ANDOVER SUMMER

SUMMER SESSION

at PHILLIPS ACADEMY

Upper School Institute Course Catalog

Summer 2027

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UPPER SCHOOL OVERVIEW

Our Upper School is designed for rising 9th-12th graders (or ages ~14-17) seeking an enriching summer academic experience supplemented with afternoon activities, optional trips to area colleges and weekend trips to local destinations. Upper School students can select from 50 course options, each taught by a member of our distinguished summer faculty. The Upper School provides the rigorous academic environment our students seek, while providing a nurturing and supportive community of learners.

COURSE SELECTION

Upon enrollment, students and parents/guardians will submit their course requests through the Family Portal. When selecting courses, all students* should enroll in the following:

A Period 1 core course (8:30 am-10:00 am)

A Period 2 core course (10:30am-12:00pm)

In addition to their two morning courses, every boarding student takes part in a LEAD period, an experiential learning block built around four actions: **L**earn, **E**ngage, **A**pply, and **D**emonstrate. These courses will meet during Period 3 on M, T, Th and F. *(see page 5)*

All Upper School Boarding students also participate in our afternoon activities program Mondays, Tuesdays, Thursdays and Fridays from 3:00-4:30pm.

**Day students may opt to enroll in one (1) core course, but all boarding students must enroll in (2) two core courses. Please note that Princeton Review Test Prep, College Counseling and Essential Study Skills do not count toward the course minimum. While we encourage day students to make an afternoon activity selection, this is optional.*

COURSE CHANGES

Students may utilize our Family Portal to make course changes until May 15th. After May 15th, students will be able to make changes via the add/drop period which begins on the first Friday of the program and ends on the first Sunday of the program.

PREREQUISITES AND GRADE LEVELS COURSE

Students and families should make themselves aware of required prerequisites and grade level restrictions (where listed) and should not enroll in any course for which they do not have the required prerequisite course or are not at the required grade level. If you have questions related to prerequisite or grade level requirements, please reach out to the summer office.

ACADEMIC ACCOMMODATIONS

Andover Summer can provide limited academic accommodations to admitted students. These accommodations may include extended time on testing, preferred classroom seating, and/or support at an evening study center. Once admitted, families should complete the required accommodations form in our medical portal and provide all necessary supporting documentation, in order to formally submit their request. All accommodations requests must be submitted by May 15, 2027. Requests made after this date may not be considered.

OPTIONAL COURSES AND ADD-ONS

Optional Courses and add-ons may be taken in addition to the required course minimum described above. These items are not included in tuition and fees.

Princeton Review Test Prep–$1000*

Princeton Review courses prepare students for the verbal, quantitative, and reading comprehension sections of the SSAT, PSAT and SAT standardized tests. Students will learn efficient test-taking strategies which, alongside full-length practice tests, will help relieve test taking anxiety and allow students to maximize their score.

SAT is open to rising 11th–12th graders, PSAT is open to rising 10-11th. SSAT Prep is open to rising 9th graders. Princeton Review courses meet 4x weekly for 1 hour. Students are scheduled into sections depending upon overall course schedule. For more information on Princeton Review Test Prep, please visit their website at: https://www.princetonreview.com.

**Please note students may not enroll in both Princeton Review Test Prep and Essential Study Skills*

Essential Study Skills–$675

This course is designed to teach students the skills to thrive, both academically and personally, in challenging school environments. Invited to nurture the broader dispositions that lead to academic success, students will emerge from the course with a toolkit of strategies they can use throughout their academic careers and beyond for finding and maintaining curiosity and motivation, cultivating optimism and resilience, developing essential academic skills, and applying learning strategies for improved time management and effective study. Essential Study Skills courses meet 4x weekly for 1 hour.

**Please note students may not enroll in both Princeton Review Test Prep and Essential Study Skills*

College Counseling Package–$350

Open to Upper School students, the College Counseling Program provides students with an insider's look at the college admissions process. Students who register for the college counseling program will have access to exclusive workshops led by admissions representatives from highly selective institutions, priority sign-up for weekly college trips and a one-to-one meeting with an Andover Summer college counselor.

A summer college fair will be held on Sunday, July 11th from 6:00-7:30 pm and is open to all Upper School students. A list of college and university attendees will be provided at the start of the program.

Music Lessons–$450

Students can select optional music lessons to keep their practice going strong throughout the summer. Students may enroll in four 45-minute lessons; practice rooms and instrument rentals are also available.

