Stanford | Online High School

COURSE CATALOG 2014–2015

220 Panama Street,

Stanford, California 94305-4101

650.721.9422

ohs.stanford.edu

r. 6/20/14

STANFORD ONLINE HIGH SCHOOL COURSE CATALOG 2014–2015

CONTENTS

Note: *The courses listed in the catalog are subject to minimum enrollments in order to be offered any given semester/year.*

OUR MISSION

The Stanford University Online High School (OHS) creates a worldwide learning community of diverse, intellectually passionate students and teachers. Through vibrant seminars, the rigorous curriculum challenges students to reason analytically, think creatively, and argue critically. Beyond the classroom, collaborative extra-curricular activities cultivate lasting relationships among students and teachers. The School's supportive environment fosters independence, strength of character, and a lifelong pursuit of knowledge.

A UNIQUE SCHOOL

- While online, Stanford OHS is first and foremost a school that draws strength from its students and teachers.
- It is a school for gifted students, for intellectual risk takers, and for those who are engaged in significant pursuits beyond the classroom.
- It is a school for instructors unparalleled in their expertise who have passion for teaching students in this environment.
- It is a school located within Stanford University, and thus at the forefront of learning.
- It is this combination of students, instructors, and place that makes Stanford OHS a school unlike any other.

ABOUT STANFORD OHS

The Stanford University Online High School (OHS) is an independent school for gifted students in grades 7–12. The school was founded in 2006 as a three-year high school, and has since expanded to include grades 7–9. Stanford OHS has been accredited by the Western Association of Schools and Colleges since 2006 and has been approved as an online course provider by the University of California since 2008.

The mission of Stanford OHS is to provide a stimulating and challenging education that equips and inspires talented students to academic and professional success. The school's approach to fulfilling this mission consists in an emphasis on rigorous and advanced academic offerings, the development of skills in written and oral communication, acquisition of a mastery of the principles of critical thinking and argumentation, and the promotion of intellectual maturity and responsibility. Beginning at the earliest grades, this mission informs the academic program that Stanford OHS students pursue, in the content of its classes, the methods and media of instruction, and the composition of the required courses of study. Students are guided through their studies by instructors who are chosen for their expertise and accomplishment in their disciplines and their experience and dedication to teaching highly talented students at the high school and college levels.

The flexibility of the Stanford OHS academic program and enrollment options, which include full-time, part-time, and single course enrollment, can accommodate the varied needs and interests of our students. The online instruction, which combines seminar-style and directed-study courses on a flexible college-style class schedule, both encourages independence, discipline, and strong time-management skills and allows our students to pursue their diverse interests and exceptional talents.

The strong community at Stanford OHS supports students in acclimating to an inviting yet academically rigorous environment. Students work closely with instructors, counselors, and each other to achieve their academic and personal goals. Beyond the online classroom, students engage in a rich array of student clubs that build on student interests. An intensive residential summer program at Stanford University presents students with further opportunity to connect with each other and their instructors, while learning about and preparing for college and benefitting from the vast resources of a world-class university.

THE ACADEMIC PROGRAM

The academic program of the Stanford Online High School is designed to introduce students with a wide range of exceptional academic talents and interests to the advanced work and instruction that will provide the appropriate development of these talents, and will situate graduates for success at the best colleges and universities in the world. In completing the rigorous course of study available at Stanford OHS, students acquire a mastery of content and skills that are articulated by instructors who are experts in their fields and that are further integrated into a distinctive intellectual framework. Students additionally hone an independence and responsibility that allows them to take productive advantage of the college-style learning environment of Stanford OHS.

The Stanford OHS curriculum comprises courses treating advanced and challenging material at every level in the school, culminating in post-AP and university-level courses in a growing spectrum of disciplines, including mathematics, economics, physics, biology, English, and history. In working towards these courses, students gain a preparation that will allow them to begin work in college already at an advanced level. But the content of these courses does not exhaust the unique preparation that Stanford OHS provides. A defining feature of instruction at Stanford OHS is the close interaction that each student has with teachers who have the passion and expertise of dedicated practitioners of a discipline. At the level of course design, this means that Stanford OHS courses are created with an expert-level understanding of what university and professional study in a subject consists in, and also of what it takes to get to that level of proficiency. Stanford OHS courses, therefore, model and practice the professional methods, skills, norms, and intellectual habits of each discipline. In science, students imbibe the central perspectives of hypothesis-formation, experimentation, and analysis; mathematics courses stress proficiency in problem-solving; students of English develop habits of daily writing and intentional use of language to communicate to specific audiences and within particular contexts; language learners work to acquire a functional proficiency that facilitates an appreciation of literature and culture; and in history, students prepare to engage substantively and productively in the historical discourse by learning to assess a variety of primary sources, to evaluate theses presented by scholars, and ultimately to formulate their own.

Individually, each Stanford OHS course offers not only discipline-specific knowledge and methodology, but also more generally applicable skills, such as an understanding of evidence, strategies of argumentation, criticism, and persuasion, familiarity with the analysis of data, and careful, critical reasoning. The discrete study of these foundational skills across the curriculum is further unified in the four-year Core sequence, whose function it is to provide a common intellectual experience and identity among Stanford OHS students consisting in systematic exposure to and practice of structures of reasoning in a spectrum of disciplines. Students who complete the Core sequence as part of their full course of study at Stanford OHS will possess the precision of writing, reasoning, and argument that is a hallmark accomplishment of the Stanford OHS educational experience.

Critical to the fulfillment of these goals is the forum in which they are pursued. Instruction at Stanford OHS is structured around the live discussion seminars. Students' independent work, whether it consists in viewing recorded lectures, reading texts, solving problem sets and writing papers, or working through computerized exercises, sets the stage for active, constructive engagement with the material and dynamic interaction between peers and instructors in the virtual classroom setting. Participation in these sessions provides the full measure of what the Stanford OHS academic program has to offer and the abilities it fosters in its students. In discussion seminar, students participate in fast-moving conversations, stake out, defend, and critique positions extemporaneously, and participate in the instructor's modeling of inquiry in a discipline. These skills serve Stanford OHS students well in college and professional settings.

Equipped with the analytical tools and expertise engendered by a robust engagement with the curriculum, Stanford OHS graduates are not simply well qualified to begin their college studies. Rather, they are ready to engage immediately and at an advanced level in the opportunities available at the university level. Their preparation, in content and in academic and intellectual habits and practices is the appreciable mark of the Stanford OHS academic program.

MIDDLE SCHOOL PROGRAM

The Stanford OHS middle-school program is a comprehensive curriculum that extends the core values and components of the Stanford Online High School academic program to the middle-school grades. Courses at the middle-school level are specially designed to lay the intellectual foundation for advanced coursework by cultivating the critical reasoning, analytical, and communication skills necessary for academic achievement. Students enrolled in the middle school, therefore, hone the skills and habits assumed at the high-school level in the context of challenging material in each subject, while also pursuing high-school courses in areas of special talent or acceleration.

The Stanford OHS middle-school curriculum as a whole, and the individual courses themselves, are alike tailored to the backgrounds and appropriate objectives of students at this level. Middle-school science courses apply an inquiry-based approach that engenders familiarity with scientific methodology while introducing fundamental concepts in a manner accessible to students with broad mathematical preparation. A mastery of concepts such as energy and matter in these contexts is foundational to the more expansive and formal treatments in the respective scientific disciplines at the high-school and college levels. Similarly, middle-school courses in Core and Latin provide students the opportunity to begin study in those disciplines, preparing for the high-school sequences in a middle-school setting. In the humanities, a pair of English and history courses furnishes students with a broad cultural and conceptual setting for future study, but also introduces disciplinary methods and norms that students will deploy in high-school work. Each of these courses, finally, approaches its subject with assessments, exercises, and pedagogy that are calibrated to the strengths and needs of middle-school students. In the course of their studies, middle-school students from a spectrum of academic backgrounds make significant strides in scholarship that smooth the transition to the challenging high-school curriculum.

MIDDLE SCHOOL COURSES

CORE	ENGLISH	HISTORY	LANGUAGE	MATH	SCIENCE
	Fundamentals of Expository Writing	Introduction to U.S. History	Latin 1A	Honors Prealgebra	Inquiry-based Physics
Human Nature and Society	Fundamentals of Literary Analysis	Empires and World Civilizations to 1800	Latin 1B (offered in 2015 – 16)	Honors Beginning Algebra*	Foundations of Science: Energy and Matter

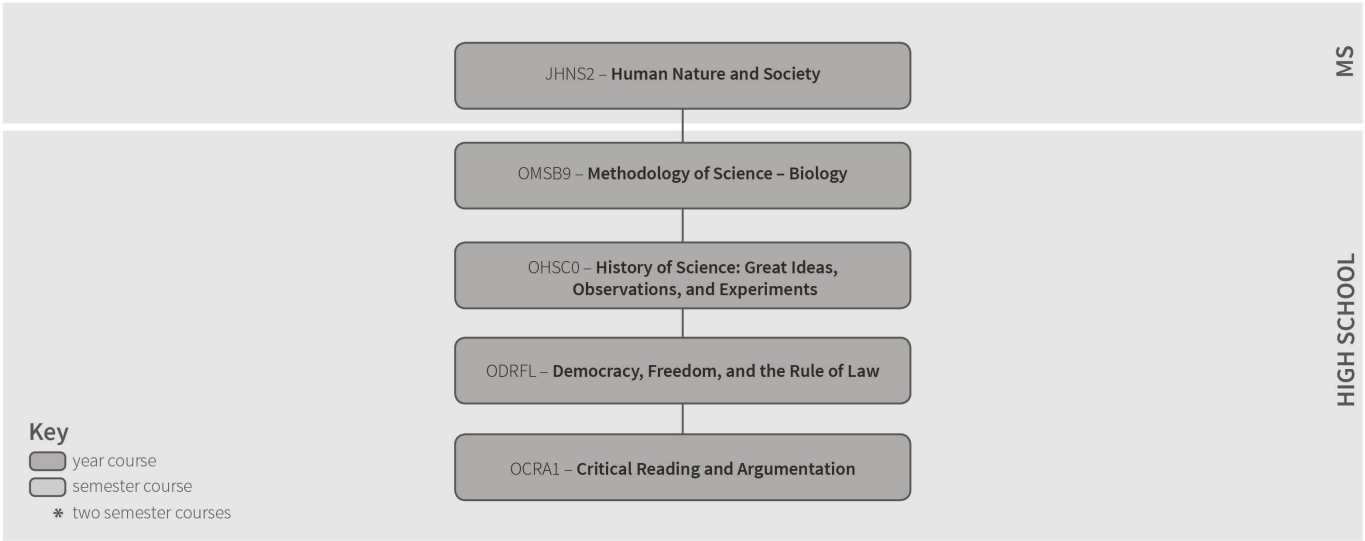
**Honors Beginning Algebra (OM010) is taught as a high-school course. Placement tests exist for students looking to take high-school-level courses. However, the level of rigor offered in the middle-school curriculum, and the difficulty of the high-school program, make such arrangements uncommon in most disciplines. Interested students must consult with their academic advisors to determine whether high-school work might be appropriate before taking a placement test.*

CORE SEQUENCE

The Core Sequence is a unique and central component of the Stanford OHS academic program that embodies the tenets of the school's mission. In Core courses, the subject matters of human nature, science, history of science, political theory, and philosophy provide a forum for developing a range of analytical and philosophical skills that can be applied broadly in both academic and public reasoning. The common intellectual framework that the Core provides is characterized by an ability to ask conceptual and foundational questions in a particular discipline, a preparation to think critically about work and discourse in these disciplines, and a mastery of the principles and practice of rigorous and logically informed reasoning.

The intellectual framework of the Core extends beyond the content and norms of thinking and writing in the individual disciplines of the courses. In Core courses, students study the standards and structures of reasoning common to work in the sciences and humanities alike. Students also develop writing and presentation skills, through extensive written assignments and critical discussion on a variety of topics. The expertise, skills, and habits of mind cultivated in the Core program are therefore the foundation that both unifies the Stanford OHS curriculum and prepares students for subsequent achievement and citizenship.

The individual Core courses realize these goals in their themes, methods, and questions. In Human Nature and Society, middle-school students investigate what it means to be human by exploring how thinkers and artists have defined and interpreted human nature and human society. This course prepares students for high-school level Core and humanities courses by developing critical thinking, writing, and reading skills. In Methodology of Science – Biology (MSB), students examine the nature of strong statistical and biological evidence and also develop the technical skills to assess and employ such evidence. In History of Science (HSC), students study various scientific disciplines and their historical development, thus building on the knowledge and skills acquired in MSB. Students confront the circumstances under which scientific theory formation occurs, and learn to analyze the argumentative structure which grounds theories in evidence. The analysis of various theoretical views of political concepts and institutions that students undertake in Democracy, Freedom, and the Rule of Law (DFRL) in turn establishes a foundation for critically assessing rhetoric and equivocal use of concepts in political discourse. DFRL also shifts philosophical focus to the normative aspect of intellectual investigation, from the previous two courses that deal with descriptive theories in science. Critical Reading and Argumentation (CRA) explicitly discusses analytical techniques highlighted in each of the courses, including reconstruction of an author's position, identification of neglected possibilities and problematic assumptions and inferences, and effective use of thought experiments and counterexamples. The course further develops the philosophical perspectives highlighted in the other core courses.



COURSE DESCRIPTIONS

Middle School

Human Nature and Society (JHNS2)
Year course

This year-long course examines what it means to be human and to live in a society with others. Drawing on short philosophical, scientific, and cultural works, the course explores how thinkers and artists have defined and interpreted human nature and human society. We will ask questions about what a theory of human nature is, what role such theories play in different disciplines, and how different authors argue for and support their views of human nature. The course prepares students for the high school Core program, as well as for further work in the humanities, by strengthening and broadening students' skills in critical reading, reasoning, and writing. *Prerequisite: Enrollment in Fundamentals of Literary Analysis (JE002) or equivalent*

High School

Methodology of Science – Biology (OMSB9)
Year course, 10 units

This year-long course introduces students to the methods and reasoning used throughout science. Using biological examples, students learn how evidence can be obtained for scientific claims from raw data based on statistical methods. Students are exposed to various statistical concepts and techniques to interpret data and make inferences from the interpretations. These techniques are applied to the study of life, as students explore how organisms interact with each other and their environment, and the properties and processes of cells and molecules.

