PRISMS

Princeton International School
Of Mathematics and Science

Course Catalog
2024-25

last revised, Apr 12, 2024

Administration ∇

Matthew Pearce	Principal
Dr. Xiaoyu Wang	Deputy Principal
Joseph Li	Deputy Principal
Bradford Carpenter	Asst. Principal for Student Life
Adam Kemp	Asst. Principal for STEAM Department
Dr. Xiang Gong	Asst. Principal
Dr. Steven Chen	Asst. Principal
Dr. Yang Yang	Director of Admissions
Tiger Gao	Director for Student Life
Marilee Jones	Dean of College Counseling
Eugene Mok	School Counselor

Mission Statement ∇

Princeton International School of Mathematics and Science immerses a multicultural, self-motivated student body in an integrated STEM–centered curriculum and a research program that identifies and develops each student's potential. Our approach promotes critical thinking, imagination, and deep curiosity, and enables students to ask meaningful questions and to contribute to a diverse and dynamic world.

Core Values ∇

Respect and love are at the heart of effective teaching. The teacher–student relationship is based on teachers' respect for their students, and that respect inspires learning and creativity. Devoted teachers love their subject and their craft. Together respect and love lead to the finest and most profound education.

Science, technology, engineering, and mathematics are crucial for the advancement of civilization.

Humanities, world languages, and the fine arts are essential for students to understand and express themselves in the context of the world around them.

Research-based education shapes the adolescent brain in a beneficial way.

Excellent teaching ignites a sense of wonder.

Perseverance is an essential trait for students to develop and nurture.

Integrity is fundamental to a responsible and meaningful life.

The ethical application of knowledge improves our world.

Collaborative and independent learning are both essential for substantive achievement.

The habit of excellence can be developed.

Education should equip students to contribute positively to society.

A healthy body and mind are essential to intellectual development and a productive life.

Table of Contents

Introduction

This catalog is a reference guide for students attending Princeton International School of Mathematics and Science. The catalog includes a complete guide of course offerings at PRISMS and relevant academic policies that may affect students' course selection.

At PRISMS, we will work with you to create a program of study that matches your aspirations and aptitudes while also building your skills in other areas to develop you into a well-rounded student. You will be encouraged to select courses that you find intellectually stimulating and enriching.

Please familiarize yourself with the contents of this catalog. Any questions can be directed to the Director of Academics or the School Counselor. We look forward to supporting you through your academic journey at PRISMS.

Academic Policies

Course Level and GPA

Courses at PRISMS are honors level, Advance Placement (AP), post-AP. All courses are unweighted for the purposes of calculating GPA. Clubs and activities are not factored into GPA. Each letter grade corresponds with a numeral equivalent as indicated in the following table:

Letter Grade	Grading Scale	GPA
A	93-100	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3
C	73-76	2.0
C-	70-72	1.7
D+	67-69	1.3
D	64-66	1.0
F	63 & Below	0.0

Quarterly grades only appear on mid-term and semester report cards. Students' permanent transcripts reflect only the final grade for each course.

Rank In Class

PRISMS does not record a class rank on students' transcripts. PRISMS students regularly meet the challenge of their rigorous course loads, so keeping a class rank would not be an insightful statistic on any student's performance, would drive unnecessary competition, and would disrupt the community. Therefore, we have chosen not to record any class rank.

Graduation Requirements

Domestic students must earn a minimum of 26 course credits by successfully completing the listed requirements in the chart below in order to be eligible for graduation. International students must earn a minimum of 23 course credits since the language requirement is waived, but may substitute electives for the waived language courses, if desired.

Full year courses yield 1 credit. Semester courses yield 0.5 credits.

Subject Area	Minimum Credits	Comments
Biology	1	All students must successfully complete at least the Honors level of each core science.
Chemistry	1	
Physics	1	
STEM Electives	3	At least one STEM elective must be at the Advanced Placement (AP) level.
Computer Science	1	
Mathematics	4	All students must successfully complete Calculus. Students have four years to complete Calculus. If a student completes Calculus before senior year, then that student has extra credits available for additional electives in math or any other area.
Applied Engineering	2	Two-year sequence: Applied Engineering 1 (9th grade); Applied Engineering 2 (10th grade)
Research	2	Two-year sequence: Research (11th and 12th grades).
English	4	
History	2	Two-year sequence: AP World History (10th grade); AP United States History (11th grade).
Humanities Elective	1	
World Languages	3	Students for whom English is their second language are eligible to have their World Language requirement waived. If waived, these students may schedule three additional electives in any area or extra study halls for additional time to complete their homework, most of which will be in the English language.
Fine Arts	1	Art or Music.
Physical Education	Non-credit	After School Physical Activity required for all students.
Total	26 Credits	

- Lowest Science level = Honors Level.
- If a student places directly into an AP STEM course, skipping the honors level STEM course, the AP course substitutes for the honors level graduation requirement. This AP course cannot be used to simultaneously fulfill a STEM elective requirement.
- 9th Grade: BASE Program required.

Transferring Credit

Students who transfer into PRISMS from a different high school or from grade 9 in the Chinese National School system (year 3 of lower middle school) will have their transcripts reviewed upon entry into PRISMS. Only credits that are approved to fulfill graduation requirements will be posted to PRISMS transcripts as transfer credits and utilized for calculation into their cumulative GPA. Not all credits may be eligible to satisfy graduation requirements. When planning their program of study, transfer students should consult with the guidance counselor regarding which graduation requirements have been satisfied by prior credits.

Transfer students who choose to repeat one or more grade levels at PRISMS shall have the respective academic years marked as "repeat" on their transcripts.

Coursework taken prior to grade 9, no matter the course level, will not be eligible for transfer.

Coursework taken at online programs, foreign study programs or summer programs will not be accepted as credit toward graduation.

Transfer Exemptions

Students who transfer into PRISMS for grade 10 or 11 may be exempt from certain graduation requirements. Please see the Director of Academics or guidance counselor for more details.

Scheduling Policies

Δ

The PRISMS Scheduling Team is excited to offer students an exciting range of courses, from those that build fundamental skills to specialized, college-level subjects. While the scheduling team tries its best to accommodate students' top choices, it may not always possible to accommodate all requests (for example, course demand surpasses the available seats, or a course is cancelled due to lack of demand). PRISMS's top priority is to maintain appropriate class sizes so that our teachers can provide the best learning experiences to their students, so students are always advised to provide one to two backup courses when they submit their course requests.

Minimum Scheduling Recommendation

PRISMS students are advised to take a minimum of 6 credits per year. Students should refer to the course sequence chart below. All students will be scheduled for 1 study hall/free period.

Post-AP Electives

Students are limited to 1 post-AP elective per subject per year. Students who show exceptional talent in a given area may request to take 2 post-AP electives in the same subject in the same year. Only students in grades 11 and 12 are eligible to make this request. Requests must be approved by the A-Team. Decisions are final. Interested students must submit an application to the Director of Academics by end of March.

Course Changes

When the initial schedule is released in the summer, students will have two weeks between August 5 and August 19 to submit requests for course changes. After this period is over, student schedules will be finalized for the remainder of the summer. Additional course change requests will not be accepted until the start of the school year and trial period.

Course change requests will be considered only when an open seat is available in the requested course. Maintaining appropriate class sizes takes priority over course change requests. No course change requests may be made after the trial period has ended. During the trial period, students must continue attending their course until a drop or change is approved.

Course Level Change

With the recommendation of a teacher, students may request a course level change at the end of the school year, prior to the summer. Students will be asked to take a placement test in order to determine whether the student demonstrates readiness for the requested level in late May.

During the trial period, only teachers and/or the department may initiate a course level change. Coursework from summer programs may not be used as proof of readiness to initiate a course level change during the trial period.

Course Trial Period

Students have a two-week period, beginning on the first day of class, when they can request to change their courses. If a course request cannot be accommodated, a student can choose to remain in the original course or to drop the course, provided that the change does not drop the student below the minimum credit course load. After the two-week period is over, any course drop request will be considered a course withdrawal and will affect the student's permanent academic record.

Course Withdrawals

Students may choose to withdraw from courses within the following timeline:

- Yearly Courses – No later than last day of the 2nd marking period.
- Semester Courses – No later than the last day of the 1st or 3rd marking period.

Any student who withdraws from a course will be removed from the class roster and a record of "W" will be recorded on the student's transcript.

Guide To Course Placement

Δ

The PRISMS course curriculum is rigorous and intended to provide our talented students the opportunities to learn advanced subject material. Courses begin at the honors level and progress through AP and post-AP levels. Students have found that our courses differ from other high schools in the level of expectation of independent work, depth of subject material covered, and pace of class. While we know that our students are tremendously talented, we encourage our students to consider their selection of courses carefully in relation to their interest and ability. Student should also seriously consider what they can handle without creating undue stress and overburdening themselves.

