



**LOUDONVILLE**

**C H R I S T I A N   S C H O O L**

**Course Catalog 2022-2023**

## **THE ARTS**

### **Choir**

Eph. 5:19 says to sing and make music from your heart to the Lord. Choir is designed to allow students to do just that. Students will learn vocal techniques, music vocabulary, sight-reading, and choral tone. The repertoire is sacred and secular encompassing a variety of musical genres. Our goal is not only to perform with excellence but to have fun doing it. There are two concerts a year, Christmas and Spring, as well as other opportunities to perform.

*Grade Level: 9-12. Units: 0.5.*

### **Band**

Students in band rehearse twice a week during C Period and receive instruction in weekly lessons. Students perform in both a Christmas and Spring Concert. Other opportunities available are participation in our HS jazz band, performances at Colonie Center, preparation and performance at the annual NYSSMA solo festival, and performing at special school-wide events such as grandparents' day, chapel services, and/or pep rallies.

*Grade Level: 9-12. Units: 0.5.*

### **Studio Art 1 & 2**

Studio Art is a project-based course designed to give students a strong foundation in a variety of visual art forms. The course varies year to year regarding projects and focus. Students will be exposed to a wide variety of projects and explore 2D and 3D media including but not limited to: graphite, charcoal, acrylic paint, watercolor paint, colored pencil, oil pastel, clay, and cardboard. The course also explores art history and the influence and importance of the visual arts in our daily life. The goal is to gain confidence in multiple art mediums, an appreciation of the art that surrounds us, and an understanding of what it means to be created as uniquely talented individuals in the image of our Creator.

*Grade Level: 9 & 10. Units: 0.5*

### **Music Theory**

In this course, students will improve their skills as musicians through aural skills, ear training, and an introduction to the composition and construction of music. We will start with basic scales and intervals and progress to harmonizing a soprano line with a chord progression and 4 part texture. The course is open to all and beneficial to any serious music student. If a student is looking to major in music at the college level, this course is highly recommended. Through the study of music's fascinating design, there is also a greater perspective to be gained on the creativity of our creator.

*Grade Level: 11 & 12. Units: 0.5. This course offers three college credits through SUNY Albany.*

## **Acting**

In this course, students will learn to view acting as a skill that can be developed. Through in-class acting exercises, script analysis of both modern and classic plays, field trips to watch and evaluate performances, and the performance of their own monologue and group scenes, students will be exposed to the depths of what acting entails. Students will also be shown how this skill can be used to glorify God

*Grade Level: 11 & 12, Units: 0.5. This course offers three college credits through Roberts Wesleyan College.*

## **Introduction to Digital Photography**

This course introduces students to digital photography for purposes of capturing higher quality, aesthetically pleasing images while fully understanding the use of the exposure triangle and composition. Students will participate in class discussions and natural light shoots on location. Additional concepts will include lenses, memory cards, file formats, and editing software. Students will also use the Adobe software - Lightroom. Students will complete a digital portfolio at the end of the semester. Access to a DSLR camera is preferred but not required.

*Grade Level: 11 & 12. Seats Available: 10. Units: 0.5.*

## **Introduction to Drawing**

Drawing is a way of seeing and feeling through expressive marks. This studio course is an elective that is offered to students who desire to learn or enhance the fundamental skills and techniques of drawing. Students will learn proper techniques and represent visual pieces through the study of art history, contour drawing, perspective, positive/negative space, still life drawing, figure drawing/self-portraits, and explore ways of creating depth through value and color. Students will gain a deeper understanding of observational techniques needed for making successful art compositions. Various materials will be explored (such as graphite, charcoal, pastels, colored pencil, and more). Creative lessons throughout this course will help students expand their drawing skills, promote artistic confidence, and self-expression.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5. Sketchbook is required. This course is offered every other year.*

## **Introduction to Painting**

“Art enables us to find ourselves and lose ourselves at the same time”. -Thomas Merton. Students will get lost in creativity and self-expression while learning the foundation of

painting. This course has been structured to emphasize the technical and logistical aspects of painting. Students will be equipped with the tools to explore the structure of painting while adding their personal touch. This course emphasizes a study of a variety of artists, techniques, color theory, composition, painting mediums, styles, and ways paintings are used to communicate. Students will be painting on and with various materials (such as canvas, paper, mixed media, watercolor, acrylic, printmaking, and more). Students can expect to gain a strong foundation in painting in this course. The end goal is to increase artistic self-confidence while learning and producing successful pieces of art.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5. Sketchbook is required. This course is offered every other year.*

## Graphic Design

Digital Media is one of the most widely used and viewed art forms today - seen in advertising, magazines, TV, printed materials, website design, resumes, logos, etc. This project-based course will prepare students to effectively communicate and create meaning as a graphic designer. Students will become familiar with the basics of graphic design while learning what it means to be a digital citizen (including copyright and fair use). Students will gain experience with the industry-standard Adobe programs, Photoshop and Illustrator, as they complete projects and exercises that deal with the principles of design including logo design, image manipulation, and the creation of an infographic.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5. This course is offered every other year.*

