



## **Advanced Placement (AP) Course Descriptions**

***All courses are designed to prepare students for the AP examination in May***

| <b>Course Title</b>            | <b>Grade Level</b> | <b>Pre- Requisite</b> | <b>Hours of work/ week</b> | <b>Course Description</b>   |
|--------------------------------|--------------------|-----------------------|----------------------------|---|
| <b>Art History</b>             | 11-12              | n/a                   | 2-3                        | Daily homework is minimal, but intensive studying is necessary for success on unit exams and essays. A high degree of commitment to academic work is required as the course moves at a challenging pace. It requires students to absorb and synthesize complex relationships between art, artists and society. The course is taught primarily through lecture rather than the text. |
| <b>Art Studio (2-D and 3D)</b> | 11-12              | Speak with teacher    | 4                          | Every ten school days, a project will be due, followed by a class critique of the works. Students will produce a portfolio of 24 or more artworks by the end of April. In May, the portfolio will be submitted to the College Board.  |
| <b>Biology</b>                 | 11-12              | Biology & Chemistry   | 5-10                       | Extensive laboratory activities, group projects, reviews, essays, and multiple choice-type examinations.  |
| <b>Calculus AB</b>             | 10-12              | Precalculus           | 3-5                        | Focuses on differential calculus, which examines rates of change and slope, and integral calculus, which investigates the accumulation of data and area under curves. Other topics include distance, velocity and acceleration, volume of solids and integration of exponential and logarithmic functions.  |
| <b>Calculus BC</b>             | 11-12              | Calculus A            | 3-5                        | Focuses on differential calculus, which examines rates of change and slope, and integral calculus, which investigates the accumulation of data and area under curves. Topics covered in BC Calculus that are not in AB Calculus include: Integration by Parts, Series and Sequences, l'Hospital's Rule, and Parametric and Polar Relations  |
| <b>Chemistry</b>               | 11-12              | AS Chemistry          | 4-6                        | Topics that involve qualitative material will be quickly reviewed whereas those involving calculations will be studied in detail. Emphasis is given to problem solving and critical thinking regarding chemical systems. Extensive laboratory activities, reviews, and practice examinations.   |

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| <b>Computer Science</b>                 | 10-12 | Algebra II   | See teacher | The course uses the Java programming language, since the multiple choice and free response questions will use Java syntax. Content includes: classes and data abstraction, conditional and logical expressions, recursion, various types of arrays, String class, exception handling, inheritance, sorting algorithms, and searches. Also, there is a lengthy case study. Students will learn how to look at programming code written by someone else and in so doing, learn how to interpret what the code is attempting to accomplish, and also how to modify the code in order to perform tasks not in the original code.   |
| <b>English Language and Composition</b> | 11    | AS English II/<br>English II with A or B (C with recommendation) | 3-5         | Students study non-fiction in a variety of rhetorical styles--essays, letters, speeches and memoirs. Student essays include rhetorical analysis, synthesis and argument. The class is discussion based and Socratic in nature.   |
| <b>English Literature</b>               | 12    | AS III/AP or English III with A, B (C with recommendation)       | 3-5         | AP English Literature and Composition course engages students in the careful reading and critical analysis of imaginative literature. Through the close reading of selected texts, students deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students consider a work's structure, style, and themes as well as such smaller-scale elements as the use of figurative language, imagery, symbolism, and tone.  |
| <b>Environmental Science</b>            | 11-12 | Biology & Chemistry  | 6-8         | <p>Work for each week includes:</p> <ul style="list-style-type: none"> <li>-1 chapter of text + Cornell notes and on-line quizzes</li> <li>- 1 flipped lecture (they watch at home- very little direct instruction in the class- being able to understand the text and watch any video instruction is imperative because that's where they get the material. Our intention is to apply it in class and make class time as interactive as possible).</li> <li>- On-line discussion.</li> </ul> <p><u>Class time</u>- labs, discussions (in a variety of forms - Socratic seminars, debates).</p> <p><u>Field trips</u>-This year we will do a total of 5 field trips. Each one is required and some may involve missing other classes</p> |
| <b>European History</b>                 | 10    | World Studies 2 with an A  | 6-10        | Course content includes: basic chronology of major historical events and trends from Renaissance to present; principal themes in European history; analysis of historical evidence. A minimum of 4 research papers.  |

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| <b>Physics C Mechanics</b>                        | 11-12 | AS Physics  | 5-8 | The Mechanics curriculum covers: kinematics, Newton's Laws, energy, momentum, rotational kinematics, angular momentum, gravitation, and oscillations. Entering students will have seen many of these concepts before, but will now be applying calculus to them in the context of increasing overall complexity. |
| <b>Statistics</b>                                 | 10-12 | Precalculus / Algebra II/Trig with an A                   | 2-3 | The students study four broad conceptual themes: 1. Exploring data: Observing patterns and departures from patterns 2. Planning a study: Deciding what and how to measure 3. Anticipating patterns: Producing models using probability and simulation 4. Statistical inference: Confirming models.               |
| <b>U.S. History</b>                               | 11    | Western Civilization or Modern European History with an A | 4-6 | AP US History is a survey course covering American history from the Pre-Columbian period to the present. The course requires students to spend several hours per week reading, taking notes, and preparing for regular exams, essays and class discussions.  |
| <b>World Language</b><br>(French, Latin, Spanish) | 9-12  | Level IV of language, or assessment                       | 5-8 | Studying structures that the students will apply in exams. Responding orally to prompts, and recording them and sending them to the teacher via email. Memorizing vocabulary. Reading and completing comprehension questions. Writing essays in the target language.   |