UPPER SCHOOL DAILY SCHEDULE

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
8:30-10:30 Continental breakfast	8:30-12:00 Academic Block	8:30-12:00 Academic Block	9:30-10:30 High School Meeting	8:30-12:00 Academic Block	8:30-12:00 Academic Block	8:30-12:00 Academic Block
10:30-1:00 Brunch	1:15-2:30 LEAD period	1:15-2:30 LEAD period	11:15-5:30 College Trips (optional)	1:15-2:30 LEAD period	1:15-2:30 LEAD period	1:00-5:00 Off-campus social activity (optional)
12:00-5:00 Off-campus social activity (optional)	3:00-4:30 Sports	3:00-4:30 Sports		3:00-4:30 Sports	3:00-4:30 Sports	
	5:15-6:15 Optional Programs	5:15-6:15 Optional Programs		5:15-6:15 Optional Programs	5:15-6:15 Optional Programs	
8:00-9:15 Dorm Activities	7:00-9:00 Study Hours	7:00-9:00 Study Hours	8:00-9:15 Dorm Activities	7:00-9:00 Study Hours	7:00-9:00 Study Hours	7:30-10:00 Social Activity
		7:00-8:00 College workshop		7:00-8:00 College workshop		
9:30-10:30 Free time (in dorm)	9:30-10:30 Free time (in dorm)	9:30-10:30 Free time (in dorm)	9:30-10:30 Free time (in dorm)	9:30-10:30 Free time (in dorm)	9:30-10:30 Free time (in dorm)	7:30-10:00 Social Activity
10:30 Quiet Time (in rooms)	10:30 Quiet Time (in rooms)	10:30 Quiet Time (in rooms)	10:30 Quiet Time (in rooms)	10:30 Quiet Time (in rooms)	10:30 Quiet Time (in rooms)	11:45 Quiet Time (in rooms)

UPPER SCHOOL COURSE OFFERINGS

In the pages that follow you will find the full range of possible Upper School courses that are currently being offered for the summer of 2027. Please note that final course offerings are dependent upon enrollment and staffing, and courses with insufficient enrollment may be cancelled at any point prior to the start of the summer. Students enrolled in a course that is being cancelled will be notified and given the opportunity to enroll in an alternate course, based on what remains available at that time.

Course enrollment is a first-come, first-served process, with our most popular courses and programs typically filling up in February or March each year.

L.E.A.D Period*

In addition to their two morning courses, every student takes part in a LEAD period, an experiential learning block built around four actions: **L**earn, **E**ngage, **A**pply, and **D**emonstrate. These courses will meet during Period 3 on M, T, Th and F.

LEAD periods offer students the opportunity to delve into subjects that spark their curiosity, or that are rarely available in a traditional high school curriculum. There are no exams. Students spend the session learning something new, engaging with it through hands-on activity, and applying what they've learned to a real project. The experience culminates in a final deliverable, such as a presentation, exhibition, or finished product, that each student shares with the community. LEAD enrollment will be on a first-come, first-served basis. LEAD periods will be shared in mid-April, with the selection process opening in late April for all Upper School students. **(LEAD periods are required for all boarding students, optional for an additional fee for day students.)*

LEAD Period reflects one of our shared missions of regular session; *finis origine pendet*, the end depends upon the beginning: curiosity and effort at the start shape what students are able to demonstrate at the finish. They will *lead* their way through this process!

ARTS - VISUAL AND PERFORMING

Acting and Performance

PERIOD 2

Working from the ground up, students learn how to use their minds, bodies, and voices as professional actors do. Beginning with physical and vocal exercises, improvisation games, and other ensemble building workshops, the course then moves on to more advanced acting techniques. Students explore some of the most influential theatre styles, plays, and characters—as well as creating their own—through rehearsal and in- class presentation, culminating in a public performance of their work from the summer. No prior theatre experience necessary; this class is equally suited for beginners or performance pros.

Ceramics

PERIOD 2

Express yourself through clay! This course discusses the elements of three- dimensional design and focuses on the creative potential of the student. Ceramics at Phillips Academy is comparable to ceramics courses taught at art schools and select universities; the Academy is equipped with facilities for pit firing, high fire gas, and Raku. Techniques, glazes, and firing procedures are introduced with the support of books, slides, and visits to the campus's Addison Gallery of American Art and Robert S. Peabody Museum of Archaeology.

Digital Photography

PERIOD 1

Through this class, students gain an understanding of the principles of photographic composition and quality, as well as how technology can improve their images. Students learn the basics of photography and how to use digital cameras, then scan their images into Adobe Photoshop, where they can transform them by adding color and using the program's many altering techniques. The ultimate challenge is for students to push their creative limits. Students are encouraged to bring a digital camera; those who do not have one are welcome to borrow one for the duration of the program.

Drawing and Painting

PERIOD 1

Welcome to the world of artistic expression! Drawing and Painting offers students an immersive and creative journey into the captivating realms of visual art. This course is designed for individuals who have a passion for drawing and painting, regardless of their skill level, and aims to cultivate and refine their artistic abilities while fostering a deeper understanding and appreciation of the visual arts. The fundamental elements of drawing— line, shape, value, perspective, and composition— are emphasized in the initial weeks of this course. Students are introduced to a variety of materials (graphite, charcoal, ink, and acrylic) through a series of exercises that celebrate drawing as a creative act. From drawing, students can expand into the realm of painting and mixed media, working from a variety of approaches.

COMPUTER SCIENCE

Game Design

PERIOD 2

Nearly everyone plays games, but have you ever wondered what makes a game fun? In this course, you'll learn the foundational design principles that developers use to create games that people love to play. Through our weekly design exercises, you'll gain valuable experience prototyping and playtesting new ideas — and of course, we'll be playing lots of board games and card games along the way to expand your design vocabulary. You'll also hear from industry professionals about what it's like to work in the games industry and gain insight into what a career in games might look like. This is an entirely analog course that uses cards, dice, paper, and more to get you creating and discussing designs right away. If you enjoy playing and thinking about games, this is the course for you!

