



# LIBERTY

COMMON HIGH SCHOOL

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*COMMVNIS SCIENTIA, VIRTVTES, ET PRVDENTIA*

Liberty Common High School  
Grades 9-12  
Course Descriptions  
2010-2011

## Liberty Upper School and High School Overview

		Upper School		High School			
PERIODS	COURSE TYPE	7th Grade	8th Grade	9th Grade	10th Grade	11th Grade	12th Grade
1	Math (40 cr)	Pre-Algebra	Algebra I	Geometry	Algebra II & Trig.	Pre-Calculus	Math Elective
2	Science (40 cr)	Science 7	Science 8	Biology	Chemistry	Physics	Science Elective
3	English (40 cr)	English 7	English 8	Western Literature	British Literature	American Literature	English Elective
4	Social Studies (40 cr)	History 7	History 8	Western Civilizations	Economics	US History and Geography	Social Studies Elective
5	Foreign Language (30 cr)	Latin 1	Spanish 1 or Latin 2	Spanish 2 or Latin 3	Spanish 3 or Latin 4	Spanish 4 or AP Latin	
6	First Semester	Computer Essentials	Composition 1	Speech	Personal Finance (10 or 11)	Composition 2	
	Second semester	Core Music 7	Core Music 8/ PE 8	Health			
7	First Semester	Core Art 7	Core Art 8			Personal Finance (10 or 11)	
	Second semester	PE 7					
8	First Semester						
	Second Semester						
<b>Core credits</b>		70	65	60	50 or 55	60 or 65	40
<b>Elective credits</b>		10	15	20	25 or 30	15 or 20	40

### Key

Core Required Classes	
Electives	

## **High School Core Classes**

Liberty Common School upper school students (grades 10-12) take both CORE and ELECTIVE classes.

The following is a list of required, **CORE** classes per grade.

### **9<sup>th</sup> Grade**

**Western Literature**

**Western Civilization**

**Biology**

**Math** (Algebra 1, Geometry, or Algebra 2 & Trigonometry)

**Foreign Language** (Spanish or Latin)

**Speech**

**Health**

Elective

Elective

### **10<sup>th</sup> Grade**

**Western Literature** (British Lit. will be taught in 2011-2012)

**Western Civilizations** (Economics will be taught in 2011-2012)

**Chemistry**

**Math** (Geometry, Algebra 2 & Trigonometry, Pre-Calculus)

**Foreign Language** (Spanish or Latin)

**Personal Finance** (1 semester only, has to be taken in 10<sup>th</sup> or 11th)

Elective

Elective

Elective

### **11<sup>th</sup> Grade**

**American Literature**

**US History and Geography**

**Physics**

**Math** (Geometry, Algebra 2 & Trigonometry, Pre-Calculus, AP Calculus)

**Foreign Language** (Spanish or Latin)

**Personal Finance** (1 semester only, has to be taken in 10<sup>th</sup> or 11th)

Elective

Elective

### **12<sup>th</sup> Grade**

English elective

History elective

Science elective

Math elective

Elective

Elective

Elective

Elective

# High School Course Descriptions

\*Please note these selections are subject to change.

Note: Students are scheduled as follows: 11<sup>th</sup>-12<sup>th</sup> graders receive first priority, 9<sup>th</sup>-10<sup>th</sup> graders receive second priority, and upper school students are scheduled last.

## Math Courses

### **ALGEBRA I**

Credits: 10

Prerequisites: Completed pre-algebra course or passing a pre-test

Grades: 9

This course will introduce basic concepts for algebraic equation solving. It will include expressions, linear equations and graphs, inequalities, systems of linear equations, and quadratic equations and graphs. Topics from geometry and statistics will be introduced as well.

### **GEOMETRY**

Credits: 10

Prerequisites: Algebra 1

Grades: 9 - 10

This course will provide a thorough knowledge of the main topics of classical plane and solid geometry. Students will learn how a large body of results may be deduced from a comparatively small number of assumptions. Through regular practice, students will be trained to present an argument in a clear and orderly fashion using classical geometric definitions, postulates, and theorems. Finally, students will be introduced to co-ordinate geometry and the geometric aspect of trigonometry.

### **ALGEBRA II & Trigonometry**

Credits: 10

Prerequisites: Algebra I & Geometry

Grades: 9-11

Emphasis is on functions including radical, piecewise, exponential, logarithmic, inverse, and trigonometric functions. Students also study sequences and series. Also studied are indirect proof, polar coordinates, vectors, and parametric equations. Probability and statistics topics as well as topics in discrete mathematics will be included.