History of Science: Great Ideas, Observations, and Experiments (OHSC0)
Year course, 10 units

This year-long course examines the great ideas and great observations and experiments that have shaped the development of science. Using a case study method, students examine the interplay between observations of the physical world, attempts to explain those observations, and the methods used to test the resulting explanations. As part of the methodology of the inquiry, students learn and practice the skills of philosophical analysis, logical argument, and criticism. Topics include Aristotle's physics, psychology, biology; ancient astronomies in Babylonian, Greek, Chinese, and Islamic cultures; ancient medical study; modern astronomy and physics; development of atomism, electro-magnetism, evolutionary theory, relativity theory, modern psychology and cognitive science; social sciences, etc.

Democracy, Freedom, and the Rule of Law (ODFRL)
Year course, 10 units

This year-long course examines the foundations of civil society. Drawing on both historical and theoretical materials, the students study changing conceptions of how a state is and should be organized. In particular, we focus on different treatments of the interwoven concepts of democracy, freedom, and the rule of law. As part of their study, students practice the methodological tools of analysis relevant to philosophy and political theory, learn to formulate and evaluate hypotheses about the content of critical concepts, and develop a thorough knowledge of their political traditions and principles. These lessons contribute to the broader aim of the course, which is to prepare students for citizenship in their community by refining their ability to participate constructively in the discourse that draws on these conceptions of the state. While the course is organized around principles of American government, the readings are germane to democratic society generally. Readings include Hobbes, Locke, Rousseau, Montesquieu, Madison, Jefferson, American founding texts, Lincoln, Addams, King, Burke, Tocqueville, Smith, Dewey, Mill, Berlin, Rawls, Nozick, Sandel, Sen, McMillan, Marx, Dicey, and Hayek.

Critical Reading and Argumentation (OCRA1)
Year course, 10 units

In addition to the unique problems and questions that constitute its subject matter, philosophy makes use of a variety of intellectual tools and argumentative strategies that are widely applicable to both academic and informal inquiry. This course helps students develop these resources through a careful analysis of exemplary pieces of philosophical argument and literature. To this end, we explore philosophical thinking about modes of reasoning as well as core philosophical discussions of religious concepts, the nature and limits of knowledge, the nature and content of ethics, and the mind's relation to the world. While the course emphasizes the cultivation of the tools and strategies of reading and argument, the materials encourage reflection on some of the foundational characteristics and assumptions in the disciplines of ethics, religion, and philosophy itself. Readings include Plato, Anselm, Aquinas, Paley, Pascal, Leibniz, Voltaire, Mackie, Rachels, Aristotle, Mill, Kant, O'Neill, Nagel, Camus, Hume, Chisholm, Frankfurt, Descartes, Russell, Kafka, and Nietzsche.

ENGLISH

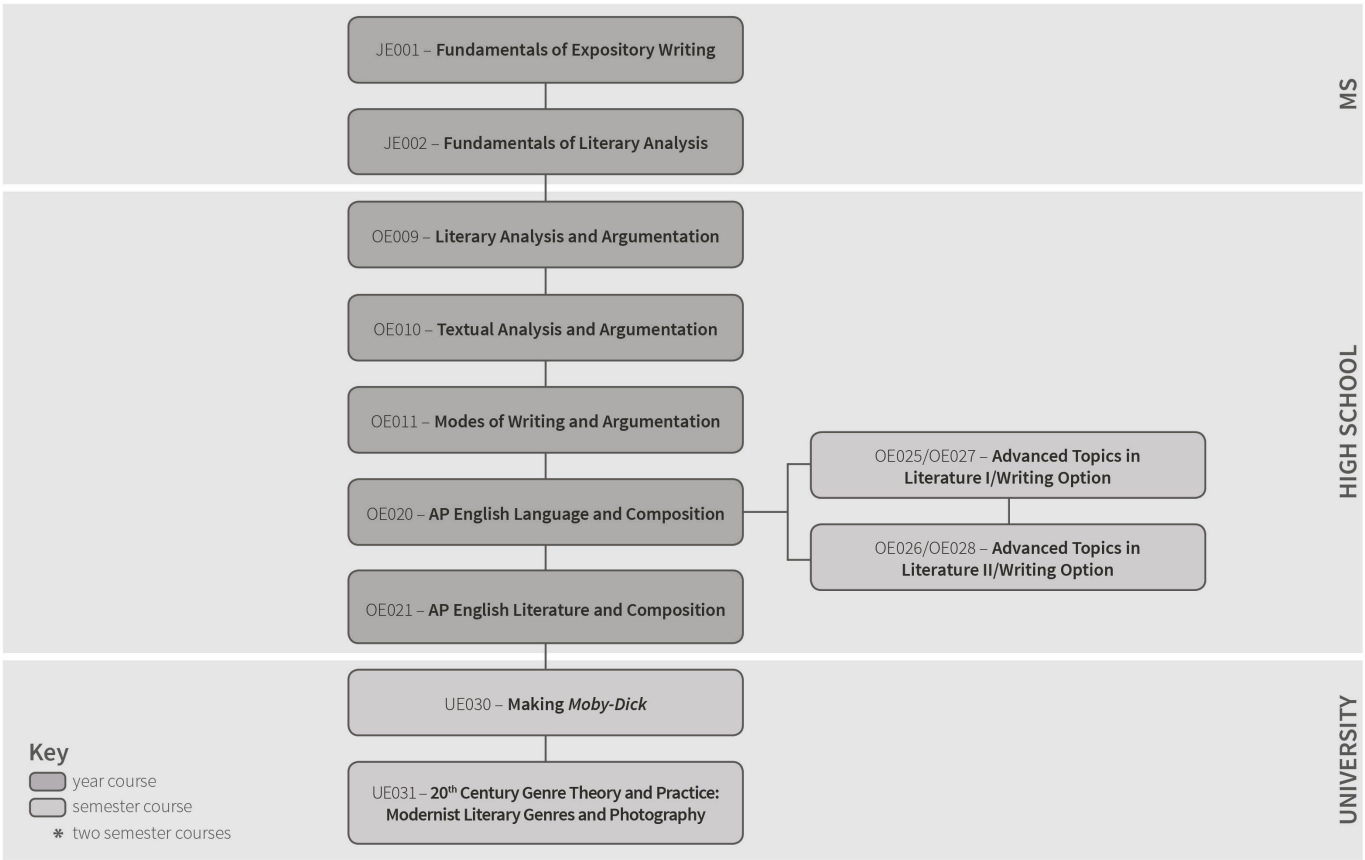
Each Stanford OHS English course is designed to create a cohesive, collaborative community of learners who read to understand writing and write to understand reading. Instructors draw on the full range of literature in order to develop students' attention to the possibilities of language. Through this sequence of courses, students will master ever more challenging literature and develop increasingly complex modes of writing. By the end of the sequence, students can employ language effectively in a wide variety of contexts, with intention, precision, and passion.

By analyzing texts and writing frequently, students learn how ideas are formed through language. Stanford OHS English courses teach students to pay close attention to how a piece of writing creates meaning at the level of the word, the phrase, the sentence, and the paragraph or verse. Because they can understand and articulate how an author uses language to achieve certain effects, students can then apply these same strategies in their own writing.

Students learn to write and speak with precision and control in order to create the effects they wish to achieve. Through formal and informal writing assignments, discussion-based class meetings, and oral presentations, students become adept at expressing their ideas clearly and concisely, and begin to establish their own unique authorial personas. At the same time, they learn to take into consideration audience and genre, so that they are able to write and speak in more than one style and for more than one audience.

Stanford OHS English courses expose students to multiple genres, writing styles, arguments, and methods or theories of analysis. Students learn to synthesize works written in different time periods, for different purposes, and addressed to different audiences, and they master different and sometimes competing theoretical approaches to interpreting language. As they progress through the sequence of courses, students become more and more able to shape and articulate their own ideas about texts, their intrinsic meaning, and their significance to the world at large.

The skills of critical reading and writing that students master in Stanford OHS English courses make them habitual critical thinkers who are mindful of the world around them and the ways in which ideas are generated and communicated by and to them. Students become critical readers not only of texts but also of the world around them.



COURSE DESCRIPTIONS

Middle School

Fundamentals of Expository Writing (JE001)
Year course

Fundamentals of Expository Writing introduces students to the nuts and bolts of critical writing and reading. Through comprehensive grammar instruction, students build a shared vocabulary to understand and describe language. They apply their grammatical knowledge to decode complex works of literature, and build on their understanding of the mechanics of the sentence to consider more abstract topics such as audience expectation and authorial persona. They also master the basic essay form. *Prerequisite: Placement Exam*

Fundamentals of Literary Analysis (JE002)
Year course

Fundamentals of Literary Analysis is a two-semester course designed to develop and strengthen students' skills in writing, literary interpretation, and critical thinking. A second key goal of this course is to expose students to a variety of major works of literature in different genres. Students will become familiar with the elements of narrative fiction and gain the tools to analyze literary works productively with attention to form, content, and style. Students will lay the foundation for recognizing the allusions to earlier texts—in particular classical and biblical allusions—that permeate Western literature and will also get a sense of the development of writing systems and literary aesthetics over time. Other concepts covered include figurative language, tone, close reading, prewriting tactics, thesis development, diction and clarity, paragraph unity, argumentative structure, revision, and research. *Prerequisite: Fundamentals of Expository Writing (JE001) or placement exam*

High School

Literary Analysis and Argumentation (OE009)
Year course, 10 units

Literary Analysis and Argumentation deepens students' skills in close textual analysis of literature, in making and supporting meaningful arguments, and in crafting elegant argumentative prose. Students read from a wide range of literary genres and time periods, with an eye to their intersection with a series of broad philosophical topics, and hone their critical writing skills, particularly with regard to thesis development, paragraph unity, and argumentative structure. Throughout, the course emphasizes literary analysis in an interdisciplinary context. *Prerequisite: Fundamentals of Literary Analysis (JE002) or placement exam*

Textual Analysis and Argumentation (OE010)
Year course, 10 units

Textual Analysis and Argumentation provides students an American literature survey in a global context that complements and expands the temporal reach of the world literature survey. Students master close reading for form in thematically related clusters of texts (such as the captivity narrative) and learn to create precise thesis statements based on these readings. Throughout, students pay close attention to how writing constructs authorial identity, and to self-presentation—their own and those of the authors they read—through language both written and spoken. They learn to structure their essays with increasing sophistication and are introduced to, and become competent in, MLA style. *Prerequisite: Literary Analysis and Argumentation (OE009), recommendation of Fundamentals of Literary Analysis (JE002) instructor, or placement exam*

Modes of Writing and Argumentation (OE011)
Year course, 10 units

Modes of Writing and Argumentation builds upon the argumentative structures and generic terminology covered in TAA to introduce students to literary terms and more formalized theoretical approaches to literature, including narrative, genre, intertextuality, and metaphor. Students continue the work of reading texts in conversation and competition with their predecessors and, in longer essays that require more sophisticated argumentative structures to support complex claims, they begin to articulate their own theory of intertextuality in action. Students solidify their mastery of MLA style, and continue to develop oral presentation skills to complement their skill in writing. *Prerequisite: Textual Analysis and Argumentation (OE010) or placement exam*

AP English Language and Composition (OE020)
Year course, 10 units

AP English Language and Composition introduces students to rhetorical terms and structures as a means of analyzing authorial intentions and effects. Building upon readings in TAA and MWA (such as captivity narratives and political speeches), AP ELC provides students with an intensive study of genres of nonfiction, including creative nonfiction and visual rhetoric. Students write many genres of essays and present formal oral arguments, allowing them to experiment with varied authorial personas and to master multiple argumentative structures. By the end of the course, students routinely formulate compelling, unexpected theses, and their essays are executed at the college level. *Prerequisite: Modes of Writing and Argumentation (OE011) or placement exam*

AP English Literature and Composition (OE021)
Year course, 10 units

AP English Literature and Composition introduces students to advanced theoretical approaches that build upon the foundations in literary and rhetorical analyses provided by MWA and AP ELC. By the end of the course, students will have put together their own approach to literary history, becoming creators as well as consumers of advanced literary theory *Prerequisite: AP English Language and Composition at OHS (OE020) or placement exam*

Advanced Topics in Literature
Advanced Topics in Literature is a sequence of two semester-long seminar courses that explore a specific author, genre, critical method, literary movement, or time period in depth through discussion of primary texts and significant engagement with scholarly criticism. Topics are chosen from the breadth of the discipline and build on the unique expertise of the English Division staff. Students gain exposure to texts and critical methodologies rarely taught at the pre-college level, and learn valuable skills in conducting scholarly research. Previous topics have included Imagining Nations, Medieval and Modern, Xtopias, The Idea of History and Literature in Art, and The Ode. *Prerequisite: successful completion of, or concurrent enrollment in AP English (OE020 or OE021) or consent of instructor*

Advanced Topics in Literature I (OE025)
Semester course, 2.5 units, Fall only

Fall 2014 Topic: Chaucer and the Aesthetics of the Unfinished. When we think of fragmentary or inherently unstable texts we tend to think of postmodern literature and, even more, of new media pieces. Yet many canonical works of the English Middle Ages share these same qualities. Chaucer's body of work offers a particularly striking example. Of his long poems, only *Troilus* and *Criseyde* comes down to us complete. His most famous work, *The Canterbury Tales*, was never finished and the tales that exist are arranged in different orders in different manuscripts. Nor was his long poem *The Legend of Good Women* ever finished, nor his translation of the massive French poem *Le Roman de la Rose*, nor his early poem "The House of Fame." In fact, Chaucer's oeuvre might be said to be distinguished by its unfinished quality, which contrasts with a number of formidably complete works from the same period. Taking this observation as a starting point, this class will read Chaucer's *Canterbury Tales* with an emphasis on its unfinished nature, asking ourselves if there is a discernible aesthetic of the unfinished and/or the unfinishable text. Throughout, we will also consider the material context and how it might relate to a medieval aesthetics of the unfinished. These contexts include, among others: cathedrals (often built over the course of decades or even centuries), manuscript illumination programs (often abandoned partway through), and the Hundred Years War (often halted and often resumed throughout the fourteenth and fifteenth centuries). Students taking the writing option may write their final papers on unfinished works from other time periods according to their research interests.

Advanced Topics in Literature I: Writing Option (OE027)
Semester course, 5 units, Fall only

Students choosing the Writing Option for the course will additionally complete a significant final critical essay.

