



Course Description Guide

Mathematics

Honors Geometry develops the concepts of the point, line, and plane, and includes the study of triangles, polygons, and circles. Other topics include parallel lines, congruence, similarity, coordinate geometry, geometric probability and finding the area and volume of three-dimensional geometric figures. This class will provide students with a challenging, in-depth study of geometry. Honors Geometry will include additional topics outside the textbook as well as an increased emphasis on deductive proof, the Euclidean constructions, and rigorous problem-solving.

Honors Algebra II: A primary goal of Algebra II is for students to conceptualize, analyze, and identify relationships among functions. Students will develop proficiency in analyzing and solving quadratic functions using complex numbers. Students will investigate and make conjectures about absolute value, and radical functions algebraically, numerically, and graphically, with and without technology. Students will extend their algebraic skills to compute with rational expressions and rational exponents. Students will work with and build an understanding of complex numbers and systems of equations and inequalities. Students will analyze statistical data and apply concepts of probability using permutations and combinations. Students will use technology such as graphing calculators and MathXL. Students will analyze situations verbally, numerically, graphically, and symbolically. Students will apply mathematical skills and make meaningful connections to life's experiences.

Honors Pre-Calculus:

Prerequisite: Successful completion of Algebra II

Pre-Calculus is a bridge between Algebra and Calculus. In this course, students will use the tools that were learned in Algebra 2 to study concepts that are essential to the study of Calculus. In particular, students will develop a firm understanding of mathematical functions. Through complex problem solving students will learn how to represent functions, analyze the behavior of functions, and create new functions from old. Students will study various function classes, including polynomial, exponential and logarithmic and trigonometric functions.

Trigonometry/Statistics: The main focus of Trigonometry is on nonlinear functions, right triangle properties, trigonometric functions, and advanced algebra. Through this course, students will apply advanced algebra techniques to solve problems including identities, logarithms and exponents. Students will also apply statistical methods to analyze data and make predictions.

Students will develop proficiency with combinatorics and probability and will gain an appreciation of how advanced mathematics relates to the world of work.

AP Calculus AB consists of a full academic school year of work that is comparable to a Calculus 1 course in colleges and universities. The course utilizes a multirepresentational approach with concepts, results and problems being expressed graphically, analytically, numerically and verbally. The main topics covered are: Limits; Derivatives and their applications; Integrals and their applications. The students will utilize a graphing calculator and will do work independently on the MathXL online program as assigned. Students successfully completing the course will have the option to take the AP Exam in May for possible college credit. Prerequisite: Successful completion of PreCalculus with trigonometry.

ENGLISH

Honors English 9 is the introductory Language Arts class at SciTech High School. The main focus of the course is American literature ranging from colonial times to pre-World War Two. This course is designed to be paired with American Cultures at the 9th grade level, and most of the literature fits thematic content learned within that class. English 9 Honors is also designed as a preview of all types of literacy, and studies drama, poetry, and non-fiction texts. The course has a heavy emphasis on writing and essay structure, and students should expect to write at least one major paper per marking period.

Honors English 10 The English 10 Honors course will build upon the basis of knowledge gained from the English 9 Honors course. The reading, writing, speaking, listening, and critical thinking skills taught and practiced in this course are a vital part of all students' development. Students can expect to read a variety of American literature selections, to write in primarily the expository mode of writing (including the composition of a research paper), to sharpen their grammatical skills, which they will ultimately incorporate into their writing, to increase their vocabulary base, to present their ideas in formal and informal presentations, to listen to others' ideas in class discussions, to utilize time management skills effectively, and to be challenged mentally.

Honors English 11 Designed for the college bound student, this course strengthens the skills developed in the 10th grade honors course. Writing skills are emphasized and further developed stylistically. The course revolves around the chronological study of British Literature, beginning with the Anglo-Saxon Period and continuing through the modern age. An extensive amount of reading outside the classroom is required. Furthermore, students must write a research paper that stems from the course content. The course is designed to aid juniors in preparation for the PSSA and the SAT. The building of vocabulary, including course specific terms, will be stressed through both direct and indirect instruction.

