learning pathways focused on listening, speaking, writing, and reading in a variety of travel, social, and cultural contexts. Students who complete this course develop the confidence, oral and written proficiency, and cultural competence to continue to the next level of study in Chinese - Beginning II.

### **Chinese – Beginning II**

*Prerequisite: Completion of 8<sup>th</sup> grade*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of Chinese at One Schoolhouse. Please review [course selection guidance](#) before registering. Chinese – Beginning II is designed for students with little or no experience in learning Chinese but who are prepared for a high school level online language course. Students develop basic language skills in a cultural context by understanding and responding to structured social conversations. Starting with the introduction of the Chinese language system including Pinyin, tones, radicals, and characters, this course focuses on students' production of simple sentences and brief paragraphs related to the topics of greeting, sharing personal information and preferences, introducing others, making plans, and discussing school life. The corresponding cultural knowledge is introduced at appropriate intervals to enrich students' understanding of Chinese culture. Care is taken to create an authentic learning experience in reading, writing, speaking, and listening in the online environment. Students improve their overall language proficiency through weekly interactions with their teacher and classmates, in addition to using a variety of

internet resources and audio and video materials. Engaging activities include playing games, performing songs and tongue twisters, writing stories, collaborating on projects, taking virtual field trips, and acting out roles in movies. This course aligns with Cheng and Tsui's Integrated Chinese Level I, lessons zero through six. By the end of Chinese - Beginning II, students will be able to handle the basic functions with structured grammatical patterns in daily communication and gain a solid foundation for future learning. Students who complete this course are prepared for Chinese - Intermediate I.

### **Chinese – Intermediate I**

*Prerequisite: Successful completion of at least one year of high school Chinese*

*Offered: All-genders; Full-year*

Chinese – Intermediate I students continue to improve their Chinese skills by using both structured and created language. Cultural connections are made at appropriate intervals to familiarize students with the Chinese-speaking world. Students learn to initiate and participate in daily communication, and apply new vocabulary and more complex sentence patterns to fulfill the functions of expressing individual needs, describing circumstances, comparing the similarities and differences of phenomena, and demonstrating culturally contextualized understanding. Students improve character literacy, authentic language production, and cultural competency. A variety of audio, visual, and textual materials are carefully selected based on the interests and preferences of the students, which optimizes the effectiveness of the online personalized experience. This course aligns with Cheng and Tsui's Integrated Chinese Level I, lessons six through 12. By the end of Chinese – Intermediate I, students are able to write journals, compose short Chinese songs and rhymes, share about topics related to their school life, and produce refined language freely at the paragraph level on essential social communication. Students who complete this course are prepared for Chinese - Intermediate II.

### **Chinese – Intermediate II**

*Prerequisite: Successful completion of at least two years of high school Chinese*

*Offered: All-genders; Full-year*

Chinese - Intermediate II students develop their essential Chinese language skills while gaining a deeper understanding of Chinese culture through engaging with various audio, visual, and textual materials to produce an increasingly authentic language application experience. The course is designed for students who have had at least two years of Chinese study and takes them into structured communication through comprehensive skill-enhancement with abundant task-based practical grammatical

structures and sentence patterns. Students engage in group work, online seminars, real-time speaking practice, and personalized learning activities to improve constructive conversation skills in Chinese. Students are highly encouraged to enjoy applying Mandarin and to make productive mistakes within the course. This course aligns with Cheng and Tsui's Integrated Chinese Level I, lessons 11 through 20. By the end of this course, students acquire substantive vocabulary and structures for creating essays, composing songs and rhymes, discussing written and audio primary sources, and presenting speeches that relate to a wide variety of popular topics. The goal is to be able to function successfully in daily life in a Chinese-speaking world. Students who complete this course are prepared for Chinese - Advanced I.

### **Chinese – Advanced I**

*Prerequisite: Successful completion of either three years of high school Chinese, or two years of high school Chinese with an immersion experience*

*Offered: All-genders; Full-year*

Chinese – Advanced I is a rigorous class that prepares students for the AP® or Advanced II courses the following year. Students develop language competencies while building proficiency in applying Chinese in a variety of real-life situations. The course builds through unrehearsed listening and reading texts, engaging essays, authentic projects, and virtual field trips. Class discussions and debates are added sequentially so that students develop both communication and language-learning strategies. A variety of audio, visual, and textual materials are carefully selected based on the interests and preferences of the students to reflect the diversity of students' lives, school experience, and personal/social issues. Students should be prepared for a range of collaborative and individual activities each week, including speaking in real time with each other and the instructor. This course aligns with Cheng and Tsui's Integrated Chinese Level II, lessons 21 through 30. By the end of this course, students are able to relate past, present, and future experiences to conduct complicated daily activities in Chinese. Students who complete this course are prepared for AP Chinese.

### **Chinese – Advanced II**

*Prerequisite: Successful completion of at least three years of high school Chinese required; completion of AP Chinese recommended*

*Offered: All-genders; Full-year*

This is our most advanced Chinese course. It provides experienced Chinese learners with abundant opportunities to develop their overall language proficiency and cultural competency for unrehearsed communication. This course focuses on the broader

application of the language and culture in real-world situations and explores a variety of topics in Chinese history, geography, music and arts, literature, daily life, and national and global issues. Students use teamwork, group online seminars, one-on-one conferences with the teacher, and a wide range of engaging activities and experiential projects to meet individual needs. This course is designed for students seeking an advanced alternative to AP® Chinese or a post-AP elective. By the end of this course, students gain a solid mastery of comprehending authentic resources and producing Chinese in real-life problem-solving.

### **AP® Chinese Language and Culture**

*Prerequisite: Successful completion of at least three years of high school Chinese required; suggested four years of high school*

*Offered: All-genders; Full-year*

AP® Chinese Language and Culture provides a deeper understanding and broader application of Chinese language and culture for advanced non-heritage Chinese learners. This course focuses on applying Chinese language and cultural skills in real-world situations, and exploring the six themes of families and communities, personal and public identities, beauty and aesthetics, science and technology, contemporary life, and global challenges. Students use a wide range of engaging activities to enhance learning, including group online seminars, one-on-one conferences with the teacher, and experiential projects to meet individual needs. Students gain advanced language proficiency and cultural competency to compare, examine, evaluate, and solve conflicts successfully. Students are expected not only to delve deeply into the topics but also to take diagnostic AP®-style assessments and prepare for the AP® Chinese Language and Culture Exam.