### **PRE-CALCULUS**

Credits: 10

Prerequisites: Algebra II

Grades: 10-12

This course will focus on linear, quadratic, and polynomial functions, inequalities and absolute values, exponential and logarithmic functions, conic sections,

trigonometric functions and their applications, complex numbers, polar functions, combinatorics, probability, data analysis, and limits.

## **AP CALCULUS**

Credits: 10

Prerequisites: Pre-Calculus

Grades: 11-12

This course will focus on limits, continuity, derivatives of algebraic functions and their applications, integrals and their applications, integration techniques, numerical methods, introductory differential equations, and slope fields, as well as an introduction to other Calculus topics.

## **PROBABILITY & STATISTICS**

Credits: 5

Prerequisites: Algebra II

Grades: 11-12

Statistics is a one-semester mathematics course centered on four main topics: exploring data; planning a study; probability as it relates to distributions of data; and inferential reasoning. The course will include discrete and continuous probabilities, analysis and applications of normal distribution and other probability distribution/density functions, sampling, and error margins. Discussion of how statistics can be manipulated to give an incomplete picture or suggest a desired outcome will be included. Students will be expected to propose and carry out a statistical study.

## **DECISION SCIENCES / GAME THEORY**

Credits: 5

Prerequisites: Geometry, Algebra II

Grades: 11-12

This course stresses the connections between contemporary mathematics and modern society, accommodating new ideas in mathematics and their applications to our daily lives. Topics applicable to real world situations include: management sciences, statistics, voting and social choice, fairness and game theory, size and growth, and money and resources. The course uses a common sense approach to every day conflicts ("games"), from social settings to business environments, including analyses of getting a job or gaining admission to college, managing, bluffing, promising and even dating, to name just a few of the areas studied. Knowledge of self-interest (one's own and the other party's) is a bedrock concept of game theory and concrete examples and interactions are used to introduce students to a new and effective way of systematically approaching all conflicts.

## **DISCRETE MATH**

Credits: 5

Prerequisites: Geometry, Algebra II

Grades: 11-12

This course provides a survey of elementary discrete mathematics. Topics include set theory, relations, functions, elementary graph theory, including directed graphs and trees and selected graph algorithms. Algebraic structures including groups, lattices, elementary combinatorics, permutations and combinations will be studied.

## **LINEAR ALGEBRA**

Credits: 5

Prerequisites: Geometry, Algebra II

Grades: 11-12

This course provides students with an understanding of basic linear algebra techniques and the skills to perform computations involving vectors, matrices, and systems of linear equations. The topics to be covered include vectors and their linear transformations, the algebra of matrices, determinants, eigenvalues, and eigenvectors.

## **Science Courses**

### **BIOLOGY**

Credits: 10

Prerequisites: N/A

Grade: 9

This is an introductory biology course that covers the topics: chemistry of life, cell structure and function, respiration and photosynthesis, cell division, genetics, taxonomy, human biology, and ecology. Students participate in frequent labs using microscopes, gel electrophoresis, and dissecting equipment to enhance reading and lectures. This class is a prerequisite for anatomy and physiology, and genetics.

### **CHEMISTRY**

Credits: 10

Prerequisite: Algebra 1, Geometry

Grade: 10, 11, 12

This course emphasizes fundamental concepts regarding the interactions of energy and matter. Rigorous problem solving and quantitative lab work are required. Topics covered include structure and states of matter, reactions including oxidation/reduction, stoichiometry, equilibrium (acid/base, gaseous reactions, solutions) kinetics, thermodynamics and chemical calculations. This class is a pre-requisite for AP Chemistry.

## **PHYSICS**

Credits: 10

Prerequisite: Algebra II

Grade: 11 or 12

This is a full-year laboratory course studying the interactions of energy and matter. Units of study will include forces, motion, waves, sound, optics, electricity, relativity, heat transfer and electrostatics. Weekly experiments are performed to enhance student understanding of physical concepts discussed in class and to gain an appreciation of the methods of science. Students will record, analyze and interpret data through various technologies to examine the fundamental laws of nature. The work requires considerable use of mathematics and problem-solving skills. This class is a prerequisite for AP Physics.

## **ICPE (Introduction to Chemistry, Physics, and Earth Science)**

Credits: 10

Prerequisites: Algebra 1

Grades: 9, 10 (**strongly recommended for students in 9<sup>th</sup> grade**)

Full-year course. Open to 9<sup>th</sup> or 10<sup>th</sup> graders only. This course is an introduction to Chemistry, Physics and Earth Science. Students will study chemical equations and reactions, stoichiometry, and chemical principles. The Physics unit covers physical principles, laws of motion, and corresponding equations and calculations. Earth Science covers Earth history, plate tectonics, weather, and astronomy.