Advanced Topics in Literature II (OE026)
Semester course, 2.5 units, Spring only

Spring 2015 Topic: "The apparel oft proclaims the man": Gender and Clothing in Shakespeare's Plays. The quotation in the course title comes from Polonius' advice to his son, Laertes, in *Hamlet*. Its use in the course title is a bit misleading, because we will focus on the irony of the second part of the quote—the emphasis on masculinity—through looking at the many heroines who don male disguises in Shakespeare's canon. This course will examine the ways that clothing affects representations of female characters across a range of dramatic genres: comedy, the so-called "problem play," romance, and tragedy. We will examine the way that Shakespeare links clothing with theater to trouble the categories of both gender and genre. Questions that will guide our inquiry are as follows: What kind of claims does Shakespeare make about men and women through clothing? Does Shakespeare attribute certain gendered characteristics to nature or performance? How does genre affect the way that Shakespeare uses clothing to talk about gender? Students will read a range of Shakespeare's plays as well as a selection of historical documents that provide a context for the ways that early modern English people considered the importance of clothing when it came to gender and class.

Advanced Topics in Literature II: Writing Option (OE028)
Semester course, 5 units, Spring only

Students choosing the Writing Option for the course will additionally complete a significant final critical essay.

University Level

Making *Moby-Dick* (UE030)
Semester course, 5 units, Fall only

What is *Moby-Dick; Or, The Whale*? Is it an adventure story, a revenge story against a monster whale? Is it a novel investigating American identity in race and in national promise and revolution? And what about the tragedy of this tale? Only one whaleman lives. Does Melville write a tragedy in the vein of Shakespeare? How does this book matter? 'Making *Moby-Dick*' takes on a series of critical questions in four crucial settings. The first setting is the New England contexts of American literature in the 1840s—seen in the writings of Emerson, Hawthorne, and Melville—while the second setting turns to Edgar Allan Poe's and Mary Shelley's model adventure tales, of the sea and of the 'monster.' Our third setting is the novel *Moby-Dick* itself and our extended reading of the tale. The fourth and final setting lays out the argument that there are actually 'two *Moby-Dicks*' and that Melville's reading of Shakespeare's tragedies plays an essential role to deciphering

the novel's composition. Students gain the critical skills needed to interpret, and to answer, what the novel *Moby-Dick* is, or does. *Prerequisite: Consent of instructor*

20th Century Genre Theory and Practice: Modernist Literary Genres and Photography (UE031)

Semester course, 5 units, Spring only

This course uses photography and detective fiction to explore how traditional assumptions of genre were challenged and re-written in modernist works. Why did modernists and modernism seek to re-work the cultural idea of genre? How does open genre or cross-genre or anti-genre work seek to demonstrate language and literature in the 20th century? How does such literature look? And what does it do? How does it portray modernity? Interactions and parallels between photography and literature are studied through a survey of the origin of detective fiction, the rise of poetry of the modern city, and the further development of detection and memory in modernist novels. The course introduces a basic history and discourse of photography, which began around the time the first "detective fiction" was invented by Edgar Allan Poe, and explores how photography, a visual genre, was a key prompt for the advent of modernist literary genres. Through an investigation of these, students discover the many ways in which photography and detective literature are linked to the social, historical, and intellectual movements of modernism. To survey the modernist literary genre and how literature becomes "photographic" is to enter into the wide range of visual media and literature we see at the end of the 20th and at the start of our 21st century. Prerequisite: Consent of instructor genres. Through an investigation of these, students discover the many ways in which photography and detective literature are linked to the social, historical, and intellectual movements of modernism. To survey the modernist literary genre and how literature becomes "photographic" is to enter into the wide range of visual media and literature we see at the end of the 20th and at the start of our 21st century. *Prerequisite: Consent of instructor*

HUMANITIES

In the Humanities Division, students and instructors explore human values and dilemmas as they are expressed in history, foreign languages, philosophy, and the arts. Our courses offer students the opportunity to pursue a wide range of subjects across disciplines, all of which develop skills of critical thinking and writing through engagement with rich and diverse cultural material. Students learn about how history is made, defined, used; about the values of different cultures; about what goes into the creation of a work of art. Our courses question common assumptions, uncover meaning in artistic works, and explore new ways to understand cultural interaction past and present. Whether through the study of foreign languages, history, or the fine arts, Humanities courses provide students with the academic foundations necessary to successfully pursue college-level work, while developing critical and interpretive skills that have far-reaching applications beyond the classroom. In our AP and advanced-level courses, students in fact have the opportunity to pursue college-level work in history, music, and foreign language.

Our instructors are dedicated to bringing students the richness, diversity, and beauty of human culture. The history curriculum engages students in rigorous study of key historical periods and subjects, offering introductory and AP courses in world and US history, as well as capstone courses focused on significant historical topics. History courses develop students' ability to analyze primary and secondary sources in an interdisciplinary context, while encouraging them to think critically and write persuasively about historical topics. Our Foreign Language programs develop a high degree of fluency in sequences that both prepare students for AP exams and study of the language at the post-secondary level. Mastery of these languages not only deepens students' cultural understanding and engagement, but serves as a useful professional skill. Foreign Language courses also expose students to the culture associated with the language they are learning, including its history, values, and literature, which in turn allows them to develop a more profound understanding of their own cultural background in a global context. Our music course develops and deepens students' skills in musical theory and practice, covering a range of musical domains including composition, performance, and musical forms. Film Art develops students' analytic interpretive and writing skills with regard to visual culture through the examination and discussion of exemplary films from diverse cultural contexts. Whether in history, foreign languages, or the arts, courses in the Humanities Division encourage students to challenge themselves in a learning environment that fosters sophisticated reasoning, self-reliance, creative experimentation, and collaborative learning.

THE ARTS

COURSE DESCRIPTIONS

High School

AP Music Theory (OMT01)
Year course, 10 units

AP Music Theory is a year-long course that examines the harmony and form of Western European art music from the Baroque, Classical, and Romantic eras, approximately 1700-1900. Special topics in early music or post-tonal music will be explored from the date of the AP Exam until the end of the school year. This course also includes instruction in sight-singing and ear-training. It is recommended that students enter the course with the ability to read pitch and rhythm at a basic level. Other fundamentals such as recognizing all 24 key signatures; the natural, harmonic, and melodic scales; and compound and syncopated rhythm will be covered at the beginning of the first semester. *Prerequisite: Consent of instructor*

Advanced Topics in the Humanities: Film Art (OF010)
Semester Course, 2.5 units, Spring only

This course will introduce students to formal, historical, and cultural issues involved in the study of film. Students will learn the basic concepts and terminology of film analysis, and apply them in the examination and discussion of exemplary films. The course will focus on comparing narrative films from various cultures in a variety of genre (Westerns, musicals, horror, etc.) with alternative film styles, including documentary and experimental films. Students will develop analytic reading and writing skills with regard to visual culture. *Prerequisites: Successful completion of Modes of Writing and Argumentation (OE011) or consent of instructor*

Advanced Topics in the Humanities: Film Art (Research Option) (OF011)
Semester Course, 5 units, Spring only

Students choosing the Research Option for Film Art will additionally complete a substantial final research project.

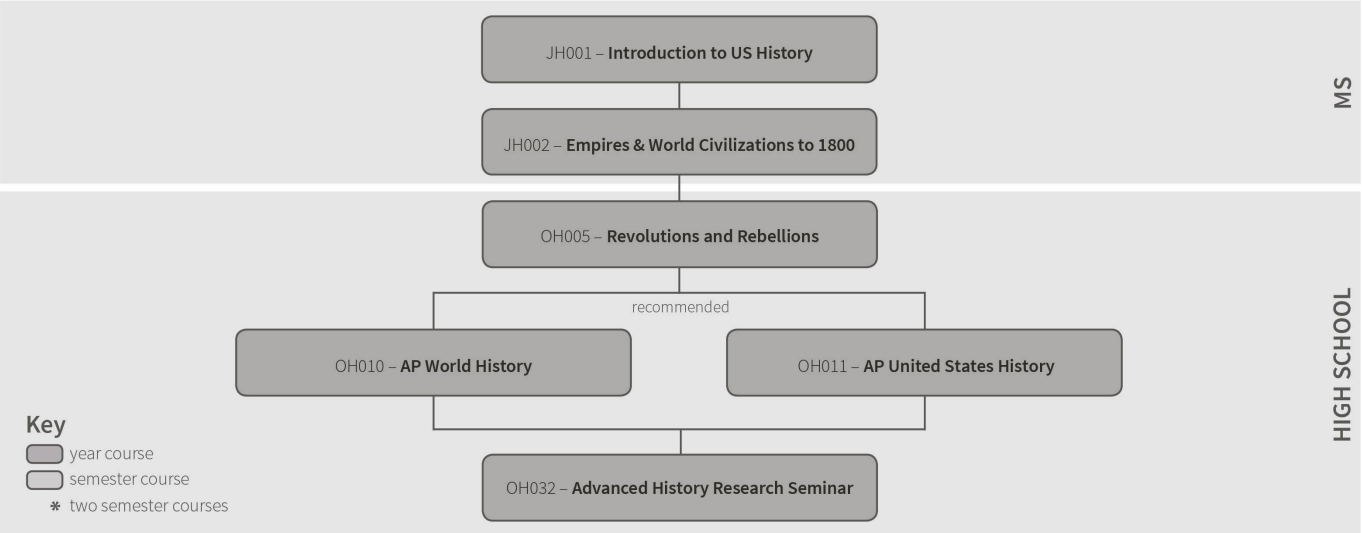
HISTORY

The history curriculum at Stanford OHS introduces students to the rigorous study of significant historical periods and subjects, ranging from the origins of human civilization to the complexities of the twenty-first-century world. As students complete their coursework, they learn how to read primary sources, think about historical causation, and write persuasive essays based upon the careful analysis of evidence. Students also learn how to examine the perspectives of diverse social and political groups.

The history curriculum at Stanford OHS provides students with historical knowledge and analytical skills that will allow them to thrive in a university setting. Interdisciplinary in its approach, this curriculum helps students make connections between history and other disciplines in the social sciences and the humanities.

The sequence of history courses allows students to build upon recently acquired historical skills and knowledge as they progress through the curriculum. It begins with a middle school course, Introduction to United States History, which provides students with an understanding of the major political events and social changes in the United States between the American Revolution and World War I. This course introduces students to the study of brief primary sources. Empires and World Civilizations to 1800 broadens students' understanding of history, focusing on the origins, development, and interactions of complex societies, beginning with ancient Mesopotamia and Egypt and concluding with 18th-century Europe. After completing World Civilizations, students have the opportunity to develop their skills in historical study in Revolutions and Rebellions. This course prepares students for advanced work in history through an exploration of the causes and nature of sudden, dramatic changes in modern societies, examining a range of texts and sources (art, literature, diaries, etc.). Students may pursue advanced history study in either AP World History or AP US History. AP World History deepens students' knowledge of world history, sharpens their approach to primary sources, and encourages them to make connections between past and present events. AP United States History is the next course in the curriculum. It begins with a study of the colonial settlement of North America and continues into recent decades. In this course, students write original interpretations of primary sources and learn how to situate major developments in the United States within a global context. After completing their coursework, Stanford OHS students are well-prepared for AP exams in both world history and United States history. Students may then advance to an Advanced History Research Seminar, which provides students the opportunity to research and study a major historical topic extensively.

The history courses cultivate students to think critically, chronologically, and causally. Students are encouraged to situate major historical events in time and in relation to other events. Our courses also enable students to make connections between history and other disciplines, and connections between historical events and the modern world, which help them develop the abilities to interpret and analyze primary and secondary sources within their historical context.



COURSE DESCRIPTIONS

Middle School

Introduction to US History (JH001)
Year course

This course prepares students for further work in the social sciences and the humanities through the study of major themes in early American and United States history. Students learn how to think historically and how to read primary sources (e.g., letters, speeches, images, and artifacts). Assignments draw on an American history textbook, selected primary sources, maps, visual material, and internet resources. *Prerequisite: Enrollment in Fundamentals of Expository Writing (JE001), or placement exam*

Empires and World Civilizations to 1800 (JH002)
Year course

This course examines world history from the beginnings of the earliest civilizations in Mesopotamia to the formation of global networks in the eighteenth century. In addition to examining the unique features of individual civilizations, students will uncover the similarities and connections between seemingly distant and different societies. The course will often turn to discussions of empires to highlight these major patterns and linkages in world history. Analysis of historical documents in class discussions and written assignments will push students to think critically and craft original arguments about important issues from the ancient world to the dawn of the modern era. *Prerequisite: Enrollment in Fundamentals of Literary Analysis (JE002), or placement exam*

High School

Revolutions and Rebellions (OH005)
Year course, 10 units

This course will examine the causes and nature of sudden, dramatic changes in modern societies. Building on skills acquired in earlier humanities and English courses, students will analyze how diverse individuals and communities have experienced and influenced major social and political upheavals. The specific events covered in this course may change from year to year. For the 2014–2015 year, students will study the origins and key events of the American Revolution, the French Revolution, and the Haitian Revolution. Students will examine a wide range of texts and sources, including artwork, literature, political pamphlets, and philosophical writings. This course will serve as preparation for advanced work in history. *Prerequisite: Enrollment in or completion of Literary Analysis and Argumentation (OE009) or Textual Analysis and Argumentation (OE010)*

AP World History (OH010)
Year course, 10 units

The AP World History course introduces students to human history covering the periods from prehistory to the present. The course explores economic, social, and political themes as well as religious and philosophical beliefs, and developments in science and technology. The course analyzes these themes, comparing and contrasting them with different peoples, cultures, and civilizations. Students will learn how to analyze historical accounts and sources and answer difficult historical questions. They will also gain a better understanding of world history and the world in which they live today. *Prerequisite: Textual Analysis and Argumentation (OE010), or placement exam; Recommended: Revolutions and Rebellions (OH005)*

AP United States History (OH011)
Year course, 10 units

The AP US History course introduces students to American history, covering the period from the seventeenth century to the present. The course focuses on political life, social structure, external relations, and cultural developments. The course highlights the specificity of the American experience by situating national developments in a global context. Students broaden and deepen their knowledge of United States history, analyze primary sources and historical accounts, and create their own interpretations. Course materials include a textbook and primary sources. *Prerequisite: Textual Analysis and Argumentation (OE010); Recommended: Revolutions and Rebellions (OH005)*