Course Level Description

- Honors – PRISMS classes begin at honors level. Honors level courses follow a rigorous curriculum designed to give a broad introduction to the subject and prepare students for taking AP level classes.
- Advanced Placement – AP classes follow (but are not limited to) the CollegeBoard curriculum and prepare students for taking post-AP electives.
- Post-AP – Post-AP courses are the highest level of classes at PRISMS, meant to cover college level content.

Course Eligibility

Students who have completed the listed prerequisites in the course catalog for any given course are eligible for that course. Students who have taken an alternative equivalent of the listed prerequisite(s) must receive teacher approval or take the placement test during the placement testing period to become eligible for that course.

Placement Testing for New Students

Prior to entering PRISMS, new students will take placement tests in accordance with their course requests. Students may be tested on readiness in math, science, computer science, or language courses.

New students whose previous school follows a US-based curriculum may place directly into the next level math course if their course level can be verified through their prior school's transcript. New students whose previous school follows a non-US curriculum must take placement tests to determine their course level for the respective subject.

Placement Testing for Continuing Students

Continuing students who request a course level change to advance in course level for the next academic year must take a placement test at the end of the current academic year.

Advanced Placement (AP) Program

Δ

AP Test Policy

Students who take AP courses are required to take the coinciding AP exam. Students in Advanced-level language courses are not required to take the respective AP exam, although they can choose to take the exam if their teachers identify that they are ready to do so.

In certain situations, students may request permission to re-take an AP exam. Please see the school counselor for more details.

AP Self-Study Policy

Students are welcome, but not encouraged to self-study for AP exams. Students who self-study for AP exams should be aware that they are missing important classroom labs and activities that make up the intended learning experience for that AP course content.

Students may only request to take an AP exam via self-study if the course is not offered at PRISMS. Students interested in taking an AP exam that is a part of the PRISMS curriculum must take the course itself.

Students who wish to self-study for an exam must notify the guidance counselor during the AP exam registration period. Students will receive access to the AP Classroom, but will not have access to practice assignments that normally accompany those AP courses.

Students will NOT earn high school credit when self-studying for AP exams.

Typical Four-Year Sequence

9th Grade	10th Grade

• English
  ○ *Sem. 1: Critical Thinking and Questioning*
  ○ *Sem. 2: The BASE Program: Bridging the Arts, Science, and Applied Engineering*
• Mathematics[1]
• Biology
• Physics or Chemistry[2]
• Applied Engineering 1
• World Language[3], Study Hall, or Elective
• Elective[4]
	• English
	  ○ *Sem. 1: Growing Up in America*
	  ○ *Sem. 2: The American Dream*
	• Mathematics
	• Physics or Chemistry[5]
	• AP Science[6]
	• Applied Engineering 2
	• AP World History
	• World Language, Study Hall, or Elective[7]

11th Grade	**12th Grade**

• English
  ○ *Sem. 1:Reading and Writing the Expository Essay*
  ○ *Sem. 2: Reading and Writing the Personal Essay*
• Mathematics
• STEM Research 1
• AP U.S. History
• World Language, Study Hall, or Elective[7]
• Elective
• Elective
	• English
	  ○ *Sem. 1: Other Planets, Imagined Worlds: Science Fiction*
	  ○ *Sem. 2: Our Planet, Today's World: Science Nonfiction*
	• Mathematics
	• STEM Research 2
	• World Language, Study Hall, or Elective[7]
	• Elective
	• Elective

1. The level of math to be taken will be determined by a math proficiency test administered by PRISMS. Students must follow the PRISMS math curriculum without skipping any course until they reach AP Calculus AB/BC. If a student completes AP Calculus BC in fewer than 4 years, the student may choose a post-AP mathematics offering or a non-mathematics elective.

2. All freshmen are required to take Honors Biology and must select either Chemistry or Physics as a second 9th Grade science. Students who choose Physics must pass a math placement to be accepted into the course.

3. All students for whom English is their primary language must take three consecutive years of a world language. This requirement may be started in 9th grade or 10th grade. Students who choose to begin world language in 10th grade may choose to take an Elective or Study Hall in 9th Grade. For students whose primary language is not English, literature counts as their world language. Students whose primary language is not English are not required to take a World Language, though they may elect to do so.

4. Students planning to take AP Computer Science in 10th Grade need to take Principles of Computer Science in 9th Grade.

5. All students must take the third Honors-level science in 10th Grade.

6. The options available include AP Biology, AP Chemistry, AP Physics, AP Computer Science, and AP Environmental Science. This course serves as a stepping stone to post-AP and research courses in the respective field. However, students who take a 10th Grade AP Science in one field may choose to conduct 11th Grade STEM Research 1 in a different field, especially if the research project is interdisciplinary in nature and is supported by the material from the 10th Grade AP Science. In such cases, acceptance into the lab depends on the permission of the lab director.

7. Research lab directors may require students to use an 11th Grade Elective to take a post-AP science course related to the research projects.

Research & Development Program

A core feature of the PRISMS educational experience is a four-year STEM research and development program threaded through our four-year high school curriculum. Our aim is that students begin by learning research skills in order to better prepare them for meaningful STEM research or development projects in grades 11 and 12. In grade 9 all our freshmen take the Bridging the Arts Science and Engineering (BASE) Program. In grade 10 all students are required to take Applied Engineering 2 which builds on the 9th grade Applied Engineering 1 Program by offering research skills in the form of practical problem-solving: design, build and test. Scientific Research skills that build on the BASE Program, skills such as statistics, experimental design, literature review, are incorporated into required 9th and 10th grade science courses.

Core Research Courses

BASE Program: Bridging the Arts, Science, and Applied Engineering (Grade 9)

The BASE Program bridges a common topic of study among the arts, science, and engineering and uses a process-oriented approach to help students establish connections across the disciplines. Student groups learn to collect and analyze data, conduct literature searches, and prepare publications and presentations through long-term independent scientific research. A separate grade is awarded for The BASE Program.

Building on what they learned in the first semester, the freshmen turn their attention from how to read and write about literature to how to read and write about science. Students build on their understanding of writing as a process of prewriting, drafting, and revising. The BASE Program puts students into small groups and emphasizes the importance of learning to work on a team and collaborate effectively. Additionally, in the research process, students find, evaluate, and select appropriate sources to access information to create a research paper. They also develop communication skills through listening to and practicing oral presentations. The course culminates in a research paper or poster, depending on the instructors' instructions.

Applied Engineering 2 (Grade 10)

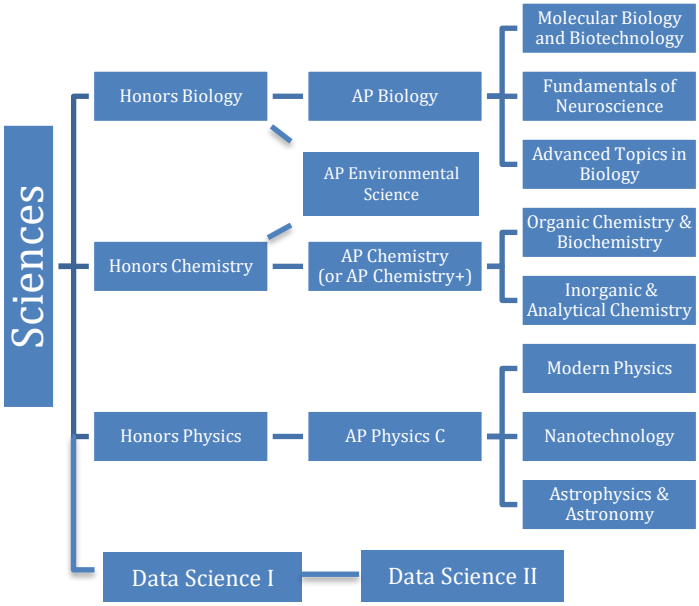
Applied Engineering 2 further prepares students for substantive research conducted during their Junior and Senior years. Throughout the course, practical problem-solving skills are developed which benefit STEM research, regardless of focus or discipline. These skills include, but are not limited to:

- Analog and digital electronics
- Microcontroller applications and programming
- Spatial visualization/awareness
- Design and manufacturing
- Data acquisition and analysis
- Mechanics
- Robotics

Research & Development Labs

In grades 11 and 12 (typically after completing the *BASE program, Honors Chemistry, Honors Physics,* and *10th grade Applied Engineering 2),* students can choose a topic in which to conduct research within one of our STEM Research and Development areas. Typically a student will begin working on a project in the 11th grade and continue it into the 12th grade.

