Campbellsville High School

Course Catalog

Campbellsville High School
230 West Main Street
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ARTS / HUMANITIES

Show Choir

Grade Level: 9 - 12
Credits: 1 - 4
Prerequisite: Audition
Description: Students will experience a variety of singing and music styles from different places and times. This course covers singing fundamentals and performance techniques. This choir may perform at many concerts throughout the year; including festivals, honor choirs and competitions around the state. Sight-singing, part singing, solo-singing and vocal pedagogy and performance are included in this course. Students develop musical show performance skills, to include choreography and dance. A variety of singing styles, with focus on more popular and audience-oriented selections will also be included in this course. Students will have a great deal of creative input in staging, production and choreography.

Drama

Grade Level: 9 - 12
Credits: 1
Prerequisite: None
Description: This course allows students to learn and develop basic technical skills (set construction, lighting, design, operation, make-up and wardrobe) necessary to produce and appreciate the various aspects of producing a play. Students will be given the opportunity to practice scene interpretation, action and the directing of various drama forms.

General Art

Grade Level: 9 - 12
Credits: 1
Prerequisite: Interest in Art
Description: An introductory and exploratory course dealing with two-dimensional and three-dimensional areas such as design, drawing, painting, sculpture, printmaking, ceramics and photography. Art history from the Renaissance era to the present day. Students will also explore issues of aesthetics (questions about art) and criticism (evaluation of artworks). This course provides a foundation of knowledge supported by the Arts and Humanities component of the Kentucky Core Content and Program of Studies.

Specialized Art I

Grade Level: 10 - 12
Credits: 1
Prerequisite: General Art
Description: Students may choose to study in-depth the areas introduced in previous studies. For example, some students may select to work in ceramics, while others may choose to work in printmaking, photography or graphic design.

Specialized Art II

Grade Level: 10 - 12
Credits: 1
Prerequisites: General Art & Specialized Art I
Description: This intermediate course provides detailed study in both two- and three-dimensional media, including; drawing, painting, design, sculpture, ceramics, printmaking and computer art. Art history, aesthetics (questions about art) and criticism (evaluation of artworks) will be ties to many of the projects. Students will be encouraged to build upon techniques and concepts learned in General Art, and will be expected to apply knowledge of the Arts and Humanities component of the Kentucky Core Content and Program of Studies to their artworks.

Instrumental Music (Band)

Grade Level: 9 - 12
Credits: 1 - 4
Prerequisite: Teacher Recommendation
Description: This class is designed to give the student performing opportunities. The class will be broken into four separate chances for student performance. Marching Band is the first subset, which allows for the band experience to be taken on the road through performances at football games and marching band competitions. The second subset is concert band, this group is our traditional performing band that will participate in a Christmas concert and a spring concert, performing challenging repertoire and expanding student ability. The third subset is auditioning for All-District and All-State ensembles. Our last subset allows small group playing with solo and ensemble performances.

The Humanities Experience (T.H.E.)

Grade Level: 11
Credits: 1
Prerequisite: None
Description: In this course students will learn the four basic areas of arts and humanities. The student will study the elements and purpose of dance and movement. In addition, students will explore drama and theatre by examining the creative dramatic and production elements of drama. Furthermore, the student will discover the elements of music and its purpose. Lastly, the student will analyze the elements of art and its production. The course will also attempt to discuss the four areas historically and culturally, to show how they evolved simultaneously, to reveal man's culture.

ENGLISH

English I

Grade Level: 9
Credits: 1
Prerequisite: None
Description: This course encompasses basic types of literature; a formal grammar sequence, oral and written composition and speech.

Pre-AP English I

Grade Level: 9
Credits: 1
Prerequisite: None
Description: This course prepares students for the rigors of AP English Language and AP English Literature.

AP English Language and Composition

Grade Level: 10
Credits: 1 **View Syllabus**
Prerequisite: Pre-AP English I
Description: The AP Language and Composition course is a college-level program that introduces students to a wide range of expository prose in order to broaden their scope of rhetorical ideas and deepen their awareness of the power of language. The course is designed to meet the rigorous requirements of a college-level writing class and includes expository, analytical, personal and argumentative texts from a variety of authors and historical contexts. These works provide examples of prose writings that students can emulate in their own writing experiences as they discover and create their own style and voice. This course provides students with the information necessary to read analytically, formulate theories and arguments based on the readings, and respond by composing articulate essays that utilize advanced elements of sentence structure, syntax, style, purpose and tone. The purpose of the AP English Language course is to help students "write effectively and confidently in their college courses across the curriculum and in their professional and personal lives." (The College Board, AP English Course Description, May 2007, p. 6). Using rhetorical principles, students will learn how to become critical thinkers and apply that knowledge to their writing by revising and improving their essays, as well as critiquing and editing peer essays. In addition, students will be required to thoroughly research relevant topics, synthesize information from a variety of sources and document their knowledge in a cogent, well written report using proper cite notations such as MLA or APA.

AP English Literature and Composition

Grade Level: 11
Credits: 1 **View Syllabus**
Prerequisite: Pre-AP English I

Description: AP English Literature and Composition is designed to be a college-level course, thus the "AP" designation on a transcript rather than "H" (Honors) or "CP" (College Prep). This course will provide you with the intellectual challenges and workload consistent with a typical undergraduate university English Literature / Humanities course. As a culmination of the course, you will take the AP English Literature and Composition Exam given in May. A grade of 4 or 5 on this exam is considered equivalent to a 3.3 - 4.0 for comparable courses at the college or university level. A student who earns a grade of 3 or above on the exam will be granted college credit at most colleges and universities throughout the United States.

Course Goals:

- To carefully read and critically analyze imaginative literature.
- To understand the way writers use language to provide meaning and pleasure.
- To 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.
- To study representative works from various genres and periods (from the sixteenth to the twentieth century) and to know a few works extremely well.
- To understand a work's complexity, to absorb richness of meaning and to analyze how that meaning is embodied in literary form.
- To consider the social and historical values a work reflects and embodies.
- To write, focusing on critical analysis of literature including expository, analytical and argumentative essays, as well as, creative writing to sharpen the understanding of the writers' accomplishments and deepen the appreciation of literary artistry.
- To become aware of, through speaking, listening, reading and chiefly writing, the resources of language; connotation, metaphor, irony, syntax and tone.

English II

Grade Level: 10
Credits: 1
Prerequisite: English I

Description: English II surveys a variety of world literature with a focus on American and European authors. Through an exploration of the genres of literature, an emphasis will be placed upon vocabulary development, reading, comprehension and communication through writing and speaking. Over the course of the year, students will read and analyze texts in order to make personal, real-world and academic connections based on the themes found in those texts and the overarching essential questions for the course. Additionally, students will further develop their composition skills through daily activities.

English III

Grade Level: 11
Credits: 1
Prerequisites: English I & English II
Description: English III is about surveying American literature to aid in our understanding of ourselves and our society, as well as, an understanding of how persuasive literature helped to create the American society. This course examines works by American authors, beginning with Native American literature and working through to present day works. This course also focuses on reading and writing skills preparation for standardized testing, such as the ACT and On-Demand. English III also continues the development of a students' writing portfolio.

English IV

Grade Level: 12
Credits: 1
Prerequisites: English I, English II & English III
Description: English IV is about surveying British literature as a foundation for writing. This course examines works by British authors, beginning with the Anglo-Saxon period and working through to present day works, in chronological fashion, that places emphasis on various genres of writing. The importance of these works in regard to developing writing skills for various purposes (i.e. portfolio, on-demand and other real world forms) will be studied and applied. This course also focuses on further developing the reading and writing skills necessary for standardized testing and completes the writing portfolio process. Content includes; appropriate experiences in written composition and the historical, cultural and aesthetic significance of English and/or World literature. Continuing to write for a variety of purposes and audiences, students attain confidence in handling the stages of the writing process. Special attention to writing about literature, to oral communication, research skills and technology is given. Language and mechanics concerns are primarily dealt within the context of student writing.

AP/DC English IV

Grade Level: 12
Credits: 1
Prerequisites: English I, English II & English III. Acceptance in the DC program will be based on the requirements set by Campbellsville University.

Description: AP Literature and Composition is a senior English course taught at a college-level that engages students in the careful and critical analysis of imaginative literature. Through the close reading of selected texts, students will deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. As they read, students will consider a work's structure, style and theme, as well as, such smaller-scale elements as the use of figurative language, imagery, symbolism and tone. Writing is an integral part of this course. Writing assignments focus on the critical analysis of literature and include; expository, analytical and argumentative essays. The overarching goal of this course is to help students develop mature habits of critical thinking as an independent reader of and writer about literature. AP English Literature is both demanding and intellectually stimulating. Classroom discussion and active participation are vital and serve as a means of testing ideas.

AP requirements:

- Completion of AP course prerequisites with an average of 80 or better.
- Teacher / Department recommendation.
- Parent / Student contract in place with teacher and AP Coordinator.
- Summer homework requirements for each AP class must be completed and submitted by due date.

Journalism and Communications: Yearbook

Grade Level: 11 - 12
Credits: 1
Prerequisites: Technology & English Skills

Description: Yearbook journalism combines photography, writing skills, ad sales and computer layout design. This class uses the online yearbook. Students must be able to attend events in the evenings and on weekends to get photographs. Students must be able to drive and provide their own transportation.

MATHEMATICS

Algebra I

Grade Level: 7 - 9
Credits: 1
Prerequisites: 7th or 8th Graders Refer to CMS School Policy
Description: This course will bridge the gap between middle school math, Pre- Algebra and Algebra II. In this course, emphasis is placed on the following; real numbers, matrices, expression, slope, ratios, proportions, probability, functions and polynomials. *8th grade students may earn one (1) high school credit if the Algebra I grade is a "C" average or higher.*

Algebra II

Grade Level: 8 - 10
Credits: 1
Prerequisite: Algebra I
Description: Students entering high school should have a strong background in rational numbers and numerical operations and to expand these to real numbers. Solving quadratic equations produces a working knowledge of complex numbers. This becomes the foundation for Algebra and working with algebraic symbols. Students form a deeper understanding of large and small numbers and their representations, powers and roots. The comparison and contrasting properties of numbers, number systems and developing strategies to estimate the results of operations on real numbers. Students will use and understand the limitations of graphing calculators and computer spreadsheets appropriately as learning tools.

Geometry

Grade Level: 9 - 11
Credits: 1
Prerequisites: Algebra I & Algebra II
Description: Emphasis in this course is placed on inquiry, discovery, justification and real-world applications of geometric relationships and principles. Topics studied include; congruent segments and angles, parallel and perpendicular lines, angle measure in triangles, congruence and similarity, logic, coordinate geometry, the Pythagorean Theorem, right triangle trigonometry, geometric constructions, transformations, surface area and volume of solids, and circles-segments and angles within circles.

Honors Geometry

Grade Level: 9 - 10
Credits: 1
Prerequisites: Algebra I & Algebra II
Description: This is a geometry course which is designed for advanced / gifted mathematics students. The course is faster paced and more rigorous than Geometry.

Advanced Topics in Mathematics

Grade Level: 11 - 12
Credits: 1
Prerequisites: Algebra I, Algebra II & Geometry
Description: This course will bridge the gap between high school Algebra and pre-college level courses. Topics included in this course are functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, trigonometric functions, systems of equations and matrices and probability.

DC College Algebra

Grade Level: 11 - 12
Credits: 1
Prerequisites: Algebra I, Algebra II & Geometry. Acceptance in the DC program will be based on the requirements set by Campbellsville University.
Description: This course is designed to bridge the gap between two years of high school Algebra and MTH 100 to college-level pre-calculus courses. Topics included in this course are exponents and radicals, polynomials, rational expressions, solving equations and functions and their graphs. This course will not count toward mathematics major or minor programs. Although, it is required for a mathematics major WITH teacher certification. *This course can be taken for high school credit. If the student qualifies through the ACT or PLAN tests, they are allowed to take the class for dual credit through Campbellsville University.*

DC College Trigonometry

Grade Level: 11 - 12
Credits: 1
Prerequisites: Algebra I, Algebra II, Geometry & Advanced Topics in Mathematics
Description: This course is designed to bridge the gap between College Algebra and the first year of Calculus. Topics included in this course are measurement of angles, trigonometric functions, graphing of the trigonometric functions, trigonometric identities, sum and difference identities, trigonometric equations, law of sines and law of cosines. *This course can be taken for high school credit. If the student qualifies through the ACT or PSAT tests, they are allowed to take the class for dual credit through Campbellsville University.*

SCIENCE

Anatomy/Physiology

Grade Level: 11 - 12
Credits: 1
Prerequisites: Biology & Chemistry I *with* an A, B, or C grade.
Description: This course is a survey of the human body. It explores the structure and function of the major systems of the body. The laboratory experiments include the dissection of a sheep brain, a sheep heart and a cat. Dissection labs are important in this class and participation is mandatory. It is recommended for all students planning on a career in the health field.

AP/DC Biology

Grade Level: 9 - 12
Credits: 1 **View Syllabus**
Prerequisite: None
Description: In this course, students will receive an in depth knowledge of the information outlined in the Kentucky Quality Core Biology Standards, as well as, the AP Biology Curriculum Framework, which focuses on major biological concepts and their connections/relationships. Students will use different methods of advanced learning in order to achieve optimal skills needed to be successful on their End-of-Course Assessment and/or AP Biology exam, in future science courses and in real-life applications. Science practices include in-depth reading, inquiry-based activities and laboratory investigations. The course will be structured around the four Big Ideas, as described in the Curriculum.
Framework:

- Evolution - The process of evolution drives the diversity and unity of life.
- Energy Processes - Biological systems utilize free energy and molecular building blocks to grow, reproduce and maintain dynamic homeostasis.
- Information - Living systems store, retrieve, transmit, and respond to information essential to life processes.
- Interactions - Biological systems interact, and these systems and their interactions possess complex properties.

AP/DC Environmental Science

Grade Level: 9 - 12
Credits: 1 **View Syllabus**
Prerequisite: None
Description: The goal of AP Environmental Science 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 and/or preventing them. This class includes scientific writing, lab, lecture, fieldwork, field trips and independent research.

AP/DC Chemistry

Grade Level: 11 - 12 **View Syllabus**

Credits: 1

Prerequisite: If taken for DC, acceptance into DC program is required; however course work and expectations are the same for all students.

Description: This AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first year of college. For most students, the course enables them to undertake, as a freshman, second year work in chemistry at their institution or to register in courses in other fields where general chemistry is a prerequisite. This course is structured around the six big ideas articulated in the AP Chemistry curriculum framework provided by the College Board. AP Chemistry is open to all students who wish to take part in a rigorous and academically challenging course.

- ***Big Idea 1*** - Structure of matter
- ***Big Idea 2*** - Properties of matter-characteristics, states, and forces of attraction
- ***Big Idea 3*** - Chemical reactions
- ***Big Idea 4*** - Rates of chemical reactions
- ***Big Idea 5*** - Thermodynamics
- ***Big Idea 6*** - Equilibrium

This course was developed for those students with a strong interest pursuing Science Related Careers.

AP Physics 1

Grade Level: 11 – 12 **View Syllabus**

Credits: 1

Prerequisites: Acceptance in the DC program will be based on the requirements set by Campbellsville University.

Description: AP Physics 1 is a college-level course that uses advanced algebra and trigonometry as the primary tools for problem solving. AP Physics 1 is the approximate equivalent of a two-semester course in non-calculus based physics at most universities. Topics will range over the entire spectrum of physics including mechanics, properties of matter thermodynamics, acoustics, optics, electricity, magnetism and modern physics as outlined in the College Board Physics B Course Description Book. The class provides a systematic development of the main principles of physics, emphasizing problem solving and guiding students to a deeper understanding of physics concepts. This course is designed to prepare students to participate in the Advanced Placement Physics (AP) test administered in May.

AP requirements:

- Completion of AP course prerequisites with an average of 80 or better.
- Teacher / Department recommendation.
- Parent / Student contract in place with teacher and AP Coordinator.
- Summer homework requirements for each AP class must be completed and submitted by due date.

Biology

Grade Level: 10 - 12
Credits: 1
Prerequisite: None
Description: This course is a survey of living things and their interdependence on each other. This course will look at topics such as cell structure and function, cycles of nature, ecology and genetics. Laboratory activities include the dissection/analysis of squid, earthworm, fetal pig and owl pellets.

Chemistry I

Grade Level: 10-12
Credits: 1
Prerequisite: Biology
Course Description: The course covers topics such as changes in matter and energy, atomic and molecular structure, measurements, the periodic table and periodic trends, chemical bonding, physical and chemical changed, measurement, lab techniques, and problem solving in chemistry.

Integrated Science

Grade Level: 9
Credits: 1
Prerequisite: None
Description: Integrated Science is a comprehensive course which covers a broad spectrum of the various aspects of the science discipline. In this course students will be exposed to concepts in the areas of physical science and earth/space science. Units of study include measurement and mathematics, laws of motion and forces, momentum and energy, and electricity and magnetism the physical science discipline. In the area of earth and space science, topics range from interactions and energy of the earth, the stars, the solar system and the universe, to the origins and evolution of these systems of the universe. Incorporated within the studies will be analysis and scientific inquiry.

SOCIAL STUDIES

AP U. S. History

Grade Level: 10 - 12
Credits: 1 **View Syllabus**
Prerequisite: None
Description: AP U. S. History is a college-level course taught in a high school setting. It is an intense study of American History. Emphasis is placed on thinking skills, essay writing and interpretation of historical documents as they pertain to United States History. In this course, students will:

- master a broad body of knowledge,
- demonstrate an understanding of historical chronology,
- use historical data to support an argument of position,
- analyze historical evidence to determine its validity and relevance, and
- formulate generalizations, read extensively from a variety of sources participate in lectures, power points, and class discussions.

AP Human Geography

Grade Level: 9 - 12
Credits: 1
Prerequisite: None
Description: The course is structured according to the course outline found in the most recent AP Human Geography Course Description published by the College Board. There are seven units of study. At the beginning of each unit, students receive a unit calendar that indicates the lecture topics or activities for each day, the reading assignments, the quiz dates and other information about the unit.

AP U. S. Government and Politics

Grade Level: 10 – 12
Credits: 1 **View Syllabus**
Prerequisite: None
Description: This course explores the political theory and everyday practice that directs the daily operation of our government and shapes our public policies. The express purpose of this course is to prepare students to take the AP U. S. Government and Politics Exam. The course is for all intents and purposes taught on a college-level and it requires a substantial amount of reading and preparation for every class. The objectives of this course go beyond a basic analysis of how our government "works." Students will develop a critical understanding of the strengths and weaknesses of the American political system, as well as their rights and responsibilities as citizens.

Integrated Social Studies

Grade Level: 9 - 12
Credits: 1
Prerequisite: None
Description: This course is designed to help students develop basic knowledge of economics, government, geography and world cultures. Students will gain skills in map reading, cause and effect relationships, while developing a knowledge of world cultures. Students will learn basic economic principles and how individuals and nations choose to use their scarce resources to fill their needs and wants. Students will develop and maintain their own personal budgets, pay bills and file simple tax returns as part of a model economic experience. This course will also help prepare those students who are planning to take AP U. S. History.

U. S. History

Grade Level: 10 - 12
Credits: 1
Prerequisite: Required for all students
Description: In U. S. History, we attempt to take a look at how the United States has evolved from the days of European exploration to issues of concern to us today with concentration on recent history (since the Civil War). The course looks at the forces that shaped and continue to shape political, economic and social institutions and the impact of those forces on the development of the United States in the twentieth century.

World Civilization

Grade Level: 9 - 12
Credits: 1
Prerequisite: Required for graduation
Description: World Civilization is designed to study various cultures and their historical development. It provides for a deeper understanding of contemporary global issues. Distinguishing characteristics found with each of the cultures studied are examined through literature, art, architecture, music, religion and philosophy.

FAMILY AND CONSUMER SCIENCE

Life Skills

Grade Level: 9 - 12
Credits: ½
Prerequisite: None
Description: This course is designed to help students realize the level of commitment required to manage career and family. It will assist students in developing the skills needed to resolve family and work issues. The extent to which a career impacts family goals and reflects personal values will be explored. Leadership development will be provided through the Family, Career, and Community Leaders of America (FCCLA).

Child/Human Development

Grade Level: 10 - 12
Credits: 1
Prerequisite: None
Description: This course addresses the practical problems related to understanding the types and stages of human growth and development, recognizing effects of heredity and environment on human growth and development, meeting the needs of exceptional children, promoting optimum growth and development in infancy, toddler, preschool, middle childhood, adolescent, adult and geriatric stages. Careers in child/human development are explored. Leadership development will be provided through the Family, Career, and Community Leaders of America (FCCLA).

Foods

Grade Level: 10 - 12
Credits: 1
Prerequisite: None
Description: This course is designed to assist students in making critical decisions about food which contributes to health and well-being. Laboratory instruction is included as an application process. Practical problems addressed relate to attitudes toward food, nutrition facts, special health concerns and diet plans, management of food resources, preparation skills, food safety and food borne illnesses, and careers in nutrition and food service. Leadership development will be provided through the Family, Career, and Community Leaders of America (FCCLA).

Relationships

Grade Level: 10 - 12
Credits: 1
Prerequisite: None
Description: This course assists students to develop self-understanding, understand others better, improve interpersonal skills both within and outside the family, be more considerate of other person's needs and property, and maintain mental an emotional wellness. Family Life education comprises a portion of this course, including dating and married relationships. Preparations for the achievement of a successful marriage are emphasized. Leadership development will be provided through the Family, Career, and Community Leaders of America (FCCLA).

Parenting

Grade Level: 10 - 12
Credits: 1
Prerequisite: None
Description: This course is designed to aid students in developing parenting and care giving skills that can be applied in a variety of situations. Major topics include becoming an informed parent, caring for the newborn, being an effective parent/care giver, caring for the sick and elderly and exploring career opportunities in care giving.

Money Skills

Grade Level: 9 - 12
Credits: 1
Prerequisite: None
Description: This course is designed to prepare students to understand and use sound financial management skills and practices contributing to financial stability, improving the quality of life for individuals and families. Decision-making, problem solving, goal setting and using technology are integrated throughout the content. Leadership development will be provided through the Family, Career and Community Leaders of America (FCCLA).

FOREIGN LANGUAGE

Spanish I

Grade Level: 9 - 11
Credits: 1
Prerequisite: A, B or C grade in English.
Description: Students are expected to read, write and speak about themselves and their immediate world (school life, family, friends, community, etc.) using simple sentences containing basic language structures. This communication is evidenced in all four language skills, listening, speaking, reading and writing, with emphasis on ability to communicate orally and in writing. Students will demonstrate a knowledge of the target culture, to include; traditions, customs, beliefs and cultural contributions and how these elements relate to language.

Spanish II

Grade Level: 10 - 12
Credits: 1
Prerequisite: A, B or C grade in Spanish I
Description: Students continue to develop proficiency in all four language skills, listening, speaking, reading and writing, with emphasis on the ability to communicate orally and in writing. They learn to function in real-life situations using more complex sentences and language structures. Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions. They read material on familiar topics and produce short writing samples.

Students continue to explore as they study the themes of home life, student life, leisure time, vacation and travel. Students demonstrate understanding of the nature of language through comparisons of the language studied and their own. Through study of langue and culture, students recognize, compare and contrast language concepts, as well as, cultural perspectives, practices and products. Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own.

Spanish III

Grade Level: 11 - 12
Credits: 1
Prerequisite: A or B in Spanish II
Description: Students continue to develop their proficiency in speaking, listening, reading, writing and interacting with other speakers of Spanish. Understanding oral and written messages in Spanish, and making oral and written presentations in the target language. Students communicate on a variety of topics using complex structures, moving from concrete to more abstract concepts. They comprehend the main ideas of authentic materials that they read and hear, and are able to identify significant details when the topics are familiar. Spanish is used exclusively in the class as students develop the ability to discuss topics related to historical and contemporary events and issues.

Upon completion of level III Spanish, students are expected to be prepared to confidently converse and understand persons from Spanish-speaking environments. They will have developed the

necessary confidence in their Spanish communicative ability to proficiently participate in informal, personal friendship exchanges and/or be able to assist in a more serious formal situation, such as the role of an interpreter in an emergency occurrence. Students will be able to read Spanish language books, magazines, newspapers and informational materials such as transportation schedules and/or other consumer information, to attend lectures, movies, plays and to participate in bilingual gatherings. Students will be able to effectively communicate with Spanish speaking individuals in the workplace, and subsequently when traveling to any of the Latin American countries where Spanish is the target language.

German I (Edmentum online course)

Grade Level: 9 - 11
Credits: 1
Prerequisite: A, B or C grades in English
Description: As with all Edmentum world language courses, German 1 (A and B) address two primary issues; providing a meaningful context that encourages learners to think in the target language as much as possible and introducing grammatical concepts without over reliance on grammatical analysis. German 1A focuses on communicating basic and practical greetings and personal information. German 1B consists of five units over about 14 weeks, with an emphasis on a variety of practice types throughout the course.

French I (Edmentum online course)

Grade Level: 9 - 11
Credits: 1
Prerequisite: A, B or C grades in English
Description: These courses are based on a researched scope and sequence that covers the essential concepts of French. Class discussions provide an opportunity for discourse on specific topics in French. A key support tool is the Audio Recording Tool that enables students to learn a critical skill for French; listening and speaking. Beginning with learning personal greetings and continuing through practical communications exchanges, French 1B introduces students to the skills necessary to make the most of traveling to French-speaking countries.

French II (Edmentum online course)

Grade Level: 9 - 11
Credits: 1
Prerequisite: A, B or C grades in English
Description: Each of these semesters is designed to build on the principles mastered in French 1 and use a combination of online curriculum, electronic learning activities, and supporting interactive activities to fully engage learners. Unit pretests, post-tests, and end-of-semester tests identify strengths and weaknesses, helping to create a more personalized and effective learning experience. As with French 1, these 90-day courses emphasize practical communication skills while also building intercultural awareness and sensitivity.

INFORMATION TECHNOLOGY / COMPUTER SCIENCE

Computer/Digital Literacy

Grade Level: 9 - 12
Credits: 1
Prerequisites: Basic keyboarding skills or Keyboarding Applications
Description: Students use a computer and application software including word processing, presentation, database, spreadsheets, Internet and e-mail to prepare elementary documents and reports. The impact of computers on society and ethical issues are presented. Microsoft Office industry certifications will be offered for this class.

AP Computer Science Principles

Grade Level: 10 - 12
Credits: 1 **View Syllabus**
Prerequisite: Computer/Digital Literacy
Description: AP Computer Science Principles introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. This course offers a unique focus on creative problem solving and real-world applications. The Mobile CSP curriculum is used for this course and focuses on the principles of computer science from the perspective of mobile computing on smart phones and tablets.

AP Computer Science A

Grade Level: 11 - 12
Credits: 1
Prerequisites: AP Computer Science Principles or consent of Instructor
Description: Computer Science A emphasizes object-oriented programming methodology with an emphasis on problem solving and algorithm development and is meant to be the equivalent of a first-semester course in computer science. The course is intended to serve both as an introductory course for computer science majors and as a course for people who will major in other disciplines and want to be informed citizens in today's technological society. The Java programming language is used for this course.

Project Based Programming

Grade Level: 10 - 12
Credits: 1
Prerequisite: Computer/Digital Literacy
Description: Students will develop their technical skills further by participating in the Student Technology Leadership Program. The classroom will experience a diverse multi-age collaboration and develop instructional activities and projects by forming innovative learning partnerships between peer groups, school personnel, and the community-at-large. Additional industry certifications are available.

C+ Programming I

Grade Level: 10 - 12
Credits: 1
Prerequisite: Computer/Digital Literacy
Description: Students will learn the basics of the C+ programming language, one of the most popular programming languages used to develop software for the Microsoft platform but also used to develop software for Linux, Android and iOS systems as well. C+ provides a solid foundation in object-oriented programming knowledge, paves the way for learning other programming languages and positions those who complete this course for a wide variety of in-demand computer programming jobs. Microsoft Technology Associate industry certification is offered.

Python I

Grade Level: 10 - 12
Credits: 1
Prerequisite: Computer/Digital Literacy
Description: This course introduces computer programming using the Python programming language. Emphasis is placed on procedural programming, algorithm design and language constructs common to most high level languages. A brief introduction to Python classes and object oriented design is included. Upon completion, students should be able to design, code, test and debug Python language programs. Additional industry certifications are available.

Information Technology Co-Op/Internship

Grade Level: 11 - 12
Credits: 1
Prerequisites: Completion of at least 2 pathway courses
Description: The co-op/internship is a capstone experience for Information Technology career pathway students and is intended to integrate practical work experience with the cumulative knowledge and skills obtained throughout the student's secondary education. It is expected that the student will develop personal, professional and additional academic competencies during the co-op/internship.

Computer & Technology Applications

Grade Level: 9 - 12
Credits: 1
Prerequisites: Basic keyboarding skills or Keyboarding Applications Description
Description: Students use a computer and application software including word processing, presentation, database, spreadsheets, Internet and e-mail to prepare elementary documents and reports. The impact of computers on society and ethical issues are presented.

Computer Support Essentials

Grade Level: 9 - 12
Credits: 1
Prerequisite: Computer and Technology Applications
Description: Students will learn skills necessary to perform general computer hardware and software support.

Help Desk I

Grade Level: 9 - 12
Credits: 1
Prerequisite: Computer Support Essentials
Description: Students will learn networking concepts, computer support services, industry recognized certification training, advanced web design and career exploration while organizing a student-run Technology Help Desk.

Multimedia Publishing

Grade Level: 9 - 12
Credits: 1
Prerequisite: Computer and Technology Applications
Description: This hands-on course applies publishing and presentation concepts through the development of sophisticated business documents and projects. These documents include, but are not limited to, brochures, manuscripts, reports, programs, catalogs, newsletters, flyers, business forms, graphs, web pages, on-screen presentations and video productions. Equipment such as scanners, digital cameras, video cameras and color laser printers may be utilized in creating the documents. Formatting, editing, page layout and design concepts are taught. Distribution ready publication standards are applied to all projects. Students will develop communications skills, problem solving techniques, cooperative learning and interpersonal skills.

Web Page Design

Grade Level: 9 - 12
Credits: 1
Prerequisites: Computer Technology Applications or Multimedia Publishing
Description: Students analyze the structure of the worldwide web, apply basic principles of web documents and html, and develop multi-media web pages. Course content will include the understanding of hypertext and web structures. Equipment such as scanners, digital and video cameras, and sound recording devices will be utilized through hands-on instruction.