## **ASTRONOMY**

Credits: 5

Prerequisites: N/A

Grades: 9, 10, 11, 12

Semester course. This course is aimed at understanding Earth's place in space. This includes study of the sun and moon; of the solar system; theories of its origins, and how we have explored it; the life cycle of stars and galaxies; constellations – their origins in myth, their use today, and identification of the major seasonal groups. This course also includes the study of structure, origin, and future of the universe. Students are expected to attend an evening session of stargazing.

## **METEOROLOGY AND CLIMATE**

Credits: 5

Prerequisites: N/A

Grades: 10, 11, 12

Semester course. This course provides a first look at various aspects of meteorology, including solar radiation, global circulation, winds, stability, precipitation processes, weather systems and severe weather. Basic physical principles, meteorological terminology, and weather analysis will be explored.

## **EARTH SCIENCE**

Credits: 5

Prerequisites: N/A

Grades: 10, 11, 12

Semester course. This course studies the processes important in understanding Earth's interior. Planetary segregation, heat flow, Earth's magnetic field, earthquakes, continental drift, paleomagnetism, seafloor spreading, mantle plumes, and crustal deformation are investigated in light of the unifying theory of plate tectonics. Physical and chemical properties of minerals and the genesis of igneous, sedimentary and metamorphic rocks, and their relationship to the rock and tectonic cycles are also covered.

## **AP CHEMISTRY**

Credits: 10

Prerequisites: Chemistry, Algebra II

Grade: 11, 12

This course is designed according to the College Board Advanced Placement guidelines to be the equivalent of the general chemistry course usually taken during the first college year. Successful students will gain a depth of understanding of fundamentals and a reasonable competence in dealing with chemical problems. The course will contribute to the development of the students' abilities to think clearly and to express their ideas, orally and in writing, with clarity and logic through a greater emphasis on chemical calculations and the mathematical formulation of principles, as well as through the nature and variety of experiments done in the laboratory component. Students should expect to spend approximately 10 hours of work per week on the class between the in-class instruction, laboratory work, and studying outside of class.

## **AP BIOLOGY**

Credits: 10

Prerequisite: Biology and Chemistry

Grade: 11, 12

AP Biology, as designed by The College Board, is a rich and challenging class for highly motivated students in biology, equivalent to a college introductory biology course. The rigor of this class stems from its depth of content, as well as its emphasis on science process through completion of several college laboratories. Students will use college texts and supplementary materials to understand the following major themes in biology: evolution, energy transfer, continuity and change, relationship of structure to function, regulation of life processes, interdependence in nature, and science as it relates to technology and society. Successful performance on the national AP Biology exam may result in the granting of college credit at many universities.

## **ANATOMY / PHYSIOLOGY**

Credits: 10

Prerequisite: Biology

Grade: 11, 12

Students with a major interest in the biomedical career paths will enjoy the in-depth study of the major human systems. Anatomy is the study of structure. Extensive dissection of vertebrates will reinforce the body and demonstrate the complexities and similarities in mammalian structure. Physiology is the function and interaction of the body parts and their associated systems.

## **AP PHYSICS B**

Credits: 10

Prerequisites: Physics, Pre-Calculus

Grade: 11, 12

This course is designed according to the College Board Advanced Placement guidelines to be a systematic introduction to the main principles of physics and emphasizes the development of conceptual understanding and problem-solving ability using algebra and trigonometry, but rarely calculus. In most colleges, this is a one-year terminal course including a laboratory component and is not the usual preparation for more advanced physics and engineering courses. However, the B course provides a foundation in physics for students in the life sciences, pre-medicine, and some applied sciences, as well as other fields not directly related to science.

## **SCIENCE OF ENERGY**

Credits: 5

Prerequisites – Chemistry, Physics

Grade: 11, 12

This course presents basic principles of physics and chemistry. It includes the study of the eight forms of energy: chemical, optical, magnetic, electrical, thermal, acoustical, and nuclear. Energy sources, their applications, benefits, and drawbacks will be considered from a scientific point of view.