Sciences Δ



Core Science Courses

Honors Biology

Full-Year; Grade 9
Credits: 1.0
Prerequisites: None

Honors level freshman Biology course at PRISMS is an intense introductory course that equips students to think seriously about science. The course focuses on cellular processes found in living organisms (cell cycle, cell structure and function, and metabolism), genetics, molecular biology (DNA replication and protein synthesis), the biological basis of evolution, and ecology. Laboratory work is an integral part of this course. Honors Biology requires strong study skills and an ability to work independently and in small study groups. Research skills covered in Honors Biology will include descriptive statistics, basic principles of experimental design (such as randomization, blocking, etc.), and essential lab notebook skills.

The PRISMS BASE Program bridges a common topic of study between the arts, science and engineering. The BASE Program operates through a required three-period block and integrates the instructional objectives of English 9, focusing on the arts, science, focusing on biology and applied engineering. The BASE Program uses a process-oriented approach to help students establish connections across the disciplines and attain the objectives for each course. Student groups learn to collect and analyze data, conduct literature searches, and prepare publications and presentations through long-term independent scientific research.

Honors Chemistry

Full-Year; Grades 9-10
Credits: 1.0
Prerequisites: None

The Honors level Chemistry course at PRISMS is a study of the structure, behavior and properties of matter. Topics include: dimensional analysis, significant figures, stoichiometry, solutions, gases, thermochemistry, atomic structure and nuclear chemistry, electronic structure and periodicity, chemical bonding and intermolecular forces, basic chemical kinetics and equilibrium, acid-base chemistry, and electrochemistry. Students are expected to have a strong foundation in algebra. Research skills covered in Honors Chemistry include data analysis and graphing, scientific writing, and more advanced aspects of lab notebook completion.

Honors Physics

Full-Year; Grades 9-10
Credits: 1.0
Prerequisites: Sufficient score on the math placement test

Honors Physics is a non-calculus based conceptually and mathematically rigorous first year university preparatory course. The course design requires students to develop a solid background in the conceptual basis of physics, as well as strong critical thinking and problem solving skills. The course is a comprehensive treatment of the topics of mechanics, electricity and magnetism, and waves and oscillations. When time allows, other topics in thermodynamics or modern physics may be treated on an instructor-specific basis. Laboratory-centered, the course exposes students to the methods of scientific inquiry. Research skills developing during the class include: basic experimental design, data collection and analysis, error analysis, peer-review system, graphical representation of data, preparing of a basic scientific report, and oral presentations.

Elective Science Courses

AP Biology

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Honors Biology ("B" or higher) and concurrent enrollment in Honors Chemistry ("B" or higher) OR permission from Department Head and Administrative approval.

This college-level course is recommended for students who intend to major in biological sciences such as biochemistry and/or medicine. AP Biology provides students with the conceptual framework, factual knowledge, and analytical skills necessary to critically handle the rapidly changing science of biology. The emphasis of this laboratory course is to develop an understanding of concepts and of science as a process rather than an accumulation of facts.

Molecular Biology and Biotechnology

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Biology ("B" or higher)

This is an advanced, lab intensive course in which students apply modern molecular biology techniques to explore aspects of cell biology and biotechnology. Students will perform numerous techniques during the course, including PCR, bacterial transformation, gel electrophoresis, SDS-PAGE, Western Blot, protein purification and chromatography, and RNA purification and quantification. The course uses the lab techniques as a means to develop a student's understanding of molecular processes and not simply to learn a given lab technique.

Fundamentals of Neuroscience

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Biology

This full year course explores the structure and function of the nervous system—from the inner workings of a single nerve cell to the staggering complexity of the brain and the social interactions they enable. A variety of topics will be discussed: neuroanatomy, development of the brain, sensory and perception, memory, and artificial intelligence. This course includes laboratory experiments including EEGs, action potential recordings, and human-brain interfaces. Fundamentals of Neuroscience will emphasize discussion and projects in which students can explore their personal interests in a variety of neuroscience topics.

Advanced Topics in Molecular Biology (NOT OFFERED in 2024-25)

Semester (Spring); Grades 11-12
Credits: 0.5
Prerequisites: AP Biology ("B" or higher)

This is a seminar style course where students will explore advanced topics in molecular biology through reading the primary literature as well as creating and carrying out exploratory lab exercises (when applicable). Specific topics to be covered will be determined with student input. Class time will focus on the detailed review of a given paper(s) and class discussions will be led by the students.

AP Chemistry

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Honors Chemistry ("B" or higher) and concurrent enrollment in Advanced Algebra or higher

This course is structured around the six big ideas (BI) in the AP Chemistry Curriculum Framework and is designed for students who have completed one-year of high school chemistry and have a strong foundation in math (the College Board recommends that students have successfully completed two years of algebra, e.g., Algebra 1 and Algebra 2). Overall, this course differs from Honors Chemistry in the

breadth and depth of topics covered, textbook, emphasis on mathematical relationships and formulation, nature and variety of laboratory coursework, pacing, and time required by the students. It is assumed students have a thorough knowledge of the topics covered in the first year course; these topics are reviewed in-depth in a summer homework assignment and briefly in class so that more time can be spent deepening and extending the students' understanding of chemistry.

AP Chemistry+ (Plus)

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Honors Chemistry ("A" or higher) and pass placement test

The AP Chemistry+ covers all topics in the standard AP Chemistry curriculum but in a deeper and accelerated way. It further extends to the topics of the first-year general chemistry in college which are beyond the AP Chemistry curriculum, such as descriptive chemistry, coordination chemistry, introduction to organic chemistry, etc. Literature-based presentations, laboratory, and projects are also supplemented in the AP Chemistry+.

The course will strengthen the conceptual and computational understanding of AP Chemistry to prepare students for higher level courses in Organic Chemistry and Chemistry/Environmental Research. Students who are placed into this course, via placement test, should be proactive learners with solid background in Honors Chemistry, and have a deep passion for chemistry and scientific investigation.

Organic Chemistry & Biochemistry

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Chemistry ("B+" or higher) or AP Chemistry+

An introduction to the principles of organic chemistry and biochemistry, including the relationship between structure, properties, and reactivity of organic compounds including amino acids and carbohydrates. Examples of organic chemistry in biology, medicine, and industry will be presented for discussion. Typical laboratory techniques for the synthesis, isolation, purification and identification of organic compounds will be taught. Recommended for students with an interest in studying biology or chemistry in college.

Inorganic & Analytical Chemistry

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Chemistry ("B+" or higher) or AP Chemistry+
Note: Students without adequate background may not be able to keep up with this course.

This course is a year-long intensive post-AP elective in PRISMS with two parts of main contents, inorganic chemistry and analytical chemistry. In the first semester, a comprehensive and contemporary introduction of the diverse and fascinating discipline of inorganic chemistry is provided. It covers advanced atomic structure and bonding theory, acid-base chemistry, crystalline solid state, descriptive chemistry of main group elements, coordination chemistry, and organometallic chemistry, as well as the development and perspective of inorganic research. Examples taken from recent publications and seminar

talks presented by students during the semester will be discussed. In the second semester, an introduction to analytical chemistry, including topics such as data handling and analysis, volumetric titrations (acid-base, redox, precipitation, and complex), separation techniques, molecular spectroscopy (including UV-visible spectroscopy, molecular fluorescence, and infrared analysis) as well as sample preparation is covered.

AP Environmental Science

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Honors Biology ("B" or higher) and Honors Chemistry ("B" or higher)

Environmental science is an interdisciplinary science. The goal of the AP Environmental Science course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. The AP Environmental Science course will include a strong laboratory and field investigation component. The goal of this component is to complement the classroom portion of the course by allowing students to learn about the environment through firsthand observation. Experiences both in the laboratory and in the field, provide students with important opportunities to test concepts and principles that are introduced in the classroom, explore specific problems with a depth not easily achieved otherwise, and gain an awareness of the importance of confounding variables that exist in the "real world".

AP Physics C

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Honors Physics ("B" or higher) and concurrent enrollment in AP Calculus
Note: Completion of AP Calculus is strongly recommended

Students study a mathematically substantial formulation of Newtonian mechanics (first semester) and electricity and magnetism (second semester), including vector and calculus-based treatment of particle kinematics (motion), energy, linear momentum, angular momentum, systems of particles, oscillators, and Newtonian gravity in the first semester. Topics covered in the second semester include electromagnetic fields, superposition, electrostatics, magnetostatics, induction, electric currents and elementary circuits, Maxwell's equations in integral form and the Lorentz force law. Students are thoroughly prepared to take both the Mechanics and Electricity and Magnetism sections of the Advanced Placement Physics C examination.