Computer Maintenance and Support Services

Grade Level: 9 - 12
Credits: 1
Prerequisite: Computer Support Essentials
Description: Students learn to educate users, as well as, solve hardware or software operation application problems. Other skills include listening carefully and ask the appropriate questions to gather needed information and then take steps to solve the problem. Students learn to work the help desk and walking users through the steps required to solve a problem over the telephone. They may also work with hardware and software installation and configuration.

PHYSICAL EDUCATION AND HEALTH

Physical Education/Health

Grade Level: 9 - 12
Credits: 1 (½ for PE & ½ for Health)
Prerequisite: Required for graduation
Description: The Physical Education portion of this course will incorporate the study of physical fitness with fundamentals of team sports, lifetime sports, locomotor and non-locomotor skills, and psychomotor skills. The Health Education portion will include the study of nutrition, physical fitness, exercise, social health, mental health, physical health, drugs, safety, body systems, CPR and first aid training, alcohol, tobacco, medicines, and diseases. All of these subjects will be taught over the whole year of the PE/Health Class. Course is designed to assist students with healthful living strategies. The PE/Health class is designed so that students will have PE/Health for a whole school year. Each nine week grading period the students will spend 4 ½ weeks in PE and 4 ½ weeks in health. This way they are getting physical education and health throughout the whole school year.

Physical Education II

Grade Level: 9 - 12
Credits: 1
Prerequisites: Physical Education/Health & Guidance Office approval
Description: This course is structured for students who are interested in fundamentals of team and individual sports. Physical Fitness, fitness testing and aerobics are a part of this program.

Physical Education III

Grade Level: 9 - 12
Credits: 1
Prerequisites: Physical Education/Health & Guidance Office approval
Description: The emphasis is on the progression of skill level and knowledge of rules, terms, strategies of games and participant sports. Instruction is given in organized competition in team, individual and dual sports. Physical fitness work and physical and written testing are included.

Physical Education IV

Grade Level: 9 - 12
Credits: 1
Prerequisites: Physical Education/Health & Guidance Office approval
Description: This course is designed for students that want to take weight lifting. In this class lifting weights is all that is done. This is a course that is designed for students who are interested in improving and maintaining their physical health for life.

GREEN COUNTY AREA TECHNOLOGY CENTER

102 Carlisle Avenue
Greensburg, KY 42742

270.932-6605

Webpage - gcatc.blogspot

Facebook - greenco.atc

Twitter - ATCInfoGC

2017 – 2018 Curriculum Guide

WOODWORKING

Mr. Wes Clark, Green County ATC Instructor
wes.clark@green.kyschools.us

This Program is designed to enhance the student's future by providing them with a broad range of specialized skills. Student's mastering the technical knowledge and skills required can be industry certified through Woodworking Career Alliance. The Wood Manufacturing Technology Program prepares students by engaging them with science, mathematics and critical thinking skills through the classroom and lab/shop training.

Career Pathway – CABINETMAKER

Industry Certifications – WOOD CAREER ALLIANCE

WOODWORKING COURSES

Advanced Wood Processing

Description: This course is a capstone experience for advanced wood processing technicians involving the integration of computer aided design and world-class manufacturing of wood products.

Cabinet Making Technology

Description: This course is an overview of the cabinet and store fixture industries. Emphasis will be placed on the design and construction of face frame as well as frameless (32mm) systems. Students will plan and build a vanity, kitchen cabinet, or shop project which utilizes contemporary casework techniques.

CAD for Wood Technology*

Description: This course is designed for the fundamental principles and capabilities of CAD, basic drafting conventions and operations that are relative to the Wood Manufacturing Industry.

Intro to Computer Aided Drafting

Description: Uses computer graphic workstation in the application of fundamental principles and capabilities of CAD, basic drafting conventions, and operations. An in-depth study of computer aided drafting commands, terminology, command utilization, and skill development.

Cooperative Education I

Description: Cooperative Education provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Cooperative Education program receive.

Furniture Technology

Description: Furniture design principles, structural considerations, joinery, fasteners, veneering, and use of specialized machines for complex operations are the focus of this course. Students will plan and build a piece of furniture which includes at least one drawer, a door and some veneering

Technical Drawing and Blueprint Reading*

Description: Fundamentals of multi-view and pictorial drafting techniques; and reading and interpreting architectural, furniture, and cabinet drawings are the focus of this course. Students will apply blueprint reading skills by preparing materials and cutting lists for actual jobs.

Wood Product Manufacturing

Description: Fundamentals of wood processing and an overview of the secondary wood processing industry are covered in this course. The nature of wood, material selection, terminology, safe setup, and operation of common woodworking equipment will be discussed. Students will fabricate a wood product while being introduced to custom woodworking techniques, as well as mass production concepts related to product engineering.

(*) Indicates half-credit (.5) course

HEALTH

Ms. Karen Compton, Green County ATC Instructor
Karen.compton@green.kyschools.us

Tracy Jones, Taylor Regional Hospital Satellite Campus Instructor
Tracy.jones@green.kyschools.us

Samantha Farmer, Taylor Regional Hospital Satellite Campus Instructor
Samantha.farmer@green.kyschools.us

Think you are ready for a career in health care? This is the program for you! This program will push you to your limits and provide you with the skills you need to go directly into the workforce as a CNA or on to the next step in health care. We have a registered nurse with decades of experience waiting to teach you what you need to know to save someone's life.

Career Pathway - PRE-NURSING

Industry Certifications:

- **SRNA**
- **OSHA**
- **DENTAL RADIATION CERTIFICATE**
- **NOCTI HEALTHCARE CORE**
- **CERTIFIED PHARMACY TECHNICIAN**
- **CERTIFIED PHLEBOTOMY TECHNICIAN**

HEALTH COURSES

Principles of Health Science

Description: This is a foundational course that covers the background of health care including the history of health care, career options, infection control and leadership development.

Dental Assistant

Description: Provide patient care, take dental x-ray photographs, prepare patients and equipment for dental procedures, and discharge office administrative functions.

Body Structures

Description: Learn components of the human body.

Medical Math

Description: Learn to compute medical calculations.

Medical Terminology*

Description: The world of medicine includes thousands of medical terms. In this course, you will learn over 350 medical elements which will enable you to decipher 11,000 medical words!

Emergency Procedures*

As a healthcare employee, one must know the proper procedures during and emergency. Students will learn emergent response and become CPR/First aid certified.

Pharmacy Technician

Description: As an individual to prepare medications, provide medications and related assistance to patients, and pharmaceutical terminology.

Medicaid Nurse Aide

Description: This capstone course will prepare you for the certified nursing assistant certification. The course includes rigorous classroom and required lab curriculum.

Medical Laboratory Aide (Phlebotomist)

Description: To draw blood samples from patients using a variety of intrusive procedures.

Advance Pre-Nursing

Description: This course will enhance your ability to care for patients. You will practice the nursing process, skills, and further your ability to assess patient needs.

(*) Indicates half-credit (.5) course

INDUSTRIAL MAINTENANCE

Mr. Josh Parris, Green County ATC Instructor
josh.parrish@green.kyschools.us

Do you like troubleshooting and repairing machines and robots? Do you like electrical components, If so, then this program is for you. Industrial Maintenance is the lifeline of today's industry and will prepare you to learn skills in many different areas including plant safety.

Career Pathway – ELECTRICAL TECHNICIAN

Industry Certifications - NCCER

INDUSTRIAL MAINTENANCE COURSES

Electrical Principles*

Description: This course introduces the theory of electricity and magnetism and the relationship if voltage, current, resistance, and power in electrical units. The course is designed to develop and understanding of alternating and direct current fundamentals. Students will apply formulas to analyze the operation of AC and DC circuits.

Motor Controls*

Description: This course addresses the diversity of electric motor control devices and applications used in industry today with safety and electrical lockouts included.

Industrial Maintenance of PLC

Description: This course includes the theory of Programmable Logic Controls to include installations, programming, interfacing, and troubleshooting PLC's.

Robotics and Industrial Automation

Description: An introduction to the theory of robots including terminology, components, and basic programming for serve and non-servo robots. Topics include robot types, controllers, manipulators, basic robot programming and fluid power systems. Also, provides basic theory of flexible and computer-integrated manufacturing, and control systems.

Cooperative Education I (Industrial Maintenance)

Description: Cooperative Education provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Cooperative Education program receive compensation for their work.

*These classes are offered at Green County ATC 6th & 7th Period.

AUTOMOTIVE

Mr. Jon Fedor, Instructor
jonathan.fedor@green.kyschools.us

For those of you with a little motor oil running through your veins have we got a surprise for you! With one of the most experienced instructors in the state, the ATC offers an automotive program that will teach you bumper to bumper what makes a vehicle work. This program is perfect if you want to work in a dealership or hop up your own vehicle. We will also help you get your ASE certification!

Career Pathway – AUTOMOTIVE & LIGHT REPAIR TECHNICIAN

Industry Certifications - AWS

AUTOMOTIVE COURSES

Automotive Maintenance and Light Repair A

Description: Ever taken apart an engine to see what makes the pistons move? Ever wondered how small explosions of gas get your car to redline? This is the course for you! In this course you will learn all about engines and transmissions.

Automotive Maintenance and Light Repair B

Description: Now that you have your engines running how are you going to get anywhere? In this course you will learn about steering, suspensions, and brakes.

Automotive Maintenance and Light Repair C

Description: Enough of the easy stuff… this course will go in depth on your brake system and teach you the basics of automotive electricity.

Automotive Maintenance and Light Repair D

Description: This advanced course will let you learn all about the massive computer system that runs your car. You will learn how safety systems like your airbags can deploy in fractions of a second and what protects your car when you are not around.

MARKETING

Ms. Sandy Smith, Instructor
sandy.smith@green.kyschools.us

Marketing is a dynamic and an exciting field. Marketing is all around us, from learning how to market ourselves in the job interview to learning how to create and maintain a customer base in the running of business. Everyone from the stay at home mom, the farmer, the banker, and the doctor all needs to know the foundational principles of marketing and business.

Career Pathway – MARKETING

Certification – ASK

MARKETING COURSES

Principles of Marketing

Description: Effective marketing is critical for the long-term success of any business organization or any career field. The marketing function ensures that the firm attracts, retains, and grows customers by creating, delivering, and communicating superior customer value. The student will have an opportunity to test and strengthen their marketing skills through various projects and simulations. The students will be required to complete a Virtual Knowledge Matters Simulations. Students will be able to choose from running Hotel or Restaurant, complete a career portfolio, and participate in role-play scenarios and participate in leadership, community, and networking activates through DECA.

Advanced Marketing

Perquisites: Principles of Marketing

Description: Students can earn 3 college hours if they choose to take the class as a dual-credit. Advance Marketing is a dual-credit class offered through Western Kentucky University. Advance Marketing builds on the principles and concepts taught in Principles of Marketing. Students assume an ownership managerial perspective in applying economic principles in the daily running of a retail store. Students will learn how to market, analyzing operation's needs, exam the distribution, and commercial area of the business, to manage market information, price products, staff the store, and to promote professional sales. Students will also be provided leadership, community, and networking activities through DECA.

Advertising and Promotions

Description: Advertising is an integral part of our modern, media-dominated society. While many of us have a love-hate relationship with the industry, advertising can be wonderfully entertaining. Advertising provides students an opportunity to gain an understanding of publicity and other mass communications marketing practices: frequent business activities and terminology. Students will create projects that would be standard practices in the field of marketing such as commercials, web pages, advertising print, and campaigns. Students will also provide leadership, community, and networking activities through DECA.

Digital Literacy

Description: This course is designed to provide students with entry-level experience with practical applications through hands-on use of word processing, presentation, database, spreadsheets, Internet, and e-mail to prepare documents and reports. The impact of computers on society and ethical issues are presented. Integration of applications and Windows will also be introduced.

Marketing Leadership Dynamics

Description: This course is designed to assist students with developing skills needed to be successful leaders and responsible members of society. The student will develop personal attributes and social skills. Emphasis will be placed on interpersonal skills, team building, communication, personal development, and leadership. This course will include opportunities for students to apply their knowledge in DECA activities, to mentor other students, and work in the community with other organizations.

Marketing Education Co-Op

Must Be A Senior and Teacher Approved

Perquisites: Principals of Marketing & Advance Marketing

Description: This class is a privilege because students are given credit toward graduation for on-the-job training. By accepting this opportunity and challenge, the student is expected to put continuously forth his/her best efforts in school and on-the-job. Students will combine the classroom and work experience to gain the entry-level skills needed to entry the workforce.

Marketing Education Internship

Perquisites: Principals of Marketing and Advance Marketing

Description: The marketing education internship is a unique program that combines classroom instruction. The program is structured to include all three integral components to teach the core curriculum in the context of real life experiences, and to provide the opportunity for students to grow both professionally and personally. These activities assists students to develop technical skills, check out career choice, build confidence, network with people in the field, and transition for entry into a competitive labor market.

Sports and Entertainment Marketing

Description: Sports and Entertainment Marketing is a unique and innovative course designed for students with an interest in the sports and entertainment industry. This course stresses the utilization of business ownership concepts and will include an orientation to the sports and entertainment industry with Knowledge Matters Football Franchise Simulation. Marketing strategies along with topics in sponsorship, pricing, marketing research, endorsements, and promotions will be part of this course.

MACHINE TOOL

COMPUTERIZED MANUFACTING AND MACHING

Mr. Barry Porter, Instructor
barry.porter@green.kyschools.us

Have you ever thought about setting up and operating a variety of machine tools, such as lathes, milling machines, and grinders, to produce precision metal parts, instruments, and tools if so, this program is for you.

Career Pathway – MACHINIST TECHNICIAN

Certification – NIMS

MACHINE TOOL COURSES

Blueprint Reading for Machinists

Description: This course provides the student with a beginning and advanced series of lectures, demonstrations and practice excise in study of prints. Safety will be emphasized as an integral part of this course.

Fundamentals of Machine Tools A

Description: Course provides the basic principles needed for a solid foundation in machine tool technology. Areas and machines covered include shop safety, bench work, drill press, power saw and measurement.

Fundamentals of Machine Tools B

Description: This course provides intermediate skill development in machine tool technology. The course builds on basic skills developed in Machine Tool A, especially in the calculation of safe cutting speed and feed rates for the drill press, power saw, mills and lathes. Shop safety, bench work, and precision measurement are also emphasized.

Applied Machining I

Description: Course consist of intermediate level skills using machining machines and surface grinders. It will include the selection of grinding wheels. Applications in milling, lathes, bench work and utilizing gauge blocks and the sine bar are covered in this course. Surface grinding and abrasive are introduced and properties of metals are discussed.

Applied Machining II

Description: This course moves the student to a higher level of learning in the operation of machine tools, applications in milling, lathe, bench work and utilizing gauge blocks and the sine bar are covered in this course. Surface grinding, and abrasives are introduced, and properties of metal discussed.

Special Problems (CMM)

Description: This is a course designed for students who have demonstrated specific needs and only by the permission of the instructor can enter.

Coop Machining

Description: This course provides supervised on the job work experience related to the student educational objective in the machine industry.

WELDING

Mr. Steven Thomas, Instructor
steven.thomas@green.kyschools.us

Welding is one of the fastest growing job markets, the welding program at the ATC will expose students to many different types of welding, torching, and cutting. Advanced students will also have the opportunity to learn from experienced welders through a coop program.

Career Pathway – ENTRY LEVEL WELDER

Industry Certifications - AWS and KY DOT

WELDING COURSES

Oxy-Fuel Systems

Description: This course provides a working knowledge of: oxy-fuel identification, set-up, inspection, maintenance, consumable identification, selection and care, principles of operation, effects of variables for manual and mechanized oxy-fuel cutting, welding, brazing principles, practice and metallurgy. Shop safety and equipment use are also covered.

Cutting Processes

Description: Students will obtain a working knowledge of various cutting processes used by the welding industry. Skills will include, but are not limited to, safety, theory of operation, setup and operating techniques, troubleshooting, and making minor equipment repairs, terms and definitions, identification, evaluation, repair and prevention of discontinuities of cut surfaces. Also included are oxy-fuel cutting, plasma arc cutting, exothermic cutting, air carbon arc cutting, shielded metal arc cutting, and mechanical cutting processes.

Blueprint Reading for Welding

Description: This course provides a study of occupationally specific prints for welders. Advanced study of multi-view drawings, assembly drawings, datum dimensions, numerical control drawings, sheet metal prints, castings and forgings, instrumentation and control charts and diagrams, working drawings, geometric dimensioning and tolerance and use of reference materials and books are included. Occupational specifics including welding drawings, symbols, joint types, grooves, pipe welding symbols, testing symbols, and specification interpretations are stressed.

Shielded Metal Arc Welding

Description: Students learn the identification, inspection, and maintenance of SMAW electrodes; principles of SMAW; the effects of variables on the SMAW process to weld plate and pipe; and metallurgy.

SMAW Groove Welds with Backing Lab

Description: Students will acquire the manipulative skills to do groove welds in all positions with backing.

SMAW Open Groove Lab

Description: This course offers the student the opportunity to advance skills in the practical aspects of V-butt plate welding using SMAW.

Gas Metal Arc Welding

Description: This course covers identification, inspection, and maintenance of GMAW machines; identification, selection and storage of GMAW electrodes; principles of GMAW; and the effects of variables on the GMAW process. Theory and applications of related processes such as FCAW and SAW and metallurgy are also included. Students learn the practical application and manipulative skills of Gas Metal Arc Welding and the proper safety situations needed in this process. Both ferrous and non-ferrous metals will be covered, as well as various joint designs on plate in all positions.

GMAW Groove Lab

Description: Students learn the method of operation and application of the Gas Metal Arc Welding process for welding groove welds in both ferrous and non-ferrous plate in all positions using both short circuiting and spray transfer where appropriate.

Gas Tungsten Arc Welding

Description: This course covers identification, inspection, and maintenance of GTAW machines; identification, selection and storage of GTAW electrodes; principles of GTAW; effects of variables on the GTAW process; and metallurgy. This course also teaches the theory and application of Plasma Arc Cutting.

Cooperative Education (Welding)

Description: Cooperative Education provides supervised on-the-job work experience related to the students' educational objectives. Students participating in the Cooperative Education program receive compensation for their work.

**Collaboration with Campbellsville University Welding Technology Program

CAREER READINESS OPTIONS FOR STUDENTS

Preparatory Status
Students must complete two courses in a pathway and be in their third in January to be eligible for career readiness measures.

Career Pathways
Career Pathways are a series of predefined courses that help focus a high school student's schedule into courses that train them for a specific career or educational path. These pathways help students see a connection between their education and their future jobs.

KOSSA
Kentucky Occupational Skills Standards Assessment (KOSSA) exam is given to preparatory students, those who have taken three courses in a career pathway.

Industry Certifications
Each program at the ATC offers an industry certification once they have completed their career pathway. This opportunity is available for juniors as well providing the course work has been completed. The credentials count toward career readiness and are recognized nationwide.

Industry certifications offered:
Wood Program WCA
Health Program – SRNA
Automotive Program ASE
Marketing Program - ASK
Industrial Maintenance Program - NCCER
Multimedia Program IC3 & MOS
Welding Program - KY DOT & AWS
Machine Tool Program – NIMS

AP Language and Composition: CHS Eagles English Student Handbook 2015-16

Instructor: Mr. Ben Davis **Phone**: 270.465.8774, ext. 52207 **Email**: ben.davis@cville.kyschools.us

Follow "CHS Eagles English" on Twitter @davis_english and subscribe to the class YouTube channel. Don't forget about Remind 101.

AP Language and Composition: The Student-Driven Classroom

Objectives:

1. ALL students will be college and/or career ready.
2. Students become independent learners, obtaining knowledge and skills through discovery and project-based learning.
3. The teacher's role is guide, motivate, encourage, challenge, and assist ALL students—not to simply provide students with answers. No more sit and get. No more hand-holding. Students take responsibility for their learning in this class.

Course Description / Overview

The AP Language and Composition course is a college-level program that introduces students to a wide range of expository prose in order to broaden their scope of rhetorical ideas and deepen their awareness of the power of language. The course is designed to meet the rigorous requirements of a college level writing class and includes expository, analytical, personal, and argumentative texts from a variety of authors and historical contexts. These works provide examples of prose writings that students can emulate in their own writing experiences as they discover and create their own style and voice.

This course provides students with the information necessary to read analytically, formulate theories and arguments based on the readings, and respond by composing articulate essays that utilize advanced elements of sentence structure, syntax, style, purpose, and tone. The purpose of the AP English Language course is to help students "write effectively and confidently in their college courses across the curriculum and in their Professional and personal lives." (The College Board, AP English Course Description, May 2007, p. 6). Using rhetorical principles, students will learn how to become critical thinkers, and apply that knowledge to their writing by revising and improving their essays, as well as critiquing and editing peer essays.

In addition, students will be required to thoroughly research relevant topics, synthesize information from a variety of sources, and document their knowledge in a cogent well written report using proper cite notations such as MLA or APA.

Course Learning Targets (Eagle PRIDE):

Powerfully Prepared for College and Career (by)

- Demonstrating proficiency in English by meeting benchmark on the ACT (English and Reading)
- Researching, developing and writing a report on a current controversial topic
- Writing a personal mission statement for college applications
- Preparing, writing, and presenting lesson plans over argumentative and expository writing

Responsible Citizen (by):

- Maintaining organization of English papers and assignments
- Coming prepared to class to positively participate in class discussions
- Offering support and help in completing ILP's
- Attending and being prepared for class on a daily basis

Independent Critical Thinker (by)

- Creating and defining a word that signifies them
- Writing persuasive, narrative, and expository essays that maintain a controlling thesis and include supporting facts
- Evaluating and revising their own writing assignments
- Reading a variety of texts and synthesizing the main points and making connections across content area
- Understanding and explaining specific rhetorical devices and how they are used to influence a reader
- Understanding and explaining specific argumentative terms and how they are used to influence a reader

Determined Lifelong Learner (by)

- Reading and analyzing college texts including *The Narrative of the Life of Frederick Douglass* and *Anthem*
- Being intrinsically motivated to improve their vocabulary
- Taking an active role in supporting the learning processes of themselves and others

Excellent Communicator (by)

- Creating a written report to argue for or against a controversial current event
- Acting and speaking professionally during class
- Demonstrating knowledge of correct English conventions when writing
- Writing to inform, persuade, or explain using advanced sentence structures and rhetorical devices
- Using various media and computer programs to enhance presentations and discussions

Course Format and Assessments

The AP Language and Composition Course will be presented in thematic format and the grading will include the following:

Class Participation: Participation in class encompasses grammar reviews, vocabulary exercises, and class discussions. During class discussions, students are encouraged to offer comments and critiques to support or refute claims by giving concrete details for support. Students are to model correct interaction and argumentation techniques during class discussions. To be successful, a student needs to be in class each day because information builds upon prior information.

Responses to Literature: Students will be required to analyze required weekly readings and write expository responses that identify the author's purpose, audience, and tone citing specific examples from the text to substantiate the students' claims. Responses to literature may take the form of journal entries, artistic interpretations, short essays, or major papers. These responses comprise the bulk of course work.

Quizzes: Quizzes will be administered periodically to assess reading comprehension, rhetorical vocabulary, oral discussions, and basic grammar requirements.

Tests: As a consistent element of practice, students will take multiple-choice tests based on rhetorical strategies and their functions in given passages. Students will take practice AP Exams, quarterly Learning Check exams, and any other unit assessment (as instructed by the teacher).

Genius Hour: Genius hour is a movement that allows students to explore their own passions and encourages creativity in the classroom. It provides students a choice in what they learn during a set period of time during school (20% rule). Students will maintain journal entries, write an informal iSearch Paper and a Formal Research Paper what discusses their research process (iSearch) and their presentation and analysis of their findings (Research paper). Students will research topics of interest based on prior readings or current events and develop and support a thesis. Students will be required to submit a rough draft for peer editing, and a subsequent draft for individual assessment with the teacher before turning in the final research paper. This project also includes a multimedia presentation and community involvement (see Genius Hour expectations packet). Journal entries may include pensive and thoughtful observations that reflect the theme of the current unit, or ideas about revising or modifying a research paper. Students will note details of change in their journals and transfer the information to their research papers.

Course units are designed to consistently build a knowledge base for the students as they write and revise their work using precept upon precept. At the completion of the course, students will write essays and research papers that:

- Demonstrate a strong vocabulary used effectively and appropriately
- Offer varied sentence structure and syntax
- Utilize specific rhetorical techniques such as repetition, parallel structure, logical organization, and appropriate transitions
- Establish a controlling tone, maintaining voice, and appropriate emphasis
- State a coherent thesis and support their ideas with concrete details
- Use the correct MLA or APA format
- List an accurate and complete bibliography

Student Evaluation:

Grading Categories	
Exams / Major Projects (Major Writing Assignments, Unit Exams, Quizzes, etc.)	50%
Course Work / Participation (Readings, Journals, Literature Responses, Daily Work, Genius Hour, etc.)	30%
Nine-Week Learning Checks (3 Major Exams: 2 Nine-Week LC and 1 AP Semester Exam)	20%

ENG 10 EOC Exam (20% of overall grade). Because this is a Sophomore level English class, students must take the Kentucky English 10 End-of-Course assessment. The EOC makes up a large portion of students' grades. After the exam is completed, ACT Quality Core assigns a numerical grade average to the EOC score. CHS policy determines the EOC score makes up 20% of the overall grade for English 10. When calculating, the above categories will make up 80% of the student's overall grade.

Grading Scale

A = 90 – 100
B = 80 – 89.9
C = 70 – 79.9
D = 60 – 69.9
F = 59.9 or below

*There are no extra credit activities offered in this course to replace missing assignments or to raise overall grades.

*Due dates for all assignments will be provided with fair warning and all assignments are expected to be submitted on time. Consistent failure to submit work (on time) will result in the student's removal from this course.

The Habits of Highly Effective Eagles

1. Be proactive (take responsibility for your actions).
2. Begin with the end in mind (have an end goal in mind).
3. Put first things first (prioritize, organize, stay ahead of the game).
4. Think win-win (mutual benefit and cooperation).
5. Seek first to understand, then to be understood (listen, listen, listen, then speak).
6. Synergize (teamwork, cooperation, achieve common goals).
7. Sharpen the saw (rest, relax, recuperate).

Daily Procedures & Classroom Expectations

To Be(s) or Not to Be(s): or… How to Get By in CHS Eagles English 10

1. **Be respectful to others.**
    a. People (Everybody Love Everybody), property (EVERYTHING), and the pride & tradition of CHS.
2. **Be on time.**
    a. You must have a valid note from a school employee if you arrive late to class. Students will receive a warning for their first tardy and an automatic detention for every time after that. (Habits 1, 3)
    b. Attendance for this class is mandatory. After an absence, students MUST produce their Admit Slip from the office. According to school policy, students have two days to excuse an absence. All UNEXCUSED absences will result in a ZERO for any missed work. This includes in-school suspension. If a student does not complete and submit their work while in BR, they will receive a ZERO for that assignment. *(Habit 1)*
3. **Be prepared for class.**
    a. All homework, worksheets, or quizzes will be turned in to the class tray, and will be handed back when graded. Bell-Ringers & Exit Slips will be submitted according to classroom instructions. *(Habits 1, 2, 3)*
    b. Late work will be accepted on the following basis: TEN POINTS will be deducted for every day an assignment is late and late work will not be accepted after three days. Students must present an <u>EXCUSED</u> admit slip in order to receive credit for a missed assignment. Acceptance of late work is left to the discretion of the teacher. Students will be allowed three missed assignments per nine weeks. After the 3rd strike, no late work will be accepted and student may be subjected to removal from this course. *(Habits 1, 2, 3)*
    c. Each student MUST have tickets to exit the classroom for any reason. No exceptions. These passes may be used to take a restroom break, go to the library, main office, counselor, etc. NO STUDENT WILL BE ALLOWED OUT OF CLASS IN THE FIRST TEN MINUTES AND LAST TEN MINUTES OF THE CLASS PERIOD. *(Habit 1)*
4. **Be practicing the SEVEN HABITS.**
    a. Think before you act or speak. Display honesty, trustworthiness, and consideration for others. No excuses, only results!
5. **Be (always) learning.**
    a. Be on time. Be prepared for class (class work, bell-ringers, etc.). Be a proficient learner. *(Habit 1, 2, 3)*
6. **Be NOT disruptive to others' learning.**
7. **Be NOT asleep during class.**
    a. Conduct such as: <u>SLEEPING, DISRUPTIVENESS, or DISRESPECTFULNESS will not be tolerated and will AUTOMATICALLY result in corrective action</u>. Moreover, repeatedly coming unprepared for class, being off-task, or any other classroom distractions will be subject to corrective action, as well. *(Habit 1, 7)*
8. **Be NOT a drama king/queen.**
    a. If, at any point in time, you need someone to talk to about problems in or out of school, I'm your guy…but DO NOT bring your outside drama into this classroom. If you choose to frequently talk, gossip, or complain about other students, staff members, or any other outside influence in a way that it becomes a distraction in the classroom, disciplinary action will be taken.
9. **Be NOT eating in the classroom.**
    a. No food is allowed in class. Drinks are allowed unless they become a distraction or constant mess. *(Habit 7)*
10. **Be NOT distracted by personal belongings.**
    a. Students are expected to abide by ALL regulations of the CHS Student Handbook. This includes school regulations on dress code and cell phone use. There is to be no cell phone use unless otherwise directed by the teacher. *(Habit 1, 7)*

AP Language and Composition: Units of Study: Fall Semester

Unit 1 – Learning to See from Those Who Cannot: Creating Culture and Identity August – September (4 ½ Weeks)

*Course Orientation, Introduction to Close Reading, and Rhetorical Analysis

Topics, Lessons, and Instructions:

- Expectations for excellence in writing
- Discussion of AP requirements
- MLA Format and Scavenger Hunt
- Overview of Ethos, Pathos, Logos
- Discussion of Speaker/Purpose/Audience/Tone
- Rhetorical Devices: Diction, Connotation-Denotation, syntax, sentence structure, details, ideas, language, brainstorming.
- Narrative Writing/Point of View

Readings:

- William Faulkner's Nobel Prize Acceptance Speech (Ethos, Pathos, Logs, Rhetorical Devices)
- Three versions of "The Blind Men and the Elephant"
- Carver: "Cathedral"
- Weihenmayer: from *Touch the Top of the World*
- *Writing and Grammar: Communication in Action* Part I
- *Everything's an Argument*

Assessments:

- Quizzes: Rhetorical Devices Terms, selected readings
- Literature Response Journals
- Group Project: Lessons on the Major Modes of Writing

Major Compositions:

Expository Essay: After reading Faulkner's acceptance speech, write an expository essay that discusses the author's purpose, audience, and tone. Discuss the author's idea of "the writer's duty," and determine ways in which this notion applies to the overall idea of rhetoric. In doing so, students will identify and analyze the author's use of rhetorical strategies. (750-1000 words, typed, MLA Format).

