

## II. ADVANCED ACADEMICS

# ADVANCED ACADEMICS



### GENERAL INFORMATION

The Advanced Placement Program® (AP®) is a collaborative effort among motivated students, dedicated teachers, and committed high schools, colleges, and universities. Since its inception in 1955, the Program has allowed millions of students to take college-level courses and exams and to earn college credit or placement while still in high school. Sixty percent of U.S. high schools currently participate in the AP Program.

Each AP course has a corresponding exam that participating schools worldwide administer in May. Except for Studio Art, which is a portfolio assessment, AP Exams contain multiple-choice questions and a free-response section (either essay or problem-solving). AP Exams represent the culmination of AP courses and are thus an integral part of the Program. As a result, MISD fosters the expectation that students who enroll in an AP course will go on to take the corresponding AP Exam.

Most colleges and universities in the U.S., as well as colleges and universities in more than 30 other countries, have an AP policy granting incoming students credit, placement, or both on the basis of their AP Exam grades. Many of these institutions grant up to a full year of college credit (sophomore standing) to students who earn a sufficient number of qualifying AP grades.

**To receive weighted credit for an AP course, students must be enrolled in the course and**

**receive a 70 or higher in the course. Students are encouraged to take the corresponding College Board AP exam in May (See the Pre-AP and College Board AP section of the MISD High School Course Description Guide or visit [www.collegeboard.com](http://www.collegeboard.com) for exam dates and information). Weighted credit will automatically be given to students who receive passing grades in Pre-AP courses.**

### AP EXAM FEES & FEE REDUCTIONS

The fee for each exam is \$96. (This College Board fee is subject to change without notice.) Due to the loss of state and federal funds, the MISD will resume the practice of charging students a portion of the Advanced Placement exam cost. Students and their families will be responsible for any additional fees incurred based on testing decisions (unused, cancelled, missed exams or testing irregularities). There will be no refunds issued after November 15<sup>th</sup>.

### COLLEGE & UNIVERSITY AP CREDIT POLICY

Advanced Placement credit policies vary. Individual college and university AP credit policies may be accessed through the College Board website at: <http://collegesearch.collegeboard.com/apcreditpolicy/index.jsp>

## PRE-AP & AP ENGLISH LANGUAGE ARTS

Summer reading selections and other important information is listed on the MISD ELAR webpage.

### PRE-ADVANCED PLACEMENT ENGLISH I

**Course Number: 2013**

**Placement: 9**

**Credits: 1**

**Prerequisite: 8th Grade English or 8th Grade Honors English**

This course is for students who have demonstrated superior skills and who are sufficiently motivated to accomplish challenging assignments. It is an in-depth study of literary and informational pieces such as poetry, plays, short stories and novels. Students also concentrate on language acquisition, critical thinking skills, and advanced composition. Summer reading will be expected of all students.

### PRE-ADVANCED PLACEMENT ENGLISH II

**Course Number: 2023**

**Placement: 10**

**Credits: 1**

**Prerequisite: English I or Pre-AP English I**

To broaden the skills introduced in English I, this course stresses mastery of general essay skills, literary analysis, and critical thinking. Students enhance appreciation of the classics through exploration of various forms of world literature. Concepts and skills in writing, language, literature, and reading are stressed. Summer reading will be expected of all students.

### WORLD STUDIES (PRE-AP ENGLISH II & AP WORLD HISTORY)

**Course Number: 2025 & 2026**

**Placement: 10-12**

**Credits: 2**

**Prerequisite: See Prerequisites for Pre-AP English II & AP World History**

The student will study World History and representative literary works in a combined social studies and English format that will allow the student to understand how history affects the development of literature and vice versa. This course will satisfy Pre-AP English II and Pre-AP World History credit

### ADVANCED PLACEMENT ENGLISH III

**Course Number: 2033**

**Placement: 11**

**Credits: 1**

**Prerequisite: English II or Pre-AP English II**

This course challenges honors students to do college level reading and writing through in depth study of American literature, analysis of non-fiction prose, and extensive essay writing. Students taking this course should be highly motivated to improve analytical thinking and writing skills. This course is designed to prepare students for the Advanced Placement test. Summer reading is expected.

