

**Course Descriptions**  
**Ninth through Twelfth Grades**  
**Life Center Academy**

**English**

**Survey of English I and II (9<sup>th</sup> and 10<sup>th</sup> grade):** These courses are an introduction to American and English Literature. Selections are chosen to elevate and enhance students' awareness of literature. An integration of Language Arts (grammar, vocabulary, usage, and mechanics) enhances understanding and communication to empower students in a literate world. Academic writing will focus on literary analysis, essay writing, and the research paper. Both courses are taught in four units including daily grammar and vocabulary.

**English Literature (11<sup>th</sup> and 12<sup>th</sup> grade):** This is a survey course of English Literature that will concentrate on the Anglo Saxon period to the Victorian Age. It also includes a unit of English poetry and creative writing. Academic writing will consist of perfecting expository, analytical, and persuasive essays. Grammar and vocabulary are also essential parts of the course.

**American Literature (11<sup>th</sup> and 12<sup>th</sup> grade):** This course consists of a refined study in grammar, writing techniques, vocabulary usage, and reading comprehension of American literary excerpts.

**Introduction to Theatre:** This is a course designed to give students a basic knowledge of theatre history, acting, and production skills. We will explore characterization and scene work as well as the fundamentals of production work such as costuming, set design, lighting, sound, and publicity. The students' classroom efforts will cumulate in an evening performance called The Performing Arts Living Room.

**Intensive Writing:** This is a course designed to improve the writing skills of the students. Each class will begin with an essay to help students get prepared for essay writing for exams, college, and job applications. The remaining time of the class will consist of minilessons based on areas in which the group needs strengthening, a writers' workshop, and private sessions about pieces being written.

## **Social Studies**

**World History (9<sup>th</sup> grade):** A study of the major ancient civilizations of the world. The cradle of Civilization: Egypt, Mesopotamia, India, and China; Our Classical Heritage: Greece, Rome, and the rise of Christianity; The Middle Ages: Byzantium, and the rise of Islam; The Golden Ages of China, Korea, Japan, India, and Southeast Asia. The Civilizations of Sub-Saharan Africa; The Civilizations of Central and South America.

**United States History I (10<sup>th</sup> grade):** A study of the history of the United States of America from 1492 to 1865.

**United States History II (11<sup>th</sup> grade):** A study of the history of the United States of America from 1865 to the present.

**Economics (12<sup>th</sup> grade):** This study is focused on how individuals, businesses, and governments allocate their limited resources in an intent to satisfy their unlimited needs and wants. The three economic concepts of microeconomics, macroeconomics, and international economics will be explored. How economic decisions impact our everyday lives, the economic health of a nation, and the global economy. Students will also explore the area of personal finances to help empower each learner to make sound economic decisions.

## Math

**Algebra I:** A course designed to develop the algebraic concepts necessary to provide a firm foundation for advanced mathematics courses while forming a link to the concepts of statistics, geometry, and many other branches of mathematics. In addition, this course is designed to provide the student with practical applications in the “real world” as well as specific connections to the sciences.

**Algebra II:** A curriculum that emphasizes the understanding of algebraic concepts, including the solutions and applications of quadratic equations using algebraic and graphing techniques; mathematical modeling and the solution of simultaneous equations by algebraic, graphing, and matrix methods.

**Geometry:** A course designed to study the properties and relationships between various geometric shapes. A rigorous approach is taken in the precise definitions and postulates in the areas of testing conjectures and proving theorems. Through the process of learning to develop proofs, the student will build logic skills. Applications include scale drawings and the transfer of identical figures through the use of the postulates and theorems.

**Algebra III:** This course develops algebraic concepts with algebraic and geometric concepts of polynomials, exponentials, and logarithmic functions and an in-depth study of conic sections; circles, ellipses, hyperbolas and parabolas, which lead to many practical examples of real life problems which can be solved using these concepts. A unit on sequences and series is also studied in this course.

**Discrete Mathematics:** In Discrete Mathematics, we propose solutions to seemingly simple problems, which when explored in depth, yield complex solutions. Because it is grounded in real world problems, Discrete Math makes math come alive for students in all levels of ability. It is an excellent tool for improving reasoning ability which is so essential in the complex society we live in. Current applications include election theory, estate theory, graph theory, critical path analysis, codes and decoding, and probability and statistics.

**Precalculus:** Split into two distinct parts, Precalculus is concerned with an advanced study of polynomial, rational, exponential, logarithmic, and trigonometric functions from an algebraic and geometrical viewpoint and includes an extensive study of Analytical Geometry. The second part of the course is an in-depth study of periodic functions such as the sine, cosine, and tangent, and the related topics of Law of Sines, Laws of Cosines, and roots of complex numbers. Polar coordinates and Parametric equations may be included in the course.

**Calculus:** Includes both differentiation and integration of all the functions studied in Precalculus. Basic concepts and techniques are explored in-depth including limits, slope of tangent lines to a graph, higher order derivatives, implicit differentiation, related rates and optimization. Integration techniques of substitution, integration tables, integration by parts and numerical integration are developed and used to solve applications for areas and volumes of various figures. A study of Series and Taylor Polynomials completes the course.

## Science

**Physical Science:** This course is designed to give students an overall understanding of matter, its composition and properties; its stored energy, its motion and the forces involved in the transfer of energy between various types of matter. It also explores the relationships of living things as energy and matter is transferred into and out of the living environment. Exploration of characteristics of the Earth, planets and stars are also integrated into this course.