Modern Physics

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Physics ("B" or higher)
Note: Completion or concurrent enrollment in a post-AP math course is strongly recommended

Modern physics will offer coverage for various topics beyond the scope of AP Physics, including Special Relativity, Quantum Mechanics, atomic and nuclear physics, thermodynamics, fluid mechanics, optics,

and astrophysics. Modern Physics is the post AP Physics course designed for students who are interested in all the different areas not covered by AP Physics. The goal of the course is to provide students an in-depth (higher than AP level) overview of traditionally common physics topics as well as introduction to 20th century physics such as Special/general relativity and quantum mechanics. The course will involve higher-level mathematics such as partial differential equations, linear algebra, complex numbers, matrix and tensors.

All the above-mentioned topics will have both theoretical and experimental components presented during the course with possibly the sole exception of special/general relativity and nuclear physics. The physics laboratory is equipped with demonstration/research level experimental apparatus for fluid and thermal science, optics and especially quantum mechanics. These higher-level experiments will not only help students with understanding the corresponding topics but also help prepare them for research activities.

Nanotechnology

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Physics ("B" or higher)
Note: Completion or concurrent enrollment in a post-AP math course is strongly recommended

Nanotechnology involves the behavior and control of materials and processes at the atomic and molecular levels. This course is an introduction to the underlying principles and applications of the emerging field of Nanotechnology and Nanoscience. The material covered includes nanofabrication technology at the nanometer length scale, from "bottom-up" to "top-down" technologies. Nanotechnology is designed for students who are interested in modern applications of condensed matter physics after they have taken an AP physics C course.

Astrophysics and Astronomy (NOT OFFERED IN 2024-25)

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Physics

This course provides an overview of applying the laws of physics to distant regions where physical conditions can only be inferred from the emission of electromagnetic radiation. During the course you will learn about the Sun and the Solar System, the stars and the Galaxy, distant galaxies and quasars, and the beginning of the Universe. The goal of this course is to design to give the students who are interested in astronomy and astrophysics a chance to learn how to apply basic physics in situations that are often extreme compared to those found on Earth if they want both a solid grounding in physics and a greater understanding of astronomy.

Data Science I

Semester; Grades 9-12
Credits: 0.5
Prerequisites: Advanced Algebra ("B" or higher).

Data Science I is designed to teach students how to analyze data using the R language, as well as how to present results from data analysis. In the modern world, data are coming from different sources and in

different formats: sensors, surveys, databases, or downloaded from the internet. Often these data will have a "messy" structure or will be missing values, and thus present a unique challenge to data analysis. Students will learn how to access data from various sources and to reshape, organize and clean it. Basic statistical information and plots will be employed for initial exploratory analysis. We shall also cover techniques for creation of highly customized, professionally looking data plots. Students will learn how to create interactive plots and interactive web applications (using R Shiny) and how to present data visually to a wide audience. Linear models will be used to perform a basic modeling. This class involves a lot of coding and practical exercises in R.

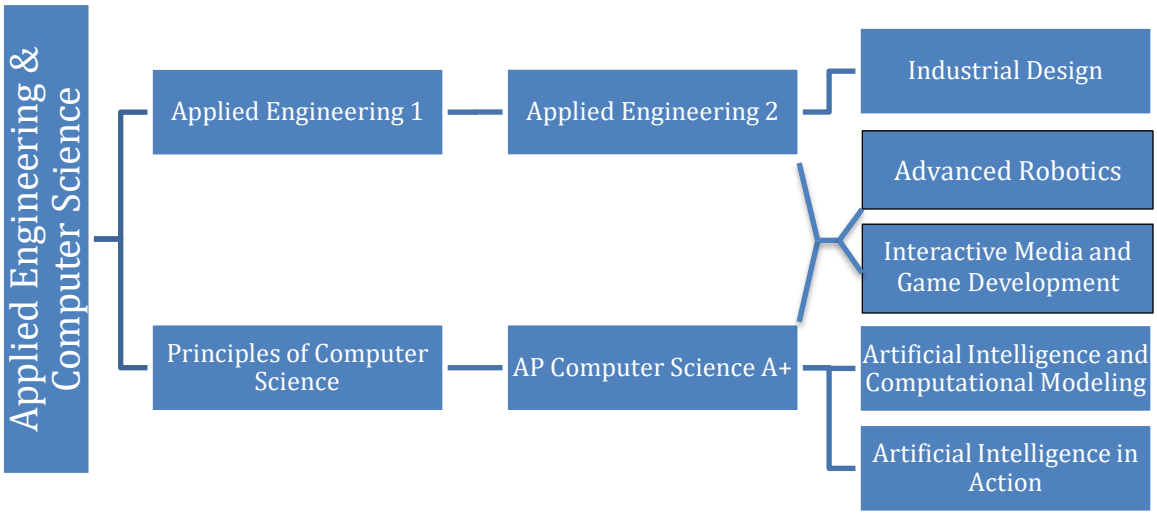
Data Science II

Semester; Grades 9-12
Credits: 0.5
Prerequisites: Data Science I ("B" or higher).

Data Science II will cover selected topics of machine learning. When data are cleaned and properly analyzed (topics covered in Data Science I), it is possible to create a "prediction" model to perform such tasks as the prediction of a projected salary, classifying emails to spam or ham, find "clusters" of friends on Facebook, or detect a fraud transaction on a credit card. Students will obtain skills in doing regression, classification, clustering and anomaly detection. The following algorithms will be covered: k-nearest neighborhoods, linear model, logistic regression, LDA, QDA, polynomial regression, splines, GAMs, tree-based methods, SVM. The coverage will include resampling methods, regularization, principal components, and text mining.

Applied Engineering & Computer Science

Δ



Our Foundational Program is known as BASE (Bridging the Arts, Science and Engineering). Our aim is to give all our freshman a common experience where they not only learn important foundational content in Biology, Literature, and Applied Engineering, but they also learn about the multi-disciplinary nature of research, collaboration, cooperation and are introduced to important research skills like: Forming a valid question, reviewing and evaluating research literature, designing an experiment, analyzing data, communicating research or development findings.

Core Engineering Courses

Applied Engineering 1

Full-Year; Grade 9
Credits: 1.0
Prerequisites: None.

Applied Engineering 1 (AE1) introduces students to the technical application of engineering disciplines through the use of the engineering design process and a highly technical laboratory environment. This course serves as the cornerstone of the PRISMS Engineering program as it engages students in the physical application of complex theoretical topics including basic electronics, engineering design, prototyping, robotics and engineering research. In addition, AE1 is an integral part to the PRISMS BASE program, which bridges a common topic of study between the Arts, Science and Engineering. Within the BASE program, AE1 students will work in teams to research, design, construct and test a sensing device to support a scientific study.

Applied Engineering 2

Full-Year; Grade 10
Credits: 1.0
Prerequisites: Applied Engineering 1

Applied Engineering (AE2) continues engineering-based exploration through a series of problem-based labs that focus on 3 core engineering disciplines: Aerospace, Electrical & Mechanical. Throughout the year, students will work in both classroom and laboratory settings to study circuit design, microcontroller programming, data acquisition, prototyping, and robotics. In Addition, students will conduct a cumulative research project to demonstrate their newfound skills. This project will be based on topics pertaining to one of the engineering disciplines mentioned and will be featured in an exhibition at the end of course.

Elective Engineering Courses

Advanced Robotics

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP CS+ and Applied Engineering 2

Advanced Robotics is a problem-based course that explores methods in which higher level spatial awareness and control algorithms are applied to complex robotic systems. Within the course, students will learn about closed loop systems, sensing and navigation, multi-method locomotion, kinematic design and analysis, wireless control methods and data integrity, industry-standard solid modeling software, 8-bit and 32-bit mobile computing platforms, programming and manufacturing. These concepts will then be applied through the implementation of the Engineering Design Process to the design and construction of multiple robotic systems.

Industrial Design

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: Applied Engineering 2

Industrial Design bridges the gap between Computer Aided Design and Prototype Manufacturing. Throughout the course, students will solve technical problems by combining human factors with the Engineering Design Process to produce creative and unique solutions. Students will investigate multiple materials and processes through the use of sketching techniques, industry standard solid modeling software, “blueprint” layout, CNC machining, woodworking, metalworking, plastic forming, screen printing and multi-material 3D printing. The course will conclude with the production of a technical portfolio detailing the Design Process of each design.

Core Computer Science Course

Fundamentals of Computer Science

Full-Year; Grade 9
Credits: 1.0
Prerequisites: None

Students will learn the fundamentals of computer science, with a large emphasis on hands-on programming experience. Students will practice to improve their logical reasoning and problem-solving skills, algorithmic thinking, and technical communication skills. Programming exercises will be done in Python, although the topics and features covered are chosen to help students build these fundamental skills, and not primarily to learn more of the Python language. Topics include control structures, common data structures, functions and classes, software engineering best practices, algorithms, and the store-by-reference model for data storage.