### ADVANCED PLACEMENT ENGLISH IV

**Course Number: 2040**

**Placement: 12**

**Credits: 1**

**Prerequisite: English III or AP English III**

This course teaches literary analysis through prose, poetry, and drama. It reinforces skills learned in AP English III by applying them to a different field of study. Students taking this course should be highly motivated and strong in critical thinking and independent study skills. This course is designed to prepare students for the Advanced Placement test. In addition, summer reading is expected

## PRE-AP & AP FINE ARTS

### PRE-ADVANCED PLACEMENT ART II

**Course Number: 3120**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Art I**

This course is designed for the students who show superior skills and interest in art. Artistic awareness, critical thinking, imaginative expression, appreciation of art culture, and aesthetic judgment are emphasized.

### ADVANCED PLACEMENT STUDIO ART: DRAWING PORTFOLIO

**Course Number: 3145**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Student Application**

This course is designed for students who are seriously interested in exploring drawing issues and media. Light and shade, line quality, rendering of form, composition, surface manipulation, and illusion of depth will be explored through a variety of media. This course is designed to prepare the student to submit an AP portfolio. All students are expected to submit a portfolio for Advanced Placement review.

### ADVANCED PLACEMENT STUDIO ART: 2-D DESIGN PORTFOLIO

**Course Number: 3146**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Student Application**

This course is designed for students who are seriously interested in exploring 2-D design issues. Students will demonstrate a proficiency in 2-D design using a variety of art forms. These may include, but are not limited to, graphic design, digital imaging, photography, collage, illustration, printmaking, painting, etc. This course is designed to prepare the student to submit an AP portfolio. All students are expected to submit a portfolio for Advanced Placement review.

### ADVANCED PLACEMENT STUDIO ART: 3-D DESIGN PORTFOLIO

**Course Number: 3147**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Student Application**

This course is designed for students who are seriously interested in exploring 3-D design issues. Students will demonstrate a proficiency in 3-D design using a variety of art forms. These may include, but are not limited to, graphic design, digital imaging, photography, collage, illustration, printmaking, painting, clay, wood, plaster, mold-making, found objects, papier-mâché, metals, jewelry, glass, plastics, cardboard, paper and fibers, etc. This course is designed to prepare the student to submit an AP portfolio. All students are expected to submit a portfolio for Advanced Placement review.

### ADVANCED PLACEMENT MUSIC THEORY

**Course Number: 3230**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: Student Application**

Written music theory is the study of musical designs, proportions, and inventive patterns that are transformed by the mind into aesthetic experiences. In general, students will gain fluency through both analysis and occasional writings of their own. In addition to studying written music theory (including scales, intervals, chords, etc.), students will be involved in ear training exercises/drills. Ear training is a multi-faceted endeavor. Its subdivisions include sight singing, melodic dictation, harmonic dictation, and rhythmic dictation. The drills involved with the study of ear training are to be practiced as dutifully as that on the student's performance instrument.

## PRE-AP & AP LANGUAGES OTHER THAN ENGLISH

### PRE-ADVANCED PLACEMENT CHINESE II

**Course Number: 7513**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Chinese I**

Chinese II continues to develop the oral skills with added emphasis on reading and writing skills. The focus is on the development of mid-to high-novice proficiency. Expansion of vocabulary and grammatical structures continues. Contrast between English and Chinese will strengthen the language learning process. Culturally related activities of selected Chinese speaking countries or regions will be explored.

### PRE-ADVANCED PLACEMENT CHINESE III

**Course Number: 7523**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Chinese II or Pre-AP Chinese II**

Chinese III continues to develop the oral and writing skills with added emphasis on reading. The focus is on the development of novice mid-to intermediate-low proficiency in speaking with increased emphasis on Advanced Placement exam preparation. Expansion of vocabulary and grammatical structures continues. Culturally-related activities of selected Chinese regions will be explored.

### ADVANCED PLACEMENT CHINESE IV

**Course Number: 7530**

**Placement: 12**

**Credits: 1**

**Prerequisite: Pre-AP Chinese III**

AP Chinese IV prepares students to demonstrate intermediate proficiency across the full range of language skills within a cultural frame of reference. The course will develop reading proficiency of authentic texts, fiction and non-fiction, listening proficiency of formal and colloquial authentic language, and writing proficiency in descriptive, expository, and persuasive styles. This course utilizes critical thinking, reading, and writing skills. The goal of this course is to prepare students to take the AP Chinese Language and Culture exam. This course is conducted predominately in Chinese.