Game Development

PERIOD 1

Have you ever wanted to program a game of your own? In this course, you'll learn how to use Unity, a free game engine, to create and publish video games. At the beginning of this course, you'll discover how to make simple tweaks to a game by modifying its code; by the end of the summer, you'll have completed a game of your own and published it to an online portfolio. Throughout the summer, you'll practice applying popular development tools, troubleshooting errors, and sharing your games with the world. You'll also get the opportunity to hear about what game development is like at both independent and "triple-A" game studios alike from currently working professionals. This class is a great fit for students who like to "learn as they go" and work on a tangible personal project. Previous programming experience is not necessary.

Introduction to Computer Science

PERIOD 2

Unlock the world of coding and software development in our exciting Introduction to Computer Science course designed exclusively for high school students participating in our summer program. This course is tailored to provide a comprehensive introduction to the fundamentals of programming and computer science, making it perfect for students with little to no prior coding experience. With a focus on hands-on learning, problem-solving, and creativity, students will explore the exciting universe of coding and its real-world applications.

Students explore the basics of computer programming while creating animations, games, and simulations using Python. Topics include object-oriented programming, variables, decisions, events, and the basics of game design in a graphical environment. Students do not need a strong high school math background, making this an ideal course for younger students. Though the course is not taught with a traditional programming language, all concepts can be transferred to other object-oriented languages, such as Java and Visual Basic.

COMPUTER SCIENCE

Robots: Design! Build! Program!

PERIOD 1

Welcome to the world of robots! Science, math, engineering, creativity, and logic are combined in this exciting introductory robotics and robotics programming course, cross-listed under science. This course provides a solid foundation in the principles and practices of robotics, blending theoretical knowledge with hands-on experience. Students will be taught to understand the fundamental concepts of robotics, including kinematics, dynamics and control systems. They will explore various types of robots and their application in different industries as well as learn about sensors, actuators, and the integration of hardware and software in robotic systems. At the end of the program, students will test their skills with a fun and competitive robotics challenge among their classmates.

Web Development: Design to Deployment

PERIOD 2

We use websites every day, but not many people understand how they work, and even fewer know how to create them. In this course, students will study the fundamentals of web programming, learn how to research development concepts with which they are unfamiliar, and publish their websites for the world to see. We will also practice generating code with the assistance of LLMs (large language models) and troubleshooting their output. At the end of the summer, students will be equipped with a basic understanding of HTML and CSS, a mental toolbox of online resources to consult when something goes wrong, and tangible experience guiding and correcting the output of LLMs to create the websites they've envisioned. This course is designed for students with no prior experience in web development or programming with a strong desire to master the fundamentals and begin creating websites right away.

ENGLISH

Creative Writing

PERIOD 1 or PERIOD 2

This course is for students who think of writing as an art, not just a useful skill. Students read and write in several genres—short story, poetry, and nonfiction memoir—using the readings as models for their own work. In their writing, students are expected to develop mastery of fundamental techniques of good writing, from basic grammar and usage to metaphorical language and plot structure. Required to write daily, revise, and produce polished final drafts as well as share in class, students begin to transform raw talent into true skill.

Introduction to Journalism

PERIOD 1 or PERIOD 2

The media is all over us all the time - in our phones, on the radio, in papers and magazines. But what is news that we can trust? What is opinion, advertisements, advocacy, even propaganda, that we must judge and evaluate? This course will teach students media literacy by giving them a grounding in the skills of professional journalists. They will learn how to report, how to conduct interviews, and how to write fact-based news stories. They'll then learn to write elegant feature stories, excellent analysis, and substantive opinion pieces. They'll supplement these skills with readings on the First Amendment and the law, so their work is grounded in a journalist's obligations and ethics. We'll then turn to examining the transformation of journalism in the digital age. Students will engage in a variety of digital platforms—from social media to podcasts to online magazine articles—to develop stories that engage both reason and emotion. Daily reading and writing exercises will help students expand their repertoire of rhetorical strategies, learn to analyze audiences, and determine which digital platforms are most appropriate for various situations. The class works together as a newsroom team, producing an end of summer digital newspaper.

Literary Analysis

PERIOD 2

Explore and appreciate the world of literature in our *Literary Analysis* course. Designed for enthusiastic readers, budding writers, and future scholars of literature, this course provides students with an exploration of literary works from various genres and time periods. Through lively discussions, critical thinking exercises, and close textual analysis, students will develop the skills to appreciate, analyze, and articulate the profound themes and ideas woven into great works of literature. Students will develop an in-depth understanding and appreciation of a range of different writers, and will practice actively reading novels, plays, short stories, and/or essays, writing articulately, and discussing text using evidence. Students will learn to see themselves as independent thinkers and to give voice to their thoughts through the written word

Speech and Debate

PERIOD 1 or PERIOD 2

In a survey, 3,000 Americans were asked what they dreaded most. Public speaking came in first— ahead of death! In an encouraging classroom atmosphere, students are taught to improve both the delivery and the content of their public speaking. Students write, revise, and speak extensively and are introduced to competitive high school speech activities, such as extemporaneous speaking, impromptu speech, and the Lincoln-Douglas debates. Close analysis of contemporary American political speeches and research of cutting- edge controversial topics provide issues for classroom debate. Students develop an invaluable skill that will serve them for the rest of their lives. This course assumes no prior knowledge of public speaking or debate.