**Biology:** This course is designed to provide students with a basic understanding of biology. It is a survey course covering the areas that are fundamental to life and life processes; biological chemistry, cells, photosynthesis, cellular respiration, classification, reproduction and development, genetics, creation, and diversity of living things. Laboratory exercises are an important part of this course. The laboratory reinforces the concepts presented and demonstrates the methods used by scientists in their work. The process skills of observation, classifying, predicting, and inferring are an important part of the laboratory work.

**Chemistry:** This course is designed to provide students with a core foundation of Chemistry. It is a survey course covering areas fundamental to understanding the composition of matter and the changes it undergoes. The topics covered in this course include: matter, scientific measurement, chemistry problem solving, atomic structure, periodic table, chemical names and formulas, chemical quantities and reactions, stoichiometry, ionic and covalent bonding, and hydrocarbons. Laboratory exercises are an important part of this course.

**Physics:** This course is designed to give the students an understanding of matter and its motion due to the transfers of energy and force between different types of matter. In this course the student will rely heavily on skills learned in Algebra I, II, and Geometry as transfers of force and momentum are studied in detail. Mathematics skills will also be applied to the graphing of collected data and the combination of vectors as they represent speed, direction, and acceleration.

**Advanced Biology:** This course should provide students with an advanced understanding of Biology. It is a course which is designed to build on basic Biology knowledge with a focus on real world application. The topics covered in this course include biological chemistry, cells, photosynthesis and cellular respiration, classification, the diversity of living things, genetics, human physiology, and creation. Laboratory exercises are an important part of this course. The laboratory reinforces the concepts presented and demonstrates the methods used by scientists in their work. The process skill of observation, classifying, predicting, and inferring are an important part of the laboratory work.

## **Computers**

**CIS1: Keyboarding and Document Processing:** Students in this course will learn the basic techniques of keyboarding through drills designed to develop accuracy, rhythm, and speed. The word processing functions used to create, save, edit, and print files are introduced. The course also covers the formatting techniques used for producing a variety of documents, including academic/business reports, personal/business correspondence, meeting agendas/minutes, manuscripts, and tables.

**CIS2: Integrated Computer Applications using Microsoft Office XP:** This course covers the fundamentals of spreadsheets using Microsoft Excel, database applications using Microsoft Access, and computer presentations using Microsoft PowerPoint.

**CIS3: Yearbook/Senior Video:** Students in this course will be producing the LCA yearbook using Adobe PageMaker, PhotoShop, and Illustrator. They will be responsible for all facets of yearbook production, which includes producing pages, securing business and parent ads, and taking photos for sports, clubs, activities, etc. The Senior Video will be produced using Sony Vegas or the student's choice of video editing software.

**CIS4: Programming Languages/Web Site Design:** Students in the Programming Languages course will choose either Microsoft Visual Basic or C++. Students in the Web Site Design course will be using Macromedia Studio 8, which includes Dreamweaver, Flash Professional, and Fireworks.

## Foreign Languages

**Spanish I:** A program designed to introduce the language series for high school Spanish competency. It emphasizes proficiency in all four language skills (listening, speaking, reading, and writing), as well as knowledge and awareness of Hispanic cultures. Spanish I will place an emphasis on grammar and Hispanic cultures and civilizations.

**Spanish II:** A program designed to complete the language series for high school Spanish competency. It emphasizes proficiency in all four language skills (listening, speaking, reading, and writing), as well as knowledge and awareness of Hispanic cultures. Spanish II will place emphasis on regular and irregular verbs, oral and written exercises on people, things, activities, personal relationships, and possessions.

**Italian:** is a romance language that originates from Latin, and is spoken in one form or another by 70 million people around the world. Italian words are commonly used by Americans in food (latte; pasta; risotto; panini) and music (soprano; falsetto; crescendo; opera).

*Italian I:* is designed to develop an entry-level understanding of the language through listening, speaking, reading, and writing exercises. The main objective is to expose students to Italian culture through the use of its language. Themes used are: getting around in a city, family and school life, sports and hobbies, food, and fashion.

*Italian II:* is designed to develop a deeper understanding of the language through listening, speaking, reading, and writing exercises. The main objective is to continue to expose students to Italian culture through the use of its language. Themes used are: travel, shopping, housing, city living, music and theater, the arts, politics, and work life.

**Latin:** is the classical root of the English language, as well as the romance languages of French, Italian, Portuguese, Romanian, and Spanish. It builds vocabulary and grammar skills which result in higher grades in English, Italian, and Spanish LCA-taught subjects, as well as higher Scholastic Aptitude Test (SAT) scores, used in determining college admissions. It is used extensively in the legal and medical professions.

*Grades 7-8:* students are introduced to entry-level Latin through basic listening, reading, and writing exercises, using actual persons and places during the Roman era, also learning history in the process.

*Grades 9-12:* students develop progressive Latin proficiency through further listening, reading, and writing exercises, using the social and political history of the Romans during the first century A. D.

(Click the following link to read about the resurgence of Latin in public and private schools in the region: [http://www.nytimes.com/2008/10/07/nyregion/07latin.html?\\_r=0](http://www.nytimes.com/2008/10/07/nyregion/07latin.html?_r=0) )

## **Art**

**Art History:** The art program for high school will encourage students to discover their individual creative strengths. They will gain experience in pencil sketching, watercolors, charcoal, and clay. There will be specific study in the area of “Life Skills” such as furniture design and face lifting, room design and “Mission Organization”. While studying art history they will learn about many great Masters and their styles. Included in this study will be a unit on the “isms” such as impressionism, cubism, and pointillism.