Honors English 12 This course serves as both the culmination of the verbal proficiencies taught at SciTech and the transition to the rigor of the college classroom. Students continue to hone their reading, writing, speaking, and listening skills. We engage in the detailed analysis of literature and practice writing cogent assessments of our findings. Through focusing primarily on

contemporary American authors, seniors develop a deeper appreciation for the written word while concurrently enhancing their own written and oral communication.

AP Literature and Composition/CHS English

All of the above, but we dig deeper. And you concurrently earn high school and Harrisburg University credits.

SCIENCE

Honors Integrated Science (Grade 9) This course covers a wide range of topics including earth science, astronomy, biology, physics and chemistry with a special focus on building a strong science vocabulary. The course is designed to strengthen student analytical reasoning and problem solving skills through utilizing the scientific method while developing a strong content foundation for future honor level science courses.

Honors Biology Honors Biology explores the world around the student, examining not only environmental influences, but technological and personal influences as well. Students will examine the process of science and will employ it to solve complex issues such as, form and function of organisms, scientific production, agricultural demands, genetics, ethics, cell biology, and biotechnology among others. Students will study the interactions between biotic and abiotic components that occur throughout the world. Laboratory experiences will be numerous both in and outside of the classroom. Students will apply hands-on knowledge in solving ethical, social, and environmental issues that concern biology. Students will learn that science is a process, and through that process, we can learn and impact current scientific dilemmas. This course will not only focus heavily on biology, but will also examine environmental science as well as biotechnology.

AP Biology: An Advanced Placement Biology course is designed to meet the objectives of a general biology course at the college level, and is structured to prepare college-bound students for the Advanced Placement Examination for college credit in biology. Two main goals of this course are to provide students with an overview of the world of biology through a conceptual framework, and to appreciate, understand and use the process of science. Biology today is one of the most dynamic subjects a student can study, and great care will be taken to incorporate current research, ideas, theories and methodologies into this course. Emphasis is placed on the scientific method of problem solving: observation, hypothesizing, experimentation, and interpretation. Critical thinking and problem-solving skills are emphasized heavily. This course emphasizes three major areas: Molecules and Cells, Heredity and Evolution, Organisms and Populations. This is a transition course from high school to college biology and will help students perform successfully in college. This thorough presentation of advanced biology involves the use of concepts learned in both biology and chemistry.

Honors Chemistry: Chemistry is the study of the structure and composition of materials and the changes that may occur in these materials. This course will require the student to solve problems by integrating the student's algebra skills with basic chemical concepts. Laboratory work will be an integral part of the course and the student will be expected to interpret laboratory data. This course is designed not only to initiate student awareness, literacy and

excitement to the science of chemistry but also to prepare students for subsequent science courses and advanced studies. Chemistry is a challenging honors level course which relies on the skills that students have learned in previous science and math courses. The work in this course will continue to develop student abstract and critical thinking skills. Students will engage in a variety of activities to gain knowledge of the fundamentals of chemistry and the ability to apply these fundamental concepts to a variety of situations. Students will explore matter, its states and its changes, as well as investigate chemical reactions. The student is expected to have a working knowledge of basic algebra including basic mathematical skills, use of a calculator, scientific notation, and the metric system.

General Chemistry: Chemistry is the study of the structure and composition of materials and the changes that may occur in these materials. This course will require the student to solve problems by integrating the student's algebra skills with basic chemical concepts. Laboratory work will be an integral part of the course and the student will be expected to interpret laboratory data. This course is designed to initiate student awareness, literacy and excitement to the science of chemistry. Students will engage in a variety of activities to gain knowledge of the fundamentals of chemistry and the ability to apply these fundamental concepts to a variety of situations. Students will explore matter, its states and its changes, as well as investigate chemical reactions. The student is expected to have a working knowledge of basic algebra including basic mathematical skills, use of a calculator, scientific notation, and the metric system.