Elective Computer Science Courses

AP Computer Science+ (PLUS)

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Principles of Computer Science ("B" or higher) and teacher approval

AP CS+ explores algorithms and data structures beyond the traditional AP CS A domain, such as linked lists, stacks, queues, trees. The course will strengthen a foundation of computer science to prepare students for higher level courses in Artificial Intelligence and AI/CS Research. Students who are placed into this course, via placement test, should be proactive learners, have a deep passion for computer science, and are already proficient at programming in Java. Approximately 75% of the course will explore content that is above and beyond the standard AP CS A curriculum.

Artificial Intelligence and Computational Modeling

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP CS+ ("B" or higher) and Calculus BC ("B" or higher; completion preferred by concurrent enrollment acceptable)
Note: Students applying in 10th grade require teacher approval

Computational Modeling topics include computational tools such as vectorized operations, and mathematical modeling tools such as Monte Carlo simulations, dynamic systems, and agent-based models. Students will implement existing models, create models, run experiments with models, and analyze both the conclusions of the models and what real-life conclusions can, or cannot, be drawn from them. Artificial Intelligence topics include search, game playing, and machine learning.

Interactive Media and Game Development

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP CS+ and Applied Engineering 2

In this course, students will learn electronic, software, and project management engineering skills, and practice creative design. Students will create several software projects incorporating modern media such as games, virtual reality, and 3D, as well as alternative forms of human-computer interaction such as haptic and voice controllers. Students will work with a variety of software development environments such as Unity, Perlenspeil, and arduino.

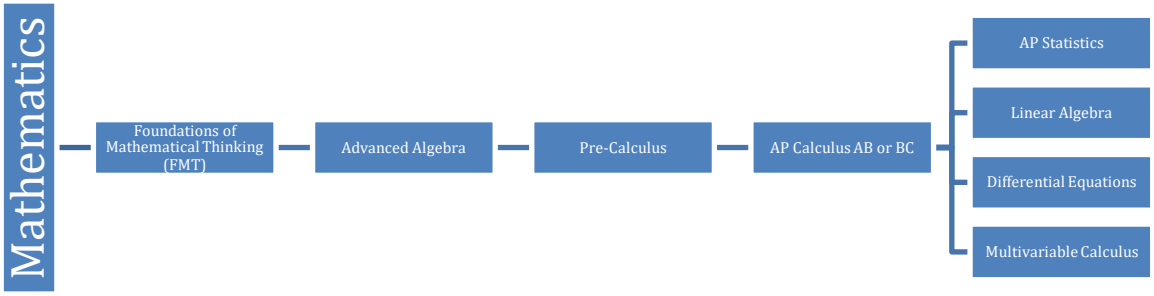
Artificial Intelligence in Action (NOT OFFERED IN 2024-25)

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP CS+ or teacher permission

Currently, Artificial Intelligence (and its subfields) has been used in many places, some applications are advertised, some are not; some applications are well done, some are with problems. This course will go through major applications being worked on by universities and corporations, major worldwide problems that can be candidates for Artificial Intelligence, and lessons learned from examples of misuse and abuse of Artificial Intelligence. In addition, this course will identify some topics suitable for study and research in high schools.

Mathematics

Δ



Core Mathematics Courses

Foundations of Mathematical Thinking (FMT)

Full-Year; Grade 9
Credits: 1.0
Prerequisites: None

This original, newly designed course at PRISMS is created to give freshmen the broadest overview of mathematics. It offers students strong core knowledge of mathematics, as it explores connections between different mathematical disciplines. This course involves the study of the techniques and language of mathematics that are essential for students to comprehend and solve real world situations. FMT encompasses numerous mathematics fields, merging the traditional Algebra 1 and Geometry courses into one, and is taught at a faster pace and in more detail than a standard freshman (9^{th} grade) mathematics course. The FMT course is open to students who are starting their first year in PRISMS.

Advanced Algebra

Full-Year; Grade 9-10
Credits: 1.0
Prerequisites: Foundations of Mathematical Thinking or equivalent

Advanced Algebra is the second course in PRISMS sequence. Having covered the foundational algebra topics in FMT course, students are now able to move on to a more rigorous study of algebra. This course emphasizes the thorough study of functions, focusing on function properties, behavior, graphs and applications. Advanced Algebra also covers polynomials, including operations on polynomials, factoring and solving for roots. Combinatorics is introduced by Pascal's triangle and the explicit and recursive formulas for sequences are studied. Emphasis is placed on nurturing analytical and problem-solving skills and students are encouraged throughout the course to think independently.

Pre-Calculus

Full-Year; Grades 9-11
Credits: 1.0
Prerequisites: Advanced Algebra

Pre-Calculus builds upon the knowledge of functions and problems solving techniques introduced in Advanced Algebra, and prepares the student for the challenges of Calculus. The course begins with a study of functions from a Calculus perspective. We explore such topics as continuity, end behavior, extrema, and average rates of change. We then partake in a thorough study of trigonometry, including definitions, laws, proofs, graphs, and applications to triangles and the unit circle. As an extension, we investigate the polar coordinate system, conic sections, vectors, and complex numbers. Additionally, we investigate matrices and their applications, as well as an introduction to the basic calculus concepts of derivatives and integrals.

AP Calculus AB

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Pre-Calculus

This course is a standard Calculus course. An initial study of functions and limits leads to the study of the derivative and differentiation techniques. The relationship between a function and its derivative is carefully developed. Applications of the derivative include local and absolute extreme values. The concepts of the antiderivative and slope fields are introduced. The concept of the integral is formally defined and elementary techniques of integration are studied. The Fundamental Theorem of Calculus is explored and applied. The applications of definite integrals are studied, including finding volumes, and average values of functions.

AP Calculus BC

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Pre-Calculus

This is a standard, college level calculus course, in which we will convey the excitement of the new concepts one can learn from this branch of mathematics. In this course, students study functions, limits, derivatives, integrals, and infinite series. Calculus helps scientists, engineers, and financial analysts understand the complex relationships behind real-world phenomena. Students in this course learn to evaluate the effectiveness of proposed solutions and apply mathematical reasoning to real-world models. Students also learn to understand change geometrically and visually (by studying graphs of curves), analytically (by studying and working with calculus formulas), numerically (by seeing pattern and convergence property of series), and verbally. By learning this course, students can prepare for the AP Calculus BC Exam and further studies in mathematics, science, and engineering.

Elective Mathematics Courses

AP Statistics

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Calculus

AP Statistics involves the study of four main areas: 1. Exploring Data: Describing patterns and departures from patterns; 2. Sampling and Experimentation: Planning and conducting a study; 3. Anticipating Patterns: Exploring random phenomena using probability and simulation; 4. Statistical Inference: Estimating population parameters and testing hypotheses. This AP Statistics course is taught as an activity-based course in which students actively construct their own understanding of the concepts and techniques of statistics.

Linear Algebra

Full-Year; Grades 11-12
Credits: 1.0
Prerequisites: AP Calculus ("A-" or higher)
Note: To succeed in this course, you need to be comfortable with vectors, matrices, and three-dimensional coordinate systems

This college-level course will introduce the matrix theory and basic knowledge of linear algebra, including the study of systems of linear equations, Gaussian elimination, the basic knowledge of vector spaces, linear dependence, linear transformations and matrix representation, the study of matrices, orthogonal reduction, determinants, eigenvectors and eigenvalues, and a variety of applications.