### PRE-ADVANCED PLACEMENT FRENCH II

**Course Number: 7013**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: French I**

This course studies in more depth the language and culture with an emphasis on communicating in French. Students also study cultural history, contemporary attitudes of the Francophone world, and the geography of France. Contemporary French films may be used as a tool to study authentic use of the language and as examples of the cultures of the Francophone world.

### PRE-ADVANCED PLACEMENT FRENCH III

**Course Number: 7023**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: French II or Pre-AP French II**

This honors course expands students' development in speaking, listening, writing, and reading, especially in everyday situations. Literary selections are included for study of language and culture. The class uses contemporary French films as tools to study authentic language and as examples of the cultures of the Francophone world.

### ADVANCED PLACEMENT FRENCH IV

**Course Number: 7033**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Pre-AP French III**

This course studies the development of personal expression in everyday situations with a focus on reading, writing, and language. The goal of this course is to prepare students to take the AP French Language exam.

### PRE-ADVANCED PLACEMENT GERMAN II

**Course Number: 7113**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: German I**

This course continues the study of basic German, concentrating on listening, speaking, reading, and writing skills. The focus for this honors class will be on real world projects.

### PRE-ADVANCED PLACEMENT GERMAN III

**Course Number: 7123**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: German II or Pre-AP German II**

This honors course is a continuation of the development of reading, writing, listening and speaking skills begun in German I and II. Geography, culture and functioning in everyday situations will be stressed. Students will begin to prepare for the AP test. This course may be combined with German IV.

### ADVANCED PLACEMENT GERMAN IV

**Course Number: 7140**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Pre-AP German III**

This course is a continuation of the development of reading, writing, listening and speaking skills begun in German I and II. Advanced grammar and literature will be stressed. The goal of this course is to prepare students to take the AP German Language test. This course may be combined with German III.

### PRE-ADVANCED PLACEMENT JAPANESE II

**Course Number: 7713**

**Placement: 9-12**

**Prerequisite: Japanese I**

**Credits: 1**

Pre-AP Japanese II further develops the skills introduced in Japanese I. Emphasis is on oral and written communication skills. Expansion of vocabulary and grammatical structures continues. Katakana letters and Chinese characters are introduced. Real life Japanese, such as informal speech styles, is also introduced.

### PRE-ADVANCED PLACEMENT JAPANESE III

**Course Number: 7720**

**Placement: 10-12**

**Prerequisite: Japanese II**

**Credits: 1**

Pre-AP Japanese III provides for an in-depth development of the skills introduced in the previous courses. Further expansion of vocabulary, grammatical structures, and Chinese characters continues. Students are expected to develop communication skills in various real life settings.

### ADVANCED PLACEMENT JAPANESE IV

**Course Number: 7730**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Japanese III**

AP Japanese IV provides for further development of communication skills in Japanese in preparation for the AP Japanese Language examination. Emphasis is on advanced grammar and composition as well as comprehension and speaking in a variety of real life settings. The goal of this course is to prepare students to take the AP exam.

### PRE-ADVANCED PLACEMENT LATIN II

**Course Number: 7413**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Latin I**

This pre-advanced placement course requires a deeper study and understanding of the Latin language and Roman culture. This course continues to develop the vocabulary and grammar skills necessary to read and comprehend Latin passages. Students will continue to develop, through their readings, an understanding of Roman culture.

### PRE-ADVANCED PLACEMENT LATIN III

**Course Number: 7423**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Latin II or Pre-AP Latin II**

In the final course of the recommended three-year sequence of language study, the Latin III student continues to develop the skills to read and comprehend slightly adapted and authentic classical passages at an advanced level. Students will continue to develop, through their readings, an understanding of Roman culture.

**ADVANCED PLACEMENT LATIN IV**

**Course Number: 7430**

**Placement: 12**

**Credits: 1**

**Prerequisite: Pre-AP Latin III**

This fourth-year course focuses on reading Latin poetry and prose with special emphasis on Vergil’s epic poem “The Aeneid” and the writings of Julius Caesar. The student will gain insight into the special conventions of poetry, as well as continued knowledge and understanding of the Greco-Roman world and mythology. Students may prepare for a variation of the College Board (CB) Latin Advanced Placement (AP) Examination, which focuses on poetry and prose in this Level IV course.