Writing for Success: Expository Writing

PERIOD 1 or PERIOD 2

The most important writing course students will ever take–and the most sought-after writing course at Andover–*Writing for Success* emphasizes essay composition as a craft and exposes students to different uses and combinations of rhetorical modes, including definition, description, narration, process, comparison, and analysis. Over the course of the program, students practice constructing effective sentences and paragraphs to suit a variety of topics, audiences, and aims. By writing every day as well as reading and discussing the style and mechanics of published essays, students experience writing as a rewardingly rigorous, recursive, and creative process that involves brainstorming, planning, composing, editing, reverse outlining, and constructive peer review.

Writing the College Essay

PERIOD 1 or PERIOD 2

This course will move students through the brainstorming, drafting, and revision process to create a set of polished essays that can be used during the college application process. Focusing on the prompts released by the Common Application as well as addressing common short- answer supplemental questions. This course will support students in creating essays that represent their individual personalities and ambitions. Students will be required to write daily, participate in workshop activities and critiques, and reflect on their own life experiences.

HISTORY AND SOCIAL SCIENCES

Entrepreneurship

PERIOD 1

Entrepreneurship has become an established life and career path for many. Yet relatively few embark on this journey with the knowledge and skills needed to succeed and avoid its many pitfalls. At the same time, many people's image of entrepreneurship comes from shows like Shark Tank and The Apprentice – a Darwinian, zero-sum game where people vie for investment and seem fixated on making a million – scratch that – a billion dollars. Yet this is a very limited view of entrepreneurship and the possibilities it offers. This course exposes participants to multiple forms of entrepreneurship, from for-profit ventures, to nonprofits, educational and cause-related startups, and personal-brand development. The centerpiece of the course: each participant will create, refine, and present a business plan for a venture about which they are passionate. The course is very hands-on, filled with team exercises and development of core skills such as presentation, sales, networking, financial analysis, market research, and personal health as you pursue your dream. We'll also meet several successful entrepreneurs who will share some of their best-kept secrets to success. So come cultivate your ideas and meet fellow budding entrepreneurs.

Ethics in Action: Navigating Justice in the Modern World

PERIOD 2

Few ideas have been more powerful in human history than the idea of justice. This idea has been central to the ways that human societies function and think of themselves—not just governments and legal systems but also religious communities, social movements, and individuals. Though the quest for justice is one of humanity's oldest aspirations, it remains a powerful ideal today. In this course, we will examine the idea of justice in connection with the human quest to live a morally worthy life. We will look first at the origins of justice in classical thought and in long-standing religious traditions. This will help us to understand how and why people today conceptualize –and argue about—justice in the way that they do. In the second half of the course, we will use concepts in moral philosophy to consider the ethical backgrounds of environmentalism, human rights theory, and contemporary social justice movements.

Intelligence: Human and Artificial

PERIOD 1

What is intelligence, and how do we build it? This interdisciplinary course explores the nature of intelligence through the lens of psychology, cognitive science, artificial intelligence, and computer science. Students will investigate how humans think, learn, and make decisions, and how these cognitive processes have inspired technologies like neural networks and large language models.

By drawing connections between the brain and AI systems, students will explore questions like: How do our minds form concepts? How do computers learn? What can human and machine errors teach us about intelligence? Along the way, students will deepen their understanding of their own cognitive patterns while gaining foundational knowledge in how intelligent systems are built.

HISTORY AND SOCIAL SCIENCES

International Relations

PERIOD 1

This course is designed to stimulate students' interest in international relations and foreign policy. As a result of their experiences in the class, they become more astute observers of the international scene and learn to better understand the problems facing the world today. Emphasis is placed on both the historical background and the realities of the modern world scene. Students are assigned readings and gain considerable experience in utilizing library sources emphasizing a variety of viewpoints. Much attention is given to the development of critical thinking, and a large portion of the course is devoted to activities that promote student involvement. Students engage in seminars; serve as prosecutors, defenders, and court members in mock World Court cases; and become involved in a major simulation modeled on the United Nations, utilizing debate, negotiation, compromise, and decision- making skills.

Law and Society

PERIOD 1 or PERIOD 2

In this course, students will learn about the foundations of the American legal system and how they apply to social, economic, political, and individual issues. We will delve into issues of law, crime prevention, conflict resolution, advocacy, and human rights through a combination of case studies, legal analyses, and mock trials. This class will study several landmark cases from the American legal system's history and explore their impact on our society, while considering how the precedents set in these cases apply to current issues. If you love discussion, if legal issues intrigue you, if you're thinking about studying law, or if you just want to look at society from a new point of view, this is the class for you.

Money, Economy, and Society

PERIOD 1 or PERIOD 2

Our lives are impacted by economic forces in surprising and powerful ways. Learn to appreciate these forces and you'll make smarter personal decisions and better sense of the world around you. What constitutes a "fair price" when you purchase a new iPhone? Why is LeBron James paid forty million dollars a year to play basketball when a nurse or firefighter is paid forty thousand dollars a year to save human lives? Is it possible to bring manufacturing jobs back to America by placing tariffs on Chinese imports? Can we reduce income inequality by taxing the rich and writing checks to the poor? Why is a stay-at-home-mom who cares for her children and cleans the house classified by economists as "unproductive"? To answer these and many more questions, we trace the main currents of economic thought from Adam Smith and Karl Marx to Marilyn Waring and Thomas Piketty.