Honors Integrated Science (11th grade): Honors Integrated Science – 11th Grade is a multipurpose course taught at SciTech High. The course will have a primarily physics emphasis for the first part of the year, with a review of all of the other relevant materials for the Science PSSA. This course will emphasize problem solving skills and math based problem sets. It is recommended that Algebra II be completed either prior to taking this course, or be taken concurrently with the course. The topics in physics will review and expand upon many of the topics introduced in 9th grade Active Physics. Those topics include: Motion in 2 and 3 dimensions, Distance, Displacement, Speed, Velocity, Acceleration, Forces and Laws of Motion, Work and Energy, Simple / Complex Machines, Momentum and Collisions, Circular Motion, Waves and Sound, Light, and Heat.

Honors Physics: Physics is the study of matter and energy and their interactions. It provides a systematic understanding of the fundamental laws that govern physical, chemical, and biological processes. Physics is the root science. This Physics course is designed to: instruct students in foundational physics concepts, prepare students to exist in an increasingly technological society, develop the students' analytical, problem solving, and laboratory skills and integrate math, science and technology.

HISTORY / SOCIAL STUDIES

Honors American Cultures I: Students will study the history and culture of the United States of America from 1850 to 1929. This course will follow a chronological as well as a thematic approach to United States history. The goal of this course is for students to gain a better understanding of our nation's past. By understanding the past, we can discover what impact the past has on all of us in the present time. In order to reach these understandings, we will be

examining the politics, social impact, economics, culture, and geography of important historical events. Students will learn about the contributions, struggles, and experiences of all members of our diverse nation. This course has been designed to be a challenging honors level course and to utilize the skills learned in 9th grade English. The work in this course will develop and refine writing, reading, research, communication, and critical thinking skills. Students will also have an opportunity to work on skills that are necessary to work in large and small groups. In order to capitalize on the strengths in every student, a variety of assessments and teaching techniques will be used. Group work, oral presentations, group and individual projects, journals, internet activities, quizzes, essays, skits, media presentations, and other techniques will be used.

Honors American Cultures II American Cultures II will begin with a review of the United States during the 1930's and continue to the present day. The goal of this course is for students to cultivate a strong understanding of our nation's history. Students will also be expected to think critically as they study various topics. Each student should develop an appreciation for our nation's history along with a respect for its diversity. To reach this goal students will focus on the connection between economic change, social structure, cultural life, politics, and geography. Most importantly students should learn the importance and responsibility of becoming an informed and active citizen.

This course will be an honors level course which will focus on further developing student research, writing, communication, critical thinking, and reading skills. Students will be expected to work individually and in small and large groups. We will use a variety of methods such as projects, individual and group presentations, Internet activities, and essays in order to ensure that each student excels and continues to become an informed and active citizen.

Your Government, Your World (Honors): This class will examine the past, present and future of U.S. Citizenship, Foreign Policy, Foreign Aid, Terrorism, Immigration, and Globalization. Students will learn the material through reading, writing, listening, discussion, debate, research, note-taking, and viewing video. Students will be assessed by writing assignments such as essays and journaling, as well as, presentations and traditional exams. Creating life-long learners with a strong foundation of the history and current state of critical issues will be the goal of this course. This class will focus on fostering an active and informed citizenry to help build a stronger American democracy.

Honors African American History: This class will address the experience of the African-Americans from colonial times to the present. We will examine the origins and development of the formation of a racial identity, the rise of slavery and abolitionism, the struggles of African-Americans after the Civil War, the contribution of black leaders to American life, and the evolution of 20th century civil rights movements.

Women's History in the United States (Honors): This class will address the experience of the women from colonial times to the present. We will examine the origins and development of the formation of gender roles, the rise of gender equality and suffrage, the struggles of African-American women, the contribution of women to American life, and the evolution of 20th century women's rights.

Honors Psychology: During this course, we will be studying the brain and all of the things that cause a person to be the person they are. We will follow a thematic approach and survey the major principles of psychology. The goal is for students to gain a better understanding of our brains and the development of an individual's personality. The class will also investigate the history of psychology, human development, personality, abnormal behavior, social psychology, feelings and emotions, research methodologies, learning and memory, altered states of awareness, and sleep and dreams. This course has been designed to be a challenging honors level course and to utilize the skills you may not have been able to use in the rest of your academic experience. The work in this course will develop and refine writing, reading, research, communication, and critical thinking skills. Students will also have an opportunity to work on skills that are necessary to work in large and small groups. In order to capitalize on the strengths in every student a variety of assessments and teaching techniques will be used. Group work, oral presentations, group and individual projects, journals, internet activities, quizzes, essays, media presentations, and other techniques will be used.