**PRE-ADVANCED PLACEMENT SPANISH II**

**Course Number: 7320**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: Spanish I**

This course provides for an in-depth development of the skills introduced in Spanish I. Oral comprehension and reading skills are emphasized. Grammar, vocabulary, literature, and cultural studies are also included.

**PRE-ADVANCED PLACEMENT SPANISH III**

**Course Number: 7340**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Spanish II, Pre-AP Spanish II or Spanish for Native Speakers I**

This honors course is a continuation of the study of the Spanish language with special emphasis on reading comprehension, listening, speaking and advanced grammar and composition in preparation for the AP Spanish Language exam.

**ADVANCED PLACEMENT SPANISH IV**

**Course Number: 7360**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Pre-AP Spanish III or Spanish for Native Speakers II**

This course is an intensive study of Spanish language in preparation for the AP Spanish Language exam. Emphasis is on advanced grammar, literature, and composition as well as listening comprehension and speaking. The goal of this course is to prepare students to take the AP exam.

**ADVANCED PLACEMENT SPANISH V**

**Course Number: 7360**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: AP Spanish IV**

This course is an intensive study of Spanish literature in preparation for the AP Spanish Literature exam. Emphasis is on advanced grammar, literature, and composition. The goal of this course is to prepare students to take the AP exam.

**PRE-AP & AP MATHEMATICS**

**PRE-ADVANCED PLACEMENT ALGEBRA I**

**Course Number: 6033**

**Placement: 9**

**Credits: 1**

**Prerequisite: 8<sup>th</sup> grade Math**

In addition to material usually covered in Algebra I, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Algebra I. The level of instruction/curriculum will focus on preparing the student for advanced placement mathematics courses.

**PRE-ADVANCED PLACEMENT GEOMETRY**

**Course Number 6053**

**Placement: 9-10**

**Credits: 1**

**Prerequisite: Algebra I or Pre-AP Algebra I**

In addition to material usually covered in Geometry, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Geometry. The level of instruction/curriculum will focus on preparing the student for advanced placement mathematics courses.

**PRE-ADVANCED PLACEMENT ALGEBRA II**

**Course Number: 6080**

**Placement: 10-11**

**Credits: 1**

**Prerequisite: Algebra I or Pre-AP Algebra I**

In addition to the material usually covered in Algebra, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills introduced in Algebra II. The level of instruction/curriculum will focus on preparing the student for further advanced placement courses. **This course is recommended to take after Geometry. Students must successfully complete Algebra II prior to taking a higher math class. This course (or the regular level) is required for a Distinguished Level of Achievement or STEM Endorsement.**

**PRE-ADVANCED PLACEMENT PRE-CALCULUS**

**Course Number: 6160**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Algebra I, Geometry, and Algebra II or Pre-AP versions**

In addition to the topics studied in Pre-Calculus, topics will be expanded and taught at a more rigorous, in-depth level. Emphasis will be placed on the application of concepts and skills. The level of instruction/curriculum will focus on preparing the student for advanced placement courses.

## II. ADVANCED ACADEMICS

### ADVANCED PLACEMENT CALCULUS AB

**Course Number: 6201**

**Placement: 11-12**

**Credits: 1**

**Recommended Prerequisite: Pre-AP Pre-Calculus**

This course is designed for the student who has displayed both exceptional talent and diligence in the study of all other selected high school courses. Topics of study will include limits and continuity, derivatives, the fundamental theorem of calculus, special functions, techniques of integration, partial derivatives, and multiple integration. Analytic geometry will be included as needed. A TI-84 will be used in the classroom, and graphing calculators of this type will be required for homework. This course is the equivalent of a Calculus I course at the college level. At the conclusion of this course, students may take the AP Calculus AB Test for an opportunity to earn college credit in calculus.

### ADVANCED PLACEMENT CALCULUS BC

**Course Number: 6202**

**Placement: 11-12**

**Credits: 1**

**Recommended Prerequisite: Pre-AP Pre-Calculus**

This course is an expansion of the Advanced Placement Calculus AB course. It includes all topics covered in Advanced Placement Calculus AB plus additional topics. Common topics require a similar depth of understanding. This course is the equivalent of a combined Calculus I and Calculus II course at the college level. Broad concepts and widely applicable models are emphasized. The TI-84 will be used in the classroom, and graphing calculators of this type will be required for homework. Extensions to AP Calculus AB include: parametric, polar, and vector functions; use of slope fields and Euler's method to find solutions to differential equations; improper integrals and series; solving logistic equations; polynomial approximations and series, including Taylor and Maclaurin series. At the conclusion of this course, students may take the AP Calculus BC exam for an opportunity to earn college credit in calculus.