## **PRINCIPLES OF ENGINEERING**

Credits: 10

Prerequisite: Algebra 1

Grade: 11, 12

*This course is yet to be defined.*

## **INTRODUCTION TO MECHANICAL ENGINEERING DESIGN**

Credits: 10

Prerequisite: Algebra 1

Grade: 11, 12

This course emphasizes the development of a design. Students use computer software to produce, analyze and evaluate models of project solutions. They study the design concepts of form and function, and then use state of the art technology to translate conceptual design into reproducible products. This course teaches students to:

- Understand and apply the design process to solve various problems in a team setting;
- Apply adaptive design concepts in developing sketches, features, parts and assemblies;
- Interpret their own sketches in using computer software to design models;
- Understand mass property calculations-such as volume, density, mass, surface area, moment of inertia, product of inertia, radii of gyration, principal axis and principle moments-and how they are used to evaluate a parametric model;
- Understand cost analysis, quality control, staffing needs, packing and product marketing;
- Explore career opportunities in design engineering and understand what skills and education these jobs require; and
- Develop portfolios to display their designs and present them properly to peers, instructors and professionals.

## **SCIENCE / ENGINEERING INTERNSHIPS**

Credits: 5

Prerequisite: Teacher recommendation

Grade: 12

(Second semester research studies with CSU / corporation based on strong academic work and interest from first semester elective)

## **History Courses**

### **POLITICAL SCIENCE**

Credits: 5

Prerequisites: N/A

Grades: 9, 10

Semester course. The focus of this course is U.S. National Government and politics. It will emphasize the institutions and political forces that have shaped the U.S. National Government and examine the behavior of individuals in the American political system and the non-institutional forces that influence decision-making in U.S. politics (such as political parties, interest groups, and the media). This course enables the student to understand the functions of the U.S. National Government and how citizens can access the decision-making process. Students will also gain a fuller understanding of the American political system.

## **ECONOMICS**

Credits: 10  
Prerequisites: N/A  
Grades: 10

This course is an intense analysis of a broad spectrum of economics curriculum including a study of prices and markets, industry and commerce, work and pay, time and risk management, and national and international economies. Each fall, the class participates in the Stock Market Game.

## **WESTERN CIVILIZATION/GEOGRAPHY OF THE ANCIENT WORLD**

Credits: 10  
Prerequisites: N/A  
Grades: 9

This course focuses on the study of the ancient histories of Israel, Greece and Rome progressing to the development of Western Civilization from early Christianity to the periods of Renaissance, Reformation, Counter Reformation and Enlightenment.

Students also study the geography of the Ancient World and its changes throughout the development of Western Civilization.

## **US HISTORY & US GEOGRAPHY**

Credits: 10  
Prerequisites: N/A  
Grades: 11

This course focuses on four or five aspects of history such as the history of property rights, ideas, energy, trade/economics, and race relations/culture. Reference texts may include the following:

- Property rights—The Noblest Triumph by Tom Bethel, Property and Freedom by
- Richard Pipes, The Mystery of Capital by Hernando de Soto, Communism by Richard Pipes.
- Ideas— A Conflict of Visions and or The Quest for Cosmic Justice, The Economics and Politics of Race, Civil Rights: Rhetoric or Reality (all by Thomas Sowell).
- Energy—The Bottomless Well (The Hx of energy) by Huber and Mills. Readings from The Skeptical Environmentalist by Bjorn Lomborg.
- Capitalism—What's so great about America by D'nesh D'Sousa, Capitalism the Unknown Ideal by Ayn Rand, Man vs the Welfare State.

Although this course does not follow the standard political history, it will teach the ideas in play and at battle. The history and literature teachers will work in concert with one another to ensure that there is a cohesive curriculum in place for both classes.

There will be summer reading for this course.

## **AP GOVERNMENT/CONSTITUTION**

Credits: 10

Prerequisites: US History

Grades: 12

This course focuses on U.S. national government and its structure as defined in the U.S. Constitution. It will emphasize the institutions, major court cases, and political forces that have shaped the U.S. national government and the Constitution. The two principal worldviews will be studied and their expressions in American politics evaluated. Though all of U.S. History will be considered, the emphasis will be on the 20th century.

## **AP US HISTORY**

Credits: 5

Prerequisites: US History

Grades: 11, 12

This course prepares students to take the AP US History Exam

## **AP MICROECONOMICS**

Credits: 5

Prerequisites: 10<sup>th</sup> grade Economics

Grades: 11, 12

This course prepares students to take the AP Microeconomics Exam, giving students an understanding of economic principles and how they apply to both consumers and producers. By the time students complete this course they will have learned about the nature and functions of product and factor markets. Students will also become knowledgeable in these markets and why they succeed or fail. The role of government and its affect on economics will also be explored.

## **AP MACROECONOMICS**

Credits: 5

Prerequisites: 10<sup>th</sup> grade economics

Grades: 11, 12

This course prepares students to take the AP Macroeconomics Exam including an understanding of economic principles and how they relate to the whole economic system. By the time students complete this course they will be knowledgeable in economic performance measurements, national income and price determination, the financial sector, inflation, unemployment, and stabilization policies. Economic Growth and Productivity will also be discussed. This course includes information on International Finance and Economics.