## Typography

Typography is the art and technique of arranging type to be legible, readable, and appealing when displayed. Type is being used in amazingly creative and fun ways everywhere you look and is an essential skill in many professional fields. In this project-based course, students will explore the basic rules and uses of typography while creating media such as magazine spreads, resumes, and type-based artwork. We will familiarize ourselves with the industry-standard Adobe programs best suited to type-based media such as InDesign and Illustrator. The ability to choose type and use it creatively and effectively is an important skill in today's world and this course will begin to build that skill.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5. This course is offered every other year.*

## **BIBLE**

### Old Testament Survey

Old Testament Survey is an introductory study of the Old Testament Scriptures. Focus will be given to the pursuit of understanding who God is as observed in the Old Testament

Scriptures. God has revealed six acts in the story of the Bible. The first three acts are in the Old Testament, which includes Creation, Fall, and Mission of Israel. This course is designed to develop academic knowledge of the Old Testament. Not only for the purpose of intellectual understanding but for the purpose of understanding how the Old Testament Scriptures inform the everyday life of the Christian person, pointing us to the person and work of Jesus Christ.

*Grade Level: 9. Units: 0.5*

## **New Testament Survey**

New Testament Survey is an introductory study of the New Testament Scriptures. Focus will be given to the pursuit of understanding who God is as observed in the New Testament Scriptures. This course is designed to develop academic knowledge of the historical and cultural components of the New Testament Scriptures. As well as to foster an understanding of who God is, not only for the purpose of intellectual understanding, but for the purpose of understanding how the New Testament Scriptures inform the everyday life of the Christian person and ultimately point to the person and work of Jesus Christ.

*Grade Level: 10. Units: 0.5*

## **Theology**

This course provides a wide-ranging survey of Bible-based theological topics, including but not limited to Bibliology, Theology Proper, Hamartiology, Christology, Soteriology, and Eschatology. The course is designed to help students understand, articulate, and defend basic biblical doctrines as a basis for Christian living and in preparation for further theological study and reflection.

*Grade Level: 11. Units: 0.5*

## **Philosophy**

Introduction to Philosophy is an introductory study of philosophical thought from the Christian perspective. Focus will be given to the contributions made by specific philosophers throughout history that have weighed heavily on the development of philosophical thought, as well as the manner in which Christian thought has been influenced by such development. A thorough analysis of the historical development of philosophical thought informs Christian interaction with such philosophical principles and aids in the development of a Christian worldview.

*Grade Level: 12. Units: 0.5*

## **Apologetics**

This course is an introduction to Christian apologetics and its relationship to evangelism. The course will teach the biblical, theological and historical foundations of Christian apologetics. Topics include comparative worldview, science and faith, secularism, aesthetics and mission work. The student will gain a clearer understanding of how to navigate and respond pastorally to some of today's most challenging issues while at the same time formulating a cohesive Christian response to them.

*Grade Level 11 & 12. Seats Available 15. Units: 0.5*

## **Cross and Culture**

This course is a study of Christianity and pop culture. Students will think critically about how, as Christians, we are meant to engage with pop culture. Entertainment via film, TV shows, books, and music is the modern-day pulpit. Each "preaches" an idea to the world. Just as Paul does in Athens, Christians are meant to engage with the pop culture of our day and find inroads for the Gospel. In order to be successful at this, students will be informed about the pressing topics of their day. Throughout the course, students will view and analyze movies and study a variety of topics which include: the Gospel, pop culture, harsh language, Disability Theology, LGBTQ+, pornography, and other relevant topics.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5*

## **Church History**

Church History is a collaborative course between the Bible and Social Studies departments. The course will give students an understanding of their place within the advancement of the Church across three major time periods: the Patristic Period (100 to 787 A.D.); the Great Schism and Reformation (1054 to 1750 A.D.), and Modern Christianity (1750 to today). Special attention will be given to important councils, creeds, and thinkers, in order to provide the student with an appreciation for God's hand in advancing the confessing Church against the gates of Hell (Matthew 16:18). The students will connect Church history to global and US history, trace the development of historic theology, hear from pastors and theologians from various branches of the historic Christian faith, examine how their own church was shaped by various developments in Church history, and wrestle with their own belief and faith.

*Grade Level: 11 & 12. Seats Available: 15. Units: 0.5*

## **COMPUTER SCIENCE**

### **Computer Science I**

In this course, students will be introduced to computer science using JavaScript. Students will be taught the foundations of basic programming with an emphasis on logical thinking and problem-solving. This course is web-based and allows for students to learn through tutorials, teacher led discussions, hand- on lessons, practice exercises, and programming

challenges. At the completion of the course, all students will have totaled over 100 hours of programming time.

*Grade Level: 9. Units: 0.5*

## Computer Science II

In this course, students will grow in their programming knowledge using Python. The course will teach the fundamentals of programming as well as some advanced features of Python. Students will understand further how computers store and manipulate information through building simple games. At the completion of the course, students will have totaled over 100 hours of programming time.