### ADVANCED PLACEMENT STATISTICS

**Course Number: 6203**

**Placement: 11-12**

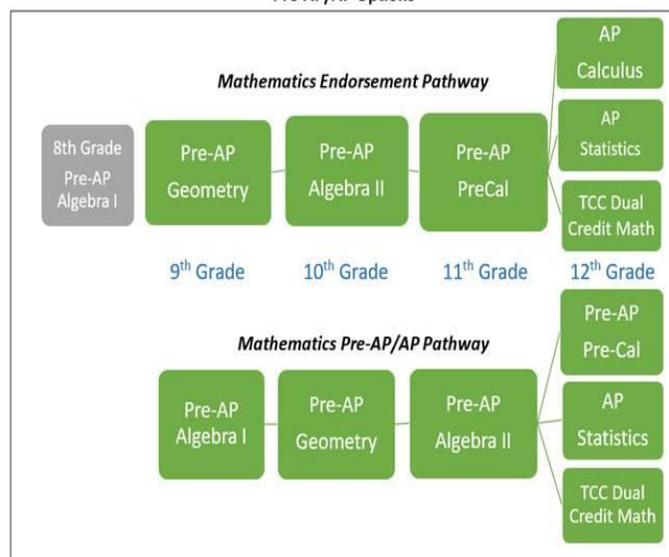
**Credits: 1**

**Recommended Prerequisite: Algebra II or Pre-AP Algebra II and Geometry or Pre-AP Geometry**

The purpose of this Advanced Placement course in statistics is to introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data. Students are exposed to the four broad conceptual themes: Exploring data: observing patterns and departures from patterns; Planning a study: deciding what and how to measure; Anticipate patterns: producing models using probability and simulation; and Statistical inference: confirming models. At the conclusion of this course, students may take the AP Statistics Test for an opportunity to earn college credit in statistics.

#### High School Math College Readiness Pathways

##### Pre-AP/AP Options



## PRE-AP & AP SCIENCE

### PRE-ADVANCED PLACEMENT BIOLOGY

**Course Number: 8003**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: None**

This course is designed for students who show an advanced aptitude toward science. Areas of study will include the essential elements and objectives of those in regular Biology I with greater depth and at a more accelerated rate. A greater emphasis will be placed on lab and the ability to evaluate, outline, organize, and report scientific information. Laboratory procedures, observation, measurement, classification, prediction, and reporting skills will be stressed. Therefore, strong math skills are important. The student should be proficient in reading and projects are required. Pre-AP Biology teachers deliver instruction on proper interaction with peace officers in the spring semester. TEA Recommendation: students in grades 9, 10, or 11.

### PRE-ADVANCED PLACEMENT CHEMISTRY

**Course Number: 8023**

**Placement: 10-12**

**Credits: 1**

**Prerequisite: Biology OR Pre-AP Biology AND Algebra I. Suggested Completion OR Concurrent Enrollment in a Second Year of High School Math**

Pre-AP Chemistry is a rigorous science course that integrates advanced mathematical models to solve in depth science problems at an accelerated pace. Chemistry topics include: properties of elements, interpretation of the periodic table, acid-base concepts, naming chemical compounds, writing chemical formulas and equations, stoichiometry, thermochemistry, electrochemistry, and solution chemistry. Emphasis will be placed on the ability to evaluate, outline, organize, and report scientific information. Projects and extensive lab reports are required. This course has a summer assignment as shown at the end of the science section of the Pre-AP and AP Science Course Offerings of this course description guide.

### ADVANCED PLACEMENT CHEMISTRY

**Course Number: 8073**

**Placement: 11-12**

**Credits: 1**

**Preferred Prerequisite: Chemistry OR Pre-AP Chemistry Completion OR Concurrent Enrollment in Algebra II**

AP Chemistry is designed to be the equivalent of a first year college general chemistry course. It is a rigorous and challenging course with special emphasis on applying mathematics to problem solving and as a means of expressing and modeling scientific inquiry. The course will provide an in depth treatment of atomic structure, gas laws, thermodynamics, stoichiometry, kinetics, equilibria, oxidation-reduction and electrochemistry. This course has a summer assignment as shown at the end of the science section of the Pre-AP and AP Science Course Offerings of this course description guide.