HISTORY AND SOCIAL SCIENCES

Introduction to Philosophy

PERIOD 2

Philosophy has been around for a long time, but what is it? This course is for anyone who has ever wondered what philosophy is about, as well for those who would like to deepen what they may already know about it. Everyone thinks, but not everyone thinks philosophically. Over the millennia, philosophers have come up with questions, ideas, and methods that allow us to look beneath the surface of things, examine our preconceptions, and gain new insights about ourselves and the world we live in. This course is about what it means to do this. We will watch philosophical films and read the works of many famous philosophers like Plato, Aristotle, René Descartes, John Locke, and Immanuel Kant. We will also take a field trip to Walden Pond, where Henry David Thoreau, one of America's great thinkers, conducted a famous philosophical experiment. Most of all, we will think, talk, and have fun exploring the fascinating world of ideas.

Social Psychology

PERIOD 1

This summer, embark on a thought-provoking journey into the complexities of human behavior and social interactions. Whether you are interested in psychology as a potential field of study or simply want to better understand the world and people around you, this course will provide you with the tools to explore the intricacies of social psychology and its impact on our daily lives. Gain a deeper understanding of human behavior and society and develop critical thinking skills that will serve you well in any field. This course will provide an introduction to the theories and applications of social psychology in research, academic and social settings. Through class activities and discussions, students experience and reflect on constructs of social psychology that they will have read about in scientific settings. Students are also involved in discussing the relevance of gender and ethnic diversity in the construction of social values, with specific focus on their own lives and experiences. Topics include group dynamics, conformity, self-knowledge, attitude formation and change, interpersonal attraction, prejudice, and aggression.

The Explorer's Lab: Ideas Across Disciplines

PERIOD 2

Explorer's Lab is for students who want to discover their passion by learning how to connect and apply what they're learning to real world issues. Think of it as a "sampler plate" of big ideas and skills, from the arts and sciences to philosophy, psychology, design, economics, technology, and even emerging fields like AI. Each week brings new themes, disciplines, and challenges brought together through the lens of systems thinking and interdisciplinary methodology. In this course, learning isn't about mastering material, but learning how to think critically and creatively. How do we ask better questions, get to the root of the problems that matter to us, design effective responses, and develop the emotional resilience to keep going when the path forward is uncertain. Along the way, students will develop core skills in critical analysis, close reading, ethical reasoning, presentation, and teamwork. Essentially, students will develop the skills and ability to formulate an informed opinion on the issues that matter most to them. The course culminates in a student-driven capstone that works to understand and develop a response to a real-world issue. The Explorer's Lab equips students with the mindset and confidence to be lifelong learners: curious, adaptable, empathetic, and unafraid to ask bold questions.

HISTORY AND SOCIAL SCIENCES

World Revolutions: The Forces That Reshape the World

PERIOD 1

What drives ordinary people to risk everything to tear down the world as they know it and build something entirely new? This intensive five-week exploration examines three pivotal revolutions that forever altered human history: the Haitian Revolution's unprecedented triumph of enslaved people over colonial masters, the Russian Revolution's dramatic collapse of imperial rule, and the decades-long struggle that dismantled South Africa's apartheid system. Through rigorous analysis of primary sources and eyewitness accounts, you'll uncover the complex web of economic pressures, social inequalities, and political catalysts that ignite revolutionary fervor while developing sophisticated critical thinking and analytical writing skills. You'll craft your own revolutionary manifesto, design a compelling protest poster that captures the visual language of resistance, and step into the boots of a Russian peasant in 1917, navigating the competing promises of Bolsheviks, Mensheviks, and other political factions vying for your allegiance. From the sugar plantations of Saint-Domingue to the townships of Soweto, you'll investigate how revolutionaries navigate the treacherous path between idealistic vision and brutal reality, discovering what separates mere reform from true revolution and why some movements succeed in reshaping civilizations while others collapse into chaos.

MATHEMATICS

Geometry*

PERIOD 1 or PERIOD 2

Explore the fascinating world of shapes, angles, and spatial relationships, and get a jump on the high school geometry curriculum. For students who have had a strong elementary or middle school algebra course but no geometry, this course is a thorough study of the fundamentals. The development of logical, structured proofs and deductive reasoning is emphasized. Along with numerical solutions to problems, topics include basic postulates of geometry, lines and angles, congruent triangles, parallel lines in the plane and in space, quadrilaterals and polygons, circles, similar triangles and other figures, and the Pythagorean Theorem. **Prerequisite: successful completion of one year of algebra*

Dynamic Data-Statistics in Action*

PERIOD 1

Prepare to unleash the power of data-driven decision-making, and to use mathematical analysis to better understand the world around you. This course offers a comprehensive introduction to the world of statistics, data analysis, and their real-world applications. Covering the exploratory analysis of data, students will make use of graphical and numerical techniques to study patterns and develop plans for data collection of valid information. Topics include probability as the tool for producing models, random variables, independence, normal distribution, simulation, sampling, statistical inference, confidence intervals, and tests of significance. **Prerequisite: successful completion of one year of algebra*

Personal Finance

PERIOD 1 or PERIOD 2

In a world of complex financial decisions and endless possibilities, *Personal Finance* is designed to empower you with the knowledge, skills, and strategies necessary to navigate your financial journey successfully. This course is tailored to equip students with the essential tools to make informed financial decisions, achieve financial security, and build lasting wealth. By developing students' financial literacy skills and emphasizing real-world applications of mathematics in the areas where students will need to be most skilled when they become financially independent, *Personal Finance* helps students set the stage for a prosperous future. Budgeting, learning to borrow and invest wisely, understanding the stock market and basics of investing, and planning for major purchases and life events will all be covered. Through a combination of reading, research, simulation activities, projects, and data analysis, students will learn to prepare for their financial futures.