Narrative Essay: After reading the selections on blindness and creating identity, students will write a "My Word" essay. Select a word that defines you or encapsulates your beliefs. In a well-written narrative essay, define the word using concrete details, and analyze what it means to you. (750-1000 words, typed, MLA format).

Unit 2 – Finding One's Voice: The Art of Persuasion and Debate September – October (4 ½ Weeks)

*Persuasion Techniques, Debate Techniques, Comparison and Contrast, 20% Work Time

Topics, Lessons, and Instructions:

- Syntax
- Sentence structure
- Style
- Voice
- Tone
- Persuasive techniques
- Comparison/Contrast
- Genius Hour Introduction
- MLA Format

Readings:

Outside Homework Readings:

- *Narrative of the Life of Frederick Douglass*

In Class Readings:

- Jefferson: "Declaration of Independence"
- Lincoln: "Gettysburg Address"
- King: "Letter from Birmingham Jail"
- Gandhi: "On Nonviolent Resistance"
- Thoreau: "Civil Disobedience"
- *Writing and Grammar: Communication in Action*
- *Everything's an Argument*
- Clips: *The Daily Show with Jon Stewart*, *The O'Reilly Factor*

Assessments:

- Quizzes: Sentence Structure, selected readings, persuasive techniques
- Literature Response Journals
- Genius Hour Journals
- Nine-Week Learning Check

Major Compositions:

Persuasive/Expository Essay: Using a newspaper, magazine, or the Internet, students locate a political cartoon from the past and reproduce a cartoon that covers a current issue of importance in the United States and analyze its elements of persuasion including the audience appeal and appropriateness of the subject matter. Address the style, tone, and persuasive techniques of the artist.

Synthesis Letter: Synthesize the information you gather for about your political cartoon and write a brief letter to your congressman expressing your views about the current political topic addressed in the cartoon. Cite specific examples and reasons for your position. The letter is to be properly addressed to send to your government representative. (750-1000 words, typed).

Unit 3 – Don't Drink the Water: Propaganda and Hidden Messages in the Media October – November (4 ½ Weeks)
*Propaganda, Hidden Messages, Photography as Voice, 20% Work Time

Topics, Lessons, and Instructions:

- Propaganda
- Power of language
- Hidden messages
- Propaganda in Photography
- Test taking strategies
- Genius Hour Work Time

Readings:

- Postman: "The Medium is the Metaphor"
- Fadiman: "Never Do That to a Book"
- Pattillo Beals: *Warriors Don't Cry*
- Article on photography (WDC)
- Propaganda Film" *Rocky IV*
- *Writing and Grammar: Communication in Action*
- *Everything's an Argument*

Assessments:

- Quizzes: Propaganda, hidden messages, selected readings
- Literature Response Journals
- Genius Hour Journals
- Film Review Activities
- AP Practice Questions

Major Compositions:

Compare and Contrast Essay: After reading the articles by Postman and Fadiman, compare and contrast their beliefs about books and television. Based on the authors' viewpoints, analyze the effects books and televisions have had on popular culture. Apply this analysis to Melba Patillo Beals's memoir *Warriors Don't Cry*. (750-1000 words, typed, MLA Format).

Propaganda Art: Students will design a poster or artifact that identifies the central message *Rocky IV* conveys to the American audience. Using your verbal prowess and crafted propaganda techniques, you will write a persuasive copy to use as a 30 second commercial spot to convince your audience to believe the message.

Unit 4 – Is Compassion Out of Fashion? November – December (4 ½ Weeks)
*Literary Elements, Analysis, and Criticism

Topics, Lessons, and Instructions:

- Review of Literary Elements
- Review of previously learned material
- Test Taking Strategies
- Genius Hour Work Time

Readings:

- Hemingway: "Hills Like White Elephants"
- Fitzgerald: "Winter Dreams"
- Faulkner: "A Rose for Emily"
- Walker: "Everyday Use"
- Steinbeck: *The Grapes of Wrath*
- *Writing and Grammar: Communication in Action*
- *Writers Inc.*
- *Everything's an Argument*

Assessments:

- AP First Semester Exam
- Literature Response Journals
- Genius Hour Journals

Major Compositions:

Expository Analysis of Rhetorical Devices: In a well-developed essay, analyze key symbolic elements, figurative language, imagery, and tone that Steinbeck uses to enhance the theme of *Grapes of Wrath*. Analyze his choice of certain symbols and figurative language used during the novel as they relate to the effects of the Joad family and their trek to California. (500-750 Words, Typed, MLA format).

Synthesis Historical Expository Essay: View various images and photographs of people taken during the depression era. Does Steinbeck capture the moods and tones of the pictures? Is Steinbeck accurate in his representation of the common man during that era, or does he embellish and create the Joad family in an unrealistic way in order to exaggerate the plight of the Oklahoma farmers? (500-750 Words, typed, MLA format).

AP Language and Composition: Units of Study: Spring Semester

Unit 1 – No Country for Old Men: Dystopia and Allegory January – February (4 ½ Weeks)

*Study of argument through dystopic narratives, Creative Writing

Topics, Lessons, and Instructions:

- What is dystopia?
- Identifying arguments
- Allegory, parable, and symbolic meaning
- Creative Writing process
- Genius Hour work time

Readings:

- Vonnegut: "Harrison Bergeron"
- Orwell: *1984* and *Animal Farm* , Excerpts
- Rand, *Anthem*
- Film/Clips: *The Road*, *The Walking Dead*, *The Hunger Games*
- *Writing and Grammar: Communication in Action*
- *Writers Inc.*
- *Everything's an Argument*

Assessments:

- Quizzes:
- Literature Response Journals
- Genius Hour Journals
- Nine-Week Learning Check

Major Compositions:

Dystopian Fiction: Students will write a piece of dystopian fiction that centers on a potential problem our world might face in the future (environment concerns, political issues, financial problems, etc.). Students can choose from a number of prompts from the following website: http://www.creativewritingpromptsforwriters.com/tag/dystopian/ (or any other prompt or idea developed by the student). Students should relate one of the prompts to their problem of choice. Students will go through the entire writing process. (At least 750 words, typed, MLA format).

Unit 2 – War! What Is It Good For? February – March (4 ½ Weeks)

*Inference and Interpretation, Maintain Audience and Purpose

Topics, Lessons, and Instructions:

- Identifying historical context
- Making inferences
- Interpreting various forms of media
- Genius Hour work time

Readings:

- Hemingway: "In Another Country"
- O'Brien: *The Things They Carried*
- Selected war poetry
- Clips: *Saving Private Ryan*, *Platoon*, *Gettysburg*, *Jarhead*, Vietnam, Persian Gulf news coverage
- War protest music of the 1960s
- War photography
- *Writing and Grammar: Communication in Action*
- *Writers Inc.*
- *Everything's an Argument*

Assessments:

- Quizzes: selected readings
- Literature Response Journals
- Genius Hour Journals
- Nine Weeks Learning Check

Major Compositions:

Synthesis Narrative Essay: Select a war protest song and thoughtfully consider your emotions and feelings as you listen to the words and the music. Compose an open letter to the songwriter/singer that analysis and identifies your approval or disagreement of the protest. (500-750 words, typed, letter format).

Research/Synthesis/Argument Report: After reading the effects of war in various texts, looking at various images of war, and reading fiction and nonfiction on war, in general, synthesize all of the information and formulate your own opinion about war. Substantiate your beliefs with quotes from at least three outside sources, using proper MLA references. Remember to attribute both direct and indirect citations. Refer to the sources by authors' last names or by titles. Avoid mere paraphrase or summary. 750-1000 words, typed, MLA format).

Unit 3 – Down the Rabbit Hole: Discovery through Research March – April (4 ½ Weeks)

*Literary Analysis, The Research Process

Topics, Lessons, and Instructions:

- iSearch Paper Process (for Genius Hour work)
- Review Literary Analysis
- The Research Process
- Genius Hour work time

Readings:

Outside Homework Readings:

- Book chosen from pre-approved AP list. Book review to follow.*

In-class Readings:

- *Writing and Grammar: Communication in Action*
- *The iSearch Paper*
- *Writers Inc.*
- *Everything's an Argument*

Assessments:

- Quiz: Research Process
- Literature Response Journals
- Critical Book Review
- Genius Hour Work
- iSearch Paper

Major Compositions:

Critical Book Review: Students will write a critical review of a pre=approved AP book of their choice. Students will complete Reading Journals throughout the book and then synthesize those journals into a well-developed review of the novel. The review should provide a literary analysis of the book in addition to the reader's opinion of the novel. (750-1000 words, typed, MLA Format).

*Students are given plenty of notice on the due date of this review and are encouraged to work on it throughout the second semester.

iSearch Paper: Students will write an iSearch paper that shares the Genius Hour work to this point. Students will discuss the research process, the findings they have uncovered to this point, where they stand in their project, and begin to synthesize their research for the final research paper at the end of the year. (750-1000 words, typed, MLA format).

Unit 4 – Here I Go Down Circle Road…Everything Comes Together April – May (4 ½ Weeks)

*Poetry Analysis, Synthesizing the entire course

Topics, Lessons, and Instructions:

- Poetic Elements
- Review Research Process
- Review Test-taking Strategies
- Genius Hour work time

Readings:

- Silverstein: *Where the Sidewalk Ends*, and more
- Hughes: selected poems
- Dickinson: selected poems
- Whitman: selected poems
- Collins: *Poetry 180*
- *Writing and Grammar: Communication in Action*
- *Writers Inc.*
- *Everything's an Argument*

Assessments:

- Quizzes: selected poems
- Genius Hour Journals
- Research Paper Final Draft
- Genius Hour Project Presentation
- ENG 10 End-of-Course Assessment

Major Compositions:

Formal Research Paper: Students will write a formal research paper that details their findings, analysis, and implementation of their research for their Genius Hour Project. This is the most extensive project of the course. Paper requirements to follow. (Minimum: 1000 words, Typed, MLA format).

Genius Hour Project/Presentation: students will create some sort of product that displays their Genius Hour project (audiovisual, performance-based, artistic rendering, etc.) and then students will present their projects to the class, staff members, and community members.

Teacher / Student Resources

Course Textbooks

Beals, Melba. *Warriors Don't Cry: A Searing Memoir of the Battle to Integrate Little Rock's Central High*. New York: Pocket, 1994. Print.

Carroll, Joyce Armstrong, Edward E. Wilson, and Gary Forlini. *Writing and Grammar: Communication in Action*. Upper Saddle River, NJ: Pearson Prentice Hall, 2004. Print.

Collins, Billy. *Poetry 180: A Turning Back to Poetry*. New York: Random House Trade Paperbacks, 2003. Print.

Douglass, Frederick. *Narrative of the Life of Frederick Douglass: With Related Readings*. New York: Glencoe/McGraw-Hill, 2002. Print.

Lunsford, Andrea A., John J. Ruszkiewicz, and Keith Walters. *Everything's an Argument: With Readings*. Boston: Bedford/St. Martin's, 2007. Print.

O'Brien, Tim. *The Things They Carried: A Work of Fiction*. New York: Broadway, 1998. Print.

Prentice Hall Literature Grade 10. Upper Saddle River, NJ: Pearson Education, 2010. Print

Rand, Ayn. *Anthem*. New York: Dutton, 1995. Print.

Sebranek, Patrick, Verne Meyer, and Dave Kemper. *Writers INC: A Student Handbook for Writing & Learning*. Lexington, MA: Write Source, 1996. Print.

Silverstein, Shel. *Where the Sidewalk Ends: The Poems & Drawings of Shel Silverstein*. New York: Harper and Row, 1974. Print.

Steinbeck, John. *The Grapes of Wrath*. 1939.

Wiggins, Grant P. *Prentice Hall Literature: The American Experience*. Upper Saddle River, NJ: Pearson Prentice Hall, 2010. Print.

Student Resources

"AP Students." - *AP Courses and Exams for Students*. N.p., n.d. Web. 02 Aug. 2015. https://apstudent.collegeboard.org/home?navid=gh-aps.

"College Board." *AP Central*. N.p., n.d. Web. 02 Aug. 2015. http://apcentral.collegeboard.com/apc/members/exam/exam_information/2001.html.

"Dystopian Archives - Creative Writing Prompts for Writers." *Creative Writing Prompts for Writers*. http://www.creativewritingpromptsforwriters.com/tag/dystopian/

Ehrenhaft, George. *Barron's AP English Language and Composition*. Hauppauge, NY: Barron's Educational Series, 2013. Print.

Gibaldi, Joseph. *MLA Handbook for Writers of Research Papers: 7th Edition*. New York: Modern Language Association, 2009. Print.

Student: _____

Teacher/Student/Parent Contract

By signing below I acknowledge that this is a demanding class that requires regular attendance, participation in class work, regular outside reading, and homework. I understand the expectations set forth for the student in this syllabus. I understand the grading requirements/expectations for this course. I understand that if my student wishes to take AP exam, I must make financial arrangements. Finally, I understand the English 10 EOC makes up 20% of the student's overall grade in this class. I agree to these terms.

Parent/guardian's name (please print): _____

Parent/guardian's signature: _____

Phone: _____ Best time to call: _____

Parent E-Mail address: _____

Student's name (please print): _____

Student's signature: _____

Student's E-Mail address*: _____

*(if preferred over school email).

Parent Copy

*Please keep for your records.

Student: _____

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Student's signature: _____

Student's E-Mail address*: _____

*(if preferred over school email).

Teacher Copy

*Please return to teacher when completed.

AP English Literature & Composition, 2015-2016

Understandings:	**Essential Questions:**
What will you understand (about what big ideas) as a result of the unit? You will understand that: • Literature provides a mirror to help us understand ourselves and others. • Writing is a form of communication across the ages. • Literature reflects the human condition. • Literature deals with universal themes, i.e., man vs. man, man vs. nature, man vs. self, man vs. God. • Literature reflects its time's social, cultural, and historical values.	What arguable, recurring, and thought-provoking questions will guide inquiry and point toward the big ideas of the unit? • How does literature help us understand ourselves and others? • How has writing become a communication tool across the ages? • How does literature reflect the human condition? • How does literature express universal themes?

Major Concepts/Content

AP English Literature and Composition is designed to be a college/university level course, thus the "AP" designation on a transcript rather than "H" (Honors) or "CP" (College Prep). This course will provide you with the intellectual challenges and workload consistent with a typical undergraduate university English literature/Humanities course. As a culmination of the course, you will take the AP English Literature and Composition Exam given in May. A grade of 4 or 5 on this exam is considered equivalent to a 3.3-4.0 for comparable courses at the college or university level. A student who earns a grade of 3 or above the exam will be granted college credit at most colleges and universities throughout the United States.

Course Goals

1. To carefully read and critically analyze imaginative literature.
2. To understand the way writers use language to provide meaning and pleasure.
3. To 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.
4. To study representative works from various genres and periods (from the sixteenth to the twentieth century) and to know a few works extremely well.
5. To understand a work's complexity, to absorb richness of meaning, and to analyze how meaning is embodied in literary form.
6. To consider the social and historical values a work reflects and embodies.
7. To write, focusing on critical analysis of literature including expository, analytical, and argumentative essays as well as creative writing to sharpen understanding of writers' accomplishments and deepen appreciation of literary artistry.
8. To become aware of, through speaking, listening, reading, and chiefly, writing, the resources of language: connotation, metaphor, irony, syntax, and tone.

Required Texts and Materials

In the AP English Literature course, you should consider obtaining a personal copy of the various novels, plays, epics, poems, and short fiction used in the course. You may purchase copies from a local new or used bookstore, or from an online book source.

If available, you may check out books from the English department. All titles may also be found in the local library branches. Some of the works used can also be accessed online.

Performance Tasks

- Timed essays based on past AP prompts
- Essay questions as required of college-level writers
- Reading/responding to/analyzing novels, drama, fiction, nonfiction, and poetry
- Imaginative writing including but not limited to: poetry and imitative structures
- Literary analysis papers—expository and persuasive
- Personal essay
- Graphic organizers, double-entry journals, paragraph responses, and questions

Writing Expectations
As this is a literature and composition course, you will be expected to use every assignment that involves writing and rewriting to practice your best composition skills. Composition assignments will include: statements, paragraphs, timed writes (essay tests), and formal essays (personal, expository, and argumentative). No matter the kind of writing assigned, your best composition skills should be practiced. We will work with various composition constructions, Standard Written English, sentence variety, and word choice.

When an assignment calls for a "paragraph," please check your work against the paragraph criteria below:

1. Many times you will be asked for your opinion or idea about an aspect of a work of literature. You will post these to a discussion board. Please use complete sentences with clear support for your ideas.
2. All assignments for formal papers will include a specific grading rubric. We will go over the rubrics prior to submitting papers and review expectations for the particular composition or paper. Please consult each rubric carefully before submitting your work. Chapters from Roberts, Edgar V. *Writing About Literature* (9th ed. Upper Saddle River, NJ: Prentice Hall, 1999) will supplement composition instruction. *You will be expected to rewrite larger papers and literary analyses after you receive feedback.*
3. Timed writes (essay tests) and feedback. These will be scored with scoring guides as used by the AP English Literature and Composition Exam for that specific question. Essay tests will need to be typed directly into the blank test online. Do not type an essay onto a word document and then cut and paste it into the answer space. *You will be expected to rewrite larger papers and literary analyses after you receive feedback.*
4. Grammar and usage: As a student in an AP English Literature and Composition course, you should have a good command of Standard Written English. There will be mini-lessons throughout the course dealing with complex grammar and usage issues, sentence constructions, and diction. Occasionally you may need some additional help with this.

There are many good online guides to grammar. The link below is one such guide.
http://grammar.ccc.commnet.edu/grammar/index.htm

Please consult this guide or a writing handbook for grammar problems.

Pre-Course Assignment

- Actively read *Frankenstein*
- Complete a literary analysis outline based on E.V. Roberts's technique questions from *Writing About Literature*.
- Consider the title of the novel *Myth of Prometheus*.
- Actively read *The Rime of the Ancient Mariner*. Think about the connection between Coleridge's poem and Shelley's novel.
- Write speculatively about the connection between *Frankensteini* and *The Rime of the Ancient Mariner.*

Unit 1: Genre Study
3 Weeks
What does the term *genre* mean?

Genre: A category of literary work. In critical theory, genre may refer to both the content of a given work—tragedy, comedy, or pastoral—and to its form, such as poem, novel, or drama.

This term also refers to types of popular literature, as in the genres of science fiction or mystery.

What are the different genres of literature?

There are many ways we might answer this question. The basic types or larger components of literature, however, can be grouped into categories, including novel, short fiction, poetry, drama, and epic.

How does a writer of poetry and prose craft a work of literary merit?

Contrary to the opinion of many students, works of fabulous imagination rarely fall from the sky. Writers of great literature are "technicians of their form," that is, they use all the tools of literary technique, language, and style to enhance their works.

What sort of writing skill will an AP student need to acquire in order to be successful in this class and in college?

Your goal will be to emulate the masters of the English language and to become a "technician," employing all the tools of literary technique, language, and style.

Unit Expectations
Students will gain experience with:

- Close reading of fiction, drama, and poetry
- Composition instruction (see writing expectations):
    - Students will take material from their double-entry journals dealing with central themes in *Frankenstein* and use the material to develop an interpretive essay based on a central theme in the novel.
    - Students may select a theme of their own, granted that it is approved by the instructor, or they may select one of these two themes: the tension between individualism and social acceptance; or the tension between technology and human inspiration.
    - On-demand writing—experience with timed writing about prose—complex characterization, figurative language, and resource of language
    - Evaluation of on-demand writing—working with a scoring guide
    - Paragraph writing, short answers, and graphic organizers
- Literary terms and techniques
- Elements of literature including novel, short story, and drama

Novel: *Frankenstein*
Nonfiction: Introduction to *Frankenstein*
Short Story: "A Jury of Her Peers"
Drama: *Trifles*
Poetry: *The Rime of the Ancient Mariner*, "Ode on a Grecian Urn"

Unit 2: Personal Essay for College Admission/Scholarship Application
2 Weeks

- Writers often use the personal reminiscence/personal essay of experience to state an opinion, explain a viewpoint, or clarify the significance of a person or event.
- The personal essay may take one of three forms: personal essay, personal reminiscence, or essay of experience.

Unit Objectives

- Students will explore ideas about themselves to determine their topics for writing.
- Students will understand and work with personal writing—including, but not limited to, anecdote, dialogue, details, language, syntax, and varied sentence structures.
- Students will receive direct composition instruction on introduction/opening, voice, use of first-person pronouns, apostrophes, and conventions.
- Students will work with conventions of Standard Written English.
- Students will participate in peer editing and rewriting/revising.
- Students will complete at least one personal essay for college admission.

Unit 3: Classical and Modern Tragedy
4 Weeks
World Literature in Translation: National Standards

- Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and to gain personal fulfillment. Among these texts are fiction, nonfiction classic, and contemporary works.
- Students read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.

Aristotle: Tragedy
Sophocles: *Oedipus Tyrannus*

- *Oedipus Tyrannus* is a discussion of the conflict between faith and doubt. Oedipus represents any of us who wrestle with our own problems of faith and doubt; he represents all our hopes and fears.
- Sophocles wanted Oedipus to teach that man's confidence in his own ability is an illusion if he abandons the idea of a higher power.
- This play seeks truth about the cosmos. Every detail of *Oedipus Tyrannus* is contrived so as to reinforce the conception of order disturbed and order restored.
- *Knowledge comes through suffering.*
- *It was not going to happen because it was foretold. It was foretold because it was going to happen. Character is Fate*.

Arthur Miller: *Death of a Salesman*
Modern playwrights have interpreted Aristotle's definition of tragedy to include humankind's perception of the universal human lot. The primary amendments made by modern playwrights are that the tragic hero need not be high born and the language of the play need not be verse. In his essay entitled "Tragedy and the Common Man," Arthur Miller asserts "that the common man is an apt subject for tragedy in its highest sense as kings were."
Unit Expectations

a) Active reading/Cornell Notes incorporated into understanding drama, including dramatic irony, theater beginnings, the origin and function of the chorus, imagery of sight and blindness, myth.
b) Formal analysis/literary paper comparing and contrasting the tragic fate of both protagonists. Essay will be expository and analytical in nature. Students will write, edit, and rewrite. Paper will emphasize imagery and dramatic irony and will work with incorporating quotes, word

choice, syntax, and understanding of the dialogue and details presented as support to writing. Direct composition instruction: active verbs; clear, viable thesis statement; incorporation of lines and dialogue; and use of conventions as necessary.

c) Timed write on tragedy, including scoring guide.
d) Discussion: Character is fate; free will.

Unit 4: Introduction to Poetry
4 Weeks
Students will learn that:

- Reading poetry well means responding to it; if one responds on a feeling level, he or she is likely to read more accurately, with deeper understanding, and with greater pleasure.
- Reading poetry accurately, and with attention to detail, will enable one to respond to it on an emotional level.
- Reading poetry involves conscious articulation through language, and reading and responding comes to be, for experienced readers of poetry, very nearly one.
- Paying close attention to the text in poetry makes one appreciate and understand textuality and its possibilities.

Unit Expectations
Study and analyze poems from the Renaissance.

a) Introduction: Essay of analysis. This essay is a literary analysis (expository)—Shakespeare's "Winter" including teacher model and rubric. Essay will be shared in class and emphasis includes sonnet form, paraphrase, imagery, syntax, and poetic language. Direct composition instruction: summary/paraphrase, thesis statement, syntax/sentence structures, audience.
b) Ballad—analyze using callouts
c) Sonnet—study and analyze multiple sonnets, write an original sonnet
d) Metrical Romance
e) Timed write—literary analysis comparing and contrasting two Renaissance sonnets including samples and scoring guide. Direct Composition Instruction: compare and contrast, thesis statement
f) Multiple-choice practice

Unit 5: *The Tragedy of Hamlet, Prince of Denmark*
5 Weeks
"For anything is so overdone is from the purpose of playing, whose end, both at the first and now was and is, to hold as 'twere, the mirror up to nature, to show virtue her own feature, scorn her own image, and the very age and body of the time his form and pressure." —Hamlet, Prince of Denmark, act 3, scene 2

- Why is *Hamlet* considered by many to be Shakespeare's greatest achievement?
- How and why is the character of Hamlet depicted as the most complex in English literature?

Unit Expectations

a) Study includes the great chain of being; Shakespeare's language, form, and function of tragedy; and religious, scientific, and cultural beliefs of the Elizabethan age.
b) Essay test/timed write using question #3 from 1993 and 1994 AP English Literature and Composition Exams.
c) Literary analysis paper—formal, persuasive essay evaluating Hamlet based on one of the two questions above. Direct composition instruction: format—clear thesis, incorporation of lines and quotes, pronoun usage, support paragraphs, introduction necessary for audience, thesis followed throughout, strong concluding paragraph.

Unit 6: Short Fiction and Satire

4 Weeks
"Satire is a sort of glass, wherein beholders do generally discover everybody's face but their own; which is the chief reason for that kind of reception it meets in the world, and that so very few are offended with it." —Johnathan Swift

Unit Expectations

a) Study of short fiction and literary terms and techniques, emphasizing point of view and tone.
b) Analysis of multiple short stories using graphic organizers.
    a. Two short interpretation papers based on point of view and tone, using two short story structures
    b. Timed write on short fiction including samples and scoring guide
c) The Sting of Satire: "A Modest Proposal," selections from *Gulliver's Travels* and *Candide*.
d) Timed write on irony and satire.

Unit 7: The Novel—*Heart of Darness*, Conrad
3 Weeks
" 'The sea molds character,' he said, 'yet, in setting the conditions for the shipboard drama—as to some extent it inevitably must—it reveals, like a mirror, the face of character itself.'"

Joseph Conrad's *Heart of Darkness* "is the most vividly realized account in literature of the experiences of a European in colonial Africa, and as such is a document of historical importance as well as a literary classic."

Students will explore the literary techniques of impressionistic writing, frame narrative, inference, and symbolism.

Unit 8: Metaphysical to Modern Poetry
3 Weeks
"Poetry is a mirror which makes beautiful that which is distorted." —Percy Shelley

- Responding to poetry involves remembering and reflecting.
- Your knowledge and life experience informs your reading of what is before you, and allows you to connect things within the text—events, images, words, sounds—so that meaning and feelings and develop and accumulate.
- Poems, even when they are about things of which we have no experience, connect to things we do not know and order our memories, thoughts, and feelings in new and newly challenging ways.
- Reading poetry can ultimately enrich your life by helping you become more articulate and more sensitive both to ideas and feelings; that's the larger goal. But the more immediate goal—and the route to the larger one—is to make you a better reader of texts and a more precise and careful writer yourself.
- Poems, perhaps even more than other texts, can sharpen your reading skills because they tend to be so compact, so fully dependent on concise expressions of feeling. In poems, ideas and feelings are packed tightly into just a few lines.

The Norton Introduction to Poetry

Unit Expectations

a) Study and analysis of poems from Metaphysical to modern era.
b) Two short papers analyzing poems in the unit.
c) Students will write an interpretive essay based on a careful analysis of textual details comparing the treatment of a socio-historical issue in two poems. Students will write on either the depiction of and attitude toward racism in Cullen's "Incident" and Dunbar's "We Wear the Mask"; or the

depiction of and attitude toward war in Owen's "Dulce et Decorum Est" and Jarrell's "The Death of the Ball Turret Gunner."

d) Direct composition instruction: as needed.

Unit 9: Modern Novel
4 Weeks

Novels—Reader's Workshop format

Students choose two novels to read and study from the following list of possible titles:
Alias Grace, All the King's Men, All the Pretty Horses, Angle of Repose, Animal Dreams, Atonement, Awakening, Beloved, Brave New World, Catch 22, Einstein's Dreams, Ethan Frome, The Grapes of Wrath, The Great Gatsby, The Handmaid's Tale, The Kite Runner, Lord of the Flies, Montana 1948/Justice, 1984, Obasan, Player Piano, The Poisonwood Bible, A Prayer for Owen Meany, Snow Falling on Cedars, Stones from the River, Their Eyes Were Watching God

Unit Expectations

a) Read two novels.
b) Take test on both.
c) Write formal literary paper—persuasive format. Students will take the two novels they read and, again using material generated in their double-entry journals, will write an analytical, argumentative essay that attempts to persuade its reader that each novel is making specific socio-historical commentary on an issue of social concern. The issue may, but need not, be the same in each novel. The essay will be developed through multiple drafts. In the opening paragraph of the essay, students will argue for specific ways that each novel reflects the social concern detected and articulated in writing, using illustrations from the texts.

Unit 10: AP Practice Exam
1 Week

AP Biology 2016-17
Campbellsville Independent High School

Contact Information

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Course Description

In this course, students will receive an in depth knowledge of the information outlined in the Kentucky Quality Core Biology Standards, as well as, the AP Biology Curriculum Framework, which focuses on major biological concepts and their connections/relationships. Students will use man different methods of advanced learning in order to achieve optimal skills needed to be successful on their End-of-Course Assessment AND/OR AP Biology exam, in future science courses, as well as, in real-life applications. Science practices include in-depth readings, inquiry-based activities, as well as, laboratory investigations. The course will be structured around the four Big Ideas, as described in the Curriculum Framework:

1. The process of evolution drives the diversity and unity of life. (Evolution)
2. Biological Systems utilize free energy and molecular building blocks to grow, reproduce, and to maintain dynamic homeostasis. (Energy Processes)
3. Living systems store, retrieve, transmit, and respond to information essential to life processes. (Information)
4. Biological systems interact, and these systems and their interactions possess complex properties. (Interactions)

Objectives

- To obtain a broad knowledge of the biological science covered in the Kentucky Department of Education's curriculum documents, as well as, the AP Biology Curriculum Framework.
- To enable students to apply biological concepts to real life.
- To prepare students for other sciences by providing a firm foundation in the basics of biology.
- To prepare students, by equipping them with the knowledge and skills needed to score Proficient/Distinguished on the Biology End-of-Course Assessment and/or a 3-5 on the AP Biology exam.
- To enable students to employ the following Science Practices:
    1. The students can use representations and models to communicate scientific phenomena and solve scientific problems.
    2. The student can use mathematics appropriately.
    3. The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
    4. The student can plan and implement data collection strategies appropriate to a particular scientific question.
    5. The student can perform data analysis and evaluation of evidence.
    6. The student can work with scientific explanations and theories.
    7. The student is able to connect and relate knowledge across various scales, concepts and representations in and across domains.