### **AP® Chinese Language and Culture - Heritage Speakers**

*Prerequisite: Chinese heritage background or successful completion of at least three years of high school Chinese with an immersion experience*

*Offered: All-genders; Full-year*

AP® Chinese Language and Culture – Heritage Speakers is designed for Chinese heritage students or second language learners with sound listening comprehension skills. The course deepens students' immersion into the language and culture of the Chinese-speaking world and challenges students to use language as a means to study different disciplines and topics, rather than just the language itself. Focusing on the six themes of families and communities, personal and public identities, beauty and aesthetics, science and technology, contemporary life, and global challenges, the

course asks students use teamwork, group online seminars, one-on-one conferences with the teacher, and a variety of engaging activities and experiential projects to meet individual needs. Students gain high language proficiency and cultural competency to compare, examine, evaluate, and solve conflicts successfully. Students are expected not only to delve deeply into the topics but also to take diagnostic AP®-style assessments and prepare for the AP® Chinese Language and Culture Exam.

### **French – Beginning I**

*Prerequisite: None*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of French at One Schoolhouse. Please review [course selection guidance](#) before registering. This course is intended for students who have no prior experience with the French language. This course develops students' competence in communication and cultural awareness through an exploration of the role of French in societies around the world and through regular engagement in real-life language scenarios. Students learn about the history and influence that French has had throughout the world and explore issues facing French-speaking countries, communities, and peoples today. Emphasis is on students' ability to understand and be understood in French through guided learning pathways focused on listening, speaking, writing, and reading in a variety of travel, social, and cultural contexts. Students learn about regional and dialect differences among French speakers and practice strategies for navigating new and unfamiliar situations. Students who complete this course develop the confidence, oral and written proficiency, and cultural competence to continue to the next level of study in French - Beginning II.

### **French – Beginning II**

*Prerequisite: Completion of 8<sup>th</sup> grade*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of French at One Schoolhouse. Please review [course selection guidance](#) before registering. French – Beginning II is designed for students with little or no experience in learning French but who are prepared for a high school level online language course. Each quarter, students explore a theme with resources and opportunities for developing the skills needed to communicate proficiently in French. As students acquire and practice skills in reading, writing, listening, and speaking, they will communicate about themselves, the people they know, and finally their local and global communities. Students learn to express themselves in the present and near-future tenses, have exposure to the past tense, and practice with the



structural and phonetic nuances of the language. They also make comparisons between their heritage and Francophone cultures, while connecting with students from different parts of the world. Students who complete this course are prepared for French - Intermediate I.

### **French – Intermediate I**

*Prerequisite: Successful completion of at least one year of high school French*

*Offered: All-genders; Full-year*

French – Intermediate I students strengthen and extend their ability to describe, express, and compare events happening in the present. Over the course of the year, students develop their proficiency by learning how to narrate a story that happened in the past (using the past tenses of *passé composé* and *imparfait*) and how to communicate about what will happen in the future (using the *futur proche* and the *futur simple*). Other important concepts of the course include reflexive verbs, object pronouns, and interrogative pronouns. Students have an opportunity to develop their skills in speaking, listening, writing, and reading, and gain an understanding of the regions of France and of Francophone cultures around the world. Students who complete this course are prepared for French - Intermediate II.

### **French – Intermediate II**

*Prerequisite: Successful completion of at least two years of high school French*

*Offered: All-genders; Full-year*

In French - Intermediate II, students review all points of the curricula of the beginning levels, study new grammatical structures and vocabulary, and continue to develop awareness of francophone culture. There is a marked shift from the study of present to a mastery of past narration, as well as the addition of the future, conditional, and subjunctive modes. Students learn and apply skills to fluidly navigate through these verbal modes and moments in time. The course stresses the development of listening, speaking, reading, and writing skills through a variety of exercises in *T'es Branché 2* and other authentic resources. Moreover, students develop their communicative skills through speaking activities, structural exercises, IPAs (Integrated Performance Assessments), and original written work from authentic documents: a soap opera, songs, films, and short stories. Students who complete this course are prepared for French - Advanced I.

## **French – Advanced I**

*Prerequisite: Successful completion of at least three years of high school French*

*Offered: All-genders; Full-year*

French – Advanced I students continue to develop their foundational grammatical skills while integrating more complicated structures. There is a focus on stories from different cultures through all types of media: reading, listening and watching films. A comprehensive study of the subjunctive mode is a major focus of the year. Students also learn compound past and future verb tenses. The Francophone world is studied through literature and film, and students study and discuss recurring themes such as family structures, racism, and traditions, all in the target language. Through simulated conversations, discussion posts and oral activities, students hone their speaking and listening skills. A focus on writing is a major thread through the year and students write well developed essays with increasing sophistication as the year progresses. A mastery of all important verb tenses and modes is achieved so that students are prepared to continue on to AP® French Language and Culture course.

## **French – Advanced II (Business French)**

*Prerequisite: Successful completion of at least three years of high school French required; no prior experience in business or economics required*

*Offered: All-genders; Full-year*

French is the international language of business and diplomacy. This course, taught entirely in French, is an introduction to the culture of business and professional relationships in the Francophone world. By the end of this course, students better understand the global marketplace and are conversant in professional French. Exercises are intended to promote specific fluency in employment practices and formalities of daily life abroad. Students leave the course with the linguistic, intercultural, and critical thinking skills necessary to navigate study abroad, work, or internship opportunities in a French-speaking country. For students who are interested, the course offers pathways that serve as preparation for the exam leading to the Diplôme de Français Professionnel of the Paris Chamber of Commerce and Industry and/or the DELF, the diploma awarded by the French Ministry of Education to prove the French-language skills of non-French candidates, opening the door to any French-speaking European university. One Schoolhouse is one of only eight high schools in America offering this course. French – Advanced II is designed for students seeking an advanced alternative to AP® French or a post-AP elective.