Psychology (AP): The purpose of the AP course in Psychology is to introduce the systematic and scientific study of the behavior and mental processes of human beings and other animals. Included is a consideration of the psychological facts, principles, and phenomena associated with each of the major subfields within psychology. Students also learn about the ethics and methods psychologists use in their science and practice.

US History (AP): The AP program in United States History is designed to provide students with the analytical skills and enduring understandings necessary to deal critically with the problems and materials in United States history. The program prepares students for intermediate and advanced college courses by making demands upon them equivalent to those made by full-year introductory college courses. Students should learn to assess historical materials—their relevance to a given interpretive problem, their reliability, and their importance—and to weigh the evidence and interpretations presented in historical scholarship. An AP United States History course should thus develop the skills necessary to arrive at conclusions on the basis of an informed judgment and to present reasons and evidence clearly and persuasively in an essay format.

FOREIGN LANGUAGE

Français I,II III, et IV is designed to develop communication skills in speaking, writing, understanding the spoken and written word as well as introducing geography, literature, art, food, celebrations, music, history, famous people and cultural perspectives to develop an appreciation of the francophone world through the study of language skills to increase higher level thinking synthesis and applications.

Español I, II, III, y IV is designed to develop communication skills in speaking, writing, reading and understanding the spoken and written word. Each course will emphasize culture, geography, literature, art, food, celebrations, music, history, famous people and events. Each level explores cultural perspectives of the language while promoting an appreciation of the

Hispanic world through the study of language skills which are geared at developing higher levels of thinking skills and applications.

ELECTIVES

CASA: The Capital Area School of the Arts offers accelerated experiences in five major art areas: visual art, dance, film and video, music, and theatre. CASA works with students from Dauphin and Cumberland Counties and is located behind SciTech High School on Chestnut and 3rd street. If interested in participating in the CASA experience, please pick up a CASA Brochure from the guidance office.

Celebrating Literacy: This course will focus on reading an array of books in various genres. We will read, discuss, review and respond to the books through the use of poetry, music, art, etc.

Vocabulary Development: This course is designed to give the students an intensive immersion in a variety of vocabulary words to aid them on standardized tests like the SAT and the PSSA. Focus of study will revolve around vocabulary acquisition, contextual usage, and retention. Vocabulary will be learned from a combination of structured vocabulary lists, various readings from articles, short stories, and novels. Vocabulary games and puzzles will be utilized to help increase retention and usage.

Art of Film: In this class students will be introduced to the aesthetics of film. Our purpose will be to study film as an art form. In doing so, students will be asked to view films using analytical processes similar to those that come to bear when one deeply explores a work of literature. We will consider how films are created and how they function. Therefore, we will study four primary techniques of film: mise-en-scene, cinematography, editing, and sound. We may also consider the transition from fiction to cinema, comparing and contrasting the two art forms.

Everyday Economics: (Grades 10-12) This elective is based on the book *The Young, Fabulous and Broke*. This course includes but is not limited to, providing the students with the knowledge they need to apply for a car loan, apply for financial aid, balance a checkbook, invest in mutual funds and eventually a 401K, and to use a credit card responsibly.

Street Law: Do you like *Law and Order*? Think it would be cool to be a lawyer and try a case? If so, this elective is for you! In this class you will be part of a team will try a mock trial case against other schools in the Central PA region. With the help of real lawyers, we will learn everything needed to try a court case including making opening and closing arguments, examining witnesses, entering exhibits as evidence, and making objections. The curriculum will also cover law concepts including juvenile rights, rights of the accused, and other criminal matters. Scholarship opportunities will be available for students who take this elective and are considering a law-related field in college.