Textbook

Cain, Jackson, Minorsky, Reece, Urry, Wasserman, *AP Edition Biology,* 9th Edition (2011)
To be used by each students in order to provide an enhanced understanding of the four big ideas.

Course Outline

- Scientific Processes with Graphing & Data Analysis
- Ecology
- Biochemistry
- Cells
- Cellular Processes
- Mitosis/Meiosis
- DNA/RNA
- Genetics
- Plants
- Animals with Human Body Systems
- Evolution
- Taxonomy

Couse Materials

- Dry Erase Markers
- 2 ½ - 3" Three-ringed binder with loose leafed paper
- 3 hole-punched pocket folders (to be inserted into three-ringed binder)
- 1 package notecards
- Pencils with erasers
- Highlighters
- Colored pens or pencils
- Tab Dividers (approximately 12)
- Small Dry-erase board (Optional)
- Sheet Protectors (Optional)

Course Policies

Attendance/Absences/Makeup Work: Students must make up, within one week, tests, quizzes and laboratory work missed due to excused absences. Homework assigned prior to an absence must be turned in the day you return, and homework assigned during your absence the day after you return, unless I extend the deadline. A zero will be received on all assignments submitted during an unexcused absence.

Electronic Devices (including cell phones): According to school policy, all electronic devices are prohibited during class, unless otherwise communicated by the teacher. If electronic devices are to be used, they will be for instructional purposed only. If devices are seen, they will be collected by the teacher and given to a school administrator.

Classroom Rules/Expectations: You are expected to arrive each day on time and ready for instruction, to act maturely and responsibly, to demonstrate a strong work ethic, to contribute to an orderly learning environment, and follow the behavior guidelines outlined in the school handbook.

- Tardies: Students will be counted tardy if they are not in their seats (with necessary materials) by the time the 2nd bell rings. Every effort to accomplish preliminary daily tasks should be made upon the ringing of the warning bell.
- Detentions: students will be issued a detention and/or discipline referral if they fail to comply with course/school behavioral guidelines. Examples of infractions include, but are not limited to: tardiness, unpreparedness, horseplay, failure to follow instructions, disrespect, being off task, use of electronic devices without teacher permission, leaving class without a hall pass, profanity, etc.

Homework/Quizzes (formative assessment) Policy: Assignments are to be neatly completed on appropriate paper. Late work will NOT be accepted; a zero will be given. In order to ensure that you have the opportunity to be successful on each summative exam, you may not be permitted to take the exam if you have several 0's (or missing assignments) recorded in Infinite Campus, unless you spend time in review session after school, or work with Ms. Bennett during RTI.

- Quizzes will be administered frequently throughout the course, with some quizzes being "pop quizzes." MOST quizzes (unless otherwise noted by the teacher) will be part of the student's formative assessment grade.

Grading Policy

Grade Distribution: Grades will be calculated as follows:

20% Final Exam
20% Laboratory Investigations (with lab reports, notebooks, and formative assessments)
60% Summative Assessments

Summative Assessments: Throughout this year-long course, students will cover and be assessed over 80 biology learning targets. They will receive an individual exam score for each learning target. For example, our unit over Ecology contains 13 major topics (i.e. learning targets) of which students will be assessed over on their End-of-Course Assessment. Therefore, they will receive 13 separate exam scores for this particular unit. Summative exam scores will be assigned based upon a 5-point scale, as follows:

4 = 100%
3 = 75%
2 = 50%
1 = 25%
0 = 0%

*Summative assessment forms will vary, and may be administered in any of the following formats: Multiple choice, written response, oral recall, creation of a product, group/individual presentations, etc.
Re-testing: According to school policy, re-testing will not be permitted.

Course Format
Science Literacy: Students will maintain a "Scientific Literacy" folder, in which they keep written reports, data analyses, and article summaries & reflections based upon the reading of current scientific news and/or scientific journal articles and literary documents. This will be done in order to help students apply their biological, scientific, and critical thinking skills to major social issues within the realm of science (e.g. medical concerns, major health concerns, ecosystem stability, human effect on biodiversity, etc.). Students will also be expected to visually and verbally report on various current scientific issues throughout the course. (CR5)

Lectures: Lectures will emphasize biological concepts. They are intended to help you become conversant with the language biologists use, and the type of work that biologists do. Notes pertaining to the four Big Ideas will be recorded in notebooks by the students during this time.

Laboratory Investigations: Lab investigations will make up approximately 25% of instructional time, including a minimum of two inquiry-based investigations for each of the four Big Ideas. There will also be a variety of supplemental labs during each unit of study. Labs will familiarize students with the skills needed to investigate scientific questions, allow for the establishment of effective research habits, and reinforce information learned during lecture/readings. Lab reports will be completed for each inquiry-based lab investigation and submitted to the teacher.

Unit and Activity: Labs and Activities	**1. Use representation and models**	**2. Use mathematics**	**3. Engage in scientific questioning**	**4. Plan and implement data collection strategies**	**5. Perform data analysis & evaluation of evidence**	**6. Work with scientific explanations and theories**	**7. Connect and relate knowledge**	**Big Idea 1: Evolution**	**Big Idea 2: Energy Processes**	**Big Idea 3: Information**	**Big Idea 4: Interactions**
Unit 1: Nature of Science/Chemistry of Life											
Data collection/Graphing Activity	X	X	X	X	X						
Capsule Critters Designing a Lab	X	X	X	X	X		X				
Macromolecule Building Activity	X	X	X			X	X	X	X	X	
Enzyme Catalysis Lab	X	X	X	X	X	X	X		X		
Cheesemaking Lab (role of enzymatic reactions)		X	X	X	X	X	X		X		
Toothpickase Lab	X	X	X	X	X	X	X		X		
Properties of water activity	X		X	X	X	X	X		X		
Acids and bases lab			X	X	X	X	X		X		
DNA Extraction			X			X	X		X		
DNA Models	X	X	X			X	X		X		
Unit 2: Ecology and Animal behavior											
Biome Presentations	X		X	X			X				X
Levels of organization diagrams	X						X				X
Survivorship Curve Practice	X	X		X	X	X	X		X		X
Symbiotic Relationships Card Activity			X			X	X				X
Animal behavior Lab	X	X	X	X	X	X	X				X
Unit 3: Cell Structures and Processes (with homeostasis and response to the environment)											
Cell Model	X					X	X		X	X	
Antibiotic Resistance Reading and Lab			X		X	X	X	X	X	X	X
Mitosis & Meiosis Lab	X		X	X	X	X	X		X	X	

Environmental Effects on Mitosis Lab			X	X	X	X	X		X	X	X
Mitosis Plate Models	X					X			X		
Protein Synthesis Role Playing Activity	X					X	X		X	X	
Cellular Respiration Lab		X	X	X	X	X	X		X		
Alcoholic Fermentation Lab with yeast	X	X	X	X	X	X	X		X		
Environmental effects on photosynthesis activity		X	X	X	X	X	X		X		X
Potato osmosis lab	X		X	X	X	X	X		X		X
Unit 4: Genetics (Storage, retrieval, and transmission of information)											
Genetics Practice Problems (mono and di-hybrid crosses, sex-linked crosses)		X								X	
Genetics Baby Activity	X	X					X			X	
Genetics of Organisms Lab		X		X			X			X	
Blood-Type Lab	X	X					X			X	
Unit 5: Plant and Animal Systems and their Interactions											
Microscopy activity: observing leaf stomata				X							X
Parts of Leaf and flower diagrams and models	X										X
Human body system presentations	X						X				X
Human body system models (to demonstrate function)	X						X		X		X
Blood circulation Lab	X			X			X		X		X
Phineas Gage Research									X	X	X
The kidneys and homeostasis activity	X		X	X	X	X	X		X		X
Flow of blood role playing activity	X						X		X		X
Fetal Pig Dissection			X	X			X	X			X
Unit 6: Taxonomy and Evolutionary Biodiversity											
Hardy-Weinberg Lab	X	X	X	X	X	X	X	X			
Origin of Life Activity	X		X		X	X	X	X			
Evidence for evolution activity			X		X	X	X	X			
Dichotomous key activity	X	X					X	X			
Cladogram practice	X							X			
Cladogram construction (following dissection of various organisms from the animal kingdom)	X		X		X	X		X			
Bacterial Transformation Lab	X	X	X	X	X	X	X	X			

Course Outline (Tentative)

Unit 1. Nature of Science; Chemistry of Life
Enduring understandings to be addressed: 2A; 3A; 4A-B
Essential Questions

- How have scientists worked together to investigate the science behind the concepts of biology?
- How have scientists built upon the discoveries of other scientists to develop a more complete picture of the world around us?
- How are scientists able to test the validity of their ideas?
- What is the significance of structural and chemical adaptations to the resilience of living organisms?
- How do individual species, populations, and biomes impact evolutionary change?
- How does energy transfer occur at the molecular level within cells?
- What are some examples of the relationship between evolution of organisms and energy transfer?
- How can continuity within a species be controlled while still allowing for gradual change over time?
- How does structure control function at the molecular/cellular level?
- How does structure control function at the organism level?
- How is the movement of molecules into and out of cells regulated?
- How is homeostasis maintained by an organism?
- How can interdependence in nature be seen at the molecular level?
- How do cells of one organ/tissue rely on the existence of cells in other organs/tissues?
- How are all organisms interdependent on each other; how does this relate to evolution?

- What advances have been made in laboratory technology to allow scientists to simulate the natural world?
- What is the effect of scientific research and technological innovations on society?

Process of science reviewed:
- Scientific method, with emphasis on the fact that there is not ONE way to do science
- Explain what is meant by scientific theory
- Practice with data collection, analysis, and presentation

Evolution established as foundational theme:
- Lamarck vs. Darwin; students will illustrate the difference using several examples
- Define mechanism of natural selection and briefly describe what is occurring when a population is said to evolve

Chemistry of Life:
- Identify basic elements of living organisms
- Distinguish between inorganic and organic compounds
- List and describe water's unique properties; relate properties to structure; describe importance of these properties to living organisms
- Contrast condensation reactions (dehydration synthesis) and hydrolysis

Storage, transmission, and response to information
- Role of DNA in information storage
- Central dogma; protein synthesis

Ground Rules for Metabolism:
- Apply the first and second laws of thermodynamics to biological systems and how evolution conforms to, and does not violate, these laws
- Explain how the world of life maintains a high degree of organization (continuity and change)
- Investigate enzyme structure and function, and the relationship between enzymes and energy use, through analysis of data and graphs
- Model the role of the participants (substrates, intermediates, enzymes, cofactors, energy carriers, and products) in a variety of metabolic pathways

Activities:
1. Nature of Science: Analyze data, create and revise hypotheses, draw conclusions; understand that conclusions are often tentative and may be changed with the discovery of new data.
2. Nature of Science: design an experiment: Emphasis on development of testable hypothesis, identification of independent, dependent and controlled variables, procedure development, and data analysis using mathematics and graphing.
3. Enzyme Catalysis Model: Objective: create models to illustrate an enzyme/substrate complex, the interaction of a competitive inhibitor, and the interaction of a noncompetitive inhibitor.
4. Enzyme Optimization: Students will analyze background information, develop a hypothesis, and design and carry out an experiment to determine optimum pH or temperature for an enzyme.
5. Protein Synthesis Activity; role playing transcription and translation in order to create proteins which are used by the cell.
6. Laboratory Investigation: Mitosis and Meiosis observation (CR4)
7. Laboratory Investigation: Environmental Effects on Mitosis(CR4)
8. Observation of water's properties (i.e. cohesion, adhesion, capillary action, surface tension, high specific heat, universal solvent, etc.) (CR4c)
9. Laboratory Investigation: Differentiation of acidic and alkaline substances (CR4)

Unit 2. Evolutionary Biology & Biodiversity
1. Evidence of Evolution
    - Describe and justify the evidence Darwin used to develop the theory of natural selection
2. Microevolutionary Processes
    - Distinguish between microevolution and macroevolution
    - Relate differences that occur in gene pools, alleles, and allele frequency to each other
    - Calculate allele frequencies in populations in Hardy-Weinberg equilibrium selection
    - Distinguish between an adaptation and an evolutionary adaptation

3. Evolutionary Patterns, Rates, and Trends
    - Discuss the biological species concept; and how pre/post-zygotic mechanisms; allopatric and sympatric speciation contribute to this concept
    - Explain the relationship between gene flow and genetic divergence
    - Evaluate phylogenetic trees to see how taxonomy reflects evolutionary history
    - Create a model illustrating mass extinctions
4. Life's Origin and Early Evolution
    - Summarize and compare current hypotheses for how and where life began
    - Explain how we know that DNA is the hereditary material, as opposed to other molecules
    - Describe how the endosymbiosis theory may help explain the origin of eukaryotic cells; describe the modern evidence supporting this theory
    - Understand the basic timeline of the evolution of life and the key events along the timeline
5. Discuss and compare the kingdoms in relation to evolution of structures, metabolism, and cellular organization; classification (systematics, phylogeny, cladograms); role in the biosphere (niche); life cycles

Assignments:

1. Laboratory Investigation: DNA Extraction (CR4)
2. Cladograms: students will understand the nature of cladograms based on various types of data; learn how to read and analyze cladograms; construct cladograms and Venn diagrams from provided data. (CR4c)
3. Laboratory Investigation: Creation of cladograms while observing anatomical evolutionary patterns across the animal kingdom (a crustacean, an insect, a fish, an amphibian, and a mammal); dissection of each organism in order to observe internal and external anatomy (CR4)
4. Evolutionary Agents: determine allele frequencies for a gene in a model population; calculate expected ratios of phenotypes based on Hardy-Weinberg proportions; describe factors that influence Hardy-Weinberg equilibrium of a population; describe the effects of different selection pressures on identical model populations; identify the level at which selection operates in a population; describe the impact of the founder effect on the genetic structure of populations. (CR3c)

Unit 3. Ecology and Behavior

Enduring understandings to be addressed: 1A; 2A,C-E; 3E; 4

1. Population Ecology
    - Analyze and interpret logistic and exponential growth curves
    - Convert data tables into different survivorship curves and age structure diagrams
2. Community Structure and Biodiversity [CR3d] & [CR4d]
    - Contrast types of symbiosis
    - Relate community interactions to coevolution
    - Compare succession within different communities
3. Ecosystems [CR3d] & [CR4d]
    - Compare biogeochemical cycles in terms of the role of different organisms
    - Analyze trophic levels and calculate flow of energy through food chain/web/pyramid
4. Biosphere [CR3d] & [CR4d]
    - Students report on different biomes
    - Discussion topic: Impact of humans on the biosphere. What can we do? What should we do? How do our decisions/actions affect other species?
5. Behavioral Ecology [CR3d] & [CR4d]
    - Compare animal behavior in different environments and to different stimuli
    - Compare/contrast the role of the environment and genes on behavior with both animal and plant examples
    - Explain how adaptive behavior, social behavior, selfish behavior, and altruism can all promote an individual's reproductive success (fitness); what are the costs/benefits of each behavior?

Assignments:

1. Ecology: Graphically depict the survivorship curves of three different species and explain the differences between them. [CR4d]
2. Competition or Cooperation: determine whether competition or cooperation among team members is more efficient when it comes to completing a task.
3. Make connections to other populations. Discuss how different strategies provide fitness/evolutionary advantages to different organisms.

4. Behavior Lab [CR6]

Unit 4. Introduction to Homeostasis & Response to the Environment
Enduring understandings to be addressed: 1B-C; 2A-D; 3B, D-E; 4

1. Demonstrate proper microscope techniques
2. Cell Structure and Function
    - Review basic cellular components focusing on structure and function and their evolution
    - Calculate surface-to-volume ratios in comparing cells of different sizes
    - Construct models comparing key differences between prokaryotic vs. eukaryotic cell structure\
3. A Closer Look at Cell Membranes
    - Create representations of the fluid mosaic model
    - Explain the concept of selective permeability as it applies to cell membrane function
    - Distinguish between passive and active transport
    - Compare cell communication processes in different types of organisms
4. Plants and Animals
    - Define homeostasis in relation to the internal environment of an organism
    - Compare negative and positive feedback processes in a plant and an animal
    - Illustrate, with examples, how a cell uses diffusion and active transport to maintain an internal environment
    - Evaluate data that are suggested to indicate circadian rhythms in organisms
    - Explain the process of apoptosis as a normal process

Assignments:

1. Diffusion and Osmosis Lab using potatoes; osmotic solutions demonstrating differences in hypotonic, hypertonic, and isotonic solutions and their importance in maintaining cellular homeostasis (CR4)
2. Cell Models; creation of cellular models in order to differentiate between prokaryotic and eukaryotic cells, as well as, plant and animal eukaryotic cells (CR3b)
3. Inquiry-based Antibiotic Resistance Lab in order to enhance student understanding of the reproductive and evolutionary processes of prokaryotic organisms, as well as, the social/medical concern of increased antibiotic resistance among humans (CR4,CR4, CR4, CR4, CR6)

Unit 5. Cell Processes/Connections: Respiration & Animal Homeostasis
Enduring understandings to be addressed: 1B-C; 2A; 4

1. How Cells Release Chemical Energy [CR4b]
    - Illustrate differences between anaerobic and aerobic respiration pathways
    - Compare the major stages of aerobic respiration in plants and animals; associate each to a particular cell component
    - List some sources of energy (other than glucose) that can be fed into the respiratory pathways
2. Animal Homeostasis: What roles do the following play in maintaining homeostasis in animals?
    - Neural Control
    - Sensory Perception
    - Endocrine Control
    - Immunity
3. Internal Environment

Discussion:

1. Why is high blood pressure called the “silent killer?” What can you do to avoid high blood pressure (explore societal and environmental concerns) (CR5)
2. What role can you play in the fight against childhood obesity? (explore societal and environmental concerns) (CR5)

Assignments:

1. Inquiry-based Cellular Respiration Lab (CR4 AND CR4, CR6)
2. Inquiry-based Fermentation Lab; students will demonstrate the effects of yeast fermentation, in terms of products and reactants, and create flow charts/diagrams to demonstrate and report their understanding of this process, as well as, differentiate this process to aerobic respiration (CR4 AND CR4, CR6)
3. Antibody Diversity (connects to genetics)
4. Cancer Research Activity: students will research and determine the relationship between mitosis and cancer, as well as, present on the supposed environmental, dietary, etc. carcinogenic factors. (CR5)

5. Stem-Cell use debate (students will research the use of embryonic and somatic stem cells for the advancement of patient health and well-being) (CR5)
6. Fetal Pig dissection in order to identify the various organs that make up the organ systems, as well as, gain an enhanced understanding of the relationships that exist between them in terms of their functions- and relate said functions to the maintenance of homeostasis (CR4 AND CR4)

ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE

COURSE DESCRIPTION

The goal of AP Environmental Science 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 and/or preventing them. This class includes scientific writing, lab, lecture, fieldwork, fieldtrips and independent research.

LAB COURSE OBJECTIVES

The goal of the laboratory and field investigation component of the AP Environmental Science course is to complement the classroom portion 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 studied in the classroom, explore specific problems with a depth not easily achieved otherwise, and gain an awareness of the importance of variables that exist in the "real world". In these experiences, students can employ alternative learning styles to reinforce fundamental concepts and principles. Because all students have a stake in the future of their environment, such activities can motivate students to study environmental science in greater depth.

REQUIRED MATERIALS

One 3-ring binder (minimum of 1-inch), notebook paper, graph paper, colored pencils, and calculator (the same one used for math) are required. A flash drive or web based storage program (i.e. goggle doc, dropbox) is necessary to transfer work between the school laptops, iPads, library printers and your personal or family computer. Hiking boots or sturdy shoes that can get wet/dirty; old clothes; hat; sunscreen; and bug spray are needed for fieldwork.

TEXT: ***Living in the Environment***, 18th Edition (Miller & Spoolman)

WEB INFORMATION: UTQuest will be utilized and offers great information to assist the student in the review/mastery of important concepts in the study of environmental science and preparation for the AP Exam.

YOUR GRADE IS BASED ON:

Daily/Labs	**20%**
Assessment	**60%**
Nine Week Exam	**20%**

Homework will be frequent and involve reading from your textbook and supplemental sources, questions, problems, lab analysis and written work. Part of your homework grade will involve documenting and organizing your lab experiences in a notebook.

Labs and projects will be individual and group and will involve time outside of class time.

Test format will be multiple choice and free response. These may be online or traditional paper tests. Make up tests will be an alternative format and must be made up at ESS/Homework Help within one week of the test

date. All tests will be cumulative. All students are required to take the AP Environmental Science Exam

GRADING SCALE:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% and below	F

THE COURSE PROVIDES INSTRUCTIONS IN:

C1— Earth Systems and Resources
C2— The Living World
C3— Population
C4 – Land and Water Use
C5 – Energy Resources and Consumption
C6 – Pollution
C7— Global Change
C8 – The course provides students with scientific principles, concepts and methodologies required to understand the interrelationships of the natural world. The curriculum draws upon various scientific disciplines.
C9 – The course includes methods for analyzing and interpreting information and experimental data, including mathematical calculations
C10 – The course teaches students how to identify and analyze environmental problems to evaluate the ecological and human health risks associated with these problems, and to critically examine various solutions for resolving or preventing them.
C11—The course includes a laboratory and/or field investigation component. A minimum of one class period or its equivalent per week is spent engaged in laboratory and/or fieldwork.

Themes

1. Science is a process. Science is a method of learning more about the world. Science changes the way we understand the world
2. Energy conversions underlie all ecological processes. Energy is not created or destroyed but is transferred/transformed. Energy flows through systems.
3. The Earth is an interconnected system. Natural systems change over time and space. Biogeochemical systems vary in ability to recover from disturbances.
4. Humans alter natural systems. Humans have had an impact on the environment for millions of years. Technology and population growth have enabled humans to increase both the rate and scale of their impact on the environment.
5. Environmental problems have a cultural and social context. Understanding the role of cultural, social, and economic factors is vital to the development of solutions.
6. Human survival depends on developing practices that will achieve sustainable systems. A suitable combination of conservation and development is required. Management of common resources is essential.

A.P. Environmental Science Course Sequence

Unit 1 Humans and Sustainability: An Overview	
Timeline	**4 weeks**
Objectives	**1. Analyze and construct all graph types.** **2. Analyze and calculate mean, mode, median and standard deviation.** **3. Define and discuss the interconnected themes of sound science, stewardship and sustainability.** **4. Compare economic systems and explain their relationships to the environment.** **5. Describe various bodies responsible for environmental public policy at the federal, state, and local levels.** **6. Discuss the ways in which politics has played an important role in environmental public policy.**
Review Concepts	**Scientific Method**
Scope and Sequence	**Ch. 1 Environmental Problems, Their Causes and Sustainability** **Ch. 2 Science, Matter, Energy, and Systems** **Ch. 23 Economics, Environment, and Sustainability** **Ch. 24 Politics, Environment, and Sustainability** **Ch. 25 Environmental Worldview, Ethics, and Sustainability**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: Introduction to Environmental Problems: P x A x T = I** **Fieldwork: Scavenger Hunt at CHFM** **Activities: *Tragedy of the Commons,* VIDEO *The Lorax***
Evaluation	**Quizzes** **Fieldwork/Activity Questions** **Homework** **Free Response *The Lorax*** **Multiple Choice Exam** **Free Responses**

Unit 2 Living Things	
Timeline	**6 weeks**
Objectives	**1. Distinguish between the abiotic and biotic environmental factors of an ecosystem.** **2. Define and compare the terms species, population, community and ecosystem.** **3. Describe the major land biomes and aquatic systems.** **4. Identify the causes, effects and consequences of human activity on succession.** **5. Describe the causes, effects and consequences of human population growth.** **6. Compare r and K strategists.** **7. Compare and give examples of predation, parasitism, commensalism, and mutualism.** **8. Explain the causes, effects and consequences of exotic (invasive) species.** **9. Describe the science, policies and human attitudes affecting protection of wild species.** **10. Discuss the local, national and international legislation affecting biodiversity.** **11. Compare human population ecology to other organism's population ecology.** **12. Describe human population growth and predict future growth.** **13. Use crude birthrate and crude death rate to calculate percent rate of growth and doubling time.** **14. Compare demographic profiles for developing and developed counties and use this information to predict demographic transitions.**
Review Concepts	**Classification and Taxonomy**
Scope and Sequence	**Ch. 3 Ecosystems: What are They and How Do They Work?** **Ch. 4 Biodiversity and Evolution** **Ch. 5 Biodiversity, Species Interactions, and Population Control** **Ch. 6 The Human Population and Its Impact** **Ch. 7 Climate and Biodiversity**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: Population Density (Radish and Collard), Population (catch and release), Acid Rain and Seed Germination, Evolution and Adaptation with 'Wooly Worms' (Chi-square calculations), Elk and Vegetation Management Plan** **Fieldwork: Restoration of rain barrels and vegetation at CHS** **Activities: Solid Waste Inventory & VIDEO, Food Log, Global City Soils, Amount of Land to Grow Food**
Evaluation	**Fieldwork/Activity Questions** **Formal Lab Reports** **Homework** **Multiple Choice Exam** **Free Response Questions**

Unit 3 Land and Land Use	
Timeline	**4 weeks**
Objectives	**1. Identify and quantify municipal solid waste (MSW) sources and solutions to the MSW problems.** **2. Compare recycling alternatives in various municipalities.** **3. Design and conduct an experiment to optimize composting.** **4. Compare soil types and the physical and chemical characteristics of soil.** **5. Describe best practices in soil conservation.** **6. Describe goods and services provided by natural lands.** **7. Describe the cause, effect and consequences of overexploitation of land ecosystems.** **8. Compare the levels of responsibility for meeting food needs; suggest ways food security can be met.** **9. Identify and evaluate your dietary consumption with ideal; suggest sustainable alternatives.** **10. Describe the cause, effect and consequences of land pollutions.** **11. Compare the ramifications of pollution legislations.** **12. Describe the cause, effect and environmental consequences of mining.**
Review Concepts	**Plate Tectonics, Earthquakes, Volcanism, Rock Cycle, Seasons**
Scope and Sequence	**Ch. 14 Nonrenewable Mineral Resources** **Ch. 21 Solid and Hazardous Wastes** **Ch. 10 Sustaining Terrestrial Biodiversity: Saving Ecosystems and Ecosystem Services** **Ch. 12 Food Production and the Environment** **Ch. 7 Climate and Biodiversity sec. 7.3**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: Composting, Mining, Physical and Chemical Characteristics of Soil, Testing Plastics, Soil Salinization and Seed Germination, *Inquiry Lab Ecological Impact of Rice Farming*** **Fieldwork: Identifying Soil Types** **Field Trips: Waste Management** **Activities: Solid Waste Inventory & VIDEO, Food Log, Global City Soils, Amount of Land to Grow Food,**
Evaluation	**Quizzes** **Fieldwork/Activity Questions** **Formal Lab Reports** **Homework** **Multiple Choice Exam** **Free Response Questions**

Unit 4 Water and Water Quality	
Timeline	**4 weeks**
Objectives	**1. Describe the cause, effect and consequences of water pollution.** **2. Identify best practices in water management.** **3. Describe the challenges of providing safe drinking water to all world citizens.** **4. Identify cause, effect and consequences of human activities on the hydrologic cycle.** **5. Describe how the phosphorous cycle connects the land and water areas.**
Review Concepts	**Hydrologic Cycle**
Scope and Sequence	**Ch 8. Aquatic Biodiversity** **Ch. 11 Sustaining Aquatic Biodiversity and Ecosystem Services** **Ch. 13 Water Resources**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: *Experimental Eutrification, Oils Spill Remediation, Sewage Treatment*** **Fieldwork: *Determining the Health of a Stream Ecosystem*** **Field Trips: Water Treatment Plant, Waste Water Treatment Plant** **Activities: *Water Use Analysis, To Dam or Not To Dam, Global City Water Conservation, Global City Find the Sample, Global Cities Fisheries, Land-Water Connections: Phosphorus Cycle***
Evaluation	**Fieldwork/Activity Questions** **Formal Lab Reports** **Homework** **Multiple Choice Exam** **Free Response Questions**

Unit 5 Air and Air Quality	
Timeline	**4 weeks**
Objectives	**1. Describe the cause, effect and consequences of air pollution.** **2. Explain the cause, effect and consequences global climate change.** **3. Trace the political history of air quality legislation; suggest next steps for reaching agreement on climate change mitigation.** **4. Evaluate your carbon footprint; suggest ways to be more sustainable.** **5. Compare the carbon and nitrogen biogeochemical cycles with regards to the land, water, and air resources.**
Review Concepts	**Atmospheric Composition, Climate and Weather**
Scope and Sequence	**Ch. 18 Air Pollution** **Ch. 19 Climate Disruption**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: *Greenhouse Gasses and Global Warming*** **Fieldwork: *Particulate Air Pollution*, *Ozone Detection*** **Activities: *Climate Change Graphs*, *Global City Breathe Free, Carbon Footprint*, *Land-Water-Air Connections: Carbon Cycle and Nitrogen Cycle***
Evaluation	**Quizzes** **Fieldwork/Activity Questions** **Formal Lab Reports** **Homework** **Multiple Choice Exam** **Free Response Questions**

Unit 6 Energy	
Timeline	**6 weeks**
Objectives	**1. Describe and calculate energy flow in an ecosystem.** **2. Relate the laws of thermodynamics to living and nonliving energy systems.** **3. Compare environmental impacts with the use of traditional and alternative energy sources.** **4. Explain the process of electricity generation using traditional and alternative energy sources.** **5. Describe the major legislation that influences the generation, utilization and environmental consequences of energy production.** **6. Describe the political climate that influences the generation, utilization and environmental consequences of energy production.**
Review Concepts	**Alternative Energy Sources, Energy Calculations**
Scope and Sequence	**Ch. 2 Science, Matter, Energy, and Systems** **Ch. 3 Ecosystems: What are They and How Do They Work? Sec. 3.3** **Ch. 15 Nonrenewable Energy** **Ch. 16 Energy Efficiency and Renewable Energy**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: *Effect of Radiation on Seed Germination, Owl Pellet, Capturing Solar Energy, Understanding the Difference between Gross Primary Productivity (GPP) and Net Primary Productivity (NPP)*** **Field Trips: Power Plant** **Activities: *Home Energy Audit, Capturing the Winds, Global City Power Up***
Evaluation	**Quizzes** **Fieldwork/Activity Questions** **Formal Lab Reports** **Homework** **Multiple Choice Exam** **Free Response Questions**

Unit 7 A Sustainable Future	
Timeline	**6 weeks**
Objectives	**1. Determine and analyze LC_{50} (lethal dose) data for Daphnia.** **2. Identify and analyze the causes, effects and consequences of pollutants on humans and other organisms.** **3. Identify and analyze the causes, effects and consequences of diseases on humans.** **4. Identify and evaluate sustainable practices in agriculture.** **5. Identify and execute student sustainable individual practices.** **6. Compare population trends in developing and developed countries.** **7. Compare policies and practices to address Social Modernization, economic equity, and resource management.**
Review Concepts	**ALL**
Scope and Sequence	**Ch. 9 Sustaining Biodiversity: Saving Species and Ecosystem Services** **Ch. 17 Environmental Hazards and Human Health** **Ch. 22 Urbanization and Sustainability**
Instructional Activities	**Class discussions, cooperative groups, internet search, assigned readings, lecture** **Labs: LC_{50}: How Much is Too Much? (Daphnia and $CuSO_4$)** **Field Trip: *Organic Farm*** **Fieldwork: Clay Hill Memorial Forest** **Activities: *Community Planning: Not in My Backyard***
Evaluation	**Quizzes** **Fieldwork/Activity Questions** **Homework** **Multiple Choice Exam** **Free Responses** **A.P. Environmental Science Practice Exam** **A.P. Environmental Science Exam**

ADVANCED PLACEMENT CHEMISTRY

COUSE DESCRIPTION

This AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first year of college. For most students, the course enables them to undertake, as a freshman, second year work in chemistry at their institution or to register in courses in other fields where general chemistry is a prerequisite. This course is structured around the six big ideas articulated in the AP Chemistry curriculum framework provided by the College Board. AP Chemistry is open to all students who wish to take part in a rigorous and academically challenging course.