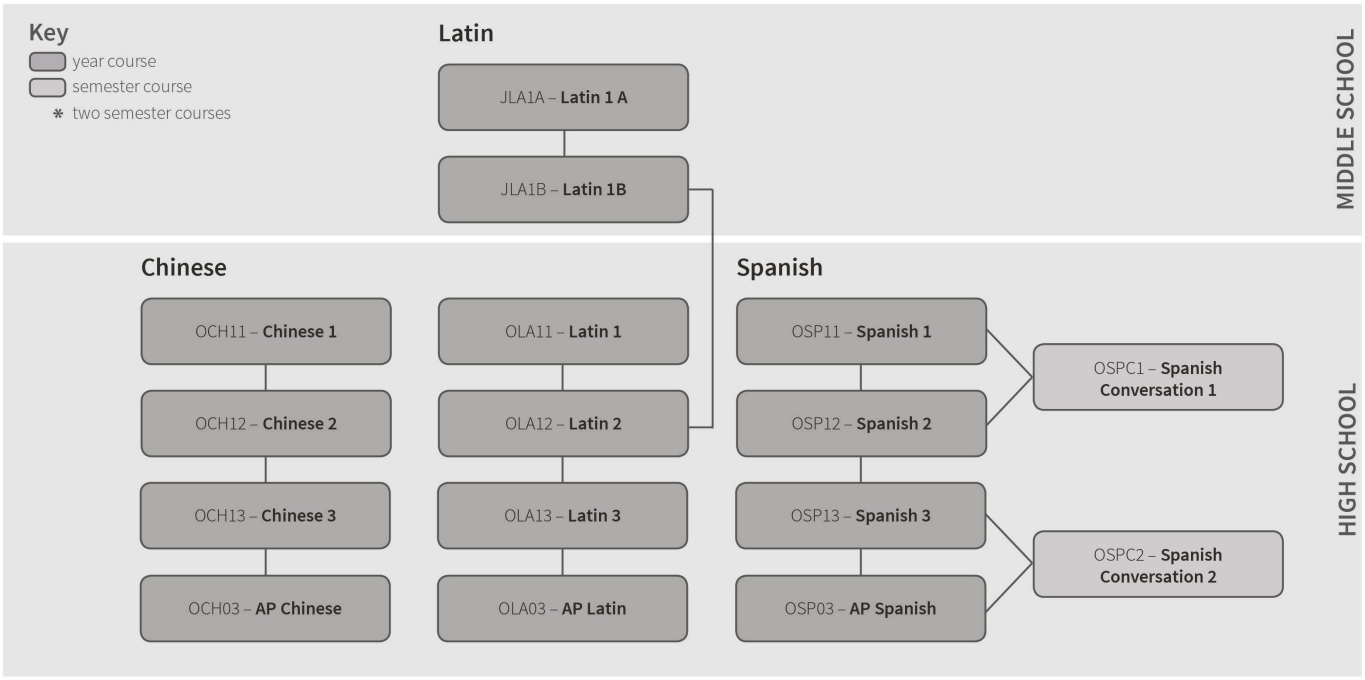
Advanced History Research Seminar (OH032)
Year course, 10 units

This seminar provides students with the opportunity to research and study extensively a major historical topic. In addition to learning how to engage critically with debates that exist among historians, students will develop and discuss their own historical interpretations. Students will learn how to conduct advanced research, which will culminate in a final research paper that will investigate thoroughly a particular historical issue or problem. The topic of the seminar will change from year to year. Previous topics include European Enlightenment and Contemporary History. *Prerequisite: Two of the following Stanford OHS courses: DFRL, CRA, AP World History, AP US History, AP English Language, AP English Literature, or any other advanced English course*

FOREIGN LANGUAGE

The Stanford OHS Foreign Language department is built on the belief that the mastery of any foreign language complements and strengthens a student's intellectual development across all disciplines, in addition to being a rewarding and useful skill in its own right. The central aim of every language course at Stanford OHS is fluent communication in the target language, including both oral communication and the accurate comprehension and translation of written texts. In the case of ancient languages, emphasis is placed on understanding written texts, though speaking and listening may be used to facilitate this goal. Each course also exposes students to the culture associated with the language they are learning, including that culture's history, artifacts, customs, values, and literature. Students are expected to use their increasing knowledge of another language and culture to sharpen their interpretive and analytical techniques, communicate in their native language with greater complexity and precision, and deepen their understanding of their own cultural background as it exists within a broader global and historical context.

In order to allow students to achieve an exceptional degree of fluency, language courses at Stanford OHS are rigorous, move at an accelerated pace, and meet up to four times a week for live discussion sections. Stanford OHS offers four-year course sequences in Mandarin Chinese, Latin, and Spanish that culminate in preparation for the AP exams.



COURSE DESCRIPTIONS

Middle School

LATIN

Latin 1A (JLA1A)
Year course

The first year of this two-year sequence (comprising Latin 1A and Latin 1B) gives students the foundations of Latin grammar and the tools necessary to read and translate Latin passages. This course also introduces students to the study of Roman history, mythology, culture, and daily life through lectures and supplemental readings. Emphasis will be placed on a mastery of English grammar and syntax through the study of Latin. Students will complete chapters 1–12 of *Latin for the New Millennium, Level 1* textbook, and completion of Latin 1A and Latin1B will successfully prepare students for placement into Latin 2 at the high school level. Latin 1B will be offered in 2015–16.

High School

CHINESE

Chinese 1 (OCH11)
Year course, 10 units

First-year Mandarin Chinese is designed for students who have no previous experience with the Chinese language and emphasizes practical speaking and listening skills. Students also learn several hundred basic characters, and to read and write sentences, dialogues, and short paragraphs. Aspects of Chinese culture and history are introduced. *Prerequisite: Middle school students should seek consent of instructor*

Chinese 2 (OCH12)
Year course, 10 units

Second-year Mandarin Chinese introduces a greater variety of vocabulary and more complex sentence structures while continuing to apply these across the basic four skill areas: listening, speaking, reading, and writing. Practical, everyday situations are emphasized, while reading and culture studies are expanded to include traditional Chinese legends and fables. 800–1000 characters will have been introduced by the end of the second year. *Prerequisite: Chinese 1 (OCH11) or equivalent as determined by placement exam*

Chinese 3 (OCH13)
Year course, 10 units

Third-year Mandarin Chinese continues to introduce vocabulary and characters, and adds advanced phrases and sentence structures. Students are exposed to an increasing variety of authentic material in addition to the textbooks. Readings, discussions, compositions, and reports are based on issues encountered in present-day Chinese society and in student and teenage life. 1200–1400 characters will have been introduced by the end of the third year. *Prerequisite: Chinese 2 (OCH12) or equivalent as determined by placement exam*

AP Chinese (OCH03)
Year course, 10 units

Fourth-year (AP) Mandarin Chinese sharpens the listening, speaking, and composition skills that students need to succeed on the AP Chinese Language and Culture exam. Students use a wide variety of audio and print material, and examine many aspects of both traditional and modern culture. 1600–1800 characters will have been introduced by the end of the fourth year. *Prerequisite: Chinese 3 (OCH13) or equivalent as determined by placement exam*

LATIN

Latin 1 (OLA11)
Year course, 10 units

In this accelerated introductory course, students will master the basics of Latin grammar and vocabulary and begin reading short Latin texts of increasing complexity. Students also study Roman history, mythology, culture, and daily life through lectures and supplemental readings. Understood goals: Mastery of key grammar and syntax together with vocabulary; understanding of key components of Roman history and culture. *Prerequisite: Middle school students should seek consent of instructor*

Latin 2 (OLA12)
Year course, 10 units

In this Intermediate Latin course, students complete their introduction to grammar and vocabulary in the fall semester and begin to focus on the translation of longer sections of Latin prose in the spring. Students continue to study Roman history and culture with a particular emphasis on Latin literature. Understood goals: Translation of original Latin and mastery of more complex grammar and syntax; deeper understanding of Roman history, particularly of the Republic. *Prerequisite: Latin 1 (OLA11) or equivalent as determined by placement exam*

Latin 3 (OLA13)
Year course, 10 units

In this advanced Latin course, students concentrate on refining their reading skills and tackling longer passages of prose and poetry with attention to accurate translation and in-depth literary analysis. Readings will be drawn from works by authors such as Cicero, Caesar, Catullus, Ovid, Horace, Plautus, Pliny, and Seneca. Understood goals: Translation of larger passages of original Latin, including poetry; refinement of skills in literary analysis and essay writing; deeper understanding of Roman literary history. *Prerequisite: Latin 2 (OLA12) or equivalent as determined by placement exam*

AP Latin (OLA03)
Year course, 10 units

In this course, students prepare for the Latin AP exam on Vergil's Adenoid and Caesar's Gallic War. The course includes significant amounts of translation as well as close readings of the text, its themes and historical contexts. Students refine their mastery of Latin grammar as well as their critical thinking skills and essay writing. Students who take this course are well prepared for the Latin AP exam. Understood goals: ability to translate with accuracy and speed; ability to analyze Latin texts in coherent and persuasive essays; deeper understanding of Roman history and literature, particularly of the late-Republican and early-Imperial period. *Prerequisite: Latin 3 (OLA13) or consent of instructor or equivalent as determined by placement exam*

SPANISH

Spanish 1 (OSP11)
Year course, 10 units

This course is designed for students who have no previous experience with the Spanish language. Students are introduced to and develop mastery of basic Spanish language grammar and conversation skills, in a manner that builds confidence in language learning and learning in general. Students are exposed to history, literature, music, and current events in the Spanish-speaking world, and are encouraged to discover relationships between the Spanish language and other fields of study. *Prerequisite: Middle school students should seek consent of instructor*

Spanish 2 (OSP12)
Year course, 10 units

This course is designed for intermediate students and provides an excellent introduction to the skills required for advanced Spanish language study. Students expand their knowledge of grammar and vocabulary and improve their reading comprehension and oral proficiency skills. This course emphasizes the connection between the Spanish language and society and introduces students to rich and diverse literature, poetry, and music in the Spanish-speaking world. *Prerequisite: Spanish 1 (OSP11) or equivalent as determined by placement exam*

Spanish 3 (OSP13)
Year course, 10 units

This course is designed for intermediate-advanced students and is conducted entirely in Spanish. It is designed for students who wish to succeed in Advanced Placement Spanish and/or become fluent in Spanish across interpersonal, interpretive, and presentational communication modes. Students become successful at listening to, describing, narrating, and presenting complex information and writing cohesive and coherent essays on a variety of topics. They greatly expand their understanding of Spanish and Hispanic cultures through the in-depth study of history, literature, poetry, art, music, and current events. *Prerequisite: Spanish 2 (OSP12) or equivalent as determined by placement exam*

AP Spanish (OSP03)
Year course, 10 units

AP Spanish Language and Culture offers students the opportunity to develop and increase their proficiency in interpretive, interpersonal, and presentational communication. In order to provide a rich and diverse learning experience, the course integrates authentic resources (including online print, audio, video, magazine and newspaper articles, and literary works) that engage students in an exploration of culture in both contemporary and historical contexts. AP Spanish Language and Culture is structured around the following six themes: global challenges, beauty aesthetics, families and communities, personal and public identities, contemporary life, and science and technology. The class is conducted entirely in Spanish and includes frequent writing and presentations. *Prerequisite: Spanish 3 (OSP13) or equivalent as determined by placement exam*

Spanish Conversation 1 (OSPC1)
Semester course, 1 unit, Fall/Spring (can be repeated)

The focus of this course is pronunciation, vocabulary, and speaking skills. This course also emphasizes speaking fluency by providing exposure to skills such as reading and listening comprehension, writing, vocabulary acquisition, and socio-cultural competence. Students participate in individual and group presentations. Grammar is reviewed as needed, based on the texts and on issues that arise in class. *Prerequisite: Demonstrated oral proficiency above the novice level; instructor approval required*

Spanish Conversation 2 (OSPC2)
Semester course, 1 unit, Fall/Spring (can be repeated)

This course is designed for high-intermediate/advanced Spanish speakers. The course focuses on refining fluency in both informal and formal discourse through group discussions, classwork, and individual and group presentations. Interactive activities require students to persuade, analyze, support opinions, and gather and interpret others' points of view. Focus is on vocabulary enrichment and idiomatic expressions. Materials include cultural, literary, political, and journalistic readings. *Prerequisite: Completed second-year Spanish or oral proficiency above the intermediate level; instructor approval is required*

CROSS-LISTINGS IN THE HUMANITIES

High School

The Study of the Mind: Psychology, Neuroscience, and Philosophy (OPS10)

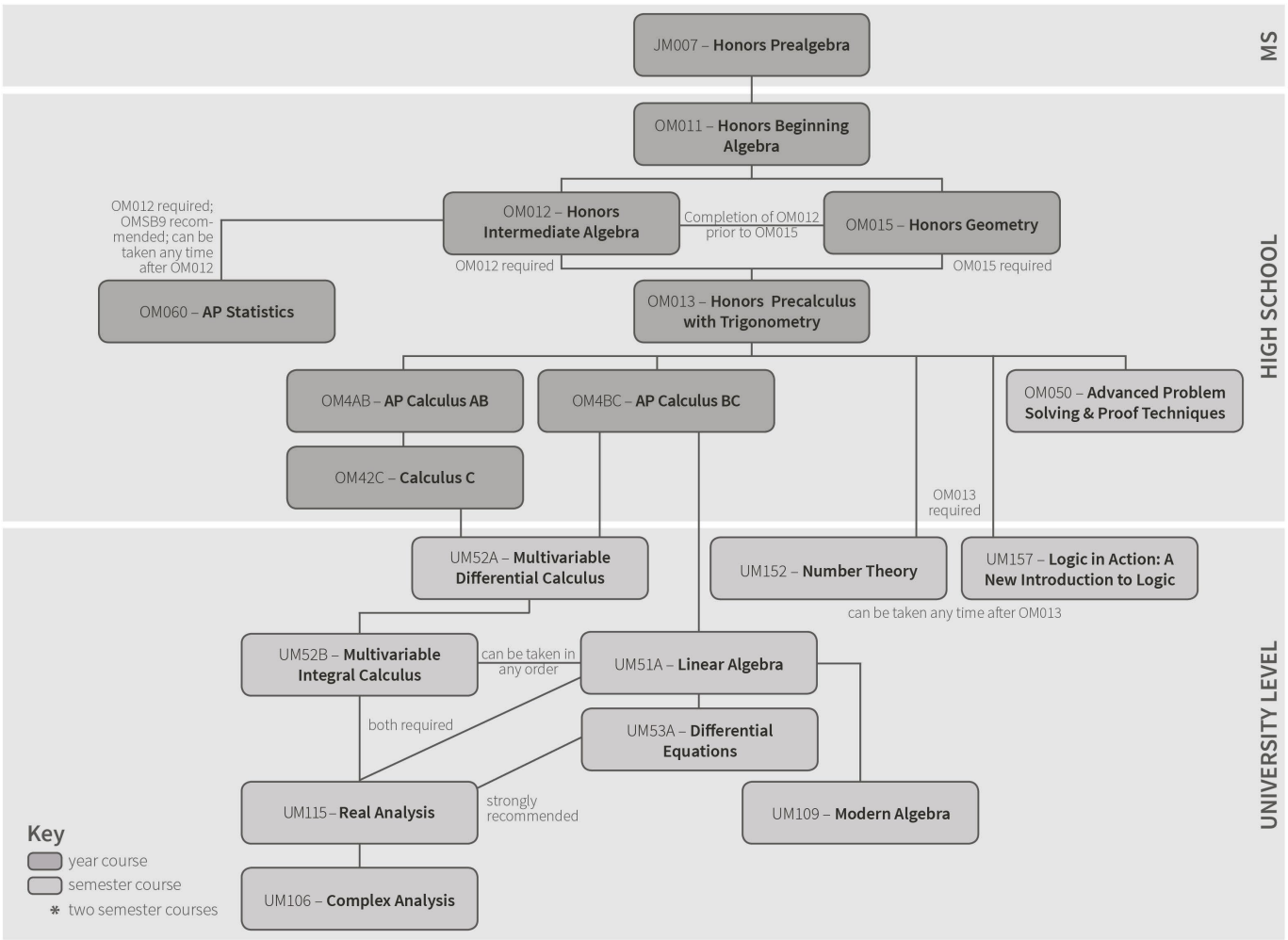
Year course, 10 units

In this course, we will study the mind and human behavior by exploring the insights that have emerged in the intersecting fields of neuroscience, psychology, and philosophy. We will draw on texts such as Pinker's *The Language Instinct*, Kahneman's *Thinking Fast and Slow*, Wilson's *Strangers to Ourselves*, and Sacks's *The Man who Mistook his Wife for a Hat*, to examine language and mind, reasoning and biases, the unconscious, and abnormal psychology. Topics may include Freudian psychoanalysis, the neurobiology underlying emotion, and animal cognition, as well as topics to be determined by student interests. While not designed to strictly follow the AP Psychology curriculum, this course will provide a conceptual foundation for students who are interested in preparing independently for the AP Psychology exam. *Prerequisite: Methodology of Science – Biology (OMSB9) or high-school biology and Modes of Writing and Argumentation (OE011) or equivalent*