Topics in Algebra I*

PERIOD 2

A practical overview for students entering high school, this course reviews and reinforces math skills found in the pre-algebra and Algebra I curriculum. It should provide a solid foundation for Algebra II and Intermediate Algebra. Topics include several fundamental concepts of Algebra, graphing and solving linear and quadratic functions, solving systems of linear equations and properties of exponents. **Prerequisite: successful completion of one year of algebra*

MATHEMATICS

Topics in Algebra 2*

PERIOD 2

Engage in a more detailed exploration of fundamental algebraic concepts and techniques that build upon the foundational principles introduced in Algebra I. This course is designed for students seeking to deepen their mathematical proficiency and prepare for more advanced mathematics and science courses and will cover math skills found in the Algebra II curriculum. It should provide a solid foundation for pre-calculus. Topics include solving linear equations and inequalities and absolute value equations and inequalities. A study of linear functions will be followed by polynomials and rational expressions. An in-depth study of quadratic functions may be followed by exponential and logarithmic functions, time permitting. **Prerequisite: successful completion of one year of algebra*

Topics in Precalculus*

PERIOD 1

Upperclassmen, take your mathematical skills to the next level with our Topics in Precalculus course. Designed for rising juniors and seniors who have a strong foundation in algebra and trigonometry, this course explores advanced precalculus concepts and lays the groundwork for future studies in calculus. Topics covered will include linear systems of equations, linear functions, quadratic functions, polynomial functions, logarithmic functions, and radical functions. Additional topics may include sequences and series, counting and probability, matrices, and partial fractions. A graphical calculator will be used in class, enabling students to gain both a graphical and an algebraic understanding of concepts.
**Prerequisite: successful completion of algebra I and algebra II*

SCIENCE

Exploring Astronomy: Are We Alone in the Universe

PERIOD 1 or PERIOD 2

Astronomers have discovered over 6000 planets orbiting other stars. These exoplanets are being examined in greater detail in the hope that scientists will uncover unequivocal evidence of extraterrestrial life proving what most astronomers already assume; we are not alone. Groups like SETI are also exploring why we have yet to discover life in our solar system and beyond. The answer may lie in the age, scale and timing of the evolution of these exoplanets. Modern astronomy is a quest for a greater understanding of the evolution and diversity of the Universe, as well as an application of critical thinking skills to broader questions in physics, chemistry, geology, biology, and environmental science. This class examines the current state of the science as well as future avenues of research and discovery. Topics include traditional areas of emphasis, such as the electromagnetic spectrum, the scientific method, light, telescopes, navigating the night sky, cosmology, solar system formation, the planets, global climate change, comets and asteroids, the sun, and the lifecycle of stars. We also apply a critical analysis to the broader questions that include the search for life in the Universe and connections to the history of life on this planet. We keep a close eye on current research and examine the history of science through the eyes of nonconventional thinkers, including Einstein and Galileo. Lastly, we examine some of the more exotic subjects that are stretching the limits of modern science such as black holes, ion propulsion, dark energy, spacetime, and life in extreme environments. We make use of the extraordinary imagery and resources available here at Phillips Academy, often including the state-of-the art observatory in Gelb Science Center. Throughout the session, students critically engage with the science, enhance their science literacy and capture a snapshot of these emerging areas of research and discovery!

Biology: Introductory

PERIOD 1

Start to unlock the secrets of life in this overview of biological concepts and principles. Designed as an intensive introductory lecture, laboratory, and field course, students will investigate and explore ecology, plant biology, animal diversity, concepts of animal structure, and cellular biology. Scientific writing is an ongoing focus. The framework anchors a student's conceptual understanding of biology with an emphasis on biology as a process rather than an accumulation of facts.

Advanced Biochemistry

PERIOD 2

Advanced Biochemistry examines the chemistry of life at the molecular level. Students investigate how the structure and function of proteins, carbohydrates, lipids, and nucleic acids give rise to the processes that sustain living cells. Topics include enzyme kinetics and regulation, the thermodynamics of biological reactions, cellular metabolism (glycolysis, the citric acid cycle, and oxidative phosphorylation), photosynthesis, and the molecular basis of gene expression. Throughout the course, students connect fundamental principles to real-world applications in medicine, nutrition, and biotechnology.

The course combines discussion and problem solving with extensive laboratory work. Students gain hands-on experience with techniques used in modern research laboratories, such as spectrophotometry, protein assays, enzyme activity experiments, chromatography, and gel electrophoresis. They will learn to collect and analyze data, interpret results, and communicate their findings in the manner of working scientists, including through reading and discussing primary scientific literature.