Big Idea 1: Structure of matter
Big Idea 2: Properties of matter-characteristics, states, and forces of attraction
Big Idea 3: Chemical reactions
Big Idea 4: Rates of chemical reactions
Big Idea 5: Thermodynamics
Big Idea 6: Equilibrium
This course was developed for those students with a strong interest pursuing Science Related Careers.

LAB COURSE OBJECTIVES

All the laboratory experiments in this course are hands-on. Students will work in groups of two or three depending upon the lab. They will collect, process, manipulate, and graph data from both qualitative and quantitative observations. Inquiry is emphasized in many of the experiments that students complete. The Inquiry Based Labs require students to design, carry out, and analyze data using guided inquiry principles. For all labs, students are required to write a report including an abstract, pre-lab questions, purpose, procedure, all data, data analysis, error analysis, results, and conclusions to be submitted for grading. All students will keep a laboratory notebook. When students finish AP Chemistry, they are encouraged to take their laboratory notebook to college. Students may come before or after school to complete labs. The lab component of AP Chemistry will exceed 25% of the total class time.

REQUIRED MATERIALS

- Binder with notebook/graph paper
- Composition binder with grids
- Graphing Calculator (same as the one used in your math classes)
- Flash Drive and Web-based Storage Program (google doc, Dropbox)

TEXT: Brown, LeMay, Bursten, and Murphy. *Chemistry - The Central Science*, 11th AP ed. Pearson, 2008.

WEB INFORMATION: UTQuest

Students will use this website to review and master concepts in chemistry to better prepare for the AP Chemistry Exam.

YOUR GRADE IS BASED ON

Daily (labs/projects/homework	**20%**
Nine Weeks Exam	**20%**
Assessments	**60%**

Students should expect to spend 3-4 hours on homework each week. Students are expected to read from the textbook and additional resources, answer questions, complete problems, and perform lab analysis. Much homework will be completed online via UTQuest.

Quizzes will be given frequently. No make-up quizzes are allowed. This daily grade is an "all or nothing" grade. Students must pass 75% of the Quizzes to get the grade – a pass on the quiz is 50%.

Labs/Projects may either be individual or group based. Students will be required to work outside of class time for their completion. Labs listed on the syllabus are subject to change.

Tests will be multiple choice and free response (short and long). These may be taken online or on paper. Make-up tests will be given after school only in either Homework Help or ESS and must be taken within one week of the original test date.

GRADING SCALE

90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% and below	F

CURRICULAR REQUIREMENTS

CR 1 Students and teachers use recently published (within the last 10 years) college-level chemistry textbook.

CR 2 The course is structured around the enduring understandings within the big ideas as described in the AP Chemistry Curriculum Framework.

CR3a The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 1: Structure of matter.

CR3b The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 2: Properties of matter-characteristics, states, and forces of attraction.

CR3c The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 3: Chemical reactions.

CR3d The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 4: Rates of chemical reactions.

CR3f The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 5: Thermodynamics.

CR4 The course provides students with opportunities outside the laboratory environment to meet the learning objectives within Big Idea 6: Equilibrium.

CR5a The course provides students with the opportunity to connect their knowledge of chemistry and science to major societal or technological components (e.g., concerns, technological advances, innovations) to help them become scientifically literate citizens.

CR5b Students are provided the opportunity to engage in investigative laboratory work integrated throughout the course for a minimum of 25 percent of instructional time.

CR6 Students are provided the opportunity to engage in a minimum of 16 hands-on laboratory experiments integrated throughout the course while using basic laboratory equipment to support the learning objectives listed within the AP Chemistry Curriculum Framework.

CR7 The laboratory investigations used throughout the course allow students to apply the seven science practices defined in the AP Chemistry Curriculum Framework. At minimum, six of the required 16 labs are conducted in a guided-inquiry format.

SCIENCE PRACTICES

Science Practice 1: The student can use representations and models to communicate scientific phenomena and solve scientific problems.
Science Practice 2: The student can use mathematics appropriately.
Science Practice 3: The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
Science Practice 4: The student can plan and implement data collection strategies in relation to a particular scientific question
Science Practice 5: The student can perform data analysis and evaluation of evidence.
Science Practice 6: The student can work with scientific explanations and theories.
Science Practice 7: The student can connect and relate knowledge across various scales, concepts, and representations in and across domains.

Unit 1	
Big Idea	*Big Idea 1* – Structure of matter, *Big Idea 2* – Properties of matter-characteristics, states and forces of attraction, *Big Idea 3* – Chemical reactions, *Big Idea 5* – Thermodynamics, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 1 Introduction: Matter and Measurement Ch 2 Atoms, Molecules, and Ions Ch 3 Stoichiometry: Calculations with Chemical Formulas and Equations Ch 4 Aqueous Reactions and Solution Stoichiometry
Timeline	9 weeks
Enduring Understandings	1.A: All matter is made of atoms. There are a limited number of types of atoms; these are the elements. 1.B: The atoms of each element have unique structures arising from interactions between electrons and nuclei. 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms. 1.E: Atoms are conserved in physical and chemical processes. 2.A: Matter can be described by its physical properties. The physical properties of a substance generally depend on the spacing between the particles (atoms, molecules, ions) that make up the substance and the forces of attraction among them. 2.B: Forces of attraction between particles (including the noble gases and different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature. 2.C: The strong electrostatic forces of attraction holding atoms together in a unit are called chemical bonds. 2.D: The type of bonding in the solid state can be deduced from the properties of the solid state. 3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form. 3.B: Chemical reactions can be classified by considering what the reactants are, what the products are, or how they change from one into the other. Classes of chemical reactions include synthesis, decomposition, acid-base, and oxidation-reduction reactions. 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy. 5.D: Electrostatic forces exist between molecules as well as between atoms or ions, and breaking the resultant intermolecular interactions requires energy. 6.C: Chemical equilibrium plays an important role in acid-base chemistry and in solubility.
Learning Objectives	**1.1** The student can justify the observation that the ratio of the masses of the constituent elements in any pure sample of that compound is always identical based on the atomic molecular theory. **1.2** The student can select and apply mathematical routines to mass data to identify or infer the composition of pure substances and/or mixtures. **1.3** The student can select and apply mathematical relationships to mass data to justify a claim regarding the identity and/or estimated purity of a substance. **1.4** The student can connect the number of particles, moles, mass, and volume of substances to one another, both qualitatively and quantitatively. **1.17** The student can express the law of conservation of mass quantitatively and qualitatively using symbolic representations and particulate drawings. **1.18** The student can apply conservation of atoms to the rearrangement of atoms in various processes. **1.19** The student can design, and/or interpret data from, an experiment that uses gravimetric analysis to determine the concentration of an analyte in a solution. **2.8** The student can draw and/or interpret representations of solutions that show the interactions between the solute and solvent. **2.9** The student can create or interpret representations that link the concept of molarity with particle views of solutions. **2.14** The student can apply Coulomb's law qualitatively (including using representations) to describe the interactions of ions, and the attractions between ions and solvents to explain the factors that contribute to the solubility of ionic compounds. **2.17** The student can predict the type of bonding present between two atoms in a binary compound based on position in the periodic table and the electronegativity of the elements. **3.1** Students can translate among macroscopic observations of change, chemical equations, and particle views.

	3.2 The student can translate an observed chemical change into a balanced chemical equation and justify the choice of equation type (molecular, ionic, or net ionic) in terms of utility for the given circumstances. **3.3** The student can use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected results. **3.4** The student can relate quantities (measured mass of substances, volumes of solutions, or volumes and pressures of gases) to identify stoichiometric relationships for a reaction, including situations involving limiting reactants and situations in which the reaction has not gone to completion. **3.5** The student can design a plan to collect data on the synthesis or decomposition of a compound to confirm the conservation of matter and the law of definite proportions. **3.6** The student can use data from synthesis or decomposition of a compound to confirm the conservation of matter and the law of definite proportions. **3.7** The student can identify compounds as Bronsted-Lowry acids, bases, and/or conjugate acid-base pairs, using proton-transfer reactions to justify the identification. **3.8** The student can identify redox reactions and justify the identification in terms of electron transfer. **3.9** The student can design and/or interpret the results of an experiment involving a redox titration. **3.10** The student can evaluate the classification of a process as a physical change, chemical change, or ambiguous change based on both macroscopic observations and the distinction between rearrangement of covalent interactions and noncovalent interactions.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Lab Safety/Safety Equipment, Identify Unknown Solid by Melting Point (SP 4, 5, &7), Chromatography (SP 4, 5, 6), Guided Inquiry Lab-Analysis of Hydrogen Peroxide (SP 2, 4, 5), Techniques of Gravimetric Analysis (SP 2, 4, 5, 6), Separation of the Components of a Mixture **Activities:** Copper and Nitric Acid Demo, Determining Significant Figures, MC Intro, Density Demo, Law of Conservation of Mass Demo, MC Ch 1, Mapping Atomic Structure, Distillation Demo, MC Ch 2, Nomenclature, Reaction Types Demo, MC Ch 3, Periodic Table Puzzle, Determining Limiting Reactant, Chemical Reactions and Stoichiometry Problems, Solution Stoichiometry Problems, Redox Demo, Determining Oxidation Numbers, Molarity & Dilution Problems, MC Ch 4.
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

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Unit 2	
Big Idea	*Big Idea 2* – Properties of matter-characteristics, states and forces of attraction, *Big Idea 3* – Chemical reactions, *Big Idea 5* –Thermodynamics, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 5 Thermochemistry Ch 19 Chemical Thermodynamics
Timeline	3 weeks
Enduring Understandings	2.B: Forces of attraction between particles (including the noble gases and different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature. 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy. 5.A: Two systems with different temperatures that are in thermal contact will exchange energy. The quantity of thermal energy transferred from one system to another is called heat. 5.B: Energy is neither created nor destroyed, but only transformed from one form to another. 5.C: Breaking bonds requires energy, and making bonds releases energy. 5.E: Chemical or physical processes are driven by a decrease in enthalpy or an increase in entropy, or both. 6.D: The equilibrium constant is related to temperature and the difference in Gibbs free energy between reactants and products.
Learning Objectives	**2.15** The student can explain observations regarding the solubility of ionic solids and molecules in water and other solvents based on particle views that include intermolecular interactions and entropic effects. **3.11** The student can interpret observations regarding macroscopic energy changes associated with a reaction or process to generate a relevant symbolic and/or graphical representation of the energy changes. **5.3** The student can generate explanations or make predictions about the transfer of thermal energy between systems based on this transfer being due to a kinetic energy transfer between systems arising from molecular collisions. **5.4** The student can use conservation of energy to relate the magnitudes of the energy changes occurring in two or more interacting systems, including identification of the systems, the type (heat versus work), or the direction of energy flow. **5.5** The student can use conservation of energy to relate the magnitudes of the energy changes when two nonreacting substances are mixed or brought into contact with one another. **5.6** The student can use calculations or estimations to relate energy changes associated with heating/cooling a substance to the heat capacity, relate energy changes associated with a phase transition to the enthalpy of fusion/vaporization, relate energy changes associated with a chemical reaction to the enthalpy of the reaction, and relate energy changes to PΔV work. **5.7** The student can design and/or interpret the results of an experiment in which calorimetry is used to determine the change in enthalpy of a chemical process (heating/cooling, phase transition, or chemical reaction) at constant pressure. **5.12** The student can use representations and models to predict the sign and relative magnitude of the entropy change associated with chemical or physical processes. **5.13** The student can predict whether a physical or chemical process is thermodynamically favored by determination of (either quantitatively or qualitatively) the signs of both ΔH° and ΔS°, and calculation or estimation of ΔG° when needed. **5.14** The student can determine whether a chemical or physical process is thermodynamically favorable by calculating the change in standard Gibbs free energy. **5.15** The student can explain how the application of external energy sources or the coupling of favorable with unfavorable reactions can be used to cause processes that are not thermodynamically favorable to become favorable. **5.16** The student can use Le Chatelier's principle to make qualitative predictions for systems in which coupled reactions that share a common intermediate drive formation of a product. **5.17** The student can make quantitative predictions for systems involving coupled reactions that share a common intermediate, based on the equilibrium constant for the combined reaction. **5.18** The student can explain why a thermodynamically favored chemical reaction may not produce large amounts of product (based on consideration of both initial conditions and kinetic effects), or why a thermodynamically unfavored chemical reaction can produce large amounts of product for certain sets of initial conditions. **6.25** The student can express the equilibrium constant in terms of ΔG° and RT and use this relationship to estimate the magnitude of K and, consequently, the thermodynamic favorability of the process.

Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Guided Inquiry Lab – Baking Soda and Vinegar (3, 4, 5, 6), Guided Inquiry Lab – Designing a Hand Warmer (SP 1, 2, 4, 5, 6, 7), Hess's Law (SP 2, 3, 5, 6) **Activities:** Thermite Reaction Demo, Calculating Enthalpy, Hess's Law Problems, Heat of Reaction Problems, MC Ch 5, MC Ch 19, Entropy & Gibbs Free Energy Problems
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 3	
Big Idea	*Big Idea 1* – Structure of matter*, Big Idea 5* –Thermodynamics
Scope and Sequence	Ch 6 Electronic Structure of Atoms Ch 7 Periodic Properties of Elements
Timeline	3 weeks
Enduring Understandings	1.B: The atoms of each element have unique structures arising from interactions between electrons and nuclei. 1.C: Elements display periodicity in their properties when the elements are organized according to increasing atomic number. This periodicity can be explained by the regular variations that occur in the electronic structures of atoms. Periodicity is a useful principle for understanding properties and predicting trends in properties. Its modern-day uses range from examining the composition of materials to generating ideas for designing new materials. 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms. 5.E: Chemical or physical processes are driven by a decrease in enthalpy or an increase in entropy, or both.
Learning Objectives	**1.5** The student can explain the distribution of electrons in an atom or ion based upon data. **1.6** The student can analyze data relating to electron energies for patterns and relationships. **1.7** The student can describe the electronic structure of the atom, using PES data, ionization energy data, and/or Coulomb's law to construct explanations of how the energies of electrons within shells in atoms vary. **1.8** The student can explain the distribution of electrons using Coulomb's law to analyze measured energies. **1.9** The student can predict and/or justify trends in atomic properties based on location on the periodic table and/or the shell model. **1.10** Students can justify with evidence the arrangement of the periodic table and can apply periodic properties to chemical reactivity. **1.12** The student can explain why a given set of data suggests, or does not suggest, the need to refine the atomic model from a classical shell model with the quantum mechanical model. **1.13** Given information about a model of the atom, the student can determine if the model is consistent with specified evidence. **1.15** The student can justify the selection of a type of spectroscopy to measure properties associated with vibrational or electronic motions of molecules.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Guided Inquiry Lab – Analysis of Food Dyes in Beverages (SP 2, 4, 5, 6), Flame Tests Mini-Lab (SP 5, 6), Empirical Formula of Silver Oxide (SP 1, 2, 4, 5, 6) **Activities:** Atomic Emission Spectra Demo, Electron Configurations/Orbital Diagrams, MC Ch 6, Discovering Periodic Trends, Alkali Metals in Water Demo, MC Ch 7, Periodic Properties Jeopardy
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 4	
Big Idea	*Big Idea 1* – Structure of matter, *Big Idea 2* – Properties of matter-characteristics, states and forces of attraction, *Big Idea 5* – Thermodynamics
Scope and Sequence	Ch 8 Basic Concepts of Chemical Bonding Ch 9 Molecular Geometry and Bonding Theories
Timeline	3 weeks
Enduring Understandings	1.B: The atoms of each element have unique structures arising from interactions between electrons and nuclei. 1.C: Elements display periodicity in their properties when the elements are organized according to increasing atomic number. This periodicity can be explained by the regular variations that occur in the electronic structures of atoms. Periodicity is a useful principle for understanding properties and predicting trends in properties. Its modern-day uses range from examining the composition of materials to generating ideas for designing new materials. 1.D: Atoms are so small that they are difficult to study directly; atomic models are constructed to explain experimental data on collections of atoms. 2.C: The strong electrostatic forces of attraction holding atoms together in a unit are called chemical bonds. 2.D: The type of bonding in the solid state can be deduced from the properties of the solid state. 5.C: Breaking bonds requires energy, and making bonds releases energy.
Learning Objectives	**1.7** The student can describe the electronic structure of the atom, using PES data, ionization energy data, and/or Coulomb's law to construct explanations of how the energies of electrons within shells in atoms vary. **1.8** The student can explain the distribution of electrons using Coulomb's law to analyze measured energies. **1.15** The student can justify the selection of a type of spectroscopy to measure properties associated with vibrational or electronic motions of molecules. **2.1** Students can predict properties of substances based on their chemical formulas, and provide explanations of their properties based on particle views. **2.17** The student can predict the type of bonding present between two atoms in a binary compound based on position in the periodic table and the electronegativity of the elements. **2.18** The student can rank and justify the ranking of bond polarity based on the locations of the bonded atoms in the periodic table. **2.21** The student can use Lewis diagrams and VSEPR to predict the geometry of molecules, identify hybridization, and make predictions about polarity. **2.23** The student can create a representation of an ionic solid that shows essential characteristics of the structure and interactions present in the substance. **2.24** The student can explain a representation that connects properties of an ionic solid to its structural attributes and to the interactions present at the atomic level. **5.1** The student can create or use graphical representations to connect the dependence of potential energy to the distance between atoms and factors, such as bond order (for covalent interactions) and polarity (for intermolecular interactions), which influence the interaction strength. **5.8** The student can draw qualitative and quantitative connections between the reaction enthalpy and the energies involved in the breaking and formation of chemical bonds.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Guided Inquiry Lab – Qualitative Analysis and Chemical Bonding (SP 1, 4, 6, 7), Building Molecules and the VSEPR Model Lab (SP 1, 6, 7) **Activities:** Drawing Lewis Structures, Predicting Bond Type, What is Polarity? Using Molecular Model Kits and iPad apps to build molecules, MC Ch 8, MC Ch 9
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 5	
Big Idea	*Big Idea 1* – Structure of matter, *Big Idea 2* – Properties of matter-characteristics, states and forces of attraction, *Big Idea 3* – Chemical reactions, *Big Idea 5* – Thermodynamics, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 10 Gases Ch 11 Intermolecular Forces, Liquids, and Solids Ch 13 Properties of Solutions
Timeline	4 weeks
Enduring Understandings	1.A: All matter is made of atoms. There are a limited number of types of atoms; these are the elements. 1.C: Elements display periodicity in their properties when the elements are organized according to increasing atomic number. This periodicity can be explained by the regular variations that occur in the electronic structures of atoms. Periodicity is a useful principle for understanding properties and predicting trends in properties. Its modern-day uses range from examining the composition of materials to generating ideas for designing new materials. 2.A: Matter can be described by its physical properties. The physical properties of a substance generally depend on the spacing between the particles (atoms, molecules, ions) that make up the substance and the forces of attraction among them. 2.B: Forces of attraction between particles (including the noble gases and different parts of some large molecules) are important in determining many macroscopic properties of a substance, including how the observable physical state changes with temperature. 2.C: The strong electrostatic forces of attraction holding atoms together in a unit are called chemical bonds. 2.D: The type of bonding in the solid state can be deduced from the properties of the solid state. 3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form. 5.A: Two systems with different temperatures that are in thermal contact will exchange energy. The quantity of thermal energy transferred from one system to another is called heat. 5.B: Energy is neither created nor destroyed, but only transformed from one form to another. 5.D: Electrostatic forces exist between molecules as well as between atoms or ions, and breaking the resultant intermolecular interactions requires energy. 6.A: Chemical equilibrium is a dynamic, reversible state in which rates of opposing processes are equal. 6.C: Chemical equilibrium plays an important role in acid-base chemistry and in solubility.
Learning Objectives	**1.3** The student can select and apply mathematical relationships to mass data to justify a claim regarding the identity and/or estimated purity of a substance. **1.4** The student can connect the number of particles, moles, mass, and volume of substances to one another, both qualitatively and quantitatively. **1.11** The student can analyze data, based on periodicity and the properties of binary compounds, to identify patterns and generate hypotheses related to the molecular design of compounds for which data are not supplied. **2.1** Students can predict properties of substances based on their chemical formulas, and provide explanations of their properties based on particle views. **2.4** The student can use KMT and concepts of intermolecular forces to make predictions about the macroscopic properties of gases, including both ideal and non-ideal behaviors. **2.5** The student can refine multiple representations of a sample of matter in the gas phase to accurately represent the effect of changes in macroscopic properties on the sample. **2.6** The student can apply mathematical relationships or estimation to determine macroscopic variables for ideal gases. **2.8** The student can draw and/or interpret representations of solutions that show the interactions between the solute and solvent. **2.9** The student can create or interpret representations that link the concept of molarity with particle views of solutions. **2.11** The student can explain the trends in properties and/or predict properties of samples consisting of particles with no permanent dipole based on London dispersion forces. **2.12** The student can qualitatively analyze data regarding real gases to identify deviations from ideal behavior and relate these to molecular interactions. **2.13** The student can describe the relationships between the structural features of polar molecules and the forces of attraction between the particles.

	2.14 The student can apply Coulomb's law qualitatively (including using representations) to describe the interactions of ions, and the attractions between ions and solvents to explain the factors that contribute to the solubility of ionic compounds. **2.15** The student can explain observations regarding the solubility of ionic solids and molecules in water and other solvents based on particle views that include intermolecular interactions and entropic effects. **2.16** The student can explain the properties (phase, vapor pressure, viscosity, etc.) of small and large molecular compounds in terms of the strengths and types of intermolecular forces. **2.19** The student can create visual representations of ionic substances that connect the microscopic structure to macroscopic properties, and/or use representations to connect the microscopic structure to macroscopic properties (e.g., boiling point, solubility, hardness, brittleness, low volatility, lack of malleability, ductility, or conductivity). **2.20** The student can explain how a bonding model involving delocalized electrons is consistent with macroscopic properties of metals (e.g., conductivity, malleability, ductility, and low volatility) and the shell model of the atom. **2.22** The student can design or evaluate a plan to collect and/or interpret data needed to deduce the type of bonding in a sample of a solid. **2.23** The student can create a representation of an ionic solid that shows essential characteristics of the structure and interactions present in the substance. **2.24** The student can explain a representation that connects properties of an ionic solid to its structural attributes and to the interactions present at the atomic level. **2.25** The student can compare the properties of metal alloys with their constituent elements to determine if an alloy has formed, identify the type of alloy formed, and explain the differences in properties using particulate level reasoning. **2.26** Students can use the electron sea model of metallic bonding to predict or make claims about the macroscopic properties of metals or alloys. **2.27** The student can create a representation of a metallic solid that shows essential characteristics of the structure and interactions present in the substance. **2.28** The student can explain a representation that connects properties of a metallic solid to its structural attributes and to the interactions present at the atomic level. **2.29** The student can create a representation of a covalent solid that shows essential characteristics of the structure and interactions present in the substance. **2.30** The student can explain a representation that connects properties of a covalent solid to its structural attributes and to the interactions present at the atomic level. **2.31** The student can create a representation of a molecular solid that shows essential characteristics of the structure and interactions present in the substance. **2.32** The student can explain a representation that connects properties of a molecular solid to its structural attributes and to the interactions present at the atomic level. **3.4** The student can relate quantities (measured mass of substances, volumes of solutions, or volumes and pressures of gases) to identify stoichiometric relationships for a reaction, including situations involving limiting reactants and situations in which the reaction has not gone to completion. **5.2** The student can relate temperature to the motions of particles, either via particulate representations, such as drawings of particles with arrows indicating velocities, and/or via representations of average kinetic energy and distribution of kinetic energies of the particles, such as plots of the Maxwell-Boltzmann distribution. **5.6** The student is able to use calculations or estimations to relate energy changes associated with heating/cooling a substance to the heat capacity, relate energy changes associated with a phase transition to the enthalpy of fusion/vaporization, relate energy changes associated with a chemical reaction to the enthalpy of the reaction, and relate energy changes to PΔV work**5.9** The student is able to make claims and/or predictions regarding relative magnitudes of the forces acting within collections of interacting molecules based on the distribution of electrons within the molecules and the types of intermolecular forces through which the molecules interact. **5.10** The student can support the claim about whether a process is a chemical or physical change (or may be classified as both) based on whether the process involves changes in intramolecular versus intermolecular interactions. **5.11** The student can identify the noncovalent interactions within and between large molecules, and/or connect the shape and function of the large molecule to the presence and magnitude of these interactions. **6.24** The student can analyze the enthalpic and entropic changes associated with the dissolution of a salt, using particulate level interactions and representations.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Gas Collection Lab (SP 3, 6, 7)

	Activities: Pressure Demos, Gas Law Problems, Gas Laws Demo, MC Ch 10, Interpreting Phase Change Diagrams, Surface Tension Demo, MC Ch 11, Making a Supersaturated Solution, Expressing Concentration Problems, Tyndall Effect Demo, MC Ch 13
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 6	
Big Idea	*Big Idea 4* – Rates of chemical reactions, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 14 Chemical Kinetics Ch 15 Chemical Equilibrium
Timeline	4 weeks
Enduring Understandings	4.A: Reaction rates that depend on temperature and other environmental factors are determined by measuring changes in concentrations of reactants or products over time. 4.B: Elementary reactions are mediated by collisions between molecules. Only collisions having sufficient energy and proper relative orientation of reactants lead to products 4.C: Many reactions proceed via a series of elementary reactions. 4.D: Reaction rates may be increased by the presence of a catalyst. 6.A: Chemical equilibrium is a dynamic, reversible state in which rates of opposing processes are equal. 6.B: Systems at equilibrium are responsive to external perturbations, with the response leading to a change in the composition of the system.
Learning Objectives	**4.1** The student can design and/or interpret the results of an experiment regarding the factors (i.e., temperature, concentration, surface area) that may influence the rate of a reaction. **4.2** The student can analyze concentration vs. time data to determine the rate law for a zeroth-, first-, or second-order reaction. **4.3** The student can connect the half-life of a reaction to the rate constant of a first-order reaction and justify the use of this relation in terms of the reaction being a first-order reaction. **4.4** The student can connect the rate law for an elementary reaction to the frequency and success of molecular collisions, including connecting the frequency and success to the order and rate constant, respectively. **4.5** The student can explain the difference between collisions that convert reactants to products and those that do not in terms of energy distributions and molecular orientation. **4.6** The student can use representations of the energy profile for an elementary reaction (from the reactants, through the transition state, to the products) to make qualitative predictions regarding the relative temperature dependence of the reaction rate. **4.7** The student can evaluate alternative explanations, as expressed by reaction mechanisms, to determine which are consistent with data regarding the overall rate of a reaction, and data that can be used to infer the presence of a reaction intermediate. **4.8** The student can translate among reaction energy profile representations, particulate representations, and symbolic representations (chemical equations) of a chemical reaction occurring in the presence and absence of a catalyst. **4.9** The student can explain changes in reaction rates arising from the use of acid-base catalysts, surface catalysts, or enzyme catalysts, including selecting appropriate mechanisms with or without the catalyst present. **6.1** The student can, given a set of experimental observations regarding physical, chemical, biological, or environmental processes that are reversible, construct an explanation that connects the observations to the reversibility of the underlying chemical reactions or processes. **6.2** The student can, given a manipulation of a chemical reaction or set of reactions (e.g., reversal of reaction or addition of two reactions), determine the effects of that manipulation on *Q* or *K*. **6.3** The student can connect kinetics to equilibrium by using reasoning about equilibrium, such as Le Chatelier's principle, to infer the relative rates of the forward and reverse reactions. **6.4** The student can, given a set of initial conditions (concentrations or partial pressures) and the equilibrium constant, *K*, use the tendency of *Q* to approach *K* to predict and justify the prediction as to whether the reaction will proceed toward products or reactants as equilibrium is approached. **6.5** The student can, given data (tabular, graphical, etc.) from which the state of a system at equilibrium can be obtained, calculate the equilibrium constant, *K*.] **6.6** The student can, given a set of initial conditions (concentrations or partial pressures) and the equilibrium constant, *K*, use stoichiometric relationships and the law of mass action (*Q* equals *K* at equilibrium) to determine qualitatively and/or quantitatively the conditions at equilibrium for a system involving a single reversible reaction. **6.7** The student is able, for a reversible reaction that has a large or small *K*, to determine which chemical species will have very large versus very small concentrations at equilibrium. **6.8** The student can use Le Chatelier's principle to predict the direction of the shift resulting from various possible stresses on a system at chemical equilibrium. **6.9** The student can use Le Chatelier's principle to design a set of conditions that will optimize a desired outcome, such as product yield.