MATHEMATICS

The Division of Mathematics offers students the ability to pursue a wide range of rigorous course offerings in mathematics, computer science, and economics. The curriculum focuses on building a solid foundation in mathematical sciences, with courses focused on both mathematical theory and applications of mathematics. The Division emphasizes vertical integration of courses from foundational secondary mathematics courses through advanced university-level offerings, and is committed to working to ensure that students adapt a sequence of study that includes both depth and breadth in mathematics.

The mission of the mathematics program at Stanford OHS is to provide students with a broad understanding of mathematics to help students formulate and use mathematical tools for critical thinking and problem solving. This broad understanding encompasses computation, problem solving, logical reasoning, generalization, and abstraction. Students who successfully complete Stanford OHS mathematics courses will understand and be able to apply the concepts and techniques that are foundational to secondary-level mathematics, and they will have developed independent investigative skills that will enable them to work towards solutions of novel problems. Students will develop an appreciation for mathematics and its role in the modern world, including connections with other disciplines, and they will be well prepared for advanced study in university-level mathematics.



COURSE DESCRIPTIONS

Middle School

Honors Prealgebra (JM007)
Year course

This course provides students with the solid foundation in arithmetic, geometry, measurement, and related topics required for success in Honors Beginning Algebra. Specific topics include arithmetic operations on integers and rational numbers; variables, expressions, and equations; area, volume, and the Pythagorean Theorem; ratio, proportion, and percent; measurement and graphing; and solving application problems.

High School

Honors Beginning Algebra (OM011)
Year course, 10 units

For students who previously have had little or no formal exposure to algebra. Primary topics include: the elementary structure and language of real numbers, understanding and manipulating algebraic expressions including polynomials, radical expressions, and rational expressions, solving linear and second-degree equations, understanding inequalities and systems of equations. Emphasis is placed on word problems and graphing. *Prerequisite: Honors Prealgebra; Recommended: a rigorous foundation in elementary mathematics, including arithmetic, fractions, geometry, and measurement*

Honors Intermediate Algebra (OM012)
Year course, 10 units

For students with previous exposure to algebra but not sufficient mastery for OM013 Precalculus with Trigonometry. This course reviews and extends the topics of beginning algebra: linear equations and inequalities, absolute value, quadratic inequalities, roots and exponents, and systems of equations. Other topics include: exponential and logarithmic functions, conic sections, and arithmetic and geometric sequences. *Prerequisite: Honors Beginning Algebra (OM011)*

Honors Geometry (OM015)
Year course, 10 units

This course combines the traditional deductive approach to geometry in the tradition of Euclid with the contemporary computational and discovery approaches. Primary topics include: logic, congruence of polygons, inequalities, similarity, properties of circles, area of plane figures, surface area and volume of solids, basic trigonometry, coordinate geometry, and transformational geometry. *Prerequisites: Honors Beginning Algebra (OM011); Recommended: Completion of or concurrent enrollment in Honors Intermediate Algebra (OM012)*

Honors Precalculus with Trigonometry (OM013)
Year course, 10 units

For students who have had substantial previous exposure to algebra. The course builds on and deepens all the topics from OM011 Beginning Algebra and OM012 Honors Intermediate Algebra. Functions are studied in detail, including composition and inverses. Other topics include: the algebra of exponential and logarithmic functions, techniques of graphing and matrices, mathematical induction, sequences and series, and analytic geometry. Approximately one third of the course focuses on trigonometry and its applications. *Prerequisite: Honors Intermediate Algebra (OM012), Honors Geometry (OM015)*

AP Calculus AB (OM4AB)
Year course, 10 units

An advanced placement course in differential and integral calculus. Topics: functions and graphs, limits, continuity, derivatives and differentiability, applications of the derivative, curve sketching, related rates, implicit differentiation, parametric equations, Riemann sums, indefinite and definite integrals, techniques of integration, applications of integration, the Fundamental Theorem of Calculus, and numerical approximations to definite integrals. This course prepares students for the AP Calculus AB exam. *Prerequisite: Honors Precalculus with Trigonometry (OM013)*

AP Calculus BC (OM4BC)
Year course, 10 units

An advanced placement course in differential and integral calculus. Topics: functions and graphs, a rigorous development limits, continuity, derivatives and differentiability, applications of the derivative, curve sketching, related rates, implicit differentiation, parametric equations, polar functions, vector functions, l'Hospital's rule, Riemann sums, indefinite and definite integrals, techniques of integration, applications of integration, the Fundamental Theorem of Calculus, numerical approximations to definite integrals, improper integrals, differential equations, polynomial approximations, Taylor series, and convergence and divergence of infinite sequences and series. This course prepares students for the AP Calculus BC exam. *Prerequisite: Honors Precalculus with Trigonometry (OM013)*

AP Calculus C (OM42C)
Semester course, 5 units, Fall only

Further study of differential and integral calculus. Topics: a more rigorous development of limits and derivatives, advanced techniques and applications of integration, power series, calculus for parametric and polar coordinates, introduction to differential equations. Together with AP Calculus AB (OM4AB), this course prepares students for the AP Calculus BC exam. This course is for students who have completed the AP Calculus AB curriculum. *Prerequisite: AP Calculus AB (OM4AB)*

Advanced Problem Solving & Proof Techniques (OM050)
Semester course, 5 units, Spring only

This semester-long course in theoretical mathematics develops students' facility with abstract conceptual work and prepares students for subjects at the upper-division undergraduate level. Students are expected to have completed Honors Precalculus with Trigonometry; prior completion of AP Calculus is recommended. Students gain experience analyzing complex problem situations, formulating solutions, rigorously justifying arguments, and presenting mathematical reasoning clearly and effectively, both orally and in writing. Course topics include general guidelines for analyzing problems, proving conditional and biconditional statements, the contrapositive method, working with negations, proof by contradiction, problem-solving heuristics, understanding quantifiers, mathematical induction, the construction method, working with nested quantifiers, and special proof techniques. The course focuses on practical problem-solving and proof-construction techniques that will be invaluable in many university-level mathematics courses. *Prerequisite: OM013 Honors Precalculus with Trigonometry required; OM4BC AP Calculus BC or OM42C Calculus C recommended*

AP Statistics (OM060)
Year course, 10 units

Statistics is now an essential part of many disciplines in science and humanities. This year-long course investigates basic methods and concepts in statistics, covering the following broad themes: exploring data, sampling and experimentation, anticipating patterns, statistical inference. Students from a wide variety of backgrounds are encouraged to take the course. Also, students who have taken OMSB9, Methodology of Science – Biology, may consider the course as a continuation of the elementary statistics studied in the course. Students who successfully complete the course will be well prepared for the AP Statistics exam. For students who have had substantial previous exposure to algebra and some background in elementary statistics. *Prerequisite: Honors Intermediate Algebra (OM012); Recommended: Methodology of Science – Biology (OMSB9), previous exposure to techniques of elementary statistics recommended*

University Level

Multivariable Differential Calculus (UM52A)
Semester course, 5 units, Fall only

Differential calculus for functions of two or more variables. Topics: vectors and vector-valued functions in 2-space and 3-space, tangent and normal vectors, curvature, functions of two or more variables, partial derivatives and differentiability, directional derivatives and gradients, maxima and minima, optimization using Lagrange multipliers. *Prerequisite: AP Calculus BC (OM4BC) with AP Exam score of 4 or 5 and consent of instructor, or Calculus C (OM42C) with a grade of A- or better and consent of instructor*

Multivariable Integral Calculus (UM52B)
Semester course, 5 units, Spring only

Integral calculus for functions of two or more variables. Topics: double and triple integrals, change of variables and the Jacobian, vector fields, line integrals, independence of path and the fundamental theorem of line integrals, Green's theorem, divergence theorem, and Stokes' theorem. *Prerequisite: Multivariable Differential Calculus (UM52A) and consent of instructor*

Linear Algebra (UM51A)
Semester course, 5 units, Fall only

An introductory course in linear algebra. Topics: linear spaces, transformations, matrices, eigenvalues, eigenvectors, and linear operators. *Prerequisite: AP Calculus BC (OM4BC) with AP Test score 5 or Multivariable Differential Calculus (UM52A) and consent of instructor; Recommended: prior university-level course in mathematics, prior experience reading and writing mathematical proofs is required. If the student has not taken Multivariable Differential Calculus (UM52A), an interview with the instructor will be required. Completion of an exam demonstrating proficiency reading and writing proofs may also be required.*

Differential Equations (UM53A)
Semester course, 5 units, Spring only

Basic techniques and methods for solving ordinary differential equations. Topics: linear, separable, and exact equations, existence and uniqueness theorems, difference equations, basic theory of higher order equations, variation of parameters, undetermined coefficients, series solutions, Laplace transform, systems of equations. *Prerequisite: Linear Algebra (UM51A) and consent of instructor. Proficiency with partial derivatives is required. Prior experience reading and writing mathematical proofs is required.*

Real Analysis (UM115)
Semester course, 5 units, Directed study

Theory of functions of a real variable. Topics: sequences, series, limits, continuity, differentiation, integration, and basic point-set topology. *Prerequisite: Multivariable Integral Calculus (UM52B) and Linear Algebra (UM51A) and consent of instructor; Recommended: Differential Equations (UM53A). Advanced experience reading and writing mathematical proofs is required.*

Complex Analysis (UM106)
Semester course, 5 units, Directed study

Theory of differentiation and integration of complex functions. Topics: algebra of complex numbers, complex functions, multi-valued functions, exponentials, logarithms, analyticity, integrals, power series, Laurent series, residues, isolated singularities, poles and zeros. *Prerequisite: Real Analysis (UM115) and consent of instructor. Advanced experience reading and writing mathematical proofs is required.*

Modern Algebra (UM109)
Semester course, 5 units, Directed study

Theory of abstract algebra, with particular emphasis on applications involving symmetry. Topics: groups, rings, fields, matrix and crystallographic groups, and constructibility *Prerequisite: Linear Algebra (UM51A) and consent of instructor; Recommended: Number Theory (UM152). Advanced experience reading and writing mathematical proofs is required.*

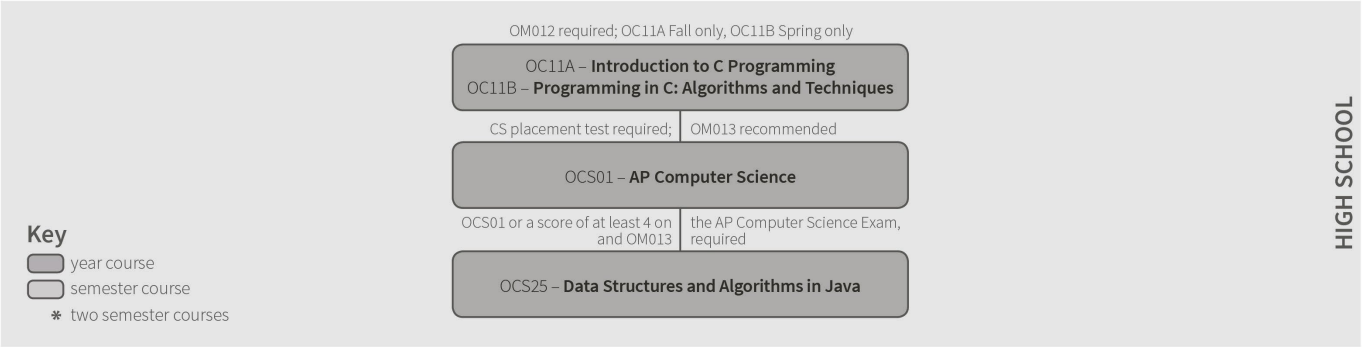
Number Theory (UM152)
Semester course, 5 units, Spring only

Introduction to number theory and its applications. Topics: Euclid's algorithm, divisibility, prime numbers, congruence of numbers, theorems of Fermat, Euler, Wilson, Lagrange; residues of power, quadratic residues, introduction to binary quadratic forms. *Prerequisite: Honors Precalculus with Trigonometry (OM013) and consent of instructor; Recommended: prior experience reading and writing mathematical proofs*

Logic in Action: A New Introduction to Logic (UM157)
Semester course, 5 units, Fall only

Fall only Logic provides an essential methodological framework of reasoning connecting a wide variety of disciplines in the humanities and sciences, including philosophy, mathematics, computer science, linguistics, cognitive science, and economics. This course will introduce students to logic and its applications highlighted by recent developments in these fields. We will use the open source logic course "Logic in Action" (*http://www.logicinaction.org*), which has been developed by the international team of Prof. Johan van Benthem at Amsterdam, and taught in many places, including Stanford, Amsterdam, Beijing, Seville, etc. *Prerequisite: Honors Precalculus with Trigonometry (OM013) and consent of instructor; Recommended: prior experience reading and writing mathematical proofs*