SCIENCE

Chemistry: Introductory*

PERIOD 1

The course enables students to understand and use basic concepts of chemistry to think critically about current issues in science and technology. Geared toward motivated students who show an interest in science, students will study essential chemical principles such as the mole concept; stoichiometry; atomic structure; chemical bonding and reactivity; gas laws, and molarity of solutions. The course is balanced by a combination of lectures, problem-solving, and laboratory work, providing a strong foundation in chemistry. **Prerequisite: successful completion of one year of algebra *Requirement: scientific calculator*

Accelerated Chemistry with AP Prep*

PERIOD 2

This intensive course is intended for highly motivated students who are planning to take either an accelerated introductory chemistry course or an AP Chemistry course and who have demonstrated strong mathematical and conceptual abilities. This course teaches students essential chemical principles, such as the mole concept; stoichiometry; atomic structure; chemical bonding and reactivity; gas laws, and molarity of solutions. In addition, students will have access to exclusive AP Chem prep videos and materials. The course is balanced by a combination of lectures, problem-solving exercises, and substantial laboratory work where students will learn techniques such as spectrophotometry and titration. Utilizing a college-level textbook, the course covers most topics at a depth equivalent to that of an introductory college chemistry course. **Prerequisite: successful completion of one year of algebra with strong grades. **Requirement: scientific calculator*

Environmental Science: Food, Agriculture, and the Future

PERIOD 1

This course examines agriculture as a major driver of global environmental change and public health trends. We will explore the demands placed on food production by population growth and a dietary transition, the chemical origins and ecological impacts of fertilizer, and the implications of limited resources of water, land, and oil. The course will integrate fundamental environmental principles of nutrient cycling and energy flow, introduce environmental economics and policy, and examine how agriculture affects land use, climate change, and biodiversity. We will explore public health impacts of agriculture including food safety, antibiotic resistance, and the rise of obesity and diabetes. Finally, we will consider the future of agriculture and food. Readings will include original scientific literature, nonfiction books and essays, text excerpts, and news coverage. Students should be prepared to undertake a session project.

Genetics*

PERIOD 1

This rigorous course studies the profound implications of recent advances in genetics. It will begin with a review of the structure and function of DNA in addition to the basics of Mendelian genetics. Further exploration of the topics will lead to a deeper understanding of genetic diseases, cancer, evolution, and the new field of epigenetics. The course considers methods of detecting genetic defects and genetic engineering and includes discussions of the ethical implications of both. A significant portion of this course will include work in the lab with a variety of techniques. **Prerequisites: successful completion of one year of biology and one year of chemistry*

SCIENCE

Marine Biology

PERIOD 2

Dive into the wonders of the underwater world! This course offers a unique opportunity to explore the mysteries of the ocean, from vibrant coral reefs to the depths of the open sea. Students will be introduced to several different aspects of marine biology through lectures, laboratory investigation, and field trips. Topics include, but are not limited to, oceanography, marine invertebrate, and vertebrate zoology (including physiological adaptations to a marine environment), aquaculture, and ecology of the various habitats within aquatic ecosystems. We will examine the physical and chemical properties of seawater, organisms that have evolved to an aquatic environment, the physiological and behavioral adaptations those organisms have developed, and the different ecosystems within oceanic zones.

Neuropsychology

PERIOD 2

Come explore the neurological basis for how our brain impacts everyday behavior. Students enrolled in this course will study the relationship between the brain, nervous system structures, and human behavior, learning about basic brain anatomy and function as well as cognitive disorders and behavioral disorders from a neuropsychological perspective. Students will engage in an exploration of how everyday actions, such as using a cell phone, impact nervous system function, their own behaviors, and the behaviors of those around them. Students will have the opportunity to take a more in-depth look at an area of their choosing ranging from the study of Alzheimer's and Parkinson's to the more controversial subject of CTE in NFL athletes.

Physics: Introductory*

PERIOD 2

What are the fundamental laws that govern our world, from the motion of the stars to the behavior of subatomic particles? This course covers the main ideas of foundational principles of physics, focusing primarily on mechanics, and provides a solid foundation of concepts, confidence in problem solving, and exposure to laboratory techniques. Although this course does not cover a full year's worth of material, the techniques learned serve as excellent preparation for all introductory physics topics.

**Requirement: Texas Instruments TI-84 graphing calculator or its equivalent*

**Prerequisite: successful completion of one year of algebra*

Accelerated Physics with AP Prep*

PERIOD 1

This course is an algebra-based, advanced physics course, intended to prepare students for Advanced Placement. Students cultivate their understanding of physics through classroom study, in class activity, and hands-on, inquiry-based laboratory work as they explore concepts like systems, fields, force interactions, change, conservation, and waves. By confronting complex physical situations or scenarios, the course is designed to enable students to develop the ability to reason about physical phenomena using important science practices, such as explaining relationships, applying and justifying the use of mathematical routines, designing experiments, analyzing data, and making connections across multiple topics within the course. **Prerequisites: successful completion of one year of algebra with strong grades.*

UPPER SCHOOL AFTERNOON ACTIVITY OFFERINGS

Badminton

Students will learn and practice the rules, techniques, and strategies of badminton. Classes will feature skill development, partner drills, recreational games, and friendly competition.
Equipment: Racquets and birdies are provided. Personal equipment may also be used.

Basketball: Beginner to Intermediate

This program is designed for students who are new to basketball or continuing to build their foundational skills. Students will practice dribbling, passing, shooting, defense, and teamwork before applying those skills in organized games.
Equipment: Basketball shoes required. Basketballs, court space, and pinnies are provided.