## **AP® French Language and Culture**

*Prerequisite: Successful completion of at least three years of high school French required; suggested four years of high school French or three years with an immersion experience*

*Offered: All-genders; Full-year*

AP® French Language and Culture is designed to provide deeper understanding and broader application of the French language. By the end of this course, students are able to interpret and discuss historical and cultural topics, as well as current events pertaining to the various communities that exist in the Francophone world. Students explore six themes throughout the course: personal and public identities, families and communities, global challenges, science and technology, contemporary life, and beauty and aesthetics. Students use information from a wide range of sources to engage in learning, discussion, and analysis activities as they deepen their understanding and confidence in the grammatical structures of the language. Throughout the year, students engage in reading, writing, speaking, and listening activities and assessments. Students are expected to delve deeply into the topics, take AP®-style assessments, and prepare for the AP® French Language and Culture Exam.

## **Latin – Beginning I**

*Prerequisite: None*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of Latin at One Schoolhouse. Please review [course selection guidance](#) before registering. This course is intended for students who have not previously studied Latin. This course develops competency in linguistics, etymology, and Roman culture and history. Students explore the influence that the Romans had on modern society, including grammar and language structures, root words, and social and religious constructs. Students review English grammar constructions and then learn how language forms, including an overview of and practice with foundational Latin declensions and conjugations. Students do an extensive guided project on a topic connecting an ancient and modern theme, such as Spoken Latin and Italian, Slavery in Ancient Europe and Colonial America, The Evolution of the Language of Science, or Mythology and Monotheism. This course is appropriate for students just starting their Latin journey or students who are not intending to take the full Latin sequence but who are looking for a survey course in the Latin language and Roman culture. Students who successfully complete Latin – Beginning I are well-prepared to continue their studies in Latin – Beginning II.

## **Latin – Beginning II**

*Prerequisite: Completion of 8<sup>th</sup> grade*

*Offered: All-genders; Full-year*

This is one of two entry-level courses for the study of Latin at One Schoolhouse. Please review [course selection guidance](#) before registering. Latin – Beginning II is intended for students who have not previously studied Latin but who are prepared for a high school level online language course. The course develops competencies in reading and interpreting as well as oral expression and aural comprehension. Students learn the foundational components and structures of Latin that allow them to develop basic reading strategies, which they use to build critical-thinking skills. At the completion of this course, students have acquired proper pronunciation, essential grammar, and the vocabulary necessary for understanding and reading short passages. Students also acquire a deeper knowledge of English vocabulary and grammar. Students study Roman culture and history so that they can examine the indebtedness of modern society to the Roman world, from legendary heroes to myths, gods, and politics. Students take quizzes and tests, but they also read stories, play games, and work together on short research projects to further understand how their developing knowledge of Roman culture applies to their own lives. Students who complete this course are prepared for Latin - Intermediate I.

## **Latin – Intermediate I**

*Prerequisite: Successful completion of at least one year of high school Latin*

*Offered: All-genders; Full-year*

By the end of Latin – Intermediate I, students have a solid foundation in the basic grammar and syntax of Latin. We focus on increasing students' understanding of complex sentences and how to break those down into manageable parts. Students learn many skills to help them with this goal, including mastering vocabulary, the subjunctive mood, passive voice, participles, various uses of noun cases, and degrees of adjectives. Further, familiarity with different cultural topics provides context for each work and a place to compare our modern world to the ancient one. Students frequently learn about different aspects of ancient culture to enhance the reading at hand or to make connections to modern events. These topics include mythology, Roman history and daily life, and philosophy. Students who complete this course are prepared for Latin - Intermediate II.

## **Latin – Intermediate II**

*Prerequisite: Successful completion of at least two years of high school Latin*

*Offered: All-genders; Full-year*

Latin – Intermediate II is focused on deepening students' understanding of the language and culture of the ancient Romans. Students complete the examination of all forms and syntactical structures of Latin and gain extensive experience in activating those linguistic details by reading increasingly authentic Latin texts. As students learn to read a text with care and attention, they also gain experience in literary analysis of both prose and poetic texts. This analysis focuses on the linguistic and rhetorical strategies used by authors to create works of literature. These literary texts are never examined as isolated products; rather, each one is accompanied by an in-depth investigation of the social and historical context in which it was composed. By the end of Latin – Intermediate II, students will have gained solid experience not only in reading complex Latin but also in understanding the forces that led an author to write a poem or prose text. Successful completion of this course prepares a student for Latin - Advanced or AP Latin.

## **Latin – Advanced**

*Prerequisite: Successful completion of at least three years of high school Latin*

*Offered: All-genders; Full-year*

This is a project-based course surveying the development of Latin literature from its beginnings (6<sup>th</sup> century BCE) through the period of the late Empire (4<sup>th</sup> century CE). Students read texts from every period in these centuries and develop an understanding of the changes in the Latin language over time. Students explore various theoretical approaches to literature, while also gaining an appreciation for the influence that Latin literature had on later visual and literary artists, including classical and contemporary artists. Latin – Advanced is designed for students seeking an advanced alternative to AP® Latin or a post-AP elective.

## **AP® Latin**

*Prerequisite: Successful completion of at least three years of high school Latin*

*Offered: All-genders; Full-year*

AP® Latin students meet the challenge of reading and analyzing passages of Caesar's Gallic Wars and Vergil's Aeneid. The course emphasizes reading and understanding the works of these two authors, as well as diving into the historical context of both works. Students also look at literary devices and discuss how each author uses Latin and to what effect. Students practice these analytical skills not only on the proscribed

passages, but also on sight passages from various authors with weekly assignments. Students compare the writings of Vergil and Caesar to modern authors and use class discussions to explore the effect these authors have on our world today. Students prepare translations and essays under time constraints similar to those on the AP® Latin Exam. Additionally, students peer-edit essays to help strengthen their writing and analysis skills. All students enrolled in this course are thoroughly prepared to take the AP® Latin Exam in the spring.