COMPUTER SCIENCE



COURSE DESCRIPTIONS

High School

Introduction to C Programming (OC11A)
Semester course, 5 units, Fall only

The first course in this series introduces the fundamentals of C Programming including basic syntax, data types, expressions, control statements, and interaction between the compiler and the hardware. The programming exercises are oriented towards learning how to construct an efficient algorithm to solve a problem and include computing the solutions of quadratic equations, finding prime or perfect numbers in a given range, and processing words in a passage of text. The basics of understanding and writing functions are studied *Prerequisite: Honors Intermediate Algebra (OM012)*

Programming in C: Algorithms and Techniques (OC11B)
Semester course, 5 units, Spring only

The second course in the C Programming series introduces more advanced topics including arrays, passing arrays to functions, sorting algorithms, user-defined types, and recursion. The programming exercises are oriented towards learning top-down design and structured programming. The concepts of a variable's value and a pointer to a variable are introduced. *Prerequisite: Introduction to C Programming (OC11A)*

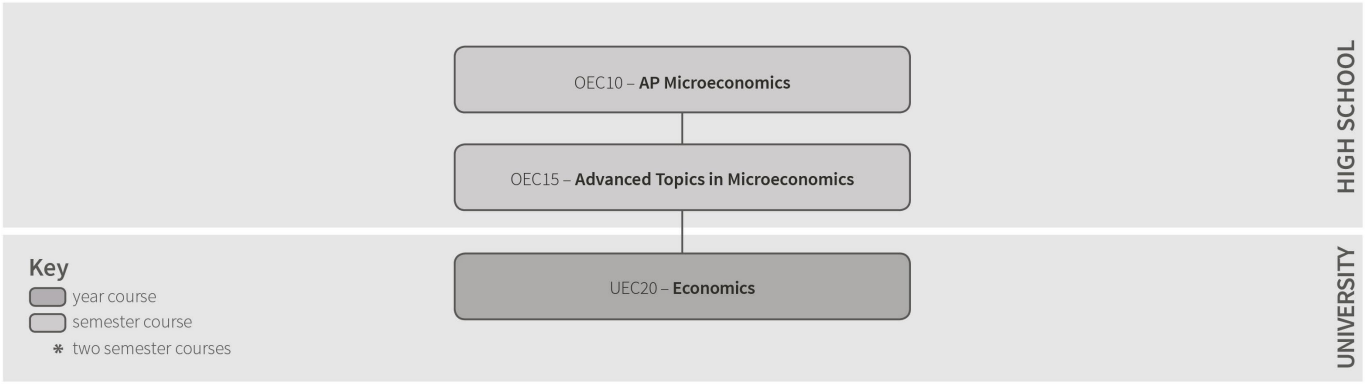
AP Computer Science (OCS01)
Year course, 10 units

This course introduces students to the concept of object oriented programming. The basic and some advanced features of Java are studied including designing and building applications such as web applets. Core topics in the context of the Java programming language: fundamental data structures such as arrays and algorithms (especially those for sorting and searching) and the relationship between computer hardware and a compiled program. Much of the course is project-based, with assignments stressing the design of classes and algorithms appropriate to a problem. This course prepares students to take the A level AP Computer Science Exam. *Recommended: concurrent (or previous) enrollment in Honors Precalculus with Trigonometry (OM013). A placement exam will be required for students who have not previously taken Stanford OHS computer science courses.*

Data Structures and Algorithms in Java (OCS25)
Year Course, 10 units

This year-long course continues and deepens students' understanding and practice of object oriented programming. Students are expected to have familiarity with programming in Java at the AP Computer Science A level. Core topics in the context of the Java programming language include practical implementations of fundamental and more advanced data structures (linked lists, hash encoded storage, binary search trees—AVL, treaps, red-black trees, and heaps), algorithms for organizing and manipulating data (including sorting, searching, and traversal algorithms), and time complexity of algorithms in a problem-solving oriented context. In-depth exploration of standard Java libraries and features such as Java Collections, error handling, threads, and designing and building graphical user interface using AWT and Swing libraries is included. Much of the course is project-based, with assignments stressing the design of classes and algorithms appropriate to a particular problem. *Prerequisite: AP Computer Science (OCS01) or a score of at least 4 on the AP Computer Science Exam, and Honors Precalculus with Trigonometry (OM013). A placement exam will be required for students who have not previously taken Stanford OHS computer science courses.*

ECONOMICS



COURSE DESCRIPTION

High School

AP Microeconomics (OEC10)
Semester Course, 5 units, Fall only

The principles of economics that apply to the functions of individual decision makers, both consumers and producers, are discussed. The class centers around the basic supply and demand structure of the economy with emphasis on the nature and functions of product markets and includes the study of factor markets and of the role of government in promoting greater efficiency and equity in the economy. Emphasis on the material included on the AP Microeconomics exam. *Corequisite: Honors Precalculus with Trigonometry (OM013) or equivalent*

Advanced Topics in Microeconomics (OEC15)
Semester Course, 5 units, Spring only

Advanced Topics in Microeconomics is a semester-long course that explores a variety of topics in microeconomics at the post-AP or intermediate level while engaging students in the basic principles and practices of economic research. Students will gain a deeper understanding of microeconomics topics including the theoretical underpinning of supply and demand, game theory, bargain theory, the principal-agent problem, Pareto optimality, general equilibrium, experimental and empirical study design, and interpretation of data. Students will apply their knowledge of these topics by composing a review article or significant research paper on a topic of their own choosing. *Prerequisite: AP Microeconomics (OEC10) or equivalent or score of 5 on the AP Microeconomics Exam. Corequisite: Honors Precalculus with Trigonometry (OM013)*

University Level

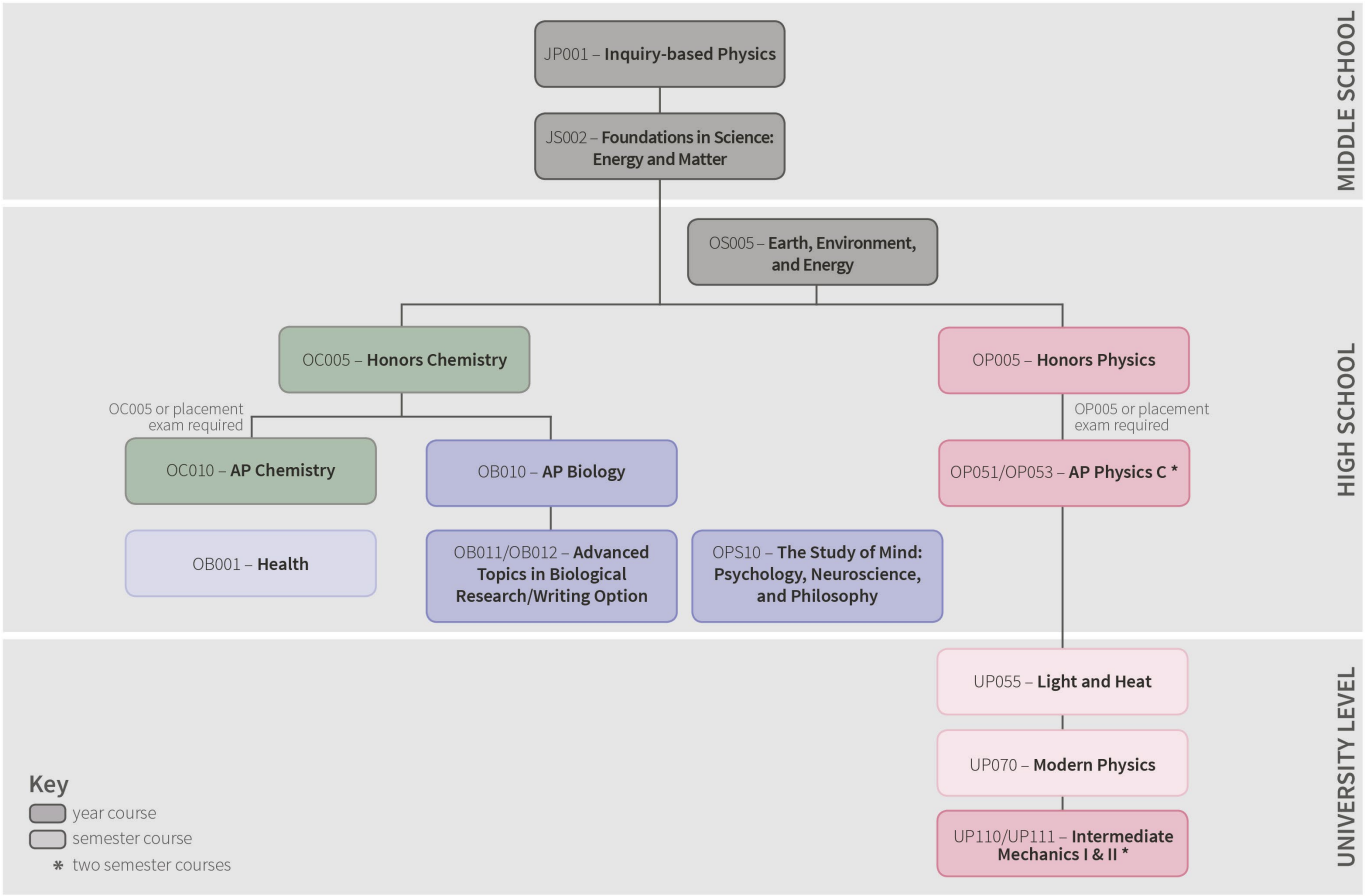
Economics (UEC20)
Year course, 10 units, Not offered 2014-15

This university-level Economics course focuses on fundamental microeconomics concepts at an early undergraduate level. The course is divided into three sections. Section one focuses on the consumer theory by first introducing the concepts of utility functions, indifference curves, the individual's constrained optimization of utility. The study of market equilibrium and price determination is investigated. Standard issues such as taxation, consumer and producer surplus, and Slutsky and Hicksian decompositions are covered. The second section focuses on the producer, introducing the concepts of production function, profit maximization, and the dual problem of cost minimization, factor demand functions, cost curves, competitive market price setting, and monopolistic markets. The third section focuses on the following advanced microeconomic topics: net present value; basic game theory and the prisoner's dilemma; elements of general equilibrium theory, including the Edgeworth box, Pareto efficiency, and elements of welfare theory; market failures, including externalities and public goods. *Prerequisite: Advanced Topics in Microeconomics (OEC15), AP Calculus AB (OM4AB) or concurrent enrollment in AP Calculus BC (OM4BC), and consent of the instructor*

SCIENCE

The Stanford OHS laboratory sciences curriculum is designed to provide all students with the scientific knowledge and critical-thinking skills necessary to engage with science outside of the classroom and beyond high school, but also to afford flexibility to allow interested students to explore a particular scientific discipline more deeply. Middle-school courses set the foundation for scientific reasoning through an inquiry-based approach and introduce students to the fundamentals of physical and life sciences. Earth, Environment, and Energy introduces students to the rigors of high-school level science through exploration of global scientific issues and experimentation. Honors-level courses explore the concepts necessary to scientific literacy in chemistry and physics and strengthen students' ability to apply concepts through experimentation. These courses prepare students for AP-level studies which offer in-depth exploration of each of the three fundamental disciplines of science (physics, chemistry, and biology). All middle-school and high-school level courses contain an at-home lab component during the year. In addition, students in Honors- and AP-level courses have the option of attending the corresponding summer lab course to further experience the techniques used to investigate questions within the discipline. Our advanced offerings in biology and university-level physics allow students to progress beyond the AP level.

Students can follow a variety of paths through the science curriculum, although it is recommended that students take at least one course in each of the three fundamental disciplines (physics, chemistry, and biology). Students are placed in courses based on interest and fulfillment of pre- and co-requisites. Students wishing to accelerate in the sciences have the option of satisfying Honors-level prerequisites on the basis of placement exam results.



COURSE DESCRIPTIONS

Middle school

Inquiry-based Physics (JP001)
Year course, Lab science

In this year-long course, students explore the fundamentals of physics through experimentation and discussion guided by the instructor. Through this engaging process, the instructor poses questions and counterexamples until the students reach a consensus in their experimentation, after which concepts are formally summarized. This course provides a strong foundation for work in more advanced science courses by introducing a number of basic skills, including significant figures, interpretation of graphs, problem solving, and the basics of laboratory work. Concepts covered include: Newtonian physics, fluids, thermodynamics, electricity and magnetism.

Foundations in Science: Energy and Matter (JS002)
Year course, Lab Science

This year-long seminar-style course introduces students to the concepts that provide the foundation for physics, chemistry, and biology. Students will explore energy and matter, two ideas that unify the sciences, and examine these core concepts from the perspective of each discipline. Students will use an inquiry-based approach with an emphasis on acquiring the background knowledge and perspective to develop research problems and will practice these skills through experimentation at home. Through exploration of the central themes of the course, students will additionally become familiar with the basic principles of scientific reasoning. The primary goal of the course is to provide students with a well-informed introduction to science that prevents common misconceptions and that prepares students for high-school and AP-level laboratory sciences. *Prerequisite: Inquiry-based Physics (JP001) or placement*

High School

Earth, Environment, and Energy (OS005)
Year course, 10 units, Lab science

This course introduces students to the dynamic processes of Earth and space that impact our everyday lives. Topics to be addressed include: the formation of Earth and its current geological processes; issues concerning water, air, and climate; and how energy is captured and stored. Throughout the course, students will explore the human impact on the earth and how the earth provides us with resources in order to be informed citizen scientists. At-home lab work will further reinforce mastery of these topics. Upon successful completion of the course, students will also have gained the skills needed to be successful in Honors level science courses. *Corequisite: Honors Beginning Algebra (OM011)*

Honors Chemistry (OC005)
Year course, 10 units, Lab science

Honors Chemistry is a year-long seminar-style course that introduces the fundamental language, ideas and tools used in the study of chemistry. This advanced introductory high school chemistry course covers key topics such as chemical nomenclature, stoichiometry, the periodic table, chemical bonding, equilibrium, kinetics, thermodynamics, nuclear chemistry, and common laboratory practices. Emphasis is placed on the use of chemistry in the natural world, the physical world and our daily lives. The course fosters skills necessary to describe chemical processes and behaviors and to solve numerical and verbal problems in chemistry. Through both at-home and virtual lab work, students learn useful chemistry laboratory techniques, gain the ability to formulate experimental questions, design scientific experiments, effectively articulate scientific findings, conduct error and statistical analysis, and strengthen understanding of course material. Upon completion, students will have a solid foundation in chemistry and will be prepared for AP Biology, AP Chemistry, and college-level chemistry courses. *Prerequisite: Middle -school or high-school science course; Corequisite: Honors Intermediate Algebra (OM012)*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OCL10 – Chemistry Lab).