### ADVANCED PLACEMENT BIOLOGY

**Course Number: 8083**

**Placement: 11-12**

**Credits: 1**

**Preferred Prerequisite: Biology OR Pre AP Biology AND Chemistry OR Pre-AP Chemistry**

This course provides students with an in-depth study of biochemistry, microbiology, botany and genetics at an accelerated pace. This course is primarily for students who are interested in a career in medicine, biology or other related fields. Students taking this course should be highly motivated and strong in critical thinking and independent study skills. Successful completion of AP Biology should prepare students for the Advanced Placement Examination and/or the second level college biology course.

### ADVANCED PLACEMENT PHYSICS I

**Course Number: 8095**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Algebra I, Geometry, AND Algebra II OR Concurrent Enrollment in Algebra II**

This algebra-based course is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; mechanical waves and sound. It will also introduce electric circuits.

### ADVANCED PLACEMENT PHYSICS 2

**Course Number: 8096**

**Placement: 11-12**

**Credits: 1**

**Science Prerequisite: Physics OR AP Physics 1; Math Prerequisites: Algebra I, Geometry, AND Algebra II OR Concurrent Enrollment in Alg II**

This algebra-based course is the equivalent to a second-semester college course in algebra-based physics. The course covers fluid mechanics; thermodynamics; electricity and magnetism; optics; atomic and nuclear physics.

### ADVANCED PLACEMENT PHYSICS C: Mechanics

**Course Number: 8097**

**Placement: 11-12**

**Credits: 1**

**Science Prerequisite: Completion of AP Physics 1 and Math Prerequisite: Concurrent enrollment or completion of Pre-Calculus**

Use a differential and integral calculus-based approach to solve problems associated with concepts such as kinematics; Newton's laws of motion, work, energy and power; systems of particles and linear momentum; circular motion and rotation; oscillations; and gravitation. Build your understanding and critical thinking skills through inquiry-based, laboratory investigations and explore these physics concepts.

### ADVANCED PLACEMENT PHYSICS C: ELECTRICITY and MAGNETISM

**Course Number: 8098**

**Placement: 11-12**

**Credit: 1**

**Prerequisite: Completion of AP Physics C: Mechanics and Concurrent enrollment in AP Calculus**

Use a differential and integral calculus-based approach to solve problems associated with concepts such as electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism. Build your understanding and critical thinking skills through inquiry-based, laboratory investigations and explore these advanced physics concepts.

### ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE

**Course Number: 8094**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: Biology AND One Physical Science (IPC, Chemistry, or Physics)**

This course is designed 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. Environmental science is interdisciplinary; it embraces a wide variety of topics from different areas of study and includes indoor and outdoor investigations/activities.

### PRE-AP & AP SOCIAL STUDIES

#### ADVANCED PLACEMENT HUMAN GEOGRAPHY

**Course Number: 9205**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: None**

AP Human Geography is equivalent to a college introductory geography course. The purpose of AP Human Geography is to introduce students to the systematic study of patterns and processes that have shaped human understanding, use, and alteration of Earth's surface. Students who participate in AP Human Geography in their 9<sup>th</sup> grade year will develop habits of mind and skills necessary for success in future Advanced Placement courses. This course fulfills the requirement for 9<sup>th</sup> grade social studies and will count as an elective for students who already have a credit in World Geography.

#### ADVANCED PLACEMENT WORLD HISTORY

**Course Number: 9210**

**Placement: 9-12**

**Credits: 1**

**Prerequisite: None**

AP World History is a survey of world history from 1000 BCE to present. Emphasis is placed on preparing for the College Board AP exam which can earn the student credit or placement. The student will develop a greater understanding of the evolution of global processes and contacts and interaction with different type of human societies.

### WORLD STUDIES AP WORLD HISTORY & PRE-AP ENGLISH II

**Course Number: 2025, 2026**

**Placement: 10**

**Credits: 2**

**Prerequisite: See Prerequisites for Pre-AP English II**

World Studies provides students with the opportunity to study world history and representative literary works in a combined format that will allow the student to understand how history affects the development of literature and vice versa. This course will satisfy Pre-AP English II and AP World History credit.