Differential Equations

Semester (Fall); Grades 11-12
Credits: 0.5
Prerequisites: AP Calculus BC ("A-" or higher)

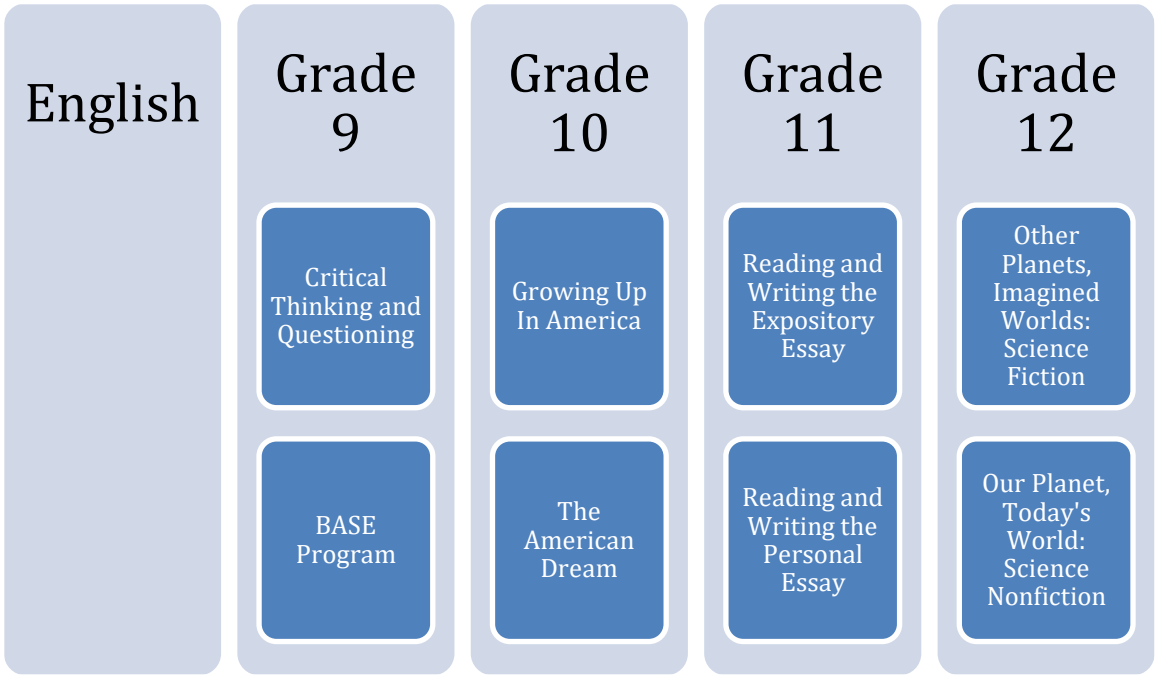
This course focuses on ordinary differential equations and their applications in science and technology. Topics studied include: first-order ordinary differential equations (ODEs), higher-order ODEs, Laplace transforms and Fourier series, linear and nonlinear systems, numerical approximations, series solutions (Frobenius method). Applications are embedded throughout, since the goal of the course is to give the students the tools to solve practical differential equations (e.g., Newton's equations for bodies subjected to various forces).

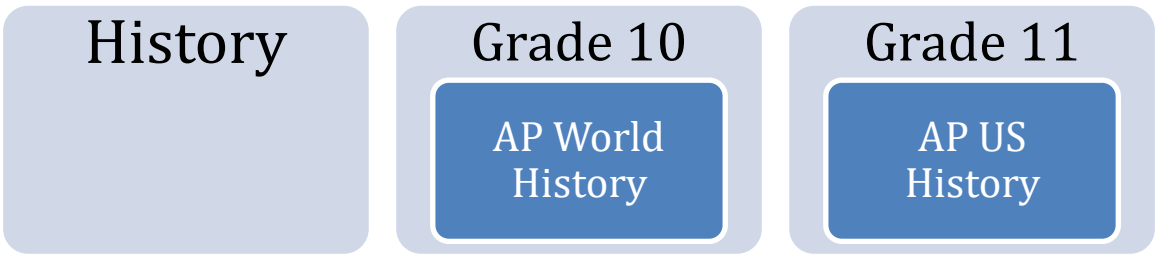
Multivariable Calculus

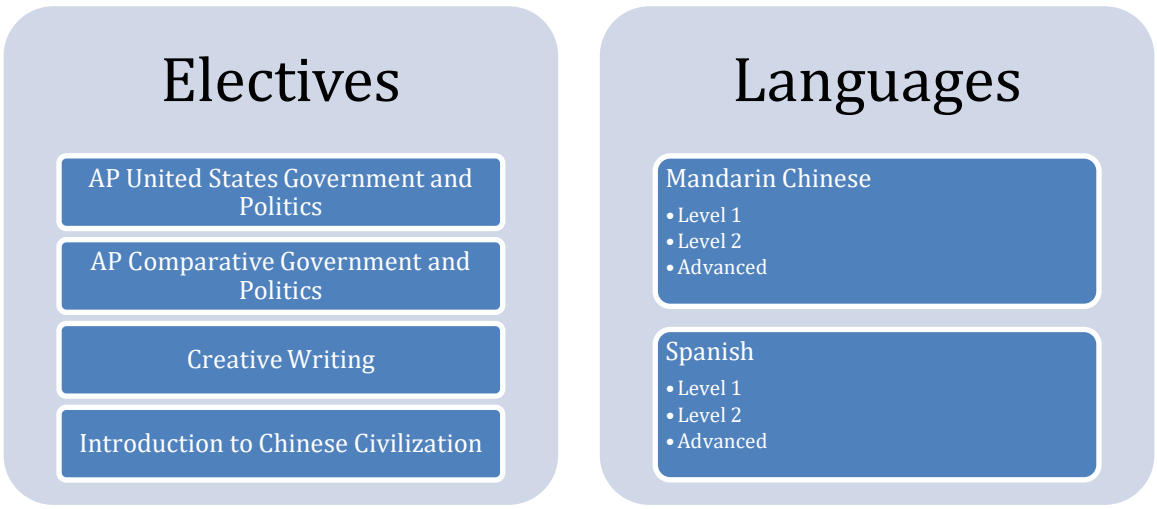
Semester (Spring); Grades 11-12
Credits: 0.5
Prerequisites: AP Calculus BC ("A-" or higher)

Multivariable calculus is the extension of calculus to more than one variable. Topics studied include: vectors, matrices and system of equations, parametric curves, introduction to partial derivatives, Lagrange Multipliers and constrained differentials, double integrals and line integrals in the plane, triple integrals and surface integrals in 3-space.

Humanities and World Languages







Core English Courses

Critical Thinking and Questioning

Semester (Fall); Grade 9
Credits: 0.5
Prerequisites: none

"How do you know what you know?" The first-semester freshmen course focuses on the importance of this essential question and on foundational critical thinking skills for success with the broader academic program at PRISMS. Students will consider both the philosophical and practical dimensions of critical thinking and questioning through close reading, class discussions, and writing evidence-based arguments. The course focuses on improving students' writing skills through focused attention on the paragraph. From there, students build their ability to write clear and interesting prose for audiences by focusing on sentence and word choice variety. Additional skill work focuses on note-taking, annotating text, MLA formatting, and calendaring.

Possible titles for study include *To Kill a Mockingbird*, *Fahrenheit 451*, Plato's *Republic*, and the film *12 Angry Men.*

The *BASE Program: Bridging the Arts, Science, and Applied Engineering*

Semester (Spring); Grade 9
Credits: 0.5
Prerequisites: none

The BASE Program bridges a common topic of study among the arts, science, and engineering and uses a process-oriented approach to help students establish connections across the disciplines. Student groups learn to collect and analyze data, conduct literature searches, and prepare publications and presentations through long-term independent scientific research. A separate grade is awarded for The BASE Program.

Building on what they learned in the first semester, the freshmen turn their attention from how to read and write about literature to how to read and write about science. Students build on their understanding of writing as a process of prewriting, drafting, and revising. The BASE Program puts students into small groups and emphasizes the importance of learning to work on a team and collaborate effectively. Additionally, in the research process, students find, evaluate, and select appropriate sources to access information to create a research paper. They also develop communication skills through listening to and practicing oral presentations. The course culminates in a research paper or poster, depending on the instructors' instructions.

Possible titles for study include various scientific research papers, *Writing Science in Plain English* (UChicago), also *Flatland* or *The Hitchhiker's Guide to the Galaxy.*

Growing Up in America

Semester (Fall); Grade 10
Credits: 0.5
Prerequisites: English 9

This semester will help students connect to the American experience through coming-of-age stories (bildungsroman). To be a teenager is to face many challenges and delights of self-discovery, and the moral, physical, social, and intellectual awakening of young adults has inspired many classic stories. The course will center on novels and short stories that explore issues of identity and community in the American context. Students will continue to practice many of the skills they learned in the ninth grade while developing more sophisticated arguments through extended essays. They will experiment with reading and writing poetry, and they will build their personal authority by writing short personal narratives and critical non-fiction related to contemporary issues facing teens in America. This semester will introduce key literary concepts—theme, character, motif, symbol—with a particular focus on narrative voice and character development. Including historically marginalized perspectives will stretch students' imaginations, exercise empathy, and challenge the myth of American exceptionalism.