	6.10 The student can connect Le Chatelier's principle to the comparison of *Q* to *K* by explaining the effects of the stress on *Q* and *K*.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Guided Inquiry Lab – Kinetics of Crystal Violet Fading (SP 1, 2, 4, 5, 6), Guided Inquiry Lab – Applications of LeChatelier's Principle (SP 1, 4, 5, 6, 7) **Activities:** Reaction Rates Demo, Rate Law Problems, First & Second Order Reactions, Observation of a Catalyst, MC Ch 14, Writing Equilibrium Expressions, MC Ch 15
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 7	
Big Idea	*Big Idea 1* – Structure of matter, *Big Idea 3* – Chemical reactions, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 16 Acid-Base Equilibria Ch 17 Additional Aspects of Aqueous Equilibria
Timeline	3 weeks
Enduring Understandings	1.E: Atoms are conserved in physical and chemical processes. 3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form. 3.B: Chemical reactions can be classified by considering what the reactants are, what the products are, or how they change from one into the other. Classes of chemical reactions include synthesis, decomposition, acid-base, and oxidation-reduction reactions. 6.A: Chemical equilibrium is a dynamic, reversible state in which rates of opposing processes are equal. 6.C: Chemical equilibrium plays an important role in acid-base chemistry and in solubility.
Learning Objectives	**1.20** The student can design, and/or interpret data from, an experiment that uses titration to determine the concentration of an analyte in a solution. **2.1** Students can predict properties of substances based on their chemical formulas, and provide explanations of their properties based on particle views. **2.2** The student can explain the relative strengths of acids and bases based on molecular structure, interparticle forces, and solution equilibrium. **3.3** The student can use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected result **3.7** The student is able to identify compounds as Bronsted-Lowry acids, bases, and/or conjugate acid-base pairs, using proton-transfer reactions to justify the identification. **6.1** The student can, given a set of experimental observations regarding physical, chemical, biological, or environmental processes that are reversible, construct an explanation that connects the observations to the reversibility of the underlying chemical reactions or processes. **6.11** The student can generate or use a particulate representation of an acid (strong or weak or polyprotic) and a strong base to explain the species that will have large versus small concentrations at equilibrium. **6.12** The student can reason about the distinction between strong and weak acid solutions with similar values of pH, including the percent ionization of the acids, the concentrations needed to achieve the same pH, and the amount of base needed to reach the equivalence point in a titration. **6.13** The student can interpret titration data for monoprotic or polyprotic acids involving titration of a weak or strong acid by a strong base (or a weak or strong base by a strong acid) to determine the concentration of the titrant and the p*K*a for a weak acid, or the p*K*b for a weak base. **6.14** The student can, based on the dependence of *K*w on temperature, reason that neutrality requires [H+] = [OH–] as opposed to requiring pH = 7, including especially the applications to biological systems. **6.15** The student can identify a given solution as containing a mixture of strong acids and/or bases and calculate or estimate the pH (and concentrations of all chemical species) in the resulting solution. **6.16** The student can identify a given solution as being the solution of a monoprotic weak acid or base (including salts in which one ion is a weak acid or base), calculate the pH and concentration of all species in the solution, and/or infer the relative strengths of the weak acids or bases from given equilibrium concentrations. **6.17** The student can, given an arbitrary mixture of weak and strong acids and bases (including polyprotic systems), determine which species will react strongly with one another (i.e., with *K* >1) and what species will be present in large concentrations at equilibrium. **6.18** The student can design a buffer solution with a target pH and buffer capacity by selecting an appropriate conjugate acid-base pair and estimating the concentrations needed to achieve the desired capacity. **6.19** The student can relate the predominant form of a chemical species involving a labile proton (i.e., protonated/deprotonated form of a weak acid) to the pH of a solution and the p*K*a associated with the labile proton. **6.20** The student can identify a solution as being a buffer solution and explain the buffer mechanism in terms of the reactions that would occur on addition of acid or base. **6.21** The student can predict the solubility of a salt, or rank the solubility of salts, given the relevant *Ksp* values. **6.22** The student can interpret data regarding solubility of salts to determine, or rank, the relevant *Ksp* values. **6.23** The student can interpret data regarding the relative solubility of salts in terms of factors (common ions, pH) that influence the solubility.

Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Acid-Base Titration Lab (SP 1, 2, 5, 6), Preparation of a Buffer (SP 2, 4, 6, 7) **Activities:** Identifying Acid-Base-CA-CB, Determining pH-pOH-& Concentrations, Acid-Base Demo's, Determining K_a and K_b, MC Ch 16, Video – Modern Marvels Acids, Effects of Buffers, Determining K_{sp}, MC Ch 17 Students will conduct an investigation into the major components of acid rain. They will be required to write the reactions that occur between the pollutant and the compounds naturally present (i.e. water, oxygen, carbon dioxide). Afterwards, they will communicate their findings in a presentation method of their choice (i.e. feature article, lab poster, PowerPoint, oral presentation) to fulfill CR 4.
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 8	
Big Idea	*Big Idea 3* – Chemical reactions, *Big Idea 5* – Thermodynamics, *Big Idea 6* – Equilibrium.
Scope and Sequence	Ch 20 Electrochemistry
Timeline	1.5 weeks
Enduring Understandings	3.A: Chemical changes are represented by a balanced chemical equation that identifies the ratios with which reactants react and products form. 3.B: Chemical reactions can be classified by considering what the reactants are, what the products are, or how they change from one into the other. Classes of chemical reactions include synthesis, decomposition, acid-base, and oxidation-reduction reactions. 3.C: Chemical and physical transformations may be observed in several ways and typically involve a change in energy. 5.E: Chemical or physical processes are driven by a decrease in enthalpy or an increase in entropy, or both. 6.A: Chemical equilibrium is a dynamic, reversible state in which rates of opposing processes are equal.
Learning Objectives	**3.2** The student can translate an observed chemical change into a balanced chemical equation and justify the choice of equation type (molecular, ionic, or net ionic) in terms of utility for the given circumstances. **3.8** The student can identify redox reactions and justify the identification in terms of electron transfer. **3.12** The student can make qualitative or quantitative predictions about galvanic or electrolytic reactions based on half-cell reactions and potentials and/or Faraday's laws. **3.13** The student can analyze data regarding galvanic or electrolytic cells to identify properties of the underlying redox reactions. **5.15** The student can explain how the application of external energy sources or the coupling of favorable with unfavorable reactions can be used to cause processes that are not thermodynamically favorable to become favorable. **6.1** The student can, given a set of experimental observations regarding physical, chemical, biological, or environmental processes that are reversible, construct an explanation that connects the observations to the reversibility of the underlying chemical reactions or processes.
Instructional Activities	pre-test, class discussions, group work, internet research/activities, assigned readings, lecture **Labs:** Redox Titration Lab (SP 1, 2, 4, 5, 6, 7) **Activities:** Making a Voltaic Cell, Study of Redox Reactions, MC Ch 20
Evaluation	Quizzes Activity Questions Lab Write-Ups/Posters Homework Multiple Choice Test Free Response Questions

Unit 9 Review/AP Exam/Final Project	
Scope and Sequence	ALL CHAPTERS
Timeline	2 weeks
Review Concepts	ALL
Learning Objectives	1. Prepare for the AP Chemistry Exam. 2. Conduct and present independent research.
Instructional Activities	class discussions, group work, internet research/activities, assigned readings, lecture **Final Project:** Students may choose a molecule of importance, either natural or man-made, and report on the effects the use or non-use of the molecule has had. The project includes setting up a display of a molecular model along with information about the molecule's uses, sources, etc. **Activities:** Review for AP Chemistry Exam – group and individual, Study Island Review
Evaluation	Quizzes Activity Questions Homework AP Chemistry Practice Exam AP Chemistry Exam

After the AP Exam, I will have my students perform as many of the following labs as possible:

- Stoichiometry of Magnesium Oxide
- Precipitation Reactions
- Qualitative Analysis

AP® Physics 1 Sample Syllabus 4

Syllabus 1066436v1

Curricular Requirements		Page(s)
CR1	Students and teachers have access to college-level resources including college-level textbooks and reference materials in print or electronic format.	1
CR2a	The course design provides opportunities for students to develop understanding of the foundational principles of kinematics in the context of the big ideas that organize the curriculum framework.	1
CR2b	The course design provides opportunities for students to develop understanding of the foundational principles of dynamics in the context of the big ideas that organize the curriculum framework.	1
CR2c	The course design provides opportunities for students to develop understanding of the foundational principles of gravitation and circular motion in the context of the big ideas that organize the curriculum framework.	2
CR2d	The course design provides opportunities for students to develop understanding of the foundational principles of simple harmonic motion in the context of the big ideas that organize the curriculum framework.	2
CR2e	The course design provides opportunities for students to develop understanding of the foundational principles of linear momentum in the context of the big ideas that organize the curriculum framework.	2
CR2f	The course design provides opportunities for students to develop understanding of the foundational principle of energy in the context of the big ideas that organize the curriculum framework.	2
CR2g	The course design provides opportunities for students to develop understanding of the foundational principles of rotational motion in the context of the big ideas that organize the curriculum framework.	2
CR2h	The course design provides opportunities for students to develop understanding of the foundational principles of electrostatics in the context of the big ideas that organize the curriculum framework.	2
CR2i	The course design provides opportunities for students to develop understanding of the foundational principles of electric circuits in the context of the big ideas that organize the curriculum framework.	2
CR2j	The course design provides opportunities for students to develop understanding of the foundational principles of mechanical waves in the context of the big ideas that organize the curriculum framework.	2
CR3	Students have opportunities to apply AP Physics 1 learning objectives connecting across enduring understandings as described in the curriculum framework. These opportunities must occur in addition to those within laboratory investigations.	6
CR4	The course provides students with opportunities to apply their knowledge of physics principles to real world questions or scenarios (including societal issues or technological innovations) to help them become scientifically literate citizens.	7
CR5	Students are provided with the opportunity to spend a minimum of 25 percent of instructional time engaging in hands-on laboratory work with an emphasis on inquiry-based investigations.	2
CR6a	The laboratory work used throughout the course includes investigations that support the foundational AP Physics 1 principles.	3
CR6b	The laboratory work used throughout the course includes guided-inquiry laboratory investigations allowing students to apply all seven science practices.	3, 4, 5, 6
CR7	The course provides opportunities for students to develop their communication skills by recording evidence of their research of literature or scientific investigations through verbal, written, and graphic presentations.	2
CR8	The course provides opportunities for students to develop written and oral scientific argumentation skills.	6, 7

Course Introduction

Textbook:
Cutnell, John and Kenneth Johnson. *Physics*. 6th Edition. New York: John Wiley & Sons, Inc., 2004. **[CR1]**

CR1— Students and teachers have access to college-level resources including college-level textbooks and reference materials in print or electronic format.

About this course:
The AP Physics 1 course will meet for 41 minutes every day. Lab work is integral to the understanding of the concepts in this course. The AP Physics 1 Course has been designed by the College Board as a course equivalent to the algebra-based college-level physics class. At the end of the course, students will take the AP Physics 1 Exam, which will test their knowledge of both the concepts taught in the classroom and their use of the correct formulas.

The content for the course is based on six big ideas:

Big Idea 1 – Objects and systems have properties such as mass and charge. Systems may have internal structure.
Big Idea 2 – Fields existing in space can be used to explain interactions.
Big Idea 3 – The interactions of an object with other objects can be described by forces.
Big Idea 4 – Interactions between systems can result in changes in those systems.
Big Idea 5 – Changes that occur as a result of interactions are constrained by conservation laws.
Big Idea 6 – Waves can transfer energy and momentum from one location to another without the permanent transfer of mass and serve as a mathematical model for the description of other phenomena.

Evaluation:
Students will get grades on homework, quizzes, laboratory work, projects, and exams. Exams are typically worth 100 points and will consist of questions similar to ones students will see on the AP Exam. Homework assignments and quizzes will consist of problems from the textbook, supplements, and old AP Exams. Projects are long-term, and typically will involve groups of students developing a plan, collecting data and/or research, and presenting conclusions in a meaningful way. Laboratory work is student centered and inquiry based and is discussed below.

CR2a— The course design provides opportunities for students to develop understanding of the foundational principles of kinematics in the context of the big ideas that organize the curriculum framework.

Grades will be determined by taking the number of points a student has earned and dividing it by the total number of points that the student could have achieved. This decimal is multiplied by 100, and that will be the student's grade.

Topics Covered:

1. Kinematics (Big Idea 3) **[CR2a]**
    a. Vectors/Scalars
    b. One Dimensional Motion (including graphing position, velocity, and acceleration)
    c. Two Dimensional Motion
2. Dynamics (Big Ideas 1, 2, 3, and 4) **[CR2b]**

CR2b—The course design provides opportunities for students to develop understanding of the foundational principles of dynamics in the context of the big ideas that organize the curriculum framework.

   a. Newton's Laws of Motion and Forces
3. Universal Law of Gravitation (Big Ideas 1, 2, 3, and 4) **[CR2c]**
   a. Circular Motion
4. Simple Harmonic Motion (Big Ideas 3 and 5) **[CR2d]**
   a. Simple Pendulums
   b. Mass-Spring Oscillators
5. Momentum (Big Ideas 3, 4, and 5) **[CR2e]**
   a. Impulse and Momentum
   b. The Law of Conservation of Momentum
6. Energy (Big Ideas 3, 4, and 5) **[CR2f]**
   a. Work
   b. Energy
   c. Conservation of Energy
   d. Power
7. Rotation (Big Ideas 3, 4, and 5) **[CR2g]**
   a. Rotational Kinematics
   b. Rotational Energy
   c. Torque and Rotational Dynamics
   d. Angular Momentum
   e. Conservation of Angular Momentum
8. Electrostatics (Big Ideas 1, 3, and 5) **[CR2h]**
   a. Electric Charge
   b. The Law of Conservation of Electric Charge
   c. Electrostatic Forces
9. Circuits (Big Ideas 1 and 5) **[CR2i]**
   a. Ohm's Law
   b. Kirchhoff's Laws
   c. Simple DC Circuits
10. Mechanical Waves and Sound (Big Idea 6) **[CR2j]**

Laboratory Activities:

Twenty five percent of the course will be lab work. **[CR5]** Labs may take several in-class days to finish, and students may have to do work outside of class as well.

Students are expected to keep a lab notebook where they will maintain a record of their laboratory work. Lab reports will consist of the following components: **[CR7]**

- Title
- Objective/Problem
- Design (if applicable): If the lab has no set procedure, what is to be done? Why are you doing it this way?
- Data: All data gathered in the lab will go here
- Calculations/Graphs: Calculations are done here. Any graphs that need to be made go here.
- Conclusion: Data analysis occurs here, and a statement can be made about what was learned in the lab. Error analysis also occurs here. Evaluation of the lab occurs here as well.

CR2c— The course design provides opportunities for students to develop understanding of the foundational principles of gravitation and circular motion in the context of the big ideas that organize the curriculum framework.

CR2d— The course design provides opportunities for students to develop understanding of the foundational principles of simple harmonic motion in the context of the big ideas that organize the curriculum framework.

CR2e— The course design provides opportunities for students to develop understanding of the foundational principles of linear momentum in the context of the big ideas that organize the curriculum framework.

CR2f— The course design provides opportunities for students to develop understanding of the foundational principle of energy in the context of the big ideas that organize the curriculum framework.

CR2g— The course design provides opportunities for students to develop understanding of the foundational principles of rotational motion in the context of the big ideas that organize the curriculum framework.

CR2h— The course design provides opportunities for students to develop understanding of the foundational principles of electrostatics in the context of the big ideas that organize the curriculum framework.

CR2i— The course design provides opportunities for students to develop understanding of the foundational principles of electric circuits in the context of the big ideas that organize the curriculum framework.

Every major unit will have an inquiry-based lab, and inquiry-based labs will make up no less than half of the laboratory work. Collectively, laboratory work will engage students in all seven science practices.

Laboratory activities and simulations in this class are included the following table. **[CR6a]** The inquiry-based labs are noted in the second column.

Name	Open-Inquiry or Guided-Inquiry? [CR6b]	Short Description	Science Practices
#1 Speed Lab	**Y**	Students will design an experiment to determine the range of speeds of a variable speed cart.	2.1, 2.2, 4.1, 4.2, 4.3
Three Cars Racing Simulation	N	A computer simulation of three cars with different accelerations racing.	1.4, 2.2, 4.3, 6.1
#2 Rocket Lab	**Y**	Students will design an experiment to determine the initial velocity of an air-powered rocket.	1.2, 1.4, 2.1, 2.2, 4.1, 4.2, 4.3
#3 Marble in Cup Lab	N	Students will determine where a paper cup needs to be placed on the floor so that a marble rolled off of the edge of a table will land in it.	1.4, 2.1, 2.2, 2.3, 4.3
#4 Projectile Motion Challenges	**Y**	Using a projectile launcher, students will be given a series of challenges such as placing a ring stand at the maximum height, or placing a cup at the point where the marble will land.	1.4, 2.1, 2.2, 4.1, 4.2, 4.3
#5 Newton's 2nd Law Lab	**Y**	What is the relationship between the mass of a system and the acceleration of the system?	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4

CR2j— The course design provides opportunities for students to develop understanding of the foundational principles of mechanical waves in the context of the big ideas that organize the curriculum framework.

CR5— Students are provided with the opportunity to spend a minimum of 25 percent of instructional time engaging in hands-on laboratory work with an emphasis on inquiry-based investigations.

CR7— The course provides opportunities for students to develop their communication skills by recording evidence of their research of literature or scientific investigations through verbal, written, and graphic presentations.

CR6a— The laboratory work used throughout the course includes investigations that support the foundational AP Physics 1 principles.

CR6b— The laboratory work used throughout the course includes guided-inquiry laboratory investigations allowing students to apply all seven science practices.

Name	Open-Inquiry or Guided-Inquiry? [CR6b]	Short Description	Science Practices
Forces on a Crate Simulation	N	Using a simulation, analyze the motion of a crate. Students can vary the force on the crate, the direction of that force, the initial velocity of the crate, and the coefficient of kinetic friction.	1.1, 1.4, 2.2, 4.3, 6.1
Jupiter's Moons	**N**	Students will do research on Jupiter and four of its moons. Based on this research, students will mathematically come up with the mass of Jupiter. They will compare this information to the accepted value.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4, 7.1
#6 Pendulum Lab	**Y**	What factor(s) control the period of a simple pendulum?	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#7 Mass-Spring Oscillator Lab	**Y**	Students must determine both the spring constant *k* of a spring and the mass of three unknown masses. Students must also investigate the conservation of mechanical energy of the system. Materials given: spring with unknown spring constant, known masses, unknown masses.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#8 Conservation of Linear Momentum Lab	**Y**	Using a track and collision carts, students will observe seven different collisions and make conclusions about momentum conservation in real life situations.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4, 7.2

CR6b— The laboratory work used throughout the course includes guided-inquiry laboratory investigations allowing students to apply all seven science practices.

Name	Open-Inquiry or Guided-Inquiry? [CR6b]	Short Description	Science Practices
A Two Car Collision Simulation	N	Students will observe a simulation of two identical cars crashing. The elasticity of the collision can be varied.	1.1, 1.4, 2.2, 4.3, 6.1
#9 Introductory Circular Motion Lab	**Y**	When velocity is kept constant, what is the relationship between the radius of circular motion and the period of circular motion? The speed? The acceleration?	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#10 Centripetal Force Lab	**Y**	Using a spinning rubber stopper to lift masses, students will determine the relationship between the acceleration of the stopper and the centripetal force.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#11 Conservation of Angular Momentum Lab	**Y**	What is the relationship between the moment of inertia of a system and the angular momentum of a system?	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
Torque Simulation	N	Students will use a computer simulation to study rotational equilibrium.	1.1, 1.4, 2.2, 4.3, 6.1
#12 Coulomb's Law Lab	**Y**	What is the charge stored on a pair of charged balloons that are repelling each other?	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
Electrostatics Simulation	N	Using a computer simulation involving two positive charges, explore the electrostatic force of repulsion between the charges, the accelerations of the charges, and how the force and acceleration changes with distance.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4

CR6b— The laboratory work used throughout the course includes guided-inquiry laboratory investigations allowing students to apply all seven science practices.

Name	Open-Inquiry or Guided-Inquiry? [CR6b]	Short Description	Science Practices
#13 Series and Parallel Lab	**Y**	Using a number of resistors, explore current and voltage in resistors hooked up to a power supply when resistors are wired in series with one another and when they are wired in parallel with one another.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#14 Standing Waves on a Wire Lab	**Y**	Students will vary wavelength, frequency, and the tension in a wire while looking at standing waves formed on a wire.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.2, 4.3, 4.4, 5.1, 6.1, 6.2, 6.4
#15 Standing Sound Waves in a Tube Lab	N	Students will vary the frequency of sound coming out of a speaker to create standing waves in a tube to determine the speed of sound in the classroom.	1.1, 1.4, 2.1, 2.2, 3.3, 4.1, 4.4, 5.1, 6.1, 6.2, 6.4

CR6b— The laboratory work used throughout the course includes guided-inquiry laboratory investigations allowing students to apply all seven science practices.

Outside the Classroom Lab Experience: [CR3]

In addition to labs, students will be required to do one exercise outside of the laboratory experience. Students may pick one of the following at the end of our rotation unit (end of mechanics):

- Students will use a video analysis program (Videopoint) to analyze the motion of a toy as it moves (either in a straight line or in a circle). Students will provide the toy and do their own videotaping. They will then present a description of the analysis both quantitatively and qualitatively, including graphs. Their presentation will be peer critiqued and/or questioned, and they will answer the questions with supporting evidence. **[CR8]** (3.A.1.1, 3.A.1.3, 1.C.1.1)
- Using an accelerometer app for their smart phone (SPARKvue is one), students will analyze accelerations they experience every day. They can take the data while moving down the hall between classes, while on the school bus, on an amusement park ride, or anything else they want (within reason – safety first!). Students will present a description of the motion they experienced (not only acceleration, but velocity and displacement, too), both quantitatively and quantitatively, including graphs. Their presentation will be peer critiqued and/or questioned, and they will answer the questions with supporting evidence. **[CR8]** (3.A.1.1, 3.A.1.3, 1.C.1.1)
- Students will take two pictures – one of an object in translational equilibrium, and one of an object in rotational equilibrium. The objects also must have more

CR3— Students have opportunities to apply AP Physics 1 learning objectives connecting across enduring understandings as described in the curriculum framework. These opportunities must occur in addition to those within laboratory investigations.

CR8— The course provides opportunities for students to develop written and oral scientific argumentation skills.

than three forces acting on them. They will then construct free-body diagrams for each object, and determine the magnitude of each force acting on each object. For the object in rotational equilibrium, students will also find the magnitude of each torque acting on the object. Students will present their work in class. Their presentation will be peer critiqued and/or questioned, and they will answer the questions with supporting evidence. **[CR8]** (3.B.1.3, 3.B.2.1, 3.F.1.1, 3.F.1.2, 3.F.1.5)

CR8— The course provides opportunities for students to develop written and oral scientific argumentation skills.

Real World Physics Solutions:

In order for students to become scientifically literate citizens, students are required to use their knowledge of physics while looking at a real world problem. **[CR4]** Students may pick one of the following solutions:

- Students will pick a Hollywood movie and will point out three (or more) instances of bad physics. They will present this information to the class, describing the inaccuracies both qualitatively and quantitatively.
- Students will research a thrill ride at an amusement park. They will present information to the class on the safety features of the ride, and why they are in place.
- Students will present information to the class on noise pollution, and it's danger to both human and animal life. They will also propose solutions to noise pollution problems.
- Students will go to the insurance institute of highway safety website (iihs.org) and will look at the safest cars in a crash. They will present information as to why these cars are safer and how the safety features keep people safe.

CR4— The course provides students with opportunities to apply their knowledge of physics principles to real world questions or scenarios (including societal issues or technological innovations) to help them become scientifically literate citizens.

AP® U.S. History: Sample Syllabus 3

Syllabus 1387931v1

Sample Syllabus 3 Contents

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Syllabus 1387931v1

Curricular Requirements

CR1a The course includes a college-level U.S. history textbook.
- See page 2

CR1b The course includes diverse primary sources consisting of written documents, maps, images, quantitative data (charts, graphs, tables), and works of art.
- See page 4

CR1c The course includes secondary sources written by historians or scholars interpreting the past.
- See page 3

CR2 Each of the course historical periods receives explicit attention.
- See pages 3, 4, 6, 7, 8, 9, 10, 11, 12

CR3 The course provides opportunities for students to apply detailed and specific knowledge (such as names, chronology, facts, and events) to broader historical understandings.
- See page 5

CR4 The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.
- See pages 5, 6, 8, 9, 12, 13

CR5 The course provides opportunities for students to develop coherent written arguments that have a thesis supported by relevant historical evidence. — Historical argumentation
- See pages 5, 9

CR6 The course provides opportunities for students to identify and evaluate diverse historical interpretations. — Interpretation
- See page 4

CR7 The course provides opportunities for students to analyze evidence about the past from diverse sources, such as written documents, maps, images, quantitative data (charts, graphs, tables), and works of art. — Appropriate use of relevant historical evidence
- See page 7

CR8 The course provides opportunities for students to examine relationships between causes and consequences of events or processes. — Historical causation
- See page 8

CR9 The course provides opportunities for students to identify and analyze patterns of continuity and change over time and connect them to larger historical processes or themes. — Patterns of continuity and change over time
- See page 9

CR10 The course provides opportunities for students to investigate and construct different models of historical periodization. — Periodization
- See page 11

CR11 The course provides opportunities for students to compare historical developments across or within societies in various chronological and geographical contexts. — Comparison
- See page 13

Curricular Requirements

CR12 The course provides opportunities for students to connect historical developments to specific circumstances of time and place, and to broader regional, national, or global processes. — Contextualization

• See page 11

CR13a The course provides opportunities for students to combine disparate, sometimes contradictory evidence from primary sources and secondary works in order to create a persuasive understanding of the past. — Synthesis

• See page 10

CR13b The course provides opportunities for students to apply insights about the past to other historical contexts or circumstances, including the present. — Synthesis

• See page 6

Advanced Placement U.S. History

Advanced Placement U.S. History is a college-level introductory course which examines the nations' political, diplomatic, intellectual, cultural, social, and economic history from 1491 to the present. A variety of instructional approaches are employed and a college-level textbook is supplemented by primary and secondary sources.

Each unit will contain the following activities:

Lecture and discussion of topics: Students will participate in discussions based on course topics. Reading quiz content is embedded in class discussions.

Primary Source Analysis: Students analyze primary sources using notecards on which they identify, analyze, and evaluate each of the sources. Students analyze the sources for two or more of the following features: historical context, purpose and intended audience, the author's point of view, type of source, argument and tone. (Appropriate use of historical evidence.)

Author's Thesis Paper and ATP 2: Students are provided with opposing viewpoints expressed in either primary or secondary source documents, and in writing, must determine the following:

The Thesis:

- What is the main argument of each author?

The Evidence:

- Looking at the supporting evidence, analyze whether they are logically interpreted by the authors. Do they clearly support the thesis?

Critical Analysis:

- What do the sources add to your own understanding of the topic?
- What points are strongly made and well documented?

Final Analysis: (Your opinion is expressed here without the use of any form of the pronoun "I".)

- Which of the sources makes the most convincing case and why?

For each source, complete the thesis, evidence, and critical analysis sections.

You Be the Judge and YBTJ 2: Students analyze disparate primary source documents on the same topic. Students then compare and contrast the viewpoints expressed in the documents, and—supported by the evidence presented, and in the context of the historical period—determine which authors made the better case.

History in the Making Assignments: Students will compare how the issues they are studying were covered by American history textbooks in the past. They will then assess the extent to which earlier interpretations differ from that presented in their text.

DBQ Deconstruction: Students, working in groups, will read the sources from and debate the question posed by the DBQ.

Six Degrees of Separation: Students will be provided with two events spanning decades, but related by their theme. They will select six events in chronological order that link the first event in the series with the last. Students will write the name of each selected event, and use their research and knowledge of the time period to create an argument to support the events selected. Students must emphasize both cause and effect and/or demonstrate continuity or change over time in their linking. There will be at least one Six Degrees assignment per unit. Some events can and will include environmental impact data. This assignment provides students with the opportunity to observe continuity and change over time.

Chronological Reasoning Lesson: Students are provided with ten events, in no particular chronological order, which they will then place in order, naming the decade in which each occurred.

Students will complete the exercise by providing the following:

1. Identify the period in which these occur;
2. Identify continuity and change over time exemplified by the selections; and
3. Identify the theme(s) under which these issues and developments might be categorized.

Celebration of Knowledge: An exam, known as a Celebration of Knowledge, will be given at the end of each unit. The exam will have three components: analytical multiple choice questions (MC), analytical short answer questions (SA), and either a free response essay (FRQ) or a document based question (DBQ). Each component of the exam will emphasize the application of historical thinking skills to answer the question. Information from prior units is often a critical component of the response.

These activities are organized around AP U.S. History's seven major themes—Identity (ID); Work, Exchange and Technology (WXT); Peopling (PEO); Politics & Power (POL); America in the World (WOR); Environment and Geography–Physical & Human (ENV); and Ideas, Beliefs and Culture (CUL)—and are designed to develop the student's historical thinking skills**.**

Grading Criteria

Students' grades will be determined by teachers, peers, and self-evaluation. Students are responsible for keeping track of their own grades. Graded work will include reading quizzes, logs, unit exams, revised writings, and projects. Specific assignments and activities are described in the unit outline below.

Reading Quizzes: Students will periodically take "reading quizzes" on the chapter assignments, usually every Monday. These quizzes are integrated into class discussions.

Primary Textbook

The American Pageant, David M. Kennedy, Lizabeth Cohen, and Thomas A Bailey, 14th ed., Wadsworth/Cengage, 2010. **[CR1a]**

[CR1a]—The course includes a college-level U.S. history textbook.

Primary Sources

American Issues: A Documentary Reader, Charles M. Dollar and Gary W. Reichard, 1st ed., Random House, 1988.

*For the Record, Vol. 1 and 2***,** David Shi and Holly Mayer, W. W. Norton, 2004.

Opposing Viewpoints, Vol. 1 & 2, William Dudley and Thomson Gale, 2007.

The American Spirit: United States History as Seen by Contemporaries, Vol. 1 & 2, Thomas A. Bailey and David M. Kennedy, 6th ed., D. C. Heath & Co., 1987.

Secondary Sources [CR1c]

A People's History of the United States, Howard Zinn.

A Sense of History, ed. American Heritage, IBOOKS Inc., 2003.

American Colonies: The Settling of North America, Alan Taylor, Penguin Books, 2001.

*Conflict and Consensus in American History***,** edited by Allen F. Davis and Harold D. Woodman, D. C. Heath and Co., 1984.

Dave Barry Slept Here, Dave Barry, Ballantine Books, 1995.

From Slavery to Freedom, 8th ed., John Hope Franklin and Alfred A. Moss, Jr., Alfred A. Knopf, New York, 2003.

Historical Moments: Changing Interpretations of America's Past, Vol. 1 & 2, Jim McClellan, 1st ed., Dushkin McGraw-Hill, 2000.