AP Chemistry (OC010)
Year course, 10 units, Lab science

AP Chemistry is a year-long seminar-style course that teaches students the fundamental ideas and tools of modern chemistry and covers college-level introductory chemistry topics. Students become fluent in the language, symbols, laboratory skills, and concepts of chemistry. They learn to describe chemical names, the periodic table, types of reactions, chemical reactivity, structure, bonding, thermodynamics, kinetics, electrochemistry and nuclear chemistry. Throughout the course they are exposed to applications of chemistry in organic chemistry, materials science, environmental chemistry and biochemistry. This course stresses problem solving in chemistry using verbal descriptions and mathematical relationships to describe chemical ideas and processes. AP Chemistry gives students hands-on laboratory experience by requiring students to perform experiments at home using lab equipment and reagents purchased from a chemical supplier or household chemicals. This course prepares students for the AP Chemistry exam. *Prerequisite: Honors Chemistry (OC005) or passing score on AP Chemistry placement exam; Corequisite: Honors Intermediate Algebra (OM012)*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OCL10 – Chemistry Lab).

Chemistry Lab (OCL10)
Summer course, 2 units

Chemistry Lab is a residential summer course held on the Stanford campus during Stanford OHS Summer Session that allows students to explore chemistry topics through hands-on experimentation in a lab class setting. Experiments correspond with topics covered in Honors Chemistry (OC005) and AP Chemistry (OC010), and experiments will be scaffolded according to students' depth of understanding. Students will gain a variety of skills needed in a research lab, including experience with modern tools and techniques and effective communication of results. Examples of experiments that may be performed include chelation titration, calorimetry, nanoparticle synthesis and characterization, silver plating, synthesis/purification of aspirin, micro- and thin layer chromatography, extraction/purification of chlorophyll and carotene from plants, and UV-Vis and fluorescence spectroscopy. *Prerequisite: Completion of Honors Chemistry (OC005) or AP Chemistry (OC010) during the previous academic year*

AP Biology (OB010)
Year course, 10 units, Lab Science

AP Biology is a year-long seminar course that covers college-level introductory biology topics in molecular and cellular biology; anatomy, physiology, and diversity of plants, animals, and microbes; and ecology and evolution. Emphasis is placed on the themes that unify biology, including regulation of biological processes, energy transfer, continuity and change, evolution, the relationship between structure and function, emergent properties, interdependence in nature, the scientific process, and the relevance of biology in our everyday lives. Through at-home and virtual lab work, students learn useful biological techniques, gain the ability to design scientific experiments, effectively communicate results, and strengthen their knowledge of material presented in lecture. This course prepares students for the AP Biology exam. *Prerequisite: Honors Chemistry (OC005), AP Chemistry (OC010), or consent of instructor*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OBL10 – AP Biology Lab).

AP Biology Lab (OBL10)
Summer course, 2 units

AP Biology Lab is a residential summer course held on-campus during Stanford OHS Summer Session that allows students to explore college-level introductory biology topics through hands-on experimentation. Experiments correspond with topics covered in AP Biology (OB010). Techniques utilized to explore these topics may include polymerase chain reaction (PCR), gel electrophoresis of nucleotides or proteins, ELISA, and microscopy. Emphasis is placed on understanding the process of science, experimental design and interpretation, and the relevance of biology to our everyday lives. Students gain experience with modern biological techniques currently used in molecular biology and medical diagnostic labs, as well as learning to effectively record and communicate results. *Prerequisite: Completion of AP Biology (OB010) during the previous academic year*

Advanced Topics in Biological Research (OB011)
Year course, 5 units

Advanced Topics in Biological Research is a year-long seminar course that explores a variety of biological concepts in depth through discussion of scientific research. Topics are chosen from the breadth of the discipline and build on the foundation of knowledge acquired in AP Biology (OB010). Students study molecular and cell biology, genetics, plant biology, medicine, evolution, and ecology by reading both current and seminal research publications and discussing these works as a group. Not only do students gain an appreciation of relevant research topics in modern biology, but they also learn about valuable research tools and the skills necessary to understand the frontiers of the science. *Prerequisite: AP Biology (OB010) or consent of instructor*

Advanced Topics in Biological Research: Writing Option (OB012)
Year course, 10 units

Advanced Topics in Biological Research: Writing Option is a companion course to OB011. Students choosing the Writing Option will be engaged in the discussions of OB011 and additionally discuss the forms and styles of science writing including primary research publications, reviews, and science journalism. Students will apply their knowledge of these forms by composing a review article or significant research paper on the modern biological research topic of their choosing. Throughout the writing process, students will learn the skills necessary to independently and deeply explore scientific research literature and the process of writing, editing, and reviewing a lengthy written piece including peer-evaluation *Prerequisite: AP Biology (OB010) or consent of instructor*

The Study of the Mind: Psychology, Neuroscience, and Philosophy (OPS10)
Year course, 10 units

In this course, we will study the mind and human behavior by exploring the insights that have emerged in the intersecting fields of neuroscience, psychology, and philosophy. We will draw on texts such as Pinker's *The Language Instinct*, Kahneman's *Thinking Fast and Slow*, Wilson's *Strangers to Ourselves*, and Sacks's *The Man who Mistook his Wife for a Hat*, to examine language and mind, reasoning and biases, the unconscious, and abnormal psychology. Topics may include Freudian psychoanalysis, the neurobiology underlying emotion, and animal cognition, as well as topics to be determined by student interests. While not designed to strictly follow the AP Psychology curriculum, this course will provide a conceptual foundation for students who are interested in preparing independently for the AP Psychology exam. *Prerequisite: Methodology of Science – Biology (OMSB9) or high-school biology and Modes of Writing and Argumentation (OE011) or equivalent*

Honors Physics (OP005)
Year course, 10 units, Lab science

Honors Physics is a year-long seminar-style course that introduces the fundamental language, ideas and tools used in the study of physics. This advanced introductory high school physics course covers key topics such as kineschool physics course covers key topics such as kinematics (displacement, velocity, acceleration, vectors), dynamics (inertia, momentum, force, Newton's laws, kinetic and potential energy), wave phenomena, electric fields and forces, magnetism, and sound. Emphasis will be placed on introducing and developing those concepts, skills, and methods necessary to excel in physics, thus providing the foundation for more advanced study of physics. Through both at-home and virtual lab work, students learn useful experimental techniques, gain the ability to formulate experimental questions, design scientific experiments, effectively articulate scientific findings, and strengthen understanding of course material. Upon completion, students will have a solid foundation in physics and will be prepared for AP Physics C contingent on preparation in mathematics. *Corequisite: Honors Intermediate Algebra (OM012) or equivalent*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OPL50 – Physics Lab).

Physics C: Mechanics (OP051)
Semester course, 5 units, Lab science, Fall only

AP Physics C: Mechanics is a semester-long calculus-based physics course designed to be equivalent to an introductory university-level physics course when taken in conjunction with AP Physics C: Electricity and Magnetism (OP053). In this course, students explore mechanics, including study of kinematics, force, circular motion, momentum, energy, rotation, gravitation, and simple harmonic oscillation. By completing lab work (a combination of at-home labs and virtual labs), students reinforce their understanding of concepts, gain hands-on experimentation experience, and develop their written communication skills. This course prepares students for the AP Physics C Mechanics exam, though the scope of the course is not limited exclusively to the AP curriculum. Prior completion of AP Physics B and/or AP Calculus BC is advantageous but not required. *Prerequisite: Honors Physics (OP005) or equivalent or passing score on AP Physics placement exam; Corequisite: AP Calculus BC (OM4BC) or equivalent*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OPL50 – Physics Lab).

Physics C: Electricity and Magnetism (OP053)
Semester course, 5 units, Spring only

AP Physics C: Electricity and Magnetism is a semester-long calculus-based physics course designed to be equivalent to an introductory university-level physics course when taken in conjunction with AP Physics C: Mechanics (OP051). In this course, the main focus is on electricity and magnetism, including exploration of electrostatic force, electric fields, electric potential, simple circuits, magnetic fields, induction, and EM Waves. By completing lab work (a combination of at-home labs and virtual labs), students reinforce their understanding of concepts, gain hands-on experimentation experience, and develop their written communication skills. This course prepares students for the AP Physics C: Electricity and Magnetism exam, though the scope of the course is noy limited exclusively to the AP curriculum. Prior completion of AP Calculus BC is advantageous but not required. *Prerequisite: Honors Physics (OP005) or equivalent or passing score on AP Physics placement exam; Corequisite: AP Calculus BC (OM4BC), Calculus C (OM42C) or equivalent*

Related course: Students also have the option of doing additional laboratory work during the residential Summer Session at Stanford University (see OPL50 – Physics Lab).

Physics Lab (OPL50)
Summer course, 2 units

Physics Lab is a residential summer course held on campus during Stanford OHS Summer Session that allows students to explore physics topics through hands-on experimentation in a lab class setting. Experiments correspond with topics covered in Honors Physics (OP005), AP Physics C: Mechanics (OP051) and AP Physics C: Electricity and Magnetism (OP053), and experiments will be scaffolded according to students' depth of understanding. Students gain a variety of skills needed in a research lab, including experience with modern tools and techniques and effective communication of results. *Prerequisite: Completion of Honors Physics (OP005) or AP Physics C: Mechanics (OP051) and AP Physics C: Electricity and Magnetism (OP053) during the previous academic year*

Health (OB001)
Semester course, Fall/Spring

The Stanford OHS Health and Wellness course is a self-paced course for students without a previous health class or AP Biology at Stanford OHS. In this course, students gain the knowledge and skills necessary to maintain a long and healthy life by identifying and avoiding dangerous environments and risky behavior and by preventing common communicable and chronic diseases. Students also gain an appreciation for how the body and mind work and learn about the changes to be expected in the future. Finally, students learn about the role individuals play in public health and maintaining the health of a community. Using the course workbook as a guide, the course can be completed in less than a semester. This course fulfills the non-academic Health Stanford OHS graduation requirement and does not receive a letter grade.

University Level

Light and Heat (UP055)
Semester course, 5 units, Directed study

Light and Heat is a directed study course that the student completes at his or her own pace, but is designed to be completed within one semester. The course is an introduction to university-level optics and thermodynamics. Topics include temperature, properties of matter, introduction to the kinetic theory of matter, light and electromagnetic waves, reflection and refraction of light, lens systems, interference, and diffraction. *Prerequisite: AP Physics C: Electricity and Magnetism (OP053) and consent of the instructor*

Modern Physics (UP070)
Semester course, 5 units, Directed study

Modern Physics is a directed study course that the student completes at his or her own pace, but is designed to be completed within one semester. The course is an introduction to the ideas of modern physics. Topics include key concepts in special and general relativity, quantum mechanics, nuclear physics, high-energy particle physics, and cosmology. *Prerequisite: Light and Heat (UP055) and consent of instructor*

Intermediate Mechanics I & II (UP110, UP111)
Two Semester courses, 5 units each, Directed study

Intermediate Mechanics I & II are two directed study courses taken in sequence that the student completes at his or her own pace, but is designed to be completed within one semester each. Together, the courses provide a thorough exploration of the mechanics of systems of particles and rigid bodies. Topics include coordinate transformation and vectors, Newtonian mechanics, linear and nonlinear oscillations, Hamilton's principle, Lagrangian and Hamiltonian dynamics, non-inertial reference systems, rigid-body dynamics, coupled oscillations, and introductory fluid mechanics. *Prerequisite: Modern Physics (UP070) and Differential Equations (UM53A) or equivalent and consent of instructor*

OTHER COURSES

COURSE DESCRIPTION

High School

Leadership Course Series (OL010)
Semester Course, 1 unit, Fall/Spring

The Leadership Course Series seeks to encourage and nurture future leaders. In this seminar-style course, students attend monthly special presentations by Silicon Valley CEOs, entrepreneurs, inventors, professors, investment bankers, Nobel Laureates, politicians, philanthropists and others who share their personal background and their views on leading in the new global economy. Students also review selected readings, maintain a journal, and once a month engage in lively class discussion to explore the complexities and multiple dimensions of leadership through eight central themes or "lenses" which are applied to each of the special presentations. Students gain important insights on topics including the qualities of effective leaders, the language of leadership, teamwork, the importance of self-leadership, motivating and inspiring others, the application of design principals to create innovative solutions, and the strategic acquisition and subsequent application of influence and power. This course receives 1 unit of elective credit per semester. Topics vary, and the course may be repeated. *Prerequisite: open to students in grades 9–12*

THE MALONE SCHOOLS ONLINE NETWORK (MSON)

The Malone Schools Online Network is a collaboration among top independent schools that have all been supported by the Malone Family Foundation, which endowed the Stanford Online High School with its founding grant and supports the Malone Scholars Program at Stanford OHS.

MSON provides upper level students at registered Malone Schools with a variety of superior online courses offered in an online classroom that enhances each member school's existing curriculum. These courses promote the values of the Malone Family Foundation, use the Stanford OHS Virtual Seminar model, and are taught by teachers from Stanford OHS and other Malone Schools in the Network. These teachers are experts in their fields, have experience with independent school education, and share a commitment to excellence, small class sizes, and personal relationships. Course offerings target the most talented high school students at member schools. These students demonstrate sufficient independence and commitment to succeed in a virtual discussion seminar setting.

Each course takes a blended approach, combining real-time video conferencing seminars with asynchronous instruction, recorded lectures, and exercises students complete outside of the class.

MSON courses count toward Stanford OHS residency and academic course requirements. These courses appear on Stanford OHS students' transcripts.

The full listing of MSON courses for the 2014-15 school year will be made available to students in Spring, 2014, and students will request to enroll in MSON courses through the normal Stanford OHS enrollment process.

SAMPLE COURSES OF STUDY

Below are examples of courses of study for sample Stanford OHS students. These course plans are designed to show you a few of the many paths Stanford OHS students might pursue to earn their diploma—graduating students will work closely with their Academic Advisor to craft an individualized plan that best reflects their interests and academic goals.