Possible titles for study include *House on Mango Street, The Catcher in the Rye, Adventures of Huckleberry Finn,* "Theme for English B," or *The Outsiders.*

The American Dream

Semester (Spring); Grade 10
Credits: 0.5
Prerequisites: English 9

The second semester of the tenth grade will expose sophomores to classic works of American literature that reveal the many facets of the American Dream, including wealth, innovation, social mobility, immigration, education, and nature. Using classic works from every major period of American literature, students will explore the ways our utopian, democratic values are reflected—and often distorted—in cultural topics as diverse as religion, suburbia, music, food, work, family, and theme parks. Students will extend their critical reading skills, learning how to identify keywords and passages in a work and how to respond with a sustained, critical appraisal. Students will expand their vocabulary and stretch to express more nuanced ideas at the sentence- and paragraph levels. They will practice their class discussion skills through exercises designed to improve listening and speaking as part of a group, with a special emphasis on the "meeting of minds"—a sustained, focused pursuit of shared understanding.

Possible titles for study include *The Crucible, The Great Gatsby, Death of a Salesman, Ragtime, The Joy Luck Club, My Antonia, Song of Solomon,* or *The Right Stuff.*

Reading and Writing the Expository Essay

Semester (Fall); Grade 11
Credits: 0.5
Prerequisites: English 10

The first semester junior English course focuses on expository essays, a form introduced by the 16th-century humanist, Michel de Montaigne. Since his time, the essay has flourished as the genre has allowed writers of every generation to consider deeply the observable world. The essay, in fact, takes on so many forms that the delight in its study lay in its seemingly endless array of structures and subjects. Nothing, it seems, is off-limits for expository essay writers. The course will invite the students to read from a variety of well-known essayists on a panoply of topics. The students will use these essays as models when they construct their own essays, giving attention to the writing process: pre-writing, drafting, revising, editing, and proofreading.

Students will read from *The Seagull Reader: Essays* (Norton), as well as essays chosen by the instructor.

Reading and Writing the Personal Essay

Semester (Spring); Grade 11
Credits: 0.5
Prerequisites: English 10

In the second semester of the junior English course, the students shift their attention to reading and writing personal essays. Using the same close-reading and annotating skills used in the first semester, the students encounter writers looking within themselves to understand how they live in the world, how they relate to others, and how they see themselves and their experiences. The students will keep a journal during this semester in an effort to accumulate their personal reflections, and they will discover different structures and tactics to express themselves using this form of personal expression.

Students will read from *The Seagull Reader: Essays* (Norton), as well as essays chosen by the instructor.

Other Planets, Imagined Worlds: Science Fiction

Semester (Fall); Grade 12
Credits: 0.5
Prerequisites: English 11

To start their final year in the PRISMS English program, students will flex their imaginations and read across disciplines to ask the question "What if?" Building on classic and contemporary works of speculative fiction, students will integrate all of their communication skills—reading critically, writing clearly, listening carefully, and speaking effectively—to explore philosophical ideas related to science and technology, and also history, economics, art, and religion. Short stories, films, and novels will be examined together, and students will learn to develop "syntopical" arguments that span several texts. To prepare for college-level English courses, students will practice the seminar format—leading and participating in extended conversations about enduring themes of the human condition. A capstone project will require students to write an imaginative piece based on current scientific research.

Possible titles for study include *Brave New World*, *The Man in the High Castle*, *The Martian*, *Slaughterhouse-Five*, *The Time Machine*, *2001: A Space Odyssey*, and the short stories of Arthur C. Clarke and Isaac Asimov.

Our Planet, Today's World: Science Nonfiction

Semester (Spring); Grade 12
Credits: 0.5
Prerequisites: English 11

PRISMS students will complete their journey through the English curriculum with a deep dive into contemporary science writing for a general audience. The dual goals of this semester are to help students develop a habit of reading general science articles and to provide them with models of clear, compelling communication about specialized knowledge. Building on the momentum of the "Science Fiction" course, as well as recalling their experience as freshmen in The BASE Program, the seniors will be asked to examine how some of our most pressing scientific dilemmas (climate change, genetic engineering, artificial intelligence, social media, etc.) have or will impact them directly. Writing instruction will help students achieve rhetorical fluency and clarity of expression in their writing, with a special focus on how to write graceful, elegant prose. Students will improve the rigor of their logic, reasoning, and use of

evidence. They will also graduate with an understanding of how to effectively combine words, data, and graphics to facilitate comprehension. As a summative exercise, this course will also require students to reflect on their particular strengths as a student and how to meet their "growth edge" as they prepare for college.

Possible titles for study include *The Visual Display of Quantitative Information* and *The Best American Science and Nature Writing of 2021*

Core History Courses

AP World History

Full-Year; Grade 10
Credits: 1.0
Prerequisites: none

"The AP World History course focuses on developing students' understanding of world history from approximately 8000 B.C.E. to the present. The course has students investigate the content of world history for significant events, individuals, developments, and processes in six historical periods, and develop and use the same thinking skills and methods (analyzing primary and secondary sources, making historical comparisons, chronological reasoning, and argumentation) employed by historians when they study the past. The course also provides five themes (interaction between humans and the environment; development and interaction of cultures; state building, expansion, and conflict; creation, expansion, and interaction of economic systems; and development and transformation of social structures) that students explore throughout the course in order to make connections among historical developments in different times and places encompassing the five major geographical regions of the globe: Africa, the Americas, Asia, Europe, and Oceania." (From The College Board) The course prepares students for the AP World History examination.

AP United States History

Full-Year; Grade 11
Credits: 1.0
Prerequisites: none

"AP U.S. History is designed to be the equivalent of a two-semester introductory college or university U.S. history course. In AP U.S. History students investigate significant events, individuals, developments, and processes in nine historical periods from approximately 1491 to the present. Students develop and use the same skills, practices, and methods employed by historians: analyzing primary and secondary sources; developing historical arguments; making historical comparisons; and utilizing reasoning about contextualization, causation, and continuity and change over time. The course also provides seven themes that students explore throughout the course in order to make connections among historical developments in different times and places: American and national identity; migration and settlement; politics and power; work, exchange, and technology; America in the world; geography and the environment; and culture and society." (From The College Board) The course prepares students for the AP United States History Examination.

Humanities Elective Courses

AP United States Government and Politics

Semester (Fall); Grades 10-12
Credits: 0.5
Prerequisites: none

"AP United States Government and Politics introduces students to key political ideas, institutions, policies, interactions, roles, and behaviors that characterize the political culture of the United States. The course examines politically significant concepts and themes, through which students learn to apply disciplinary reasoning assess causes and consequences of political events, and interpret data to develop evidence-based arguments." (From The College Board) The course prepares students for the AP United States Government and Politics examination.

AP Comparative Government and Politics

Semester (Spring); Grades 10-12
Credits: 0.5
Prerequisites: none

"The AP course in Comparative Government and Politics introduces students to fundamental concepts used by political scientists to study the processes and outcomes of politics in a variety of country settings. The course aims to illustrate the rich diversity of political life, to show available institutional alternatives, to explain differences in processes and policy outcomes, and to communicate to students the importance of global political and economic changes. Comparison assists both in identifying problems and in analyzing policymaking. Six countries form the core of the AP Comparative Government and Politics course: China, Great Britain, Iran, Mexico, Nigeria, and Russia." (From The College Board) The course prepares students for the AP Comparative Government and Politics examination.

Creative Writing

Semester (I - Fall, II - Spring); Grades 9-12
Credits: 0.50
Prerequisites: None

This two-semester course in creative writing introduces students to some of the processes and techniques of writing poetry, fiction, and creative nonfiction. Close readings of classic and contemporary texts will expose students to various writing styles and schools of creative expression. Class time is devoted to composing and workshopping original work and discussing assigned pieces of literature. During the fall semester, the course will focus on poetry; during the spring semester, the focus shifts to fiction and creative nonfiction. Students are not required to take both semesters.

Introduction to Chinese Civilization

Full-Year; Grades 9-12
Credits: 1.0
Prerequisites: none

This two-semester course is designed for students who are interested in learning about China, one of the world's most complex and influential civilizations. The course offers a general introduction to Chinese civilization from ancient times to the present through exploring Chinese history, philosophy, culture, literature, and the arts. Students will learn about the major events that shaped Chinese history, its main philosophical traditions, social and cultural customs, and literary and artistic works. All of these established the foundations of Chinese civilization and its many dimensions. Readings include a wide range of historical, philosophical, cultural, literary, and artistic texts in English. No prerequisite is required.

World Languages

Note: Languages at PRISMS are taught at three levels: first–year, second–year, and advanced, wherein students beyond the second–year are grouped in one class. Regarding Advanced Placement instruction: teachers prepare students interested in taking the AP examination by integrating their AP preparation into the classwork of the advanced level courses. International students are exempt from the language requirement. American students are required to take three years of a language as a requirement for graduation.