Historical Viewpoints, Vol. 1 & 2, edited by John A. Garraty**,** 9th ed., Longman Publishers, 2003.

History In the Making, Kyle Ward, New Press, 2007.

Only Yesterday, Frederick Lewis Allen, Harper Perennial, 2000.

Portrait of America, Vol. 1 & 2, Stephen B. Oates, 7th ed., Houghton Mifflin, 1999.

The 9/11 Report: A Graphic Adaptation, Sid Jacobson and Ernie Colon, Hill and Wang, 2006.

The American Presidency, edited by Alan Brinkley, 1st ed., Houghton Mifflin Harcourt, 2005.

The History of Women in America, Carol Hymowitz and Michaele Weissman, Bantam Doubleday, New York, 1990.

[CR1c]—The course includes secondary sources written by historians or scholars interpreting the past.

Unit 1: 1491-1607 - *The American Pageant,* Chapters 1-3 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Geography and environment; Native American diversity in the Americas; Spain in the Americas; conflict and exchange; English, French, and Dutch settlements; and the Atlantic economy.

Primary Source Analysis: Notecards for Primary Sources Theme

Sources: Woodcuts from the settling of Jamestown and photos of Native American jewelry and pottery; "Letter to Luis de Santangel;" a letter describing native americans; and a map of American Indian pre-1492 demographics. **[CR1b]**

[CR1b]— The course includes diverse primary sources consisting of written documents, maps, images, quantitative data (charts, graphs, tables), and works of art.

Author's Thesis Paper and ATP 2: Students read an excerpt from "1491" by Charles C. Mann, an excerpt from Howard Zinn's *A People's History of the United States*, and an excerpt from William Bennett's *America: The Last Best Hope*. Using evidence and analysis from these materials, students will write an essay in response to the question, "Were the conquistadores immoral?" **[CR6]**

[CR6]—The course provides opportunities for students to identify and evaluate diverse historical interpretations. — Interpretation

You Be the Judge and YBTJ 2: Documents: John Marston from Eastward Ho vs. The Tragical Relation of the Virginia Assembly (1624).

History in the Making Assignments: Kyle Ward's *History in the Making,* Chapter 1 "Native American Relations with the New Colonists" and Chapter 5 "Captain John Smith and Pocahontas."

DBQ Deconstruction: Teacher created DBQ on the Columbian Exchange.

Six Degrees of Separation: From 1491 to Jamestown.

Unit I Celebration of Knowledge: Six multiple choice questions, two short answer questions, and one teacher created FRQ on Indian/settler interaction.

Unit 2: 1607-1754 - *The American Pageant*, Chapters 2-4 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Growing trade; unfree labor; political differences across the colonies; conflict with Native Americans; immigration; early cities; role of women, education, religion and culture; and growing tensions with the British.

Primary Source Analysis: "Sinners in the Hands of an Angry God" by Jonathan Edwards; an indentured servant's letter home; Bacon's Manifesto; The Maryland Toleration Act; a letter about Small Pox Inoculation; map of a Puritan town; painting of a colonial Virginia tobacco farm; and colonial export chart broken down by region and products. **[CR1b]**

[CR1b]— The course includes diverse primary sources consisting of written documents, maps, images, quantitative data (charts, graphs, tables), and works of art.

Author's Thesis Paper and ATP 2: Students read "The Puritans and Sex" by Edmund Morgan, "Persistent Localism" by T. H. Breen, and "When Cotton Mather Fought the Smallpox" by Dr. Laurence Farmer. Then, working in groups, students develop a class presentation that analyzes reasons for the development of different labor systems in any two of the following regions of British colonial settlement: New England, the Chesapeake, the southernmost Atlantic coast, and the British West Indies. (WXT-4) **[CR4]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

You Be the Judge and YBTJ 2: Students compare and contrast John Winthrop from Letter to His Wife vs. Pond from Letter to His Father, and Franklin from Apology for Printers vs. Stiles from Letter to Thomas Clap.

History in the Making Assignments: *History in the Making,* Chapter 8, "Witchcraft in the Colonies." Students will document the key facts of the witchcraft trials and analyze how the trials were covered in student textbooks throughout U. S. history. Students will write an argumentative essay and explain how the witchcraft trials help us understand the nature of knowledge, gender roles, and patriarchy in the colonial era. **[CR3]**

[CR3]—The course provides opportunities for students to apply detailed and specific knowledge (such as names, chronology, facts, and events) to broader historical understandings.

DBQ Deconstruction: In groups, students will read the sources from a DBQ on the Puritans and engage in debate on the open-ended question provided by the DBQ. As a take home assignment, students will write an essay with a thesis statement that focuses on the economic, political, or religious values of the Puritans. **[CR5]**

[CR5]—The course provides opportunities for students to develop coherent written arguments that have a thesis supported by relevant historical evidence. — Historical argumentation

Six Degrees of Separation: From Jamestown to the French and Indian War.

Unit 2 Celebration of Knowledge: Nine multiple choice questions, three short answer questions, and one teacher created FRQ on Colonial development.

Slavery DEQ (Document Enhanced Question): Students will be divided into groups, and each group will be required to complete a Document Enhanced Question dealing with the issue of slavery between 1820-1860. Using the documents and secondary sources, each group will compose a sample answer essay to its question.

Unit 3: 1754-1800 - *The American Pageant*, Chapters 5-10 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Colonial society before the war for independence; colonial rivalries; the Seven Years War; pirates and other democrats; role of women before, during, and after 1776; Articles and a Constitution; and early political rights and exclusions.

Primary Source Analysis: Speeches at Fort Pitt by Tecumseh, Declaration of Rights and Grievances, Letters from a PA Farmer, Common Sense, The Declaration of Independence, The American Crisis, A Proclamation of Shaysite Grievances, The United States Constitution, The Federalist #45, Jefferson's First Inaugural, Washington's Farewell Address, KY and VA Resolutions, map of Northwest Ordinance/Slavery abolition (from AP exam), and two artists' contrasting views of the Boston Massacre.

Drawing on primary sources, students engage in a debate over the question, "Did the Revolution assert British rights or did it create an American national identity?" (ID-1) **[CR4]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

Author's Thesis Paper and ATP 2: "Women and the Revolution" by Mary Beth Norton, "A Revolution to Conserve" by Clinton Rossiter, and "The Transit of Power" by Richard Hofstadter.

You Be the Judge and YBTJ 2: Jefferson from the Kentucky Resolutions vs. Washington's Farewell Address, Madison from The Federalist #10 vs. Henry at the VA Ratifying Convention, Hamilton from Report on Manufactures vs. Jefferson from Notes on the State of VA.

History in the Making Assignments: *History in the Making,* Chapter 12 (Lexington and Concord) and Chapter 14 (Women in the Revolutionary War).

Six Degrees of Separation: Drawing on assigned secondary sources, students will indicate the extent to which there is both continuity and change of basic civil rights from the Declaration of Independence to the Voting Rights Act of 1965. **[CR13b]**

[CR13b]—The course provides opportunities for students to apply insights about the past to other historical contexts or circumstances, including the present. — Synthesis

Meeting of the Minds: Each student will research an individual from an assigned era in preparation for an in-class role playing exercise. The discussion will be guided by questions which relate to both the era and the themes of AP U.S. History. This activity occurs in Unit 3 and Unit 6. A similar activity will be the **Antebellum Dinner for Eight**, which is the same assignment but set in a fictitious dinner for antebellum reformers.

Unit 3 Celebration of Knowledge: Twelve multiple choice questions, three short answer questions, and one teacher created DBQ comparing and contrasting the impacts of the Articles of Confederation and the Constitution.

Unit 4: 1800-1848 - *The American Pageant*, Chapters 11-13 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Politics in the early republic, parties and votes; reforms and social movements; culture and religion; market capitalism and slavery; growth of immigration and cities; women and Seneca Falls; and Territorial exansion and Mexican War.

Primary Source Analysis: Letter to Mercy Otis Warren, The Indian Prophet and His Doctrine, The Monroe Doctrine, The Nullification Proclamation, Worcester v. GA, Self Reliance, Declaration of Sentiments and Resolutions, The Spot Resolution, Polk's War Message, map of the spread of the 2nd Great Awakening, and contrasting illustrations of the "Trail of Tears."

Author's Thesis Paper and ATP 2: "The Cult of True Womanhood" by Barbara Welter, "Consensus and Ideology in the Age of Jackson" by Edward Pessen, and "Marbury v. Madison" by John Garraty.

You Be the Judge and YBTJ 2: Hayne from Speech in the Senate vs. Webster from Reply to Hayne, Boston Daily Advertiser from Defense of the Bank vs. Jackson from Veto of the Bank Bill.

History in the Making Assignments: *History in the Making,* Chapter 18 (The Trail of Tears) and Chapter 21 (The Start of the Mexican War).

Students use SOAPSTone to look at Polk's War message and debate whether that message was a change or continuation of U.S. attitudes and foreign policy. **[CR7]**

[CR7]—The course provides opportunities for students to analyze evidence about the past from diverse sources, such as written documents, maps, images, quantitative data (charts, graphs, tables), and works of art. — Appropriate use of historical evidence

DBQ Deconstruction: Students write an essay based on the 2010 AP DBQ on Territorial Expansion.

Six Degrees of Separation: From Jefferson to the Reform Era.

Unit 4 Celebration of Knowledge: Twelve multiple choice questions, three short answer questions, and one teacher created FRQ on Antebellum Reform.

Unit 5: 1844-1877 - *The American Pageant*, Chapters 14-21 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Tensions over slavery; reform movements; politics and the economy; cultural trends; Transcendentalism and Utopianism; the Civil War, rights of freedmen and women, Reconstruction, and freedmen's bureau; and the KKK. Focus on white supremacy before and after the Civil War.

Primary Source Analysis: Narrative of the Life of Frederick Douglass, Accounts about Poor Whites, Fugitive Slave Law, Dred Scott v. Sanford, The Impending Crisis in the South, Hospital Sketches, the Lincoln-Douglas Debates, map delineating southern secession, and two paintings of "Manifest Destiny."

Author's Thesis Paper and ATP 2: Students look at several works by Transcendental writers including "Black Slaveowners" by Philip Burnham and "John Brown: Father of American Terrorism" by Ken Chowder, and discuss the ways their ideas both reflected mainstream values and offered up a "counterculture." Which trajectory was stronger? (CUL-2) **[CR4]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

You Be the Judge and YBTJ 2: Fitzhugh from Cannibals All vs. Weld from Slavery As It Is, Webster from Seventh of March Speech vs. Calhoun from 3/4/1850 Speech in the Senate, Whitman from Leaves of Grass vs. Hawthorne from American Notebooks, Lincoln from Speech at Alton, Ill., vs. Douglas vs. Speech at Alton, Ill.

History in the Making Assignments: *History in the Making,* Chapter 22 (Slavery in America), Chapter 24 (John Brown at Harper's Ferry), and Chapter 28 (Birth of the Ku Klux Klan).

Students will reflect on Seneca Falls—in what ways was it a consequence of pre-1848 reform activities and what did it contribute to the movement for women's rights afterwards? Write a five page essay that makes an argument in response to this double sided question. **[CR8]**

[CR8]—The course provides opportunities for students to examine relationships between causes and consequences of events or processes. — Historical causation

DBQ Deconstruction: 2002 DBQ on Reform Movements.

Six Degrees of Separation: From The Liberator to the Compromise of 1877.

Chronological Reasoning Lesson: Students look at the evolution of public policies related to slavery and racial inequality to 1877. After making a list, students write an essay to explain the evolution and moments when change occurred and why. **[CR9]**

[CR9]—The course provides opportunities for students to identify and analyze patterns of continuity and change over time and connect them to larger historical processes or themes. — Patterns of continuity and change over time

Unit 5 Celebration of Knowledge: Fifteen multiple choice questions, four short answer questions, and one teacher created DBQ on the evolution of Lincoln's opinion on slavery.

Unit 6: 1865-1900 - *The American Pageant*, Chapters 22-28 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: The rights of freedmen and women; Reconstruction; freedmen's bureau, and the 1877 Railroad strike; rise of labor unions and the Populist Party; general themes of industrialization, urbanization, immigration, and imperialism; and Indian wars, the Spanish American War, and conquests in the Pacific.

Primary Source Analysis: The New South, The New South Investigated, The Atlanta Compromise, A Century of Dishonor, The Frontier in American History, Wealth, Organizing Women Workers, Our Country, The Lure of the City, Chinese Exclusion Act, A Black Woman's Appeal for Civil Rights, Populist Party Platform, The Money Question, The Cross of Gold, The March of the Flag, The Open Door in China, map of the overseas possessions of the U.S., and a variety of Thomas Nast political cartoons.

Author's Thesis Paper and ATP 2: After reading "Reconstruction" by McPherson, "The Robber Barons" by Josephson, and "The Robber Barons Bum Rap" by Klein, students write an essay arguing for or against annexation of Cuba after the Spanish-American War and create an accompanying editorial paragraph to appear in the *NY Times*. (WOR-7) **[CR4]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

Students write a FRQ on the role the acquisition of natural resources has played in U.S. foreign policy decisions since the late 19th century. Were resources the driving force in this expansion? (ENV-5) **[CR4] [CR5]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

[CR5]—The course provides opportunities for students to develop coherent written arguments that have a thesis supported by relevant historical evidence. — Historical argumentation

You Be the Judge and YBTJ 2: Report from Joint Committee on Reconstruction vs. Johnson from Veto of Reconstruction, and E. Merton Coulter from The South During Reconstruction vs. Carl N. Degler from Out of Our Past.

History in the Making Assignments: *History in the Making,* Chapter 29 (Eugene V. Debs and the Pullman Strike) and Chapter 30 (Immigration).

DBQ Deconstruction: 2009 DBQ on African Americans in the Civil War. **[CR13a]**

[CR13a]—The course provides opportunities for students to combine disparate, sometimes contradictory evidence from primary sources and secondary works in order to create a persuasive understanding of the past. — Synthesis

Six Degrees of Separation: From The Homestead Act to the Battle of Wounded Knee.

Unit 6: **Celebration of Knowledge:** Fifteen multiple choice questions, four short answer questions, and one teacher created FRQ on late 19th century immigration.

Unit 7: 1890-1945 - *The American Pageant*, Chapters 29-35 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: The formation of the Industrial Workers of the World and the AFL; industrialization and technology, mass production and mass consumerism, and radio and movies; Harlem Renaissance; Native American culture and boarding schools; political parties and the transition from classical liberalism to New Deal liberalism with the capitalist crisis of the 1930s; and WW II, demographic shifts, the role of women and nonwhites, and battles for economic rights.

Primary Source Analysis: Scientific Management, The Jungle, Muller v. Oregon, The Zimmermann Note, The War and the Intellectuals, The Sacco and Vanzetti Case, The Great Black Migration, Government and Business, FDR's 1st Inaugural, Roosevelt's Court Packing Plan, The Four Freedoms, Korematsu v. United States, The Atomic Bombing of Hiroshima-The Public Explanation, New Deal political cartoons (pro and con), and graph showing economic cycles during the Great Depression through WW II.

Author's Thesis Paper and ATP 2: "Theodore Roosevelt" by Morris, "Upton Sinclair on the Chicago Stockyards" by Sinclair, "The Most Scandalous President" by Anthony, and "The Big Picture of the Great Depression" by Garraty.

You Be the Judge and YBTJ 2: Plessy v. Ferguson vs. Harlan from Dissent on Plessy v. Ferguson, Grady from The New South vs. Washington from The Race Problem, Turner from The Significance of the Frontier vs. MacDonald from Rugged Individualism, and Lloyd from Wealth Against Commonwealth vs. Nevins from John D. Rockefeller.

History in the Making Assignments: *History in the Making,* Chapter 32 (The Sinking of the USS Maine), Chapter 36 (Causes of the Stock Market Crash), and Chapter 39 (Japanese Internment).

DBQ Deconstruction: DBQ on how the different policies of FDR and Hoover toward the proper role of government reflected five decades of debates about citizenship, economic rights, and the public good. Be sure to indicate how specific policies reflect the global economic crisis of the 1930s. **[CR12]**

[CR12]—The course provides opportunities for students to connect historical developments to specific circumstances of time and place, and to broader regional, national, or global processes. — Contextualization

Six Degrees of Separation: From The Sinking of the Maine to Hiroshima.

Unit 7 Celebration of Knowledge: Eighteen multiple choice questions, four short answer questions, and one teacher created DBQ on the Progressive Movement.

Unit 8: 1945-1989 - *The American Pageant*, Chapters 36-39 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: The atomic age; the affluent society and suburbs; discrimination, the Other America, and the African American Civil Rights movement; Vietnam and U.S. imperial policies in Latin America and Africa; the Beats and the student, counterculture, antiwar, women's, chicano, American Indian, and gay and lesbian movements; summer riots and the occupation of Alcatraz; LBJ's Great Society and the rise of the New Right; Ronald Reagan and the rise of poverty; and the Cold War and U.S. role in the world**.**

Primary Source Analysis: The Marshall Plan, The Organization Man, Massive Retaliation, Brown v. Board of Education of Topeka, The Other America, Letter from Birmingham Jail, Black Power, Vietnamizing the War, The War Powers Act, The Port Huron Statement, The Sharon Statement, chart illustrating the statistics of the draft during the Vietnam War and the casualty rate of same, and political cartoons (pro and con) of the "Reagan Revolution."

Origins of the Cold War class debate: Some scholars argue that the Cold War started with the Russian Revolution. Examine primary and secondary sources and make a case for the Cold War starting in 1945 or 1917. **[CR10]**

[CR10]—The course provides opportunities for students to investigate and construct different models of historical periodization. — Periodization

Author's Thesis Paper and ATP 2: "The Internment of the Japanese" by Rehnquist.

You Be the Judge and YBTJ 2: Truman from The Truman Doctrine vs. Reagan from Tear Down This Wall speech, and Friedan from The Feminine Mystique vs. Schlafly from A Choice Not An Echo.

History in the Making Assignments: Chapter 44 (McCarthyism) and Chapter 45 (Desegregation and the Civil Rights Movement).

Students are asked to present their research on why the American Indian Movement emerged in the 1960s and not the 1930s.

DBQ Deconstruction: DBQ on the Cold War.

Six Degrees of Separation: From Containment to "Tear Down This Wall."

Using notes and primary sources, students construct a time line of the civil rights movement from Reconstruction to the 1970s and annotate key turning points in the movement. (POL-7) **[CR4]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

Unit 8 Celebration of Knowledge: Fifteen multiple choice questions, four short answer questions, and one teacher created DBQ on the rise of the new feminism.

Unit 9: 1980-present - *The American Pageant*, Chapters 40-42 [CR2]

[CR2]—Each of the course historical periods receives explicit attention.

Content: Summary of Reagan's domestic and foreign policies; Bush Sr. and the end of the Cold War; Clinton as a New Democrat; technology and economic bubbles and recessions, race relations, and the role of women; changing demographics and the return of poverty; rise of the prison industrial complex and the war on drugs; 9/11 and the domestic and foreign policies that followed; and Obama: change or continuity?

Primary Source Analysis: Listen America, The Evil empire, The Cold War is Over, The Axis of Evil, The New Segregation, Beyond Gender, Bowling Alone, Couch Potato Democracy, Setting Right a Dangerous World, and political cartoons (pro and con) on the Patriot Act.

Author's Thesis Paper and ATP 2: "The Man Who Broke the Evil Empire" by Peter Schweizer and "E Pluribus Unum" by Arthur Schlesinger.

You Be the Judge and YBTJ 2: The Patriot Act vs. Amendment IV of the Constitution, and Obamacare Verdict vs. Dissent to the Obama ruling.

History in the Making Assignments: *History in the Making,* Chapter 51 (The Modern Feminist Movement) and Chapter 53.

Students use a graphic organizer to compare and contrast the causes and goals of each act as described in excerpts from the 1924, 1965, and 1990 Immigration Acts. (PEO-7) **[CR4] [CR11]**

[CR4]—The course provides students with opportunities for instruction in the learning objectives in each of the seven themes throughout the course, as described in the *AP U.S. History Curriculum Framework*.

[CR11]—The course provides opportunities for students to compare historical developments across or within societies in various chronological and geographical contexts. — Comparison

DBQ Deconstruction: Teacher created DBQ on the U.S. government response to the attacks on 9/11.

Six Degrees of Separation: From The Reagan Revolution to the Election of Barack Obama.

Unit 9 Celebration of Knowledge: Six multiple choice questions, two short answer questions, and one teacher created FRQ on Obama's domestic policies.

AP® US Government and Politics Syllabus 2

Syllabus 1058814v1

Scoring Components		Page(s)
SC1	The course provides instruction in constitutional underpinnings of United States Government.	3–4
SC2	The course provides instruction in Political Beliefs, Political Behaviors, and Elections.	4–5
SC3	The course provides instruction in Interest Groups.	4
SC4	The course provides instruction in Political Parties.	4–5
SC5	The course provides instruction in Mass Media.	5
SC6	The course provides instruction in Institutions of National Government.	5–6
SC7	The course provides instruction in Public Policy and Public Policy Areas.	5–6
SC8	The course provides instruction in Civil Rights and Civil Liberties.	7
SC9	The course provides students with practice analyzing and interpreting data.	3
SC10	The course provides students with practice analyzing information relevant to US government and politics.	2, 6
SC11	The course includes supplemental readings, including primary source materials (such as the Federalist Papers).	4
SC12	The course includes supplemental readings, including contemporary news analyses that strengthen student understanding of the curriculum.	3, 6
SC13	The course requires students to answer analytical and interpretive free response questions on a frequent basis.	3

The AP® Government and Politics course has been traditionally taught in the spring semester with an average enrollment of twenty-five students. The academic calendar uses a "four-by-four" semester-block system. Students enroll in four classes each semester that meet every day for ninety minutes.

Teaching Strategies and Activities

The course is evenly divided between lecture and Socratic seminar. Students are responsible for keeping up with events in the news. Each class begins with a discussion of current events (public policy, international relations, etc.). The current events provide concrete connections for each lesson. Starting this year, students will have access to a Blackboard website with online quizzes, review material, and links to supplementary materials. Students have the option of completing a research paper or other cumulative project assignment approved by the teacher.

Course Overview/Description

This course explores the political theory and everyday practice that direct the daily operation of our government and shape our public policies. The express purpose of this course is to prepare students to take the AP U.S. Government and Politics Exam. The course is for all intents and purposes taught on a college level, and it requires a substantial amount of reading and preparation for every class.

The objectives of this course go beyond a basic analysis of how our government "works." Students will develop a critical understanding of the strengths and weaknesses of the American political system, as well as their rights and responsibilities as citizens.

Course Readings

There are two required texts for this course:

Burns, James M., J. W. Peltason, David B. Magleby, and Thomas E. Cronin. *Government by the People,* 18th ed. Upper Saddle River, NJ: Prentice Hall, 2000.

Woll, Peter. *American Government: Readings and Cases*, 19th ed. Upper Saddle River, NJ: Pearson, 2011. **[SC10]**

These readings will be supplemented with classroom handouts throughout the semester.

SC10—The course provides students with practice analyzing information relevant to US government and politics.

Grading and Course Requirements

Grades are figured on a cumulative point basis. Each test, quiz, homework assignment, etc., is worth a given number of points according to the quality and level of completed work. At the end of a marking period, a grade average is determined by dividing the total points possible by points earned.

For example:

Assignment	Points Possible	Points Earned
Seminar Discussion	25	23
Homework	10	9
Chapter Quiz	20	19
Current Events	10	10
Essay	100	88
Group Presentation	100	94
Unit Test	100	80
Current Events	10	10
Totals	375	333

333 points earned is 88.8 percent of 375 points (333 divided by 375). Average = 89, or a grade of B.

Forty percent of the final course grade is based on the cumulative average of homework, seminar discussions, quizzes, current events, essays, group presentation, and unit tests. The remaining 60 percent is divided between a research paper and a final exam. **[SC13]**

SC13—The course requires students to answer analytical and interpretive free response questions on a frequent basis.

Current Events

Students are responsible for keeping up with the daily events in the nation and the world. Students will need to skim the front page of *The Washington Post* or *Washington Times*; listen to NPR or another radio news program; watch a TV news station, such as CNN; or access a reliable online source. **[SC12]**

SC12—The course includes supplemental readings, including contemporary news analyses that strengthen student understanding of the curriculum.

Using Graphs, Maps, and Charts

Students are tested on their understanding of quantitative and visually presented information (maps and graphs) at regular intervals in the quiz assignments. They are also responsible for including data analysis and interpretation in the cumulative project assignment. **[SC9]**

SC9—The course provides students with practice analyzing and interpreting data.

Reading Assignments and Course Calendar

Week One

Foundations of American Government: What is the purpose of government? What was the founders' view of the purpose of government and the role of the citizen in the American Republic? Are these views still relevant today? In what ways does the Constitution underpin U.S. government? The concept of checks and balances was a novel idea in the 18th century. Why? How does Madison's concept of checks and balances challenge popular understanding of Montesquieu's theory of separation of powers? Define the following concepts: democratic theory, republicanism, pluralist theory, majoritarianism, and the elitist theory. **[SC1**]

SC1—The course provides instruction in constitutional underpinnings of United States Government.

Due this week: Burns, Chapters 1 and 2
Woll, Chapter 1: "Second Treatise on Civil Government," "Founding Fathers: Reform Caucus in Action," pp. 3–30
Woll, Chapter 1: "Federalist Papers," "How Not to Read the Constitution," pp. 41–49
Woll, Chapter 3: "Antifederalists," pp. 95–98

Week Two

Federalism: Why did the Anti-Federalists fear this new system? Referring back to the questions from the last unit, does this new system strengthen or weaken the concept of separation of powers? Why or why not? What are the powers of state and local governments in an era of "new federalism" and devolution? What influence should the federal government have over state and local issues such as education, affirmative action, abortion, and the environment? **[SC1]**

SC1—The course provides instruction in constitutional underpinnings of United States Government.

Due this week: Burns, Chapter 3
Woll, Chapter 2: "Federalist 39," "Merits of the Federal System," "McCulloch v. Maryland," **[SC11]** "The Federal System," pp. 60–78

SC11—The course includes supplemental readings, including primary source materials (such as the Federalist Papers).

Week Three

Political Socialization and Identity: How do we come by our political beliefs? What are the sources of public opinion? What is "political culture," and is there a unique American political culture? What is the "political spectrum"? How do these political beliefs define who we are as citizens? What does it mean to be a citizen? **[SC2]** What is the role of the citizen in a civil society? Which citizens vote and why? What is the relationship between individual rights and the needs of the larger community? Is democracy in America healthy and viable today?

SC2—The course provides instruction in Political Beliefs, Political Behaviors, and Elections.

Due this week: Burns, Chapters 4 and 5
Woll, Chapter 4: "Theory of Critical Elections," pp. 189–199
Woll, Chapter 4: "Voting Behavior Democratic Practice and Democratic Theory," pp. 206–214
Putnam, Robert. "Bowling Alone: America's Declining Social Capital," *Journal of Democracy* Volume 6, no. 1 (1995): pp. 65–78.

Week Four

Mass Movement Politics: Political Parties, Interest Groups, and Mass Movement Politics: What is the difference between a Democrat and a Republican? Are there other options beyond these two choices? Political parties and interest groups are not mentioned in the Constitution, yet they play a critical role. How? Why? Do they serve our democracy or are they an obstacle? How do interest groups influence government decisions and policy making? **[SC3] & [SC4]**

SC3—The course provides instruction in Interest Groups.

SC4—The course provides instruction in Political Parties.

Due this week: Burns, Chapters 6 and 7
Woll, Chapter 4: "Federalist 10," pp. 163–169
Woll, Chapter 4: "Perspectives on American Political Parties," "Divided We Govern," pp. 179–189
Woll, Chapter 4: "Politics by Other Means," pp. 200–206
Selection of research paper topic

Week Five

Campaigns and Elections: Is this the best system to develop and select leaders? Are citizens well served by the current process? **[SC2]**

SC2—The course provides instruction in Political Beliefs, Political Behaviors, and Elections.

Elections: How are candidates selected to run for office? What role is played by party organizations, PACs, and money generally in campaigns? What roles do these groups play in the electoral process? What role should they play? Should the present campaign system be overhauled and reformed? **[SC4]**

SC4—The course provides instruction in Political Parties.

Due this week: Burns, Chapter 8
Woll, Chapter 4: "Myths and Realities about the Bipartisan Campaign Reform Act of 2002," pp. 232–238
Woll, Chapter 5: "Madison's Dilemma," pp. 239–246
Woll, Chapter 5: "Interest Groups and the American Political System," "The Misplaced Obsession with PACs," pp. 256–267
Woll, Chapter 6: "American Presidential Elections," pp. 323–327

Week Six

Campaigns and Elections: Is this the best system to develop and select leaders? Are citizens well served by the current process?

Media: What role do the media play in elections and shaping public opinion? Is the media an impartial observer or an active participant in political elections and in the formation of public policy? **[SC5]**

SC5—The course provides instruction in Mass Media.

Due this week: Burns, Chapters 9 and 10
Woll, Chapter 3: "New York Times v. Sullivan," pp. 119–125
Woll, Chapter 8: "Media Power and Congressional Power," pp. 372–379

Week Seven

Public Policy and the Institutions of National Governance: Congress: How is public policy made? Does the system work as intended? Does the system work for citizens today? How does Congress represent and reflect the interest and desires of the nation? Is Congress representative of the nation as a whole? Is this the most efficient and effective way to make policy? Compare and contrast the makeup and operations of the House and Senate. How has Congress's role in policy formulation changed over time in relation to the other branches? **[SC6] & [SC7]**

SC6—The course provides instruction in Institutions of National Government.

SC7—The course provides instruction in Public Policy and Public Policy Areas.

Due this week: Burns, Chapter 11
Woll, Chapter 8: All

Week Eight

Public Policy and the Institutions of National Governance: Presidency: How is public policy made? Does the system work as intended? Does the system work for citizens today? What are the formal and informal powers of the presidency? How does the president use these powers to influence policy? Is the president too powerful or not powerful enough vis-à-vis the legislative and judicial branches? **[SC6] & [SC7]**

Due this week: Burns, Chapters 12 and 13
Woll, Chapter 6: "Federalist 70," pp. 269–274
Woll, Chapter 6: "Presidential Power," "Presidential Paradoxes," "Presidential Character," pp. 280–298

Week Nine: Spring Break

Week Ten

Public Policy and the Instruments of National Governance: Judiciary: How is public policy made? Does the system work as intended? Does the system work for citizens today? What role do the courts play in interpreting the Constitution and implementing public policy? Are the courts "guilty," as some critics charge, of supplanting the legislative and executive branches by legislating from the bench? What is the proper role for the judicial branch in the public policy process? What is the evolving relationship between the courts and civil rights? **[SC6] & [SC7]**

SC6—The course provides instruction in Institutions of National Government.