### **Spanish – Beginning II**

*Prerequisite: Successful completion of both 8<sup>th</sup> grade and a beginning Spanish language course*

*Offered: All-genders; Full-year*

Spanish–Beginning II is designed for novice language learners who have completed a beginning Spanish course and have the academic maturity to thrive in an asynchronous learning environment. Each quarter, students explore a theme with resources and opportunities for developing the skills needed to communicate proficiently in Spanish. As students acquire and practice skills in reading, writing, listening, and speaking, they communicate about themselves, about people they know, and finally about their local and global communities in the present. Students with some Spanish language learning experience strengthen and extend their ability to describe, express, and compare events happening in the present. Over the course of the year, students develop their proficiency by learning how to narrate a story that happened in the past and how to communicate about what will happen in the future. Students practice with the structural and phonetic nuances of the language as they engage with the diversity of Spanish-speaking cultures around the world. Students who complete this course are prepared for Spanish-Intermediate I.

### **Spanish – Intermediate I**

*Prerequisite: Successful completion of at least one year of high school Spanish*

*Offered: All-genders; Full-year*

Spanish – Intermediate I students review all points of the first-year and second-year curricula, study new grammatical structures and vocabulary, and continue to develop cultural awareness. There is a marked shift from the study of the present tense to moving between present, past, and future narration in written and spoken communication. The course stresses the development of listening, speaking, reading, and writing skills through a variety of exercises. Moreover, students develop their communicative skills through collaborative exercises and original written work based on authentic

documents: shows, songs, films, and short stories. Students completing Spanish – Intermediate I are prepared for the Spanish – Intermediate II course.

### **Spanish – Intermediate II**

*Prerequisite: Successful completion of at least two years of high school Spanish*

*Offered: All-genders; Full-year*

Spanish – Intermediate II students review grammatical structures and vocabulary while working toward mastery of communication in the past, present, and future tenses. Students develop the ability to handle a variety of routine tasks and social situations in spoken and written language including topics related to their lives, school, recreation, interests, and areas of competence. The course focuses on the presentation of authentic materials such as short shorts, poems, songs, videos and other mediums as a window into the diverse heritage and culture of Spanish-speaking communities. Students regularly analyze, compare, and contrast their own backgrounds and experiences in order to understand and connect with Hispanic and Latina/o/x culture. Students who complete this course are prepared for Spanish - Advanced or AP Spanish Language and Culture.

### **Spanish – Advanced**

*Prerequisite: Successful completion of at least three years of high school Spanish; appropriate for heritage speakers with fewer than three years of Spanish coursework*

*Offered: All-genders; Full-year*

Advanced Spanish is a course designed to develop student fluency in communication with increased linguistic accuracy. Students develop greater proficiency in the four language skills (listening, speaking, reading, and writing) while deepening insight into Spanish-speaking culture. Conducted fully in Spanish, this course develops students' listening comprehension, speaking, reading, and writing skills and expands knowledge of the culture and civilization of Spanish-speaking countries. The course includes reading and discussion of modern texts, conversation, composition, grammar review, and cultural activities. Spanish – Advanced is designed for students seeking an advanced alternative to AP® Spanish courses or a post-AP elective.

### **AP® Spanish Language and Culture**

*Prerequisite: Successful completion of at least three years of high school Spanish required; suggested four years of high school Spanish or three years with an immersion experience*

*Offered: All-genders; Full-year*



AP® Spanish Language and Culture is intended for students who wish to develop proficiency and integrate their language skills using authentic materials and sources. The course aims to sharpen students' communicative skills in Spanish through advanced study and review of grammar, culture, and literature. Conducted fully in Spanish, the class provides quality opportunities for students to synthesize their language skills through performance assessments, the use of cultural materials, and focused class discussions. Students work to achieve a high level of ability with formal writing, interpersonal and presentational speaking and writing, and aural comprehension through level-appropriate media and texts. This course prepares students for the AP® Spanish Language and Culture Exam in May.

### **AP® Spanish Literature and Culture**

*Prerequisite: Successful completion of at least three years of high school Spanish required; suggested four years of high school Spanish or three years with an immersion experience*

*Offered: All-genders; Full-year*

The AP® Spanish Literature and Culture course provides a college-level survey of texts from Peninsular, Latin American, and US Hispanic authors. In addition to engaging with the texts from the College Board required reading list, students interpret the works within their social, literary, and historical contexts and consider the reasons these works remain relevant in the 21<sup>st</sup> century. Students build an understanding of form, structure, theme, and literary devices, and then analyze and evaluate the global interdependence that fosters the evolution of Hispanic and Latino literatures. The course is conducted entirely in Spanish and organized around the six themes designated by the AP® curriculum framework. This course prepares students for the AP® Spanish Literature and Culture Exam in May.

## **Math Courses**

### **AP® Calculus AB**

*Prerequisite: Successful completion of Pre-Calculus*

*Offered: All-genders; Full-year*

The AP® Calculus AB course is a standard course in the calculus of a single variable. The course focuses on the understanding of differential and integral calculus through varied methods and applications. Students learn conceptual reasoning as well as how to present a solution algebraically, geometrically, numerically, or verbally. Students learn

not only how to develop a clear understanding of the concepts, but also how to apply them in real-world situations. By the end of the course, students are able to read and interpret graphical data accurately, use words to explain their reasoning and provide context for final answers, and understand how they best learn online. The course covers all of the topics in the AP® Calculus AB curriculum, as well as additional topics as time permits. Major topics include limits, continuity, derivatives and applications, definite integrals and applications, and first order linear differential equations. This personalized course features discussions, reflections, and projects that help students to master skills in an engaging way.