Basketball: Intermediate to Advanced

This faster-paced program is intended for experienced players seeking more challenging skill development and competition. Students will work on team concepts, offensive and defensive strategies, and competitive 3 on 3 and 5 on 5 game play, game play.
Equipment: Basketball shoes required. Basketballs, court space, and pinnies are provided.

Cardio Kickboxing

Students will complete high-energy workouts combining kickboxing techniques with cardiovascular conditioning and strength exercises. The program emphasizes proper form, coordination, endurance, and stress relief; no student-to-student contact is involved.
Equipment: Gloves and heavy bags are provided. Athletic clothing and sneakers are required.

Dance

Students will develop rhythm, coordination, confidence, and creative expression through a variety of dance styles. Classes will combine instruction, choreography, and opportunities for individual and group performance.
Equipment: Comfortable athletic clothing and supportive sneakers are required.

Fitness

Students will learn how to safely improve strength, endurance, mobility, and overall physical wellness. Workouts may include resistance training, cardiovascular exercise, functional movement, and individualized fitness goals.
Equipment: Workout equipment is provided. Athletic clothing and sneakers are required.

Outdoor Games

Students will participate in a rotating selection of recreational games, team challenges, and outdoor competitions. This program provides an active, social, and enjoyable environment for students of all experience levels.
Equipment: Game equipment is provided. Athletic clothing and supportive sneakers are required.

UPPER SCHOOL AFTERNOON ACTIVITY OFFERINGS

Running

Students will improve cardiovascular fitness, running form, pacing, and endurance through a variety of structured workouts. Activities will be adapted for different experience levels and may include intervals, steady runs, and recovery sessions.

Equipment: Proper running shoes are required.

Soccer: Beginner-Intermediate

This class is designed for students who would like to learn or improve their skills in a competitive, recreational environment. Students will be organized into teams and develop technical skills, tactical awareness, and teamwork. Small sided and full field games will be progressed to.

Equipment: Soccer balls, pinnies, and goals are provided. Exercise clothing and proper footwear are required; cleats are welcomed when outdoors.

Soccer: Intermediate-Advanced

Experienced players will refine technique, strategy, footwork, shot selection, and competitive decision-making. Sessions will include higher-level drills, point play, and organized matches.

Equipment: Soccer balls, pinnies, and goals are provided. Exercise clothing and proper footwear are required; cleats are welcomed when outdoors.

Spin

Students will participate in instructor-guided indoor cycling workouts designed to improve cardiovascular fitness and muscular endurance. Each bike's resistance can be adjusted to provide an appropriate challenge for different fitness levels.

Equipment: Stationary bikes are provided. Athletic clothing and sneakers are required.

Squash

Students will develop their serving, striking, movement, positioning, and understanding of squash strategy. Sessions will include skill instruction, conditioning, drills, and supervised match play.

Equipment: Protective goggles and squash racquets are provided and required. Squash court shoes are highly recommended.

Swimming

Students will improve stroke technique, cardiovascular endurance, and overall fitness through structured swimming workouts. Participants should be comfortable in the water and able to participate in continuous swimming activities for more than 50 yards.

Equipment: Appropriate swimwear is required. Goggles are recommended but are not provided.

Learn to Swim

This class is designed for students who are non-swimmers or who want to become more comfortable in the water. Students will learn water safety, floating, breathing, kicking, and fundamental swimming strokes in a supportive environment.

Equipment: Goggles are provided. Proper swimwear (such as swim shorts, bathing suit, or swim shirt) is required.

UPPER SCHOOL AFTERNOON ACTIVITY OFFERINGS

Tennis: Beginner to Intermediate

Students will learn or strengthen the fundamentals of serving, groundstrokes, volleys, scoring, and court positioning. Instructional drills and guided match play will help students build confidence and consistency.
Equipment: Tennis racquets and balls are provided. Court-appropriate athletic shoes are recommended.

Tennis: Intermediate to Advanced

Experienced players will refine technique, strategy, footwork, shot selection, and competitive decision-making. Sessions will include higher-level drills, point play, and organized matches.
Equipment: Tennis racquets and balls are provided. Students may use their own racquets.

Volleyball: Beginner to Intermediate

Students will develop foundational skills in passing, setting, serving, hitting, rotation, and team communication. Instruction will progress from individual drills to small-group activities and organized games.
Equipment: Volleyballs are provided. Knee pads are not provided; supportive court shoes are highly recommended.

Volleyball: Intermediate to Advanced

Experienced players will participate in advanced skill development, positional training, team systems, and competitive play. The program moves at a faster pace and requires a strong understanding of volleyball fundamentals.
Equipment: Volleyballs are provided. Knee pads are not provided; supportive court shoes are highly recommended.

Walking

Students will build fitness and support their well-being through purposeful walks around campus and nearby areas. The program will explore pace, distance, posture, recovery, and the mental benefits of regular movement.
Equipment: Comfortable, supportive walking shoes are required.

Yoga

This class is structured to provide a gentle series of exercises and stretching that will involve warm-ups, strengthening core muscles, standing postures, and relaxation. The program emphasizes flexibility, body awareness, and breath-to-movement connection.
Equipment: Yoga mats are provided. Comfortable clothing that allows movement is recommended.