JAKE'S PLAN—BROAD FOUNDATION 1

GRADE	CORE	ENGLISH	HISTORY/ HUMANITIES	LANGUAGE	MATH	SCIENCE	OTHER
9TH	Methodology of Science – Biology (OMSB9)	Textual Analysis and Argumentation (OE010)		Chinese 1 (OCH11)	Honors Beginning Algebra (OM011)	Earth, Environment, and Energy (OS005)	
10TH	History of Science (OHSC0)	Modes of Writing and Argumentation (OE011)	[see OHSC0]	Chinese 2 (OCH12)	Honors Intermediate Algebra (OM012)	Honors Chemistry (OC005)	
11TH	Democracy, Freedom and the Rule of Law (ODFRL)	AP Language and Composition (OE020)	[see ODFRL]	Chinese 3 (OCH13)	Honors Geometry (OM015)	AP Biology (OB010)	
12TH	Critical Reading and Argumentation (OCRA1)	Advanced Topics in Literature (OE025/26—half credit option)	AP US History (OH011)	AP Chinese (OCH04)	Honors Precalculus with Trigonometry (OM013)		Upper Level Course*

* Possibilities include, but are not limited to, AP Music Theory (OMT01), The Study of the Mind: Psychology, Neuroscience, and Philosophy (OPS10), AP World History (OH010)

MAYA'S PLAN—OHS MIDDLE SCHOOL/BROAD FOUNDATION 2

GRADE	CORE	ENGLISH	HISTORY/ HUMANITIES	LANGUAGE	MATH	SCIENCE	OTHER
7TH		Fundamentals of Expository Writing (JE001)	Introduction to US History (JH001)	Latin 1A (JLA1A)	Honors Beginning Algebra (OM011)	Inquiry-Based Physics (JP001)	
8TH		Fundamentals of Literary Analysis (JE002)	Empires and World Civilizations to 1800 (JH002)	Latin1B (JLA1B)	Honors Intermediate Algebra (OM012)	Foundations of Science: Energy and Matter (JS002)	
9TH	Methodology of Science – Biology (OMSB9)	Textual Analysis and Argumentation (OE010)	Revolutions and Rebellions (OH005)	Latin 2 (OLA12)	Honors Geometry (OM015)	[see OMSB9]	
10TH	History of Science (OHSC0)	Modes of Writing and Argumentation (OE011)	[see OHSC0]	Latin 3 (OLA13)	Honors Precalculus with Trigonometry (OM013)	Honors Physics (OP005)	
11TH	Democracy, Freedom, and the Rule of Law (ODFRL)	AP English Language and Composition (OE020)	AP US History (OH011)		AP Calculus AB (OM4AB)	AP Chemistry (OC010) with summer bootcamp	
12TH	Critical Reading and Argumentation (OCRA1)	AP English Literature and Composition (OE021), or Advanced Topics in Literature (OE27/28)	AP World History (OH010), or Advanced History Research Seminar (OH032)		AP Statistics (OM060), or AP Calculus C (OM42C) and Logic in Action (UM157)	AP Biology (OB010)	

HECTOR'S PLAN—MATH/SCIENCE FOCUS

GRADE	CORE	ENGLISH	HISTORY/ HUMANITIES	LANGUAGE	MATH	SCIENCE	OTHER
9TH	Methodology of Science – Biology (OMSB9)	Literary Analysis and Argumentation (OE009)		Spanish 1 (OSP11)	Honors Geometry (OM015)	Honors Chemistry (OC005)	
10TH	History of Science (OHSC0)	Textual Analysis and Argumentation (OE010)	[see OHSC0]	Spanish 2 (OSP12)	Honors Precalculus with Trigonometry (OM013)	AP Biology (OB010)	
11TH	Democracy, Freedom, and the Rule of Law (ODFRL)	Modes of Writing and Argumentation (OE011)	AP US History (OH011)	Spanish Conversation 1 (OSPC1)	AP Calculus BC (OM4BC)	AP Physics C (OP051/53) with summer bootcamp	
12TH	Critical Reading and Argumentation (OCRA1)	AP English Language and Composition (OE020)	[see DFRL]		Multivariable Calculus (UM52A/B)	Advanced Topics in Biological Research (with writing option, OB012)	Upper Level Course*

* Possibilities include, but are not limited to, Economics (OEC10, OEC15), AP Computer Science (OCS01), Study of Mind (OPS10)

SMITA'S PLAN—ADVANCED MATH FOCUS

GRADE	CORE	ENGLISH	HISTORY/ HUMANITIES	LANGUAGE	MATH	SCIENCE	OTHER
7TH		Fundamentals of Expository Writing (JE001)	Introduction to US History (JH001)		Honors Intermediate Algebra (OM012)	Inquiry-Based Physics (JP001)	
8TH		Fundamentals of Literary Analysis (JE002)	Empires and World Civilizations to 1800 (JH002)		Honors Geometry (OM015)	Earth, Environment, and Energy (OS005)	Fall: Intro. to C Programming (OC11A)/ Spring: Programming in C (OC11B)
9TH	Methodology of Science – Biology (OMSB9)	Textual Analysis and Argumentation (OE010)			Honors Precalculus with Trigonometry (OM013)	Honors Chemistry (OC005)	AP Computer Science (OCS01)
10TH	History of Science (OHSC0)	Modes of Writing and Argumentation (OE011)	[see OHSC0]	Chinese 1 (OCH11)	AP Calculus BC (OM4BC)	AP Biology (OB010)	
11TH	Democracy, Freedom, and the Rule of Law (ODFRL)	AP English Language & Composition (OE020)	[see ODFRL]	Chinese 2 (OCH12)	Multivariable Calculus (UM52A/B)	AP Physics C (OP051/53) with summer bootcamp	
12TH	Critical Reading and Argumentation (OCRA1)	Spring: Advanced Topics in Literature II (OE026—half credit option)	AP US History (OH011)	Chinese 3 (OCH13)	Fall : Linear Algebra (UM51A)/ Spring: Differential Equations (UM53A)		Upper Level Course*

* Possibilities include, but are not limited to Data Structures (OCS25), Economics (OEC10, OEC15), University-Level Physics (UP055 and UP070), Study of Mind (OPS10)

JIN'S PLAN—HUMANITIES FOCUS

GRADE	CORE	ENGLISH	HISTORY/ HUMANITIES	LANGUAGE	MATH	SCIENCE	OTHER
7TH		Fundamentals of Expository Writing (JE001)	Introduction to US History (JH001)		Honors Prealgebra (JM007)	Inquiry-Based Physics (JP001)	
8TH	Human Nature and Society (JHSN2)	Fundamentals of Literary Analysis (JE002)	Empires and World Civilizations to 1800 (JH002)		Honors Beginning Algebra (OM011)	Foundations in Science: Energy and Matter (JS002)	
9TH	Methodology of Science – Biology (OMSB9)	Textual Analysis and Argumentation (OE010)	Revolutions and Rebellions (OH005)		Honors Intermediate Algebra (OM012)	Honors Chemistry (OC005)	
10TH	History of Science (OHSC0)	Modes of Writing and Argumentation (OE011)	AP US History (OH011)	Spanish 1 (OSP11)	Honors Geometry (OM015)		
11TH	Democracy, Freedom, and the Rule of Law (ODFRL)	AP English Literature and Composition (OE021)		Spanish 2 (OSP12)	Honors Precalculus with Trigonometry (OM013)	AP Biology (OB010)	
12TH	Critical Reading and Argumentation (OCRA1)	Fall: Making Moby Dick (UE030)/ Spring: 20th Century Genre Theory and Practice (UE031)	[see Other]	Spanish 3 (OSP13)	AP Calculus AB (OM4AB)		Advanced History Research Seminar (OH032) or Honors Physics (OP005)

GRADUATION REQUIREMENTS

STANFORD OHS GRADUATION REQUIREMENTS

In establishing its graduation requirements, Stanford Online High School has sought to strike a balance between providing a well-rounded education and ensuring that students have adequate time to study subjects in depth, including being able to move beyond traditional high-school-level courses into those at the university level. For these reasons the school has established a comprehensive set of graduation requirements and has also provided students with a variety of ways in which these requirements can be satisfied.

Students planning to graduate from Stanford OHS must maintain an approved academic plan with their Academic Advisors leading to the satisfaction of the graduation requirements outlined below.

Students who had not previously planned to graduate from Stanford OHS, and therefore have not maintained an academic plan for graduation, but have now decided to do so, must petition the Graduation Committee, through the counsel of their Academic Advisors.

ACADEMIC COURSE REQUIREMENTS (INCLUDES COURSES TAKEN IN GRADE 9–12 AT STANFORD OHS OR ELSEWHERE)

In total, students will take an equivalent of 20 full-year courses, or 200 units, to fulfill their graduation requirements, including

- English – 4 years (40 units)
- Math – 4 years (40 units)
- Natural Sciences – 3 years (30 units, must include at least 2 years of laboratory science)
- Social Sciences – 3 years (30 units, must include 1 year of US History—see below)
- Foreign Language – 2 years of the same language (20 units, 3 or more years are strongly recommended)
- Additional Academic Coursework – 4 years (40 units, may include courses from areas other than those noted above and/or additional courses from those listed here—see below)

CORE COURSE SEQUENCE REQUIREMENT

In order to ensure that students at Stanford OHS participate fully in the intellectual life of the school, we require all diploma-seeking high-school students to take a Core course during each year they are enrolled. Although these philosophy-based courses do not fit easily into standard categories, Core courses count for Natural Science, Social Science, or English credit as indicated. The Core comprises an ordered sequence taken as follows:

- Methodology of Science – Biology (Natural Science)
- History of Science and Culture (Social Science)
- Democracy, Freedom, and the Rule of Law (Social Science)
- Critical Reading and Argumentation (English)

The middle school Core course, Human Nature and Society (JHNS2), is not required for middle-school commencement nor for high-school graduation. It does not count toward the Core Course Sequence requirement.

ADVANCED COURSEWORK DISTRIBUTION REQUIREMENT

Students must take a minimum of one year-long (10 units) Stanford OHS course at or above the Advanced Placement (AP) level in each of the following subject areas: Humanities (English), Social Sciences, and Natural Science/Mathematics (either subject).

NON-ACADEMIC COURSE REQUIREMENTS (NOT INCLUDED IN GPA CALCULATION)

- Physical Education – 2 years
- Health – 1 semester

Stanford OHS offers a Physical Education program to fulfill the PE requirement. While enrolled in Stanford OHS PE, students pursue their physical activity independently and submit a contract and regular log of their activity on a monthly basis. Other components of the program include goal setting, written reflection, and guest speakers. Students who are engaged in PE courses at a brick and mortar school or extensive work with a coach or formal program can petition for PE Credit through our transfer credit process. Stanford OHS requires that students complete a minimum of 4 semesters of physical education during high school in order to be eligible for graduation.

The Health requirement can be met by taking the Stanford OHS AP Biology class, or the directed-study course, Health (OB001). Health classes taken at other schools may also satisfy this requirement. However, the Stanford OHS health course has specific content requirements mandated by California state law. Therefore, please consult with an Academic Advisor to determine whether the health course you have taken outside of Stanford OHS qualifies for transfer credit.

STANFORD OHS "RESIDENCY" REQUIREMENTS

(FOR ANY STUDENT ENROLLED AT STANFORD OHS AT THE HIGH-SCHOOL LEVEL BEGINNING IN THE 2013–14 SCHOOL YEAR)

To earn a Stanford OHS diploma, students must be enrolled full-time in their final two years of high school. In addition, they must take a minimum number of Stanford OHS courses as follows:

- Students entering in 11th grade will, by virtue of their full-time enrollment, receive credit for a minimum of 8 Stanford OHS classes (80 units) over the course of two years (including DFRL, and CRA)
- Students entering in 10th grade must, over the course of three years, receive credit for a minimum of 11 Stanford OHS classes (110 units, including all HSC, DFRL, and CRA)
- Students entering in 9th grade must, over the course of four years, receive credit for a minimum of 14 Stanford OHS classes (140 units, including all four Core courses at the high school level)

PREVIOUS STANFORD OHS "RESIDENCY" REQUIREMENTS

(FOR ANY STUDENT ENROLLED AT STANFORD OHS AT THE HIGH-SCHOOL LEVEL PRIOR TO THE 2013–14 SCHOOL YEAR)

To earn a Stanford OHS diploma, students must take a minimum number of Stanford OHS courses as follows:

- Incoming seniors – 5 Stanford OHS classes (50 units, including Core: DFRL)
- Incoming juniors – 8 Stanford OHS classes (80 units, including Core: DFRL & CRA)
- Incoming sophomores – 11 Stanford OHS classes (110 units, including Core: HSC, DFRL, & CRA)
- Incoming freshmen – 14 Stanford OHS classes (140 units, including all four Core courses)

(Applies to students entering the 9th grade beginning in 2011–12.)

STATE OF CALIFORNIA REQUIREMENTS

Because Stanford OHS is accredited as a California high school, we must abide by California requirements for physical education, health education, and U.S. History. Therefore, all Stanford OHS graduates must complete two years of Physical Education, one semester of health, and one full year of U.S. History at Stanford OHS or elsewhere in order to receive the Stanford OHS diploma. How students can meet these requirements is detailed in the preceding section.

CREDIT BY PETITION, EXAMINATION, OR INDEPENDENT STUDY

Stanford OHS reserves the right to assign academic credit under the following circumstances:

- Students demonstrate skills and competencies equivalent to those who have completed a course of study. This can be arranged through the transfer credit process. See the following section.
- Students work independently under the direction of a Stanford OHS instructor. Such arrangements will be considered only after they have been first approved by the instructor, the appropriate division head, and the Director of Instruction. To initiate the process of such a request, students should contact the Director of Instruction for guidelines.

TRANSFER OF CREDIT & COURSES TAKEN AT OTHER INSTITUTIONS

Stanford OHS prepares students for success in their future intellectual pursuits within a flexible yet academically rigorous environment. For students who have indicated an intent to graduate from Stanford OHS, we evaluate coursework from other institutions or homeschool programs to ensure that they meet Stanford OHS diploma requirements.

High-school-level courses will be evaluated for credit approval by the Academic Advisors upon receipt of a completed Credit Transfer Petition form and an official transcript. The Credit Transfer petition forms can be found on the Gateway site.

The review of transfer credits completed at non-accredited schools or programs, through a homeschool program, enrichment programs, and any courses without direct parallels at Stanford OHS are likely to require additional information beyond the transcript and Credit Petition. In these cases, the Academic Advisor may request one or more of the following:

- Program contact information, including accreditation (if available)
- Grade level of the course and name of instructor
- Dates of enrollment
- Course syllabus, including reading assignments
- Description of major assignments, labs, and major assessments such as exams and papers
- Grading rubric with student's grade
- Test scores for related AP exam or SAT subject test.

High-school students who intend to take a course at another institution to satisfy a Stanford OHS graduation requirement are encouraged to obtain approval from their Academic Advisor prior to taking the course. A Credit Transfer Petition is required for all such requests. Additional details on the Credit Transfer Petition requirements are articulated on the forms located on the Gateway site.