## **English Courses**

### **BRITISH LITERATURE SURVEY**

Credits: 10  
Prerequisites: N/A  
Grades: 10

This survey is a study of the classics of the British literary tradition, from Beowulf through modern times. It introduces students to many of the greatest works ever composed while challenging them to stretch their reading and writing skills and enhance their knowledge of grammar and vocabulary.

### **BRITISH AUTHORS**

Credits: 5 (may be repeated if using different authors)  
Prerequisites: British Literature Survey (recommended), Western Literature  
Grades: 11, 12

The 12th grade British literature unit will be an in depth study of one or two authors from each of the 8 main periods of literature. By taking more time to study the works of a small handful of great writers, the students will be better able to appreciate the works, the authors, and the contribution they made to their time period as well as to the great heritage of English literature.

### **SPEECH**

Credits: 5  
Prerequisites: N/A  
Grades: (required in grade 9)

This course will focus on the fundamentals of improving public speaking in formal and informal settings. Students will focus on solo speaking opportunities and activities that address the organization, preparation, and delivery of demonstrations, as well as informative and persuasive speeches. Students' work will include effective listening, group discussions, oral interpretation of famous speeches and evaluation and preparation of visual aids.

### **WESTERN LITERATURE**

Credits: 10  
Prerequisites: N/A  
Grades: 9

This course will focus on the rich tradition of Western Literature. Western Literature and the English language are deeply rooted in the historical framework of Western Civilization. Western literature is a reflection of the culture at a particular time and is written by authors who write with an intended purpose to act as a "spokesperson" for that culture and time. The successful Western Literature student will: gain insight about themselves by examining the human condition and universal themes of various authors; apply knowledge of literary terms and figurative language; communicate articulately about literature through reading, writing, speaking, and listening.

## **AMERICAN LITERATURE**

Credits: 10

Prerequisites: N/A

Grades: 11

This course will focus on the study of American Literature. Students will study early writers from the colonial period (such as, Franklin and Paine) as well as post war writers (such as, Fisher Ames and Patrick Henry). Reading Irving, Poe, Thoreau, Hawthorne, and Orestes Brownson will help contrast the transcendental and anti-transcendental writers of the time.

The curriculum will include selections from the works of Emily Dickenson, Mark Twain, Henry James, Henry Adams, Ezra Pound, T.S. Eliot, and F. Scott Fitzgerald. The school year will also include the Southern writers, the Fugitive Poets, and some contemporary fiction.

Students will learn about and discuss the differences between the American voice that was emerging in some writers and those writing in the English tradition. As they progress through American History class, the authors studied will parallel the time in history being studied in order to illuminate the culture of each time period.

The history and literature teachers will work in concert with one another to ensure that there is a cohesive curriculum in place for both classes.

## **COMPOSITION I AND II**

The composition courses will cover the reading of selected texts and the writing of student essays. Students will deepen their understanding of the ways writers use language to provide both meaning and pleasure for their readers. Students will be taught to consider a work's structure, style and themes as well as smaller-scale elements such as the use of figurative language, imagery, symbolism and tone.

The emphasis on reading will draw from multiple genres, periods, and cultures. The emphasis on writing assignments will be on the critical analysis of literature including expository, analytical and argumentative essays. Some creative writing will be expected but will not be the focus of the course.

The overall focus will be to improve writing skills and prepare students for the writing required during their final years of high school, college entrance exams and early college writing.

## **COMPOSITION I**

Credits: 5

Prerequisites: N/A

Grades: (required in grade 8)

In addition to the general description for Composition, Composition I will cover an intensive grammar review.

## **COMPOSITION II**

Credits: 10

Prerequisites: Composition I

Grades: (required in grade 11)

In addition to the general description of Composition, Composition II will review the writing of a research paper. Students will also learn an appropriate format for writing such papers used commonly at the college level (MLA or APA).

## **TECHNICAL WRITING**

Credits: 5

Prerequisites: N/A

Grades: 12

This course will focus on technical writing – a formal style of writing that explains or teaches technical information. Examples of technical writing range widely in society. These include, but are not limited to, the fields of math, science, computers, medicine, home repairs, cook books and various 'how to' manuals. Students will learn to write technically for both technical and non-technical audiences specifically. Students will also learn to define terms, manage jargon, and communicate information clearly and concisely.