### **AP® Calculus BC**

*Prerequisite: Successful completion of Pre-Calculus or Calculus course covering natural logarithms, series/sequences, parametric/polar functions, vectors, and limits*

*Offered: Girls only and all-genders; Full-year*

The AP® Calculus BC course is a standard course in the calculus of a single variable. The course focuses on the understanding of differential and integral calculus through varied methods and applications. Students learn conceptual reasoning as well as how to present a solution algebraically, geometrically, numerically, or verbally. Students learn not only how to develop a clear understanding of the concepts, but also how to apply them in real-world situations. By the end of the course, students are able to read and interpret graphical data accurately, use words to explain their reasoning and provide context for final answers, and understand how they best learn online. The course covers all of the topics in the AP® Calculus BC curriculum, as well as additional topics as time permits. Major topics include limits, continuity, derivatives and applications, integrals and applications, first order linear differential equations, inverse trigonometric functions, transcendental functions, infinite series, Taylor polynomials, vectors, parametrically defined functions, and polar coordinates. This personalized course features discussions, reflections, and projects to help students master skills in an engaging way.

### **AP® Macroeconomics**

*Prerequisite: Successful completion of Algebra II*

*Offered: Girls only and all-genders; Full-year*

AP® Macroeconomics introduces students to major economic issues such as basic market analysis, the causes of the cycle of economic growth and recession, the problems of inflation and unemployment, the causes and consequences of federal budget deficits, and the causes and effects of international trade imbalances and

currency fluctuations. Students analyze the impact of fiscal and monetary policies as well as the debates surrounding the implementation of each. This course involves extensive reading, problem-solving exercises, online discussions, and researching and writing about contemporary macroeconomic issues. Multiple modalities are employed for content presentation so as to encourage personalization, and assessment evaluates each student's ability to utilize skillsets related to economic decision making. Strong reading, algebra, and analytical skills are necessary for success in the course, as is strong motivation. AP® Macroeconomics develops informed, thoughtful, and globally-minded students, and the course thoroughly prepares students to take the AP® Macroeconomics Exam in the spring. This course is recommended for 11<sup>th</sup> and 12<sup>th</sup> graders.

### **AP® Microeconomics**

*Prerequisite: Successful completion of Algebra II*

*Offered: Girls only and all-genders; Full-year*

AP® Microeconomics gives students an understanding of how limited resources and unlimited wants result in the need to make choices, both individually and collectively. Students learn why private markets and the price mechanism lead to an efficient allocation of resources in a market-based economy. Market structure, market failure, natural resource markets, and the role of government are included. Students analyze societal issues through the lens of economic reasoning, develop critical thinking skills through the understanding and analysis of fundamental economic concepts, and increase their ability to analyze information and draw conclusions from a wide variety of real-world situations. Students complete collaborative assignments, group discussions, and assessments that require them to apply what they have learned to hypothetical situations. The curriculum is developed to prepare students for the AP® Microeconomics Exam in May. The course is recommended for 11<sup>th</sup> and 12<sup>th</sup> graders with strong mathematical reasoning skills and an interest in economics, finance, business, or government policy.

### **AP® Statistics**

*Prerequisite: Successful completion of Algebra II*

*Offered: Girls only and all-genders; Full-year*

This course introduces students to the concepts and tools used to collect, organize, analyze, and draw conclusions from data. Students receive instruction in each of the following competencies: exploring data, sampling and experimentation, anticipating patterns with probability and simulation, and statistical inference. Students learn how to

articulate methodology, data descriptions, calculations, and conclusions, and to write analytically in context. Students develop knowledge through experiential activities that challenge them to design and administer studies as well as tabulate and analyze results from surveys and experiments. Students often work in small collaborative groups to explore problems and share ideas. Active participation in the form of individual and group projects, peer review of student work, and discussion board conversations are key to student success. Students apply a powerful skill set effectively in new and unanticipated situations, explore AP®-style free response questions and applications, take AP®-style assessments, and prepare for the AP® Statistics Exam in the spring.

## **Calculus**

*Prerequisite: Successful completion of Pre-Calculus*

*Offered: All-genders; Full-year*

The Calculus course is a standard course in the calculus of a single variable. The course focuses on the understanding of differential and integral calculus through varied methods and applications. Students learn conceptual reasoning as well as how to present a solution algebraically, geometrically, numerically, or verbally. Students learn not only how to develop a clear understanding of the concepts, but also how to apply them in real-world situations. By the end of the course, students are able to read and interpret graphical data accurately, use words to explain their reasoning and provide context for final answers, and understand how they best learn online. Major topics include limits, continuity, derivatives and applications, definite integrals and applications, and first order linear differential equations. This personalized course features discussions, reflections, and projects that help students to master skills in an engaging way.

## **Geometry**

*Prerequisite: Successful completion of Algebra I*

*Offered: All-genders; Full-year*

Geometry forms the foundation for key concepts in advanced math courses. This course begins with traditional geometric topics including lines, angles, proofs, polygons, circles, and triangles. Students explore concepts directly through their own investigations, make and test conjectures about what they observe, and apply these conjectures to solve real-world problems and create new conjectures. Students use multiple and varied tools—from folded paper, to straightedge and compass, to interactive geometry software—for the investigations. Students develop cooperation, problem-solving, spatial reasoning, and communication skills. Assessments include

quizzes and tests, discussion prompts, and both group and individual projects. By the end of the course, students have gained proficiency in logic, pattern recognition, spatial reasoning, and tech tools.

### **Linear Algebra**

*Prerequisite: Successful completion of AP® Calculus AB or equivalent*

*Offered: Girls only and all-genders; Full-year*

Through a wide variety of practical problems, conceptual questions, and visualizations, students learn how to think about vectors, the spaces in which vectors live, and linear mappings between those spaces. They develop powerful new ways of thinking mathematically and apply their new skills to solve a wide variety of problems from other fields, including computer graphics, economics, and population biology. This year-long course covers a typical one-semester college linear algebra curriculum, including matrix algebra, vector spaces, eigenvalues and eigenvectors, and applications to differential equations. Linear algebra is a required and very useful subject in college for many science and engineering majors, and it can be studied either before or after multivariable calculus. It's a great fit for the student who has completed AP® Calculus AB or BC, who is passionate about a challenge to think in new ways, and who wants to see math applied to the real world.