#### ADVANCED PLACEMENT EUROPEAN HISTORY

**Course Number: 9200**

**Placement: 11-12**

**Credits: 1**

**Prerequisite: None**

AP European History is an accelerated elective course covering the history of Europe from 1450 (Renaissance) to the present. Emphasis is placed on preparing for the College Board AP exam by practicing higher level skills including: analysis, drawing conclusions, evaluating and assessing historical events using primary and secondary sources and writing at a collegiate level.

#### ADVANCED PLACEMENT UNITED STATES HISTORY

**Course Number 9060**

**Placement: 11**

**Credits: 1**

**Prerequisite: World History/AP World History or World Geography/AP Human Geography**

AP U.S. History is an accelerated course for the college-bound student. This course covers the history of the United States from colonization to the present. Emphasis is placed on outside reading, essay development, and research. The course is designed to help students receive college credit for U.S. History by taking the Advanced Placement test.

#### ADVANCED PLACEMENT GOVERNMENT

**Course Number: 9110**

**Placement: 12**

**Credits: 1/2**

**Prerequisite: US History or AP US History**

This course is an examination of the philosophical underpinning of our constitutional system combined with historical development and current trends. The primary focus will be on the national level. Because half of the AP American Government and Politics examination requires essay responses, writing exercises will be emphasized including book reviews, critical interpretive essays, and policy papers.

**ADVANCED PLACEMENT COMPARATIVE GOVERNMENT AND POLITICS****Course Number: 9120****Placement 11-12****Credits: ½****Prerequisite: None**

AP Comparative Government and Politics introduces students to the rich diversity of political life outside the United States. This elective course uses a comparative approach to examine the political structures; policies; and the political, economic, and social challenges among six selected countries: Great Britain, Mexico, Russia, Iran, China, and Nigeria. Additionally, students examine how different governments solve similar problems by comparing the effectiveness of approaches to many global issues.

**ADVANCED PLACEMENT MACROECONOMICS****Course Number: 9150****Placement: 12****Credits: ½****Prerequisite: US History or AP US History**

This AP course in macroeconomics is designed to give students a thorough understanding of the principles of economics that apply to an economic system as a whole while placing particular emphasis on the study of national income and price determination, and develop students' familiarity with economic performance measures, economic growth, & international economics.

**ADVANCED PLACEMENT MICROECONOMICS****Course Number: 9151****Placement: 12****Credits: ½****Prerequisite: US History or AP US History**

This elective course in microeconomics is designed to give students a thorough understanding of the principles of economics as they apply to individuals, household, and firms within the overall economic system. It places particular emphasis on the study of markets and market structures and seeks to develop students' familiarity with the theory of the firm, resource markets, market efficiency, and inequity, government regulation of markets.

**ADVANCED PLACEMENT PSYCHOLOGY****Course Number: 9173****Placement 11-12****Credits: ½****Prerequisite: None**

This is a college level course that incorporates an understanding of psychology, the scientific study of human behavior and the mental process. Topics that will be introduced will include memory and thought, body and behavior, sleep and dreams, motivation and emotion, personality and individuality, life span, stress and health, human relationships, psychological research, careers and statistics in psychology and therapy.

**PRE-AP & AP TECHNOLOGY****PRE-ADVANCED PLACEMENT COMPUTER PROGRAMMING I****Course Number: 1263CT****Placement: 9-12****Credits: 1****Prerequisite: Algebra I & Geometry or concurrent enrollment**

In this fast-paced, hands-on, advanced course environment (high-level programming), students will learn the fundamentals of computer science and computer programming utilizing a high-level language such as C++ or Java. Students will learn programming methodologies, algorithm development, problem solving skills and the ethical and social considerations for the appropriate use of computer software and hardware. Students will see how computer programs are used in industry and write basic programs utilizing similar techniques. Other 4th generation "learning" programming environments, such as Jeroo, will also be studied to help introduce and reinforce skills.

**ADVANCED COMPUTER PROGRAMMING II****Course Number: 1263CT****Placement: 10-12****Credits: 1****Prerequisite: Comp Prog or Pre-AP Comp Prog**

This course is designed for the student who anticipates a career in a technological field, such as physical science, mathematics, engineering, or computer science. Students will learn object oriented programming concepts using JAVA. Object-oriented programming will be emphasized. Classic algorithms, programming control structures, advanced data structures and the AP Computer Science A case study will be examined. Upon completion of this course, students may take the AP Computer Science A Exam.