## **JOURNALISM**

Credits: 5

Prerequisites: N/A

Grades: 9, 10, 11

Semester course. This course will focus on Journalism. Students will explore the various subsets of written Journalism, including news reporting, sports, entertainment, feature articles, and public affairs writing. The emphasis will be on journalistic research, interviewing, editing, ethics, constitutional rights/laws, and public responsibility. Students will learn the differences between editorial writing, subjective analysis and objective analysis. Students will also look at common forms of fallacies in persuasion and research. Other modes of Journalism will be considered: photographic, broadcast ( TV & radio), and electronic (internet).

## **DEBATE**

Credits: 5

Prerequisites: N/A

Grades: 11, 12

Semester course. This course focuses on the development of skills in argumentation, debate and current issues. In doing this it will expand the students' critical thinking and communication skills. During this course students will engage in debates and presentations, which will include self and peer evaluations.

## **Art Courses**

### **DRAWING AND PAINTING**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

Semester course. In this class the students will draw and paint from photos and still lifes. They will use a variety of media such as graphite, watercolor, tempera, and others. In addition, the students will gain a deeper knowledge of the Elements of Art and the Principles of Design.

### **PHOTOGRAPHY AND GRAPHIC DESIGN**

Credits: 5

Prerequisites: N/A

Grades: 8, 9, 10

Semester course. This class is an introductory class to photography. Students will learn how to compose photos, adjust cameras, develop film, and make prints. The class time will be split between the darkroom and the classroom. Students interested in taking this class should be aware that photography requires taking care of valuable equipment and chemicals. Producing good images requires time, practice, and attention to detail. The class will be limited to 12 students.

### **WOODSHOP**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

Semester course. This class includes making woodworking projects using hand tools. The class will be limited to 16 students.

### **3-D DESIGN: Sculpture and Relief**

Credits: 5

Prerequisites: N/A

Grades: 8, 9, 10

This class exposes students to a variety of materials and styles used to create three-dimensional art. Students will learn about plaster carving, paper and pewter relief (Repoussé), and ceramic sculpture.

### **ART DISCOVERY: ADVANCED STUDIO ART PROJECTS**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

Discover six different art techniques while you make six beautiful projects: Create a ceramic vase, make an exotic mask, silk screen a t-shirt or handbag, turn your handmade paper into a fancy greeting card or book, make a painting with watercolor, and a pen and ink drawing. These also make great personal gifts for your friends and family.

## **COMMERCIAL ART**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

The Commercial Art class will cover a variety of areas that all involve the use of art for economic purposes. This could include graphic design (logos, fonts, printed materials), product design (designing commercial products and packaging), illustration, and architecture. Most of the projects will be 2-D, though some will involve making 3-D mock-ups of products. The class will also include a brief history of commercial art and its tremendous influence on our culture.

## **Computer Courses**

### **COMPUTER TECHNOLOGY**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

Semester course. This course offers a broad but practical introduction to computing. We will explore the hardware, software and concepts that underlie our use of computers for class, communication, and entertainment. During this exploration, we will: take a look at the history of computers, understand how information is represented by a computer, examine computer hardware by assembling/disassembling a computer and coming up with a dream machine, install an operating system, look at how software is written, uncover the architecture of the Internet, and practice different ways to exchange information over the Internet (web pages, email, files) including creating a website and web pages containing content from the course.

### **INTRODUCTION TO PROGRAMMING**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10

Semester course. Requires instructor approval. This course is a more in depth study of how software is written and is for students who would like to write or "program" their own software or games. To this end, we will study basic programming constructs and algorithms. This will lead to a deeper level of understanding of how computer hardware and software works. Programming projects for this course include writing drawing programs for both 2D and 3D graphics and writing simple games.

### **AP PROGRAMMING**

Credits: 10

Prerequisites: Algebra 1

Grades: 9, 10, 11, 12

Full-year course. Requires Introduction to Programming as a prerequisite and instructor approval. This course is a more advanced study of computer programming concepts. We will write increasingly complex programs while

exploring either for the first time or in more depth, fundamental algorithms, file access, network communication, and object oriented programming.

## **HISTORY OF TECHNOLOGY**

Credits: 5

Prerequisites: N/A

Grades: 10, 11, 12

Semester course. This course focuses on vignettes and specific examples of key periods of scientific and technological progress. A biographical approach is emphasized with a view toward the changing social impact.

## **DRAFTING, GRAPHICS, AND CAD**

Credits: 5

Prerequisites: N/A

Grades: 10, 11, 12

Semester course. This course introduces students to the principles of drafting and graphics used by engineers and technicians through a hands-on approach to learning. Topics of instruction include drawing interpretation, perspective, visualization, recognition, and description of plans and blueprints through a concentration on isometric and orthographic sketching, board drawing and tools, geometric construction, sectioning, developments, electrical drawings, and architectural drawings along with an introduction to Computer Aided Drafting (CAD). This course will be beneficial to those interested in a career in engineering or technical fields.