### **Multivariable Calculus and Differential Equations**

*Prerequisite: Successful completion of AP® Calculus BC or equivalent*

*Offered: Girls only and all-genders; Full-year*

This year-long course covers a typical college-level Calculus III curriculum, including vectors and vector-valued functions, curves and surfaces in space, partial derivatives and gradients, multiple integration, and line and surface integrals. In the course's final unit, students learn how to identify and solve various kinds of differential equations, including exact first-order equations and second-order homogeneous and nonhomogeneous linear equations, and they practice using such equations to model systems from science and engineering. Built on a foundation of sophisticated problem solving, the course also features 3D visualization and model-building activities that help students develop their geometric intuitions about doing calculus in higher dimensions.

### **Statistics**

*Prerequisite: Successful completion of Algebra II*

*Offered: All-genders; Full-year*

This course introduces students to the concepts and tools used to collect, organize, analyze, and draw conclusions from data. Students receive instruction in each of the following competencies: exploring data, sampling and experimentation, anticipating patterns with probability and simulation, and statistical inference. Students learn how to articulate methodology, data descriptions, calculations, and conclusions, and to write analytically in context. Students develop knowledge through experiential activities that challenge them to design and administer studies as well as tabulate and analyze results from surveys and experiments. Students often work in small collaborative groups to explore problems and share ideas. Active participation in the form of individual and group projects, peer review of student work, and discussion board conversations are key to student success.

## Science Courses

### **Anatomy and Kinesiology**

*Prerequisite: Successful completion of one year of high school biology*

*Offered: All-genders; Fall semester or full year*

How does exercise change the body? How do muscles get bigger? How do bones repair themselves? What's the best breakfast to eat before an athletic event? Why? In this course, we examine the body through an exercise lens. We study the cardiovascular system and the changes that occur through exercising. We learn about the endocrine system and research how performance enhancing substances interact with it, for better or worse. We study the skeletal system, muscular system, tendons and ligaments, and metabolism and nutrition. Throughout the course, students engage in research, readings, discussion, projects, and presentations. The class culminates with a presentation in which students research a question of their choosing in a peer-reviewed science journal. Students analyze the information and convey their conclusions to the class in an accessible way, speaking in their own words.

Students wishing to pursue an anatomy and kinesiology project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher,

students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or are able to defend a position based on their own research.

### **AP® Biology**

*Prerequisite: Successful completion of one year of high school chemistry or permission from the administration*

*Offered: All-genders; Full-year*

AP® Biology is an introductory college-level life science course designed for students interested in pursuing STEM disciplines in college. The goal of the course is to help students develop a framework for understanding the natural world through the lens of evolution. Students explore biochemistry, cellular processes, genetics, evolution, and ecology. In addition to the core content, emphasis is placed on inquiry, the scientific method, experimental design, and data analysis. Throughout the year, students engage with the course content authentically through hands-on labs, case studies, and simulations. Formal assessments are written to evaluate critical thinking and analysis,



rather than rote memorization. AP Biology prepares students for the AP® Biology exam in the spring.

### **AP® Chemistry**

*Prerequisite: Successful completion of one year of high school laboratory science and Algebra II or permission from the administration*

*Offered: All-genders; Full-year*

AP® Chemistry is equivalent to an introductory chemistry course taken during the first year of college. The course is designed for students interested in an upper-level science course or who are planning to seek credit and/or appropriate placement in college chemistry courses. The goal of the course is to develop a conceptual understanding of chemistry based on the structure and interactions of atoms and molecules. Through inquiry-based investigations, students explore bonding models, chemical reactions, kinetics, thermodynamics, and equilibrium. Emphasis is placed on developing the reasoning skills necessary to engage in science practices. By the end of this course, students are able to describe and use models to explain chemical phenomena, design experiments and analyze data, and support claims with evidence to develop a scientific explanation. This course is intended to prepare students for the AP® Chemistry Exam in May.

### **AP® Environmental Science**

*Prerequisite: Successful completion of one year of high school laboratory science or permission from the administration*

*Offered: Girls only and all-genders; Full-year*

AP® Environmental Science provides students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems both natural and human-made, evaluate the relative risks associated with these problems, and examine alternative solutions for preventing and/or resolving them. Students make real-world connections between the topics introduced in class and those in their own “backyard.” They participate in ethical discussions and collaborative projects designed to probe how different cultures and social structures affect the environment and to explore potential solutions to today’s environmental issues. Students engage authentically and creatively with their classmates through a variety of discussions, activities, labs, and projects to investigate the real-world problems that face our environment today. They study our environment and work collaboratively to understand our role in it. Students taking this course are well prepared for the AP® Environmental Science Exam in May.

## **AP® Physics 1**

*Prerequisite: Successful completion of Algebra II*

*Offered: Girls only and all-genders; Full-year*

AP® Physics 1 is an algebra- and trigonometry-based, introductory college-level physics course. The course is based on first-semester introductory college physics and is designed for students interested in an upper-level science course or planning to enter life science or pre-med programs in college. The goal of the course is to develop an understanding of physics through inquiry-based investigations. Students study principles of Newtonian mechanics and concepts of work, energy, and power. Underpinning these principles are foundational concepts like systems, fields, force interactions, change, and conservation. Additional supplemental topics are covered that build understanding of the primary College Board curriculum. Developing the ability to reason qualitatively and quantitatively is a principal focus. Those skills are developed through the use of modeling, graphing, diagramming, unit analysis, symbolic algebra, and data analysis. Laboratory exercises are used to enhance the investigation of each topic. This course is intended to prepare students for the AP® Physics 1 Exam in May.

## **AP® Physics 2**

*Prerequisite: Successful completion of a high school physics course; completion of or concurrent enrollment in Pre-Calculus*

*Offered: All-genders; Full-year*

AP® Physics 2 is an algebra-based introductory college-level physics course. The course is based on second-semester introductory college physics and is designed for students who are interested in an upper-level science course or planning to enter life science or pre-med programs in college. The goal of the course is to develop an understanding of physics through inquiry-based investigations. Students explore principles of fluid mechanics, thermodynamics, electricity and magnetism, and atomic and nuclear physics. Additional supplemental topics are covered that build understanding of the primary College Board curriculum. Developing the ability to reason qualitatively and quantitatively is a principal focus. Those skills are developed through the use of modeling, graphing, diagramming, unit analysis, symbolic algebra, and data analysis. Laboratory exercises are used to enhance the investigation of each topic. This course is intended to prepare students for the AP® Physics 2 Exam in May.