Psychology (Honors): During this course, we will be studying the brain and all of the things that cause a person to be the person they are. We will follow a thematic approach and survey the major principles of psychology. The goal is for students to gain a better understanding of our

brains and the development of an individual's personality. The class will also investigate the history of psychology, human development, personality, abnormal behavior, social psychology, feelings and emotions, research methodologies, learning and memory, altered states of awareness, and sleep and dreams. This course has been designed to be a challenging honors level course and to utilize the skills you may not have been able to use in the rest of your academic experience. The work in this course will develop and refine writing, reading, research, communication, and critical thinking skills. Students will also have an opportunity to work on skills that are necessary to work in large and small groups. In order to capitalize on the strengths in every student a variety of assessments and teaching techniques will be used. Group work, oral presentations, group and individual projects, journals, internet activities, quizzes, essays, media presentations, and other techniques will be used.

Ethical Issues and Considerations in Science and Technology: This course examines the many controversial topics that have arisen concerning Science and Technology. Students will be expected to research, discuss and debate current technologies and scientific applications including, but not limited to; genetic modification, cloning, genetic testing, eugenics, evolution, DNA profiling, and nature versus nurture.

Info Tech 9: The basics are applied in classes to create well-rounded professional computer users. This course will include computer fundamentals in such popular programs as Microsoft Word, Excel, PowerPoint, and Publisher. Students will learn keyboarding using the touch system of typewriting as well as word processing skills, simplified spreadsheets and databases in a Windows environment. Students will learn how to create, edit and print memos, tables, letters, resumes and term papers that may be used in any career choice. Productive Internet research is stressed. Students learn to research current information using their computer skills.

Web Design: This course covers HTML, Flash web Design, and the basics of CSS and JavaScript. Students will be designing educational and informative websites that teach and entertain. The focus will be on the art of Web design, with an Overarching Essential Question: "How do we create attractive, efficient websites that are easy to navigate and read?" No prior experience in Web design is needed. More experienced students will be given the opportunity to take existing skills and improve at their own pace. Computer programs used: Macromedia Suite (DreamWeaver, Flash, Fireworks) and HTML Kit.

SciTech News: Students will gather facts, write, film, edit, and get news ready for the internet in a show that will be updated daily. The SciTech News will focus on announcements and will be shown to the rest of the school. Students will learn broadcasting and public speaking skills, as well as film and Flash-based web design. In order to be considered for this program, prospective students must write a paragraph explaining what they can offer the SciTech News.

SciTech Yearbook: Students will prepare, edit, mass-produce, and distribute a DVD-Rom Interactive Yearbook. Students will photograph, write music, prepare Flash-based slide shows, make movies, make interactive menus, and even make games related to the yearbook. Students will learn about photography, filming, internet-based presentations, basic computer programming and music production. In order to be considered for this program, prospective students must write a paragraph explaining what they can offer the Video Yearbook.

Digital Graphics and Documentaries: (Grades 10-12) This course is an introduction to the fundamentals of digital design and animation. You will be introduced to the fundamentals of creating and editing graphics images. You will learn to work with both bitmap and vector graphics to develop eye-catching pictures that can be used in print, on the Web, in animations and videos, and in presentations. You will incorporate the basic principles of design and color while covering techniques that even artistically challenged learners can use to create exciting and informative computer graphics. The graphics concepts will be introduced using Macromedia Fireworks MX 2004. *l*

Computer Repair and Programming In this course students will focus on the inner workings of a computer. A great deal of time will be placed on diagnosing problems and coming up with a method to successfully trouble shoot and solve identified issues. Students will work directly with staff to improve the technology in our school by aiding in the repair of hardware and also helping instructors work through different technological problems. The goal of this class is to enhance students' overall knowledge of a computer, improve trouble shooting skills and prepare for future technology courses.

Lifelong Fitness– In this course, students will develop and participate in a daily physical fitness regimen. Students will learn the fundamentals of physical fitness as well as develop appropriate workout programs based on the specific needs of the participant. The focus of this class will be on the achievement of personal goals and improvement. All students will be required to change and participate in daily fitness activities. The location of this class is still to be determined.