## **DIGITAL ELECTRONICS**

Credits: 10

Prerequisite: Algebra 1

Grade: 11, 12

This course introduces students to applied digital logic, a key element of careers in engineering and engineering technology. This course explores the smart circuits found in watches, calculators, video games, and computers. Students use industry standard computer software in testing and analyzing digital circuitry. They design circuits to solve problems, and build and test their designs on breadboards using standard components. Students use mathematics and science in solving real-world engineering problems. This course covers several topics including:

- Analog and digital fundamentals;
- Number systems and binary addition;
- Logic gates and functions;
- Basic CMOS transistor operation;
- Boolean algebra and circuit design; and
- Decoders, multiplexers and de-multiplexers.
- Introduction to microprocessors and micro-programming

## **Foreign Language Courses**

### **SPANISH I – AP SPANISH**

Learning a language requires exposure to large amounts of that language and getting accustomed to communicating in that language even when one does not understand every word; thus, the vast majority of course activities will be conducted in Spanish. Students will frequently be asked to work in pairs or small groups, and students are asked to make every attempt to communicate in Spanish in class. Further, students are required to listen to the audio resources, to study vocabulary and grammar on their own outside of class, and to complete a variety of written assignments, including grammar exercises and compositions.

In Spanish I and II courses, students should not expect to comprehend every word spoken by their instructor; instead, they should try to use what they do know (including the non-verbal cues, contextual information and cognates) to understand the general meaning. Nonetheless, students should be sure to raise their hands and/or ask questions when they do not understand the general meaning.

### **SPANISH 1**

Credits: 10

Prerequisites: N/A

Grades: 8, 9, 10

This course focuses on introductory Spanish, covering language skills emphasized through basic reading, listening, speaking and writing. Emphasis is placed on practical vocabulary in written and oral use of the language along with proper use of grammar and cultural information. Lessons will cover the varied use of the present tense for verbs. Language learning is a gradual process, in which one skill leads to the next, and in which basic skills form the basis for more advanced skills. Thus, depending on the class progress, simple past tense verbs can be introduced. Some literature will be introduced as fits the curriculum and class readiness.

### **SPANISH 2**

Credits: 10

Prerequisites: Spanish 1

Grades: 9, 10, 11

This course builds on Spanish 1 with richer expressions and exploration of past tense verb usage and introduction of future tense for verbs, along with additional practice and development of foundational grammar skills applied to reading, listening, speaking and writing. More literature will be included as fits the curriculum and class readiness.

### **SPANISH 3**

Credits: 10

Prerequisites: Spanish 2

Grades: 10, 11, 12

This course applies Spanish 1-2 skills for a deeper understanding of the language (reading, listening, speaking and writing) and its literature. Students will

begin to focus on preparation for the AP Spanish test. Nearly all of course activities will be conducted in Spanish.

Selections from the works of these authors enrich the learning experience: Cervantes, Neruda, Borges, Garcia-Lorca, Garcia-Marquez (depending on teacher's selection).

#### **SPANISH 4**

Credits: 10

Prerequisites: Spanish 3

Grades: 11, 12

This course focuses on complete expression of one's ideas, observations and feelings in Spanish, as well as preparation for Spanish AP exam. This course continues the development of the four basic language skills: reading, listening, speaking and writing. Continued emphasis is on oral proficiency along with grammar. All course activities will be conducted in Spanish.

Selections from the works of these authors enrich the learning experience: Cervantes, Neruda, Borges, Garcia-Lorca, Garcia-Marquez (depending on teacher's selection).

#### **AP SPANISH**

Credits: 10

Prerequisites: Spanish 4

Grades: 12

This course continues the development of the four basic language skills: reading, listening, speaking and writing proficiency. Continued emphasis is on oral proficiency along with grammar and verbs. AP Spanish will follow the AP curriculum for that year's test.

#### **LATIN 1 – AP LATIN**

Wheelock's Latin and Wheelock's Latin Reader will be the texts used for all Liberty High School Latin classes. Liberty will try to keep their Latin courses consistent with other schools in the region that are teaching Latin from Wheelock's text. This will be done in the consideration of the event of any ebb and flow of students from one school to the other.

Additional Latin texts will be used at the discretion of the teacher.

#### **LATIN 1**

Credits: 10

Prerequisites: N/A

Grades: 7, 8, 9

This course covers the first 28 chapters of Wheelock's Latin.