## **AP® Physics C – Mechanics & AP® Physics C – Electricity and Magnetism**

*Prerequisite: Successful completion of Calculus*

*Offered: Girls only and all-genders; Full-year*

AP® Physics C is a calculus based, college-level physics course that covers both AP® Physics C courses: Mechanics and Electricity and Magnetism. The first semester is a dive into the principles of Newtonian mechanics where students explore forces, energy, systems of particles, linear momentum, circular motion, rotation, oscillations, and gravitation. The second semester treats electricity and magnetism where students explore electrostatics, circuits, capacitors, magnetism, and induction. Upon completion of this course, students are able to reason qualitatively and quantitatively, including the use of differential and integral calculus, in order to solve problems and explain phenomena. Students develop an inquiry-based approach to learning and a methodical approach to problem solving. This course is intended to prepare students for the AP® Physics C Mechanics and E&M Exams in May.

## **Forensic Science**

*Prerequisite: Successful completion of one year of high school laboratory science or permission from the administration*

*Offered: Girls only; Full-year*

Forensic Science examines the application of science to the criminal and civil laws enforced by the justice system. Students explore the science of criminology by using a combination of science disciplines. As students learn to differentiate between actual techniques and some of those portrayed on popular television shows, they evaluate current procedures used by real crime labs to understand some of the limitations of the law, police, and forensic science. Students examine scientific techniques behind the analysis of physical and eyewitness evidence, toxicology, DNA fingerprinting, fire and explosives, bones, handwriting and document analysis, and other relevant pieces of evidence. Throughout the course, students investigate simulated crime and accident scenes, collect and analyze evidence, and develop observational skills and deductive reasoning.

## **Global Health**

*Prerequisite: Successful completion of one year of high school laboratory science or permission from the administration*

*Offered: All-genders; Fall semester or full year*

The study of health in a global context is one of the fastest growing college majors, and global health is one of the major challenges of our time. This interdisciplinary, project-

based course introduces students to the complex political, economic, and medical forces that impact expected lifespan and the health inequity among various human populations. Students explore health care disparities, infant mortality, epidemiology, infectious disease transmission and prevention, health care reform, and global health initiatives. By the end of this course, students understand the multifaceted challenges that organizations like the World Health Organization and Centers for Disease Control and Prevention are trying to solve.

Students wishing to pursue a global health project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
- Spring Design Seminar: In this seminar, students design a technological solution to a real-world problem. Through the engineering design process/scientific method, students gather and analyze data to determine the effectiveness of their model or the accuracy of their hypothesis. Students may prototype and produce a public product in this seminar.
- Spring Research Seminar: In this seminar, students answer a theoretical or ethical question. Utilizing the social science/humanities tools for source evaluation, students collect, critique, and evaluate artifacts or primary source documents to explore their thesis. Students may create a written or multimedia product in this seminar.

Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have

created and tested something useful of their own design or are able to defend a position based on their own research.

### **Marine Science**

*Prerequisite: Successful completion of one year of high school laboratory science or permission from the administration*

*Offered: All-genders; Full-year*

Marine Science introduces students to oceanography through a review of earth science concepts, an investigation of physical and chemical ocean systems, the exploration of marine organisms and ecology, and an examination of the role of climate change in both marine and global systems. Students read and dissect scientific literature, integrate their knowledge of marine ecological systems into practical applications of science, and bridge connections between science, society, and political interests. Perhaps most importantly, students foster critical thinking skills and a keen understanding of the scientific process necessary to become well-informed and scientifically aware citizens, whether students' futures directly involve marine science or not. Students learn through virtual and at-home laboratory exercises, scientific literature analysis, reading and video assignments, and research using online journals and current oceanographic data. This work is largely collaborative as students engage with the teacher and with their classmates on projects and labs. There is a significant emphasis on the application of creativity and innovation in dealing with environmental challenges.

### **Neuroscience**

*Prerequisite: Successful completion of one year of high school laboratory science or permission from the administration*

*Offered: Girls only and all-genders; Full-year*

In this project-based course, students learn the structure of the brain and how the brain senses, thinks, behaves, and creates memories for learning and language. We explore brain diseases, disorders, imaging techniques, treatments, and how the environment impacts the brain. Armed with this solid foundation in neuroscience, students spend the second semester learning to think like doctors. Students engage in group and individual research projects and seminar-style problem solving, developing the ability to find answers to questions that may not be addressed specifically in the course. They review actual cases in the neuroscience field and follow the doctrine of ethical analysis with patients. Students are guided through a self-designed, long-term research project. This

course is designed for students who are considering college majors in a medical or health-related field.

## **Physics**

*Prerequisite: Successful completion of Algebra II*

*Offered: Girls only and all-genders; Full-year*

Physics is an algebra- and trigonometry-based, introductory college-level physics course. The course is based on first-semester introductory college physics and is designed for students interested in an upper-level science course or planning to enter life science or pre-med programs in college. The goal of the course is to develop an understanding of physics through inquiry-based investigations. Students study principles of Newtonian mechanics and concepts of work, energy, and power. Underpinning these principles are foundational concepts like systems, fields, force interactions, change, and conservation. Additional supplemental topics are covered that build understanding of the primary College Board curriculum. Developing the ability to reason qualitatively and quantitatively is a principal focus. Those skills are developed through the use of modeling, graphing, diagramming, unit analysis, symbolic algebra, and data analysis. Laboratory exercises are used to enhance the investigation of each topic.

## **Social Science Courses**

### **Abnormal Psychology**

*Prerequisite: Successful completion of one year of high school social studies*

*Offered: All-genders; Fall semester or full year*

Abnormal Psychology begins with an overview of human behavior and then introduces students to various psychological disorders as well as the theoretical concepts that underlie each one. Students explore theoretical, clinical, and experimental perspectives on the study of psychopathology. Students learn terminology, classification, etiology, assessment, and treatment of each of the major disorders. Upon completion of this course, students are able to distinguish between normal and abnormal patterns of behavior. This course features discussions, partner and group projects, and other activities that help students to recognize the ways that abnormal psychology manifests in the real world. The class is designed for 11<sup>th</sup> and 12<sup>th</sup> graders and may be appropriate for mature 10<sup>th</sup> graders.