Mandarin Chinese

Full-Year; Grades 9-12
Credits: 1.0
Prerequisites: Level will depend on language competency as determined by the instructor and Head of Department

The Mandarin Chinese program instructs students in mastering the five goals of the American Council on the Teaching of Foreign Languages of communication, cultures, connections, comparisons, and communities in their listening, speaking, reading and writing at each level of Mandarin study. Students will learn how to communicate effectively through vocabulary acquisition and usage, as well as apply proper diction when speaking to different audiences and in different situations. Students will also gain knowledge and deepen their understanding of the variety of Chinese cultures. Students will connect the language learning with other subjects' content by learning through topics and themes, and start to develop their trans-lingual and transcultural awareness. By studying comparisons and contrasts within the language, students develop insight into the nature of the language and culture and learn the power of multiple perspectives. Together, these elements will enable students to participate in multilingual communities at home, in their communities, and throughout the world in a variety of contexts and in culturally appropriate ways.

Spanish

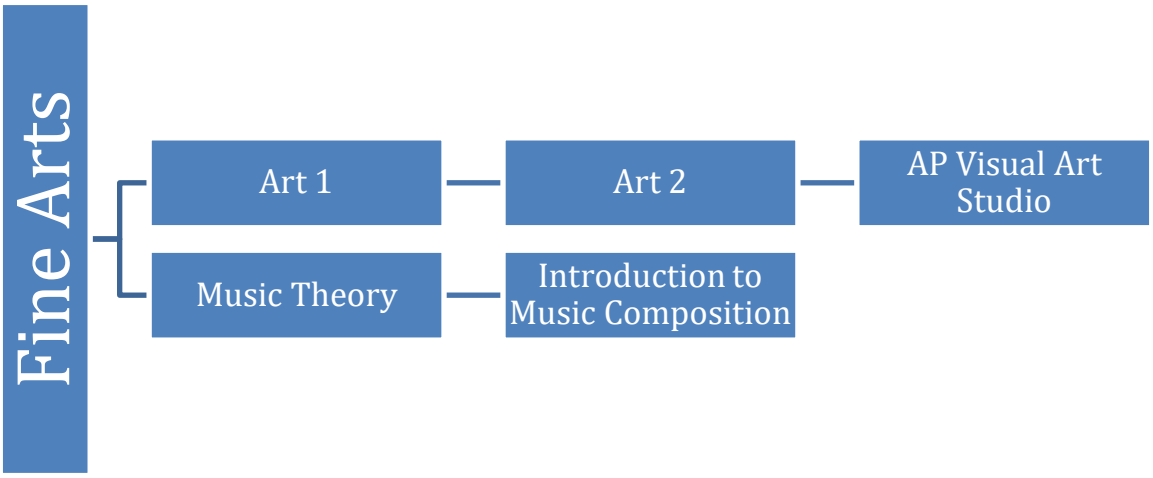
Full-Year; Grades 9-12
Credits: 1.0
Prerequisites: Level will depend on language competency as determined by the instructor and Head of Department

In their Spanish courses, students acquire an understanding of both the Spanish language and culture. The main objective of the Spanish curriculum is to create a solid foundation from level I through Advanced and onto the Advanced Placement level when recommended. To accomplish this objective, students at

every level are exposed to and participate in using the language's various means of communication including speaking, listening, reading, and writing. Students augment their understanding of the language by doing projects that help them explore the diverse Latin cultures, as well as find their own individual identities as citizens of the world.

Fine Arts

Δ



Art Elective Courses

Art 1

Semester (Fall); Grades 9-12
Credits: 0.5
Prerequisites: None

In Art 1, students will work to master the basic techniques, tools, and ways of thinking about and seeing art. While Art is strongly rooted in basic techniques and fundamentals, we will also include innovative elements, such as a rotating schedule of visiting artists from a variety of artistic backgrounds, as well as studio, gallery or museum visits to New York City. The classroom is intended to be a laboratory of creative inspiration. The class will include traditional as well as non-traditional and unconventional approaches to art. So that each students can develop his or her style, the class will offer wide variation in creative assignments, according to students' needs and interests; students will also learn through direct demonstrations, slide/PowerPoint presentations, group and individual critiques, and reading and discussing artistic/aesthetic/theoretic readings and art articles.

Through Art 1, students will learn the basic elements and principles of drawing/painting, understand the basic principles of linear perspective, develop an understanding of contour drawing, depth, value and form of two-dimensional surfaces, demonstrate a basic understanding of chiaroscuro, develop the ability to effectively communicate about drawing/painting ideas and processes, and learn the fundamentals of art history.

Art 2

Semester (Spring); Grades 9-12
Credits: 0.5
Prerequisites: Art 1

The advanced course will build on the knowledge and skills students learn in Art 1, while also engaging more fully in project-based learning and self-directed study. Each student will conceive of, research, propose and execute a major project, to be displayed in a school-wide exhibition at the end of the year. Students will choose and execute the subject, medium, style, and other aspects of the project, under the guidance of the instructor. In Art 1, students will further develop knowledge and skills gained from the Basic Visual Arts course, develop the ability to express via digital imagery knowledge of an important idea or theme by creating a short video for school-wide presentation, further develop teamwork and collaboration skills by participating in a group project, further develop analytic thinking and the creative process through researching the life and work of a professional artist, further develop research, analytic, art history and studio skills by conceiving of, researching, and creating an independent project on a subject that reflects PRISMS' core curriculum.

AP Visual Arts Studio

Full-Year; Grades 10-12
Credits: 1.0
Prerequisites: Art 1 and Art 2

The AP Visual Arts Studio course will be a year-long class offered to students who are seriously interested in the practical application of art. Students will work with diverse media, styles, subjects, and content. Students will be evaluated on the year-long portfolio, submitted at the end of the year. The course consists of three possible portfolios: Two-Dimensional Design, Three-Dimensional Design, or Drawing, corresponding to the most common college foundation courses. Students' work will be informed and guided by observation, research, experimentation, discussion, critical analysis, and reflection, relating individual practices to the art world. Students will be asked to document their artistic ideas and practices to demonstrate conceptual and technical development over time. AP Studio Visual Art will support students in becoming inventive artistic scholars who contribute to visual culture through art making.

Music Elective Courses

Music Theory

Semester (Fall); Grades 9-12
Credits: 0.5
Prerequisites: Evaluation by Instructor

Music is a living language, and in this class we will cover the basics of musical notation and literacy. Topics covered will include pitch, rhythm, scales, modes, time signatures, intervals, chords, harmony, and tonality. Our approach will be both practical and theoretical; we will first learn conceptual topics, and then put them into practice through basic performance and composition. For example our study of scales and chord progressions will be reinforced by practice at the keyboard. Additionally, we will integrate a variety of topics by composing short phrases, melodies, and songs. Our goal is to become more literate and sensitive musicians.

Introduction to Musical Composition

Semester (Spring); Grades 9-12
Credits: 0.5
Prerequisites: Evaluation by Instructor

Everyone has the potential to be musically creative, and this class is designed to help students discover and nurture their own musical creativity. In this class, we will engage in a variety of diverse musical activities and games that cultivate our ability to improvise. Together we will also explore more formal methods for creating original music. Students will also learn music software that will enable the creation of musical scores. Ultimately, students will be required to write a series of short musical compositions that will be shared in class electronically or through live performance. In order to enroll in the class, students must demonstrate a basic level of musical literacy and proficiency, as determined by the instructor.

Physical Exercise Requirement

Δ

In line with our belief that a healthy body promotes a healthy mind, all boarding students are required to take part in our after school Physical Activity Program from 4:15 – 5:00 each afternoon (Monday - Friday). Day students are also required to participate if they remain on-site after the end of the academic day. After school activities include: P.E., basketball, soccer, running, cycling, tennis and table tennis, frisbee, etc.

Additional Academic Programs

Δ

Courses at Princeton University

Exceptionally talented students who have exhausted all post-AP elective options in a subject may be eligible to take courses at Princeton University through their High School Program (HSP). Princeton University provides this opportunity as a courtesy to PRISMS students who demonstrate consistently superior performance in all aspects of their academic work and show a sincere interest in pursuing study at truly advanced levels beyond those offered at PRISMS.

The High School Program (HSP) at Princeton University was created over two decades ago to address the needs of high school students who have earned the highest possible grades for their academic work and have exhausted all high school courses in eligible subjects that they would like to continue studying at the college level. The HSP is intended to serve as an extension of the existing high school curriculum and is NOT intended as an opportunity to start a new line of study or to replace an existing high school course with a course at the University.

Students who meet the qualifications for admission to the Program may enroll in courses in mathematics, physics, chemistry, biology, geosciences, world languages, computer science, and/or music (course offerings are subject to change from year to year). Students who believe they may be eligible should contact the School Counselor at the beginning of the school year for more information.