## **LATIN 2**

Credits: 10

Prerequisites: Latin 1

Grades: 8, 9, 10

This course starts with a brief review of Latin 1 and expands into further development of the students' skills with an emphasis on preparing the students with the knowledge necessary to move on to Latin 3.

## **LATIN 3**

Credits: 10

Prerequisites: Latin 2

Grades: 9, 10, 11

This course starts with a brief review of Latin 2 and expands into further development of the students' skills with an emphasis on preparing the students with the knowledge necessary to move on to AP Latin.

## **LATIN 4**

Credits: 10

Prerequisites: Latin 3

Grades: 10, 11, 12

This course starts with a brief review of Latin 3 and expands into further development of the students' skills with an emphasis on preparing the students with the knowledge necessary to move on to AP Latin.

## **AP LATIN**

Credits: 10

Prerequisites: Latin 4

Grades: 12

This course continues the development of the four basic language skills: reading, listening, speaking and writing proficiency. Continued emphasis is on oral proficiency along with grammar and verbs. AP Latin will follow the AP curriculum for that year's test.

## **Music/Theater Courses**

### **CHOIR**

Credits: 10

Prerequisites: N/A

Grades: 7, 8, 9, 10, 11, 12

Full-year course. This choir will perform 2 concerts each semester and a musical or musical revue in the spring with a focus on basic singing techniques and beginning part-singing. This choir will also concentrate on 2- and 3-part harmony and a capella singing.

## **CONCERT BAND**

Credits: 10  
Prerequisites: N/A  
Grades: 8, 9, 10

Full-year course. For students with previous experience on a band instrument. This class will focus mainly on playing different types of music for band, increasing in difficulty, and performing as many concerts as possible. This band performs 4 concerts per year, plus performances at school events.

## **SYMPHONIC BAND**

Credits: 10  
Prerequisites: Concert Band  
Grades: 11 and 12

Full-year course. This will be an advanced high school band performing music literature at the 4, 5, and 6 difficulty level. They will perform at least 4 concerts a year, with possible additional festivals and outside performances.

## **ORCHESTRA**

Credits: 10  
Prerequisites: N/A  
Grades: 7, 8, 9, 10

Full-year course. This course is for string players (violin, viola, cello and bass) with previous experience. This group will play various types of music for strings and perform several concerts during the year at Liberty and in the community.

## **ADVANCED STRING ORCHESTRA**

Credits: 10  
Prerequisite: Orchestra  
Grades: 11 and 12

Full-year course. This will be a string orchestra that will play string literature at the 4, 5, and 6 difficulty level. They will perform at least 4 concerts a year, with possible additional festivals and outside performances.

## **Other Courses**

### **PERSONAL FINANCE**

Credits: 5  
Prerequisites: N/A  
Grades: (required in grades 10 or 11)

This course focuses on practical aspects of personal finance. Students will study the basics of personal finance through a program designed by the National Council on Economic Education called:

- Financial Fitness for Life
- Bringing Home the Gold: 9-12

Bringing Home the Gold contains 22 action-oriented lessons where students make decisions about earning an income, saving and spending, using credit, and budgeting. Lessons include background information, preparation materials, student activities, and assessments to promote active learning. All lessons are tied to standards for personal finance and economic literacy. A Student Workbook highlights topics covered in each lesson and a Parent's Guide allows for additional reinforcement in the home. A companion web-site (<http://fffl.ncee.net/>) offers further information on the series and sample activities. Featured topics include:

- Evaluating career choices
- Paying taxes
- Making responsible spending decisions
- Applying for a job
- Using credit wisely
- The cost of spending vs. saving
- Shopping for an auto loan

Other programs from the National Council on Economic Education will be used to supplement this program as needed.

## **HEALTH**

Credits: 5

Prerequisites: N/A

Grades: (required in grade 9)

Semester course. This class will teach each student to live healthy productive lives, along with making positive choices about their future lifestyles. It sets the framework for the health and wellness practices that students will need throughout life.

## **PHYSICAL EDUCATION**

Credits: 5

Prerequisites: N/A

Grades: 7, 8, 9, 10, 11, 12

Semester course. Students will learn about the components of wellness. Team sports will be emphasized. Students will learn the history, rules, and skills for each sport. Please note students are required to purchase and wear a Liberty P.E. uniform consisting of tee shirt and shorts. The cost of the uniform is \$17.50.

## **SILENT STUDY HALL**

Credits: 0

Prerequisites: N/A

Grades: 7, 8, 9, 10, 11, 12

Semester course. This is a SILENT study hall that does not allow any talking. Students are expected to complete schoolwork or read silently.