SC7—The course provides instruction in Public Policy and Public Policy Areas.

Due this week: Burns, Chapter 14
Woll, Chapter 9: All

Week Eleven

Public Policy and the Instruments of National Governance: Bureaucracy: How is public policy made? Does the system work as intended? Does the system work for citizens today? What are the specific issues addressed in public policy making? Define an iron triangle. Does it exist, and if so, how does it influence policy implementation? Who controls the bureaucracy: The president? Congress? The people? Does a largely permanent professional bureaucracy serve democracy? **[SC7]**

Due this week: Burns, Chapter 15
Woll, Chapter 7: All Selections from current news stories about bureaucracy **[SC12]**

SC12—The course includes supplemental readings, including contemporary news analyses that strengthen student understanding of the curriculum.

Week Twelve

Case Studies in Public Policy: Who sets policy agendas for our nation? [SC10] How does federalism affect public policy?

Students will research each policy area and give presentations on the following policy areas: **[SC7]**

1. **The Economy:** How is the federal budget made? How is monetary policy different from fiscal policy? What is the "global economy"? How does the global economy influence U.S. policy generally and you specifically?
2. **Social Policy:** What are subsidies and entitlements? What is the proper role for government in social issues such as education, welfare, and crime?
3. **U.S. Foreign Policy:** What role should the United States play in the world? What is, and what should be, our relationship with the United Nations?

SC10—The course provides students with practice analyzing information relevant to US government and politics.

Due this week: Burns, Chapters 19, 20, and 21
Cumulative project assignment/research papers

Week Thirteen

Civil Liberties and Civil Rights: What constitutes free speech? How does the national Bill of Rights apply to states? Do the courts "legislate from the bench"? **[SC8]**

1. **Freedom of Speech, the Press, and Assembly:** What forms of speech are protected? How is the First Amendment affected in times of crisis?
2. **Religion:** What constitutes "establishment"? What are the limits of "free exercise"?

SC8—The course provides instruction in Civil Rights and Civil Liberties.

Due this week: Burns, Chapter 16
Woll, Chapter 3: "The Need to Maintain a Free Marketplace of Ideas," pp. 113–119
Woll, Chapter 3: "Engle v. Vitale," "Zelman v. Simmons-Harris," pp. 134–145

Week Fourteen

Civil Liberties and Civil Rights: What is "equal protection" under the law? How does the national Bill of Rights apply to states? Do the courts "legislate from the bench"?

1. **Life, Liberty, and Property:** What is procedural due process? Is there a right to privacy? What do property rights mean in relation to community interests?
2. **Equal Protection and the Fourteenth Amendment:** How has the interpretation of the equal protection clause changed over time? How have laws like the Civil Rights Act of 1964, the Voting Rights Act of 1965, and affirmative action influenced our understanding of the clause?

Due this week: Burns, Chapters 17 and 18
Woll, Chapter 3: "Gideon v. Wainwright," pp. 105–113
Woll, Chapter 3: "Plessy v. Ferguson," "Brown v. Board of Education I & II," pp. 125–134
Woll, Chapter 3: "Roe v. Wade," "Adarand Constructors, Inc. v. Pena," pp. 145–160

Week Fifteen

Review for AP U.S. Government and Politics Exam and in-class final exam
Final exam (30 percent of final course grade)

Week Sixteen

AP U.S. Government and Politics Exam
Those not taking the AP Exam will have the second part of their final exam in class.

Mobile Computer Science Principles Syllabus

Overview:

The Mobile Computer Science Principles course provides an introduction to the basic principles of computer science (CS) from the perspective of mobile computing, including programming in App Inventor, a graphical programming language for Android mobile devices. The lessons and materials used by students incorporate programming while also integrating all other AP CSP big ideas: creativity, abstraction, data and information, algorithms, the internet and global impact. The curriculum engages students and supports the development of problem solving skills honing in on the computational thinking practices as indicated in the AP CSP curriculum framework. Students learn to create socially useful computational artifacts using App Inventor as well as connect computing and learn about abstracting as they develop and analyze their programs. The curriculum also emphasizes communication and collaboration in a project-based approach and classroom environment. This course involves a strong writing component. Students will maintain a portfolio of their work, which will include several performance tasks in the areas of programming and the impact of computing technology.

Prerequisites (As described by the College Board)

It is recommended that a student in the AP Computer Science Principles course should have successfully completed a first-year high school algebra course with a strong foundation in basic algebraic concepts dealing with function notation, such as $f(x) = 5\ x^2$ and problem-solving strategies that require multiple approaches and collaborative efforts. In addition, students should be able to use a Cartesian (x, y) coordinate system to represent points on a plane. It is important that students and their advisers understand that any significant computer science course builds upon a foundation of mathematical reasoning that should be acquired before attempting such a course.

Reference Text:

App Inventor 2: Create Your Own Android Apps. David Wolber, Hal Abelson, Ellen Spertus, and Liz Looney O'Reilly Media, Inc., 2014 (~$25 new on Amazon or view the Free Pre-publication Draft)

Blown to Bits: Your Life, Liberty, and Happiness After the Digital Explosion. Hal Abelson, Ken Ledeen, Harry Lewis. Addison-Wesley, 2010 (Available via Free PDF Download)

Programming Environment:

App Inventor for Android (ai2.appinventor.mit.edu), a free online software platform, is used in this course to build mobile apps for Android devices.

Online Resources:

The ***complete curriculum*** is hosted online and free of charge: https://ram8647.appspot.com/mobileCSP. The course uses many freely available resources that are only available online to ensure that the course material is current and adaptable. Students maintain individual online portfolios of their course work by using Google sites (https://www.google.com/sites/overview.html). Self-check and live coding exercises make use of Quizly (https://github.com/ram8647/quizly), a Web-based live coding platform for App Inventor. Throughout the course, students will also use a number of online articles and videos from sources such as The New York Times (www.nytimes.com), Wikipedia (www.wikipedia.org), CS Bits and Bytes (http://www.nsf.gov/cise/csbytes/), Logic.ly (www.logic.ly), YouTube (www.youtube.com), and CS Unplugged (http://csunplugged.org).

Outline of Curriculum Units and Projects:

The units that follow interweave the six AP CS Principles Computational Thinking Practices of Connecting Computing, Creating Computational Artifacts, Abstracting, Analyzing Problems and Artifacts, Communicating, and Collaborating with the seven CS Principles Big Ideas of Creativity, Abstraction, Data, Algorithms, Programming, Internet, and Global Impact.

- *Unit 1 - Getting Started: Preview & Set up*
- *Unit 2 - Introduction to Mobile Apps & Pair Programming*
- *Unit 3 - Creating Graphics & Images Bit by Bit*
- *Create - Programming Performance Task #1 (Practice)*
- *Unit 4 - Exploring Computing: Animation, Simulation, & Modeling*
- *Exam #1*
- *Explore - Impact of Computing Innovations Performance Task #1 (Practice)*
- *Unit 5 - Algorithms & Procedural Abstraction*
- *Explore - Impact of Computing Innovations Performance Task #2*
- *Unit 6 - Using and Analyzing Data & Information*
- *Unit 7 - Communication Through The Internet*
- *Create - Programming Performance Task #2*
- *Exam #2*

Assessments:

Portfolios

In this course students will document their work on their **portfolios**. That is, they will post answers to reading questions, write-ups of hands-on tutorials, written responses to assigned readings, and documentation of creative programming projects on their personal portfolio page. Each student will create a portfolio using Google sites (https://www.google.com/sites/overview.html). The portfolios will promote collaboration and sharing -- students can learn from each other -- and will constitute a full record of what the students have done in the course that they can refer back to during and after the course and share with their friends and family. Portfolios will be graded periodically throughout the duration of the course.

Reading and Homework Assignments

There will be regular reading and/or out-of-class homework assignments. These may include reading a chapter from the textbook and/or completing a tutorial or worksheet. Brief, clear, and concise written responses to the study questions must be posted on students' portfolios.

Labs

This course will be taught in a computer lab. Students will have access to computers and mobile devices and any other necessary hardware, both during the class and during free periods. Students can work in the lab during their free periods. Internet access will be available to students throughout the course. In each unit, there will be at least three labs designed to practice and/or reinforce key concepts. Some are unplugged and others are completed in an online development environment. Most are completed in App Inventor.

Projects

There will be two (2) creative programming projects in which students will use lab time to work both individually and collaboratively (in pairs) to create a socially useful mobile app that they propose (pitch), design, and implement. One of these will be a practice for the College Board's Create Performance Task.

The second will be the official College Board Create Performance Task. Twelve (12) hours of class time will be provided for completion of the official Create Performance Task.

There will also be two (2) written research projects that students will work on individually. These research projects will focus on examining a computing innovation that has impacted society. One will be a practice for the Explore Performance Task. The second will be the College Board's Explore Performance Task. Eight (8) hours of class time will be provided for completion of the official College Board Explore Performance Task.

Oral and Video Presentations

There will be approximately three (3) oral and/or videotaped presentations of students' projects during the course.

Quizzes and Exams

There will be periodic quizzes, typically to wrap up the end of each unit, and a midterm exam given during the course. There will be a comprehensive final exam. Quizzes will be hand written and/or electronic and exams will be electronic.

Self-Check and Live Coding Exercises

All lessons in this course are accompanied by short, interactive, self-check exercises that consist of multiple choice and fill-in question as well as automatically graded, live-coding, programming exercises (https://github.com/ram8647/quizly). These assessments are considered an essential part of the learning process. These are hosted online and may be done individually or with the class as a whole. Each question or exercise includes detailed feedback and students may repeat the question or exercise until it is correct.

AP CS Principles Exam

Students who complete this course will be prepared to take the AP CS Principles Exam.

Unit 1: ***Getting Started: Preview and Set up (Creativity, Algorithms, & Impact)***

Unit 1 of the course provides a brief overview of the Mobile CSP curriculum, emphasizing its main theme: learning the principles of computer science while building socially useful mobile apps. The hands-on work focuses on setting up the student's environment, including their programming environment and online portfolios. Students are led through the process of creating a Gmail account, registering on the App Inventor site, and setting up their Google sites portfolio. Their portfolios will be used to display and share all of their written work for the course. Students are provided a brief introduction to blocks-based programming by having them work through a series of increasingly challenging Blockly Maze problems. And they are given a brief introduction to the *Blown to Bits* book, which is used as a reading resource throughout the course.

Guiding Questions:

- What is the Mobile CS Principles course?
- What is graphical blocks-based programming?
- Why is it important to study the impact of computing technology?

Lessons: Welcome to Mobile CSP, **Mazes, Algorithms, and Programs,** Google Account and Portfolio Setup, App Inventor Setup, Blown to Bits (BB), Joining the Forum Wrap up	**Instructional Activity: Mazes, Algorithms, and Programs** The purpose of this activity is to show an example of what blocks-based programming is like and to introduce some basic terminology. Students are instructed to complete a sample ***Blockly*** activity in which they create small programs (*scripts),* using blocks, to solve mazes. The students are directed to the Angry Birds maze activity. After the teacher demonstrates the program, students may work alone or in pairs. This activity builds toward EU 4.1, EU 4.2, EU 5.1 and EU 5.2 by focusing on algorithm and programming concepts. LOs 4.1.1 [P2], 4.1.2 [P5], 4.2.4 [P4], 5.1.2 [P2], 5.1.3 [P6], 5.2.1 [P3]
Labs: Mazes, Algorithms, and Programs (Blockly), App Inventor Setup (App Inventor)	

Unit 2: ***Introduction to Mobile Apps and Pair Programming (Creativity, Abstraction, Programming, & Impact)***

Unit 2 provides an introduction to the App Inventor programming platform and the course's first programming project, the I Have a Dream app, a sound board app. Students are introduced to App Inventor's ***event-driven programming*** model. Students first work through a guided tutorial that plays an excerpt of a Martin Luther King speech and are then presented with several *exercises* that challenge them to extend their understanding by solving problems on their own, working in pairs. This is followed later in the unit by several *creative mini projects* where students are invited to express their own ideas by developing their own ***computational artifacts***. Students are also introduced to several important CS Principles themes and topics. Two lessons focus on ***hardware*** and ***software*** concepts. The big idea of ***abstraction*** is introduced. Students get their first look at ***binary numbers*** learning how to count in binary and how to view number systems such as binary, hexadecimal and decimal, as instances of the higher-order abstraction of a *positional number system.*

Guiding Questions:

- How does one use App Inventor and event-driven programming to build a mobile app?
- What are the various hardware and software abstractions that make up a modern digital computer?
- What is the binary number system that underlies all digital representation?

Lessons:	**Instructional Activity: I Have a Dream Projects**
I Have a Dream Tutorial, I Have a Dream Part 2, Mobile Apps and Mobile Devices, **I Have a Dream Projects,** What is Abstraction, Blown to Bits: The Digital Explosion, Binary Numbers, Where is North (A compass app), Hardware and Software Abstractions, Wrap up	The ***I Have a Dream Projects*** lesson is the third and culmination of a series of three related lessons: students are invited to express their own ideas and implement their own enhancements and extensions to the app we've been studying. In the first lesson students follow an instructor-led tutorial on how to build a basic sound board app (I Have a Dream). The instructor introduces basic App Inventor programming concepts, including the event-driven programming model that is used throughout the course. In the second lesson, students are given a set of small but increasingly challenging exercises and encouraged to work ***collaboratively*** to figure out the solutions on their own. In this culminating lesson, students design and implement enhancements and extensions to the app, including, possibly, creating an entirely new *sound board app* based on their own ideas and interests. These activities build toward EU 1.1, EU 1.2, EU 1.3, EU 5.1 and EU 5.4 by focusing on creativity, abstraction, and programming concepts. LOs 1.1.1 [P2], 1.2.1 [P2], 1.2.1 [P2], 1.2.3 [P2], 1.2.4 [P6], 1.3.1 [P2], 5.1.1 [P2], 5.4.1 [P4]
Labs: I Have a Dream Tutorial (App Inventor), I Have a Dream Part 1 (App Inventor), I Have a Dream Projects (App Inventor), Where is North (Compass App using App Inventor)	

Unit 3: ***Creating Graphics & Images Bit by Bit (Creativity, Abstraction, Data and Information, Programming, & Impact)***

Unit 3 extends the student's mobile programming toolkit to several new App Inventor components and introduces a number of new programming concepts, including the concept of a *variables*, *lists* and *data abstraction*. The main app in this unit, The *Paint Pot* app, a computational version of finger painting, focuses on App Inventor's drawing and painting features and related topics from the CS Principles framework. The app is presented in four parts each of which is followed by a set of creative project exercises and challenges. This unit also introduces two other apps: *Magic 8 Ball* app, which provides a first introduction to *lists,* and *Map Tour,* which demonstrates how to incorporate external data into a mobile app. Unit 3 also extends the student's understanding of *binary number system* and introduces students to the idea of a *bit* as the fundamental unit of data. Through a number of hands-on and interactive activities students explore how bits are used to represent images, and how redundant parity bits can be used to detect simple data transmission errors. These lessons are complemented nicely by a *Blown to Bits* reading that focuses on digital documents, including how information can be hidden inside images and other digital documents.

Guiding Questions:

- How can binary numbers be used to represent all digital data?
- How can algorithms be used to compress data?
- How do variables of both simple and structured data, such as, lists, enable us manage the complexity of a programming?

Lessons:	**Instructional Activity: Representing Images**
Paint Pot 1 (A finger painting app), Paint Pot 1 Projects, **Representing Images,** Blown to Bits: Electronic Documents, Paint Pot 2 (An introduction to variables), Paint Pot 2 Projects, Error Detection, Magic 8-Ball Tutorial and Projects, Parity Error Detection, Map Tour Tutorial and Projects, Wrap up	Building on the student's knowledge of binary and hexadecimal number systems from the previous unit, students complete an activity that allows them to gain insight and knowledge of how binary numbers can be used to represent all types of data, including numbers, images, characters, and machine language instructions. This activity builds toward EU 3.3 as students learn about *lossy* and *lossless* compression algorithms and EU 2.1 as students complete an unplugged (grid paper and pencil) activity in which they apply the *run--length encoding* algorithm to represent simple images in terms of numbers. LOs 2.1.1 [P3], 2.1.2 [P5], 3.3.1 [P4]
Labs: Paint Pot 1 (App Inventor), Paint Pot 1 Projects (App Inventor), Paint Pot 2 (App Inventor), Paint Pot 2 Projects (App Inventor), Magic 8-Ball (Using App Inventor), Map Tour (App Inventor and Google Maps Activity Starter)	

Create: Programming Performance Task #1 ***(Creativity, Abstraction, Algorithms, & Programming)***

Up until this point students have completed App Inventor tutorials and they have been given smaller challenges. This programming task is a practice for the official Create programming performance task that will be submitted to the College Board. Students are given 12-15 hours of class time to complete this task.

Assessment: Create Your Own Mobile App

Students work ***collaboratively*** with a partner (*pair programming)* to create a socially useful, interactive, mobile app. The app must in some way include drawing, graphics, and programming constructs based on skills learned in prior lessons. Students are taught how to brainstorm their ideas and develop wireframes with storyboards to express those ideas. Students are asked to give a 1-2 minute elevator pitch of their app idea and receive feedback from the instructor and their classmates. In class time is given to develop, test, and debug their app. The instructor answers any questions and provides feedback along the way. While working on their app, students are shown how to and asked to maintain a portfolio write up of their work making note of their progress and any challenges they may have faced, as well as, screenshots of blocks of code with written explanations of the how the code works. Students are shown how to record a video of their app. The project ends with an in class presentation and app demo by each pair of students.

This assessment and its activities build toward EU 1.1, EU 1.2, EU 2.2, EU 4.1, EU 5.1, EU 5.2, EU 5.3, EU 5.4, and EU 5.5 by focusing on creativity, abstraction, algorithm, and programming concepts.

LOs 1.1.1 [P2], 1.2.1 [P2], 1.2.2 [P2], 1.2.3 [P2], 1.2.4 [P6], 1.2.5 [P4], 2.2.1 [P2], 2.2.2 [P3], 4.1.1 [P2], 4.1.2 [P5], 5.1.1 [P2], 5.1.2 [P2], 5.1.3 [P6], 5.2.1 [P3], 5.3.1 [P3], 5.4.1 [P4], 5.5.1 [P1]

Unit 4: ***Animation, Simulation, and Modeling: Exploring the Impact of Computing (Creativity, Abstraction, Data and Information, Algorithms, Programming, & Impact)***

Unit 4 focuses on *animation, simulation and modeling*. The *Android Mash* app introduces the idea of *computer simulation* with a computational version of the traditional Whack-a-Mole game. The *Coin Flip* app, which extends over several lessons, introduces the concept of *modeling.* The activities in Unit 4 build toward EU 2.3 as students learn that models use abstractions, such as a pseudo random number generator (PRNG), to represent real word situations, in this case, the flipping of a coin; EU 3.3 as students learn how PRNG algorithms are used to model *randomness* inside a computer, such as with the *Coin Flip* app; EU 7.1 as students extend the app model to represent different types of coins, including a biased coin and a three--sided coin. This is followed by an experimental lesson where an app that repeatedly "flips" a coin is used to assess the quality of App Inventor's PRNG; EU 7.3 as students learn how one's privacy is impacted by developing technology and computing innovations; and EU 7.4 as students learn the economic, social and cultural effects of computing innovations, such as real world models of the weather and the solar system.

Guiding Questions:

- How do computers use simulation and modeling to represent real world phenomena?
- Why is randomness important and how is it modeled inside a computer?
- In what ways does simulation and modeling extend our knowledge and benefit society?

Lessons:	**Instructional Activity #1: Coin Flip Experiment**
Android Mash Tutorial, Android Mash Projects, Coin Flip Simulation, **Coin Flip Experiment**, Pseudo Random Number Generators (PRNGs), Coin Flip Simulation Projects, Real World Models, **Blown to Bits: Privacy,** Wrap up	In the prior lesson, students write the Coin Flip app, which simulates flipping a coin. In this lesson students work **collaboratively** to conduct an experiment using a mobile app that models a coin flip to test the hypothesis that App Inventor's PRNG is a good model of random behavior. Using the app, students are instructed to "flip" a coin 100s of times and asked to record the data in a table. When completed, the students calculate the percentage of heads and tails, which, in a good model should approach 50:50. Afterwards each group **communicates** their results to the class and the class spends time reflecting on what they learn from the experiment and how it could be refined. LOs 2.3.1 [P3], 2.3.2 [P3] **Instructional Activity #2: Blown to Bits: Privacy** After learning about the importance of animation, simulations, and modeling in the computing world, students will read a chapter or excerpt from *Blown to Bits* that focuses on privacy issues. Guided reading questions are provided for the students to answer independently. When the students are finished, the class spends time **communicating** their ideas and discussing how one's privacy is impacted by the developing technology and computing innovations, using *Blown to Bits* and their personal experiences as references. LOs 3.3.1 [P4], 7.1.1 [P4], 7.3.1 [P4], 7.4.1 [P1]

Labs: Android Mash (App Inventor), Android Mash Projects (App Inventor), Coin Flip (App Inventor), Coin Flip Projects (App Inventor)

Explore: Impact of a Computing Innovation Performance Task #1 *(Creativity, Impact)*

Up until this point students have read Blown to Bits chapters and excerpts, as well as, read and discussed articles about recent computing innovations that have been in the news. Students are encouraged to find daily news articles about advances in technology and share them with the class. This task is a practice for the official Explore performance task that will be submitted to the College Board. Students are given 4-5 hours of class time to complete this activity.

Activity: Impact of a computing innovation

This activity involves discussing, as a class, a computing innovation that has had considerable impact on the social, economic, or cultural areas of our lives, such as phone monitoring software. Students work **collaboratively** in small groups to research the computing innovation and find *reliable sources* using sites such as the *ACM Digital Library*. Students are also asked to cite their sources and are instructed about *plagiarism.* The instructor assigns each group member a prompt taken from the official Explore Performance Task to answer about the innovation. Each group member answers the prompts in a single Google document that is shared among the group. The group then works together to edit the entire document discussing changes that need to be made. When the document is completed (i.e. all prompts are answered and all sources are cited), each student is asked prepare their own original digital artifact (e.g. music, image, video, infographic, presentation, program, web page) to express the effects the chosen innovation. Students are asked to share their artifact with their group members. After completing this activity, the students are asked to reflect on the experience and to brainstorm at least three computing innovations they might want to research for the official Explore Performance Task

This activity builds toward EU 1.1, EU 1.2, EU 3.1, EU 3.3, EU 7.1, EU 7.3, EU 7.4, and EU 7.5 by focusing on creativity, data, and global impact concepts.

LOs 1.1.1 [P2], 1.2.1 [P2], 1.2.2 [P2], 1.2.3 [P2], 1.2.5 [P4], 3.1.3 [P5], 3.3.1 [P4], 7.1.1 [P4], 7.3.1 [P4], 7.4.1 [P1], 7.5.1 [P1], 7.5.2 [P5]

Unit 5: Algorithms and Procedural Abstraction (*Abstraction, Algorithms, Programming, & Impact)*

In Unit 5, algorithms and procedures are examined in more detail. The Logo apps introduce the concept of procedural abstraction and students learn to define and use procedures -- named blocks of code that perform a specific task. By encapsulating the algorithms into named procedures and introducing parameters to help generalize the algorithms, students are led to see the advantages of procedural abstraction. In addition to designing and testing their own algorithms, students are also provided an introduction into the ***analysis of algorithms.*** Algorithm efficiency is examined for searching and sorting algorithms, which are analyzed both experimentally and through mathematical concepts such as functions and graphs. The impact section of this unit focuses on the impact that Web searching algorithms have had on our lives. The activities completed in Unit 5 build toward EU 2.2, EU 4.1, EU 4.2, EU 5.3 and EU 5.5 by focusing on abstraction, algorithms, and programming concepts.

Guiding Questions:

- How are multiple levels of abstraction used to create computational artifacts?
- In what ways are some algorithms better than others?
- What limits do algorithms have?

<table>
<tr>
<td>Lessons:

What is an algorithm?
Logo Part 1,
Logo Part 2,
Search Algorithms,
Sort Algorithms,
Analyzing Algorithms,
The Pong Game,
Limits of Algorithms,
Debugging Pong,
Blown to Bits: Web Searches,
Wrap up</td>
<td>Instructional Activity #1: Logo Part 2
Students are provided an app that implements a simple version of Logo, a programming language that lets them draw shapes by moving an Android dude around a canvas. In its initial version, students are given very impoverished procedures -- i.e., a move procedure that only moves the Android by 10 pixels and a turn procedure that only turns right by 90°. Students complete a series of drawing exercises that lead them to see limitations of the impoverished procedures -- i.e., it is very difficult to draw simple shapes and some shapes, such as a triangle, are impossible to draw. Students are then introduced to procedures with parameters as a more powerful abstraction. In this way, the Android can be made to move and turn by arbitrary amounts -- i.e., move(x) and turn(y). Students are then encouraged to develop their own procedures -- their own abstractions -- to draw more complex shapes. By adding simple loops into the procedures students can design interesting graphical figures. In this way students are led to see the close interplay between algorithms and procedures.

LOs 2.2.1 [P2], 2.2.2 [P3], 2.2.3 [P3], 4.1.1 [P2], 5.3.1 [P3], 5.5.1 [P1]

Instructional Activity #2: Limits of Algorithms
In this lesson students use apps collaboratively to classify algorithms experimentally as either logarithmic, linear, n log n, or quadratic. A video introduces the concepts of intractability and undecidability through examples of (intractable) problems that cannot be solved efficiently and (unsolvable) problems that cannot be solved at all by means of an algorithm.

LOs 4.2.1 [P1], 4.2.2 [P1], 4.2.3 [P1]</td>
</tr>
<tr>
<td colspan="2">Labs: Logo 1 (App Inventor), Logo 2 (App Inventor), The Pong Game (App Inventor), Debugging Pong (App Inventor)</td>
</tr>
</table>

Unit 6: ***Using and Analyzing Data and Information (Creativity, Data and Information, Programming, & Impact)***

Unit 6 focuses on various aspects of using and manipulating ***Data***, both within mobile apps and on the Web and Internet. The App Inventor lessons in this unit focus on different types of programming data, including variables and ***structured data***, such as lists and databases. Students build apps that involve ***persistent data,*** data that persists from one instance of the app to another, and learn how to share data online by using simple Application Programming Interfaces (APIs), such as the Google Fusion table API. This unit's CS Principles lessons build toward EU 3.1, EU 3.2, EU 7.1, EU 7.2, and EU 7.5 by focusing on the concept of Big Data and its growing importance and its impact on society. Students are also introduced to the some of the algorithms for processing massive datasets.

Guiding Questions:

- How does continuous access to large amounts of data change how people and organizations make decisions?
- How do computers put things in order and find things in a list?
- What is the connection between data, information, knowledge, and wisdom?

Lessons:	**Instructional Activity: Using Fusion Tables to Visualize Big Data**
Presidents Quiz Tutorial, Presidents Quiz Projects, Blown to Bits: Who Owns the Bits?, Lists of Lists, Persistent Data, Sharing Data on the Web, Data Persistence Projects, Big Data, **Using Fusion Tables to Visualize Big Data,** A Mobile Fusion Table App Wrap up	A fusion table is a Google cloud application that helps you manage, process, and visualize data. After taking a tour of the fusion table gallery, to see the various ways they can be used to process and visualize data, students are taught the basics of creating a fusion table and importing data into it. It is pointed out that governments and other large organizations are increasingly making their data publicly available. The lesson, which may extend over multiple class periods, culminates with a ***collaborative activity*** in which students, working in pairs or groups, download a big data set from data.gov of their chosing using search techniques, upload it into a fusion table and then formulate some questions about the dataset that they use fusion table constructs to answer. LOs 3.1.1 [P4], 3.1.2 [P6], 3.1.3 [P5], 3.2.1 [P1], 3.2.2 [P3], 7.1.2 [P4], 7.2.1 [P1], 7.5.1 [P1], 7.5.2 [P5]
Labs: Presidents Quiz (App Inventor), Presidents Quiz Projects (App Inventor), Lists of Lists (App Inventor), Data Persistence Projects (App Inventor), Fusion Table App (App Inventor and Google Fusion Tables)	

Unit 7: ***Communication Through The Internet (Creativity, Programming, The Internet, & Impact)***

Unit 7 focuses on the ***Internet***, one of the big ideas in computer science. The App Inventor lessons in this unit show different ways to use the internet in apps, including the ability to send text messages over Wifi, finding directions via the Google Maps API. The CS Principles lessons focus on the Internet, how it works, how it enables innovation and collaboration, and security concerns for using it.

Guiding Questions:

- What is the Internet, how is it built, and how does it function?
- What aspects of the Internet's design and development have helped it scale and flourish?
- How is cybersecurity impacting the ever increasing number of Internet users?

<table>
<tr>
<td>Lessons:

What is the Internet?,
No Texting While Busy Tutorial,
Cloud Computing and Ethics,
How the Internet Works,
My Directions Tutorial,
Cryptography Basics,
Cryptography: Securing the Internet
Blown to Bits: Cryptography,
Socially Aware App: Broadcast Hub,
Wrap up</td>
<td>Instructional Activity #1: How the Internet Works

This lesson goes more deeply into the infrastructure and mechanics of the Internet. It explains packet switching, TCP/IP and the protocol hierarchy. Students complete a series of activities using network administration software tools such as Ping and Traceroute, as well as, looking up domain names, and IP addresses.

These activities builds toward EU 6.1 and EU 6.2 by focusing on concepts around the Internet, how the Internet works and the systems it is built on..

LOs 6.1.1 [P3], 6.2.1 [P5], 6.2.2 [P4]

Instructional Activity #2: Cryptography: Securing the Internet

After learning about and using some of the basic concepts of cryptography in an earlier lesson, students are introduced through CS Unplugged videos to the key-exchange problem and then to the basic ideas of public-key encryption as a way of solving this problem. Through a video lecture, students learn essential the details about the Internet’s trust system and how it is implemented in modern browsers to support the exchange of information securely across the Internet. This activity builds toward EU 6.3 by focusing on how cybersecurity is made possible through encryption.

LO 6.3.1 [P1]</td>
</tr>
<tr>
<td colspan="2">Labs: No Texting While Busy (App Inventor), My Directions (App Inventor and Google Maps APIs), Broadcast Hub (App Inventor)</td>
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