**AP COMPUTER SCIENCE PRINCIPLES****Course: 1266CT****Placement: 9-12****Credits: 1****Prerequisite: Algebra I**

Students will learn about everyday computing tools. Students will foster their creativity and innovation through opportunities to design, implement, and present solutions to real-world problems. Students will collaborate and use computer science concepts to access, analyze, and evaluate information. Students will learn the foundation of computer science. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations and concepts.

### PROJECT LEAD THE WAY - STEM

#### INTRODUCTION TO ENGINEERING DESIGN

**Course: 1835CT**  
**Placement: 9-12**  
**Credits: 1**

Engineering is the practice of manipulating the natural world to fit our needs as humans. In this introductory course, students will learn the basics of design and communication so that they can understand and use the methods in which our designed world is created. Products are created, analyzed, and communicated using solid modeling design software. This class combines math, art, science, and group skills to prepare students for creative and exciting jobs. This course allows students the opportunity to earn transcribed college credit to articulate college credit hours upon high school graduation through participating college/university Tech Prep programs. This is a Project Lead the Way course.

#### PRINCIPLES OF ENGINEERING

**Course: 1836CT**  
**Placement: 10-12**  
**Credits: 1**

**Prerequisite: Intro to Engineering AND Algebra I AND Biology AND Chemistry or IPC**

This course is designed to help students understand the field of engineering/engineering technology by exploring various technology systems and manufacturing processes. The activities and projects offered through this course are designed to help students learn how engineers and technicians use math, science, and technology in an engineering problem solving process. This course allows students the opportunity to earn transcribed college credit or to articulate college credit hours upon high school graduation through participating college/university Tech Prep programs. This is a Project Lead the Way course. Note: Course can be used as an additional science credit for graduation.

#### COMPUTER INTEGRATED MANUFACTURING

**Course: 1838CT**  
**Placement: 10-12**  
**Credits: 1**

**Prerequisite: Principles of Engineering**

This course applies principles of robotics and automation. Students learn to program machinery to bring their 3D design while introducing computer programming and the processes used to manufacture today's consumer products. This course builds on the skills students develop in Introduction to Engineering Design and Principles of Engineering. Students use CNC equipment to produce actual models of their three-dimensional designs. Fundamental concepts of robotics used in automated manufacturing and design analysis are included. This course allows students the opportunity to earn transcribed college credit or to articulate college credit hours upon high school graduation through participating college/university Tech Prep programs. This is a Project Lead the Way course.

#### AEROSPACE ENGINEERING

**Placement: 10-12**  
**Course: 1834CT**  
**Credits: 1**

**Prerequisite: Principles of Engineering**

Aerospace Engineering is the study of the engineering discipline which develops new technologies for use in aviation, defense systems and space exploration. The course explores the evolution of flight, flight fundamentals, navigation and control, aerospace materials, propulsion, space travel, orbital mechanics, ergonomics, remotely operated systems and related careers. In addition, the course presents alternative applications for aerospace engineering concepts. Students will analyze, design and build aerospace systems. While implementing these designs, students will continually hone their interpersonal skills, creativity and application of the design process. Students apply knowledge gained throughout the course in a final multi-media project to envision their future professional accomplishments. This is a Project Lead the Way course.

#### CIVIL ENGINEERING & ARCHITECTURE

**Course: 1861CT**  
**Placement: 10-12**  
**Credits: 1**

**Prerequisite: Principles of Engineering**

Civil Engineering & Architecture is the study of the design & construction of residential & commercial building projects. The course includes an introduction to many of the varied factors involved in building design & construction including building components & systems, structural design, storm water management, site design, utilities & services, cost estimation, energy efficiency & careers in the design & construction industry. This is a Project Lead the Way course.

#### ENGINEERING DESIGN & DEVELOPMENT

**Course: 1845CT**  
**Placement: 11-12**  
**Credits: 1**

**Prerequisite: CIM OR Aerospace Engineering OR Civil Engineering & Architecture**

This course will provide students with the opportunity to master the design process to solve a design problem of their choosing. They will use prior knowledge to develop, model test their solutions. Each team will present and defend their solutions to a panel of experts. This is a Project Lead the Way course.