Students wishing to pursue a psychology project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

- Spring Activism Seminar: In this seminar, students identify a need and create a plan to effect economic, environmental, political, or social change in a target community. Utilizing a social science approach to research and evaluation, students are guided through the process of planning the deployment of a novel idea and identifying markers of success. Students may create a strategic plan for a club or non-profit or design an artistic product in this seminar.
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Upon completion of their inquiry-driven project, students have gained academic maturity and expanded their ability to engage in a diverse and changing world. They are able to draw and defend conclusions from theoretical underpinnings, contextual background, and mathematical analysis or source evaluation. Finally, they have created and tested something useful of their own design or will be able to defend a position based on their own research.

### **AP® Human Geography**

*Prerequisite: Successful completion of eighth grade*

*Offered: All-genders; Full-year*

This course revolves upon the five core themes of geography: location, place, region, movement, and human-environment interaction. Students learn how to study the



systemic patterns and processes that have shaped human understanding, use, and alteration of the earth's surface (including agriculture, industries, markets, and urbanization). Students learn about the methods and tools geographers use in their research and applications. The curriculum reflects the goals of the National Geography Standards. Using personalized learning options, collaborative discussions, and creative synthesis applications, students develop an appreciation of the variables that geographers consider when analytically problem-solving for the contemporary challenges facing our world. Core competencies developed throughout the course include: the ability to develop and apply multivariable analyses based upon the themes of geography, active engagement with current events, and collaborative problem solving that evaluates the potential unintended consequences of interventions into local, regional, and global communities. Students taking this course are well prepared for the AP® Human Geography Exam in May.

### **AP® Psychology**

*Prerequisite: Successful completion of eighth grade*

*Offered: Girls only and all-genders; Full-year*

AP® Psychology introduces students to the systematic and scientific study of human behavior and mental processes. Students learn the psychological facts, principles, and phenomena contained within the major branches of psychology. The first semester focuses on the fundamental sub-fields of neurobiology, behavior, development, sensation, perception, and cognition. This provides a solid footing from which to investigate the topics of learning, social, and abnormal psychology in the latter half of the year. Interwoven throughout our study are numerous opportunities to cultivate research and critical thinking skills. Presented with experiential psychological field work, students are challenged to apply different research methods, collaborate with others, collect and analyze data, and arrive at conclusions. The course is designed to prepare students for the AP® Psychology Exam in May.

### **Business and Economics**

*Prerequisite: Successful completion of Algebra II and one year of high school social studies*

*Offered: All-genders; Fall semester or full year*

Business and Economics students gain fluency in foundational economic principles and explore business planning, development, and management. Students study the fundamentals of microeconomics, including supply and demand, incentives, pricing, and production, followed by macroeconomic concepts such as economic indexes,

The Federal Reserve, financial markets, trade agreements, and globalization. This is an ideal survey course for students considering a college degree in economics, business, or management. By the end of the fall semester, students have a working foundation to analyze current events in the corporate world and the international economy.

Students wishing to pursue a business or economics project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

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## **Criminal Justice Reform**

*Prerequisite: None*

*Offered: All-genders; Fall semester or full year*

The United States has the highest incarceration rate in the world. This course examines how the prison industrial complex evolved and how the legacy of slavery and overt and masked racism impact arrests, indictments, and sentencing. We explore why people are wrongly condemned and evaluate the effectiveness of the process for exoneration. We also ask about the training received by law enforcement officers, prison wardens, juries, and judges. The course culminates with a project on how our system can be reformed to reduce crime and improve justice. By the end of this course, students have a framework for understanding the socio-economics and politics of the United States penal system.

Students wishing to pursue a criminal justice project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

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### **Entrepreneurship & Business Innovation**

*Prerequisite: Successful completion of Algebra II and one year of high school social studies*

*Offered: All-genders; Fall semester or full year*

Social entrepreneurs envision and manage the future by tackling the existential environmental, social, and political issues of our time. In this class, students discover what it means to be a successful social entrepreneur as they learn how to define problems, devise solutions for impact, identify opportunities to affect change, envision the future, and turn their ideas into action. Students learn about the United Nations' Sustainable Development Goals as they select an environmental or societal problem they want to address. In their capstone project, students put their new entrepreneurial skills into practice by researching and proposing a potential solution to one of the grand challenges they have identified. The primary objective of this course is to equip students with the skills and approaches to navigate and be change agents in a rapidly changing, complex future.

Students wishing to pursue a social entrepreneurship project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

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## **Happiness! The Psychology of What Makes Life Worth Living**

*Prerequisite: None*

*Offered: All-genders; Fall semester or full year*

There's a lot of pressure on young adults to "discover their passions" and "live lives of purpose." Why? Because we want people to be happy and whole, which are states of being that have to be cultivated. Positive psychology is the scientific study of what makes life most worth living (Peterson, 2008). Understanding the traits and actions that lead to wellbeing and fulfillment are the focus of this class. Students collaboratively explore the building blocks of thriving, including research into gratitude, strengths theory, and the role played by positive emotions, engagement, relationships, meaning, and achievement (PERMA) in the development of lasting wellbeing. Throughout the first term, students engage in a series of positive activity interventions designed to give them a sense of how the theories can be applied to their own lives, and at the end of their study, students create a podcast explaining how they have come to define and explain happiness for themselves.

Students wishing to pursue a positive psychology project may enroll in the course for the full year. For students continuing into Semester II, the course shifts into personalized, project-based work, where students engage in deep, sustained inquiry, authentic and iterative research, critical analysis, and rigorous reflection, revision, and assessment as

they journey through a self-designed, long-term activism, design, or research project on the topic of their choosing. Guided by a One Schoolhouse teacher, students pursue individual study/self-assessment or collaborative seminar/peer-review. Pathway options from which students choose include:

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