*Grade Level: 9. Units: 0.5*

## AP Computer Science Principles

In this entry-level yet rigorous course, students will be introduced to the foundations of modern computing. They will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. The course covers a broad range of foundational topics such as programming, algorithms, the Internet, big data, digital privacy and security, and the societal impacts of computing. We will explore and discuss the structure and design of the internet and how information is transferred between devices. Students will gain a greater understanding of digital information and how it is encoded, represented, and manipulated. The course will conclude with the completion of a performance task that will be submitted as a portion of the AP exam.

*Grade Level: 11 & 12. Units: 1.0. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## Virtual Reality & Cybersecurity

During the first half of the course, we will explore concepts in virtual reality. Students will be introduced to the basics of building virtual reality worlds using HTML and the A-frame JavaScript library. Students will build their own virtual reality worlds that are compatible with VR devices, including smartphone VR headsets. The second half of this course will cover Cybersecurity. Students will learn foundational cybersecurity topics, including digital citizenship and cyber hygiene. Students will complete a culminating project where they will create a public service announcement. This is not a programming intensive course, but rather students will learn the basics of protecting their own data and become aware of how cybersecurity is important for the information age in which we live.

*Grade Level: 11 & 12. Units: 0.5.*

## **ENGLISH LANGUAGE ARTS**

## Pre-AP English 9

This course is a great introduction to research writing and some classic literature! All high school students must learn how to write a research paper, so we will take our time as we learn how to go through this important process. With regard to literature, finally, you will learn the true story of Romeo and Juliet as we read William Shakespeare's classic play! We will read the dramatic story of how Helen Keller discovered language in William Gibson's play entitled *The Miracle Worker*. Freshman year could not be complete without reading *To Kill a Mockingbird* by Harper Lee. A highlight of English 9 is analyzing the movie adaptation of *To Kill a Mockingbird* which is a classic in its own right.

*Grade Level: 9. Units: 1.0*

## Pre-AP English 10

In this course, the focus is on shorter works of literature as students. From the everyday experiences of small-town America depicted in *Our Town* by Thornton Wilder to the dramatic reenactment of a jury's deliberation in *12 Angry Men* by Reginald Rose. Students thoroughly enjoy acting out their parts in these classic American plays. They are also intrigued by the dramatic irony of William Shakespeare's *Julius Caesar* and touched by the tragic ending of *The Pearl* by John Steinbeck. Students also have the opportunity to perfect their research writing skills as we "walk" through this process and focus on oral presentation skills.

*Prerequisite: Pre-AP English 9 or equivalent. Units: 1.0*

## American Literature

We begin the year by reading and discussing early American literature such as excerpts from Native American writings, African American slave narratives, William Bradford's *Of Plymouth Plantation*, and John Smith's *The General History of Virginia*. Later, we examine pieces such as Arthur Miller's *The Crucible*, Nathaniel Hawthorne's *The Scarlet Letter*, and Mark Twain's *The Adventures of Huckleberry Finn*. We will also have opportunities to evaluate film versions of a few American Literary pieces. In class, we emphasize the importance of developing our writing skills (including vocabulary development and grammar and revision skills), our oral presentation skills, and our literary analysis skills. We will read literature both collectively and independently, prepare and present essays based on works of American Literature, and participate in class discussions, group projects, and oral presentations throughout the year.

*Prerequisite: Pre-AP English 10 or equivalent. Units: 1.0*

## AP English Language and Composition

AP English Language and Composition is an intensive reading and writing course that seeks to improve a student's writing and thinking processes so that he or she meets basic collegiate standards. Students will be provided with a variety of readings from various eras and in



different genres as they analyze the key elements of the rhetorical situation such as claims and evidence, reasoning and organization, and style. Through daily in-class writing exercises and several papers written in multiple drafts, students will compose many different kinds of logic-based academic writing throughout the year. Through rewrites, the student will learn to strengthen paragraphs, qualify claims, test evidence and method of argument, and construct accurate definitions in the form of several small writing assignments. Additionally, students will have completed a collaborative project that includes both a written component and an oral presentation. In all, the students will have generated nine major writing assignments using the rhetorical tools as their guide to reach the goal of effective and clear writing as well as analysis from a critical perspective.

*Prerequisites: Pre-AP English 10. Required: English teacher recommendation & final average of 90 or above across all previous high school English courses. Units: 1.0. This course offers three college credits through SUNY Albany. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## AP English Literature and Composition

This course is designed for students who have a love of literature. Students will read and respond to representative selections from fiction, drama and poetry spanning several centuries. This course offers a framework for critical thinking by teaching strategies for the close reading of texts. Students will learn to interact with texts by asking questions and making connections with other works of literature including scripture as well as real life situations. Throughout the year, students will learn to respond to texts critically under time constraints as well as to write increasingly longer critical essays throughout the year. Students will also learn to listen and respond to one another in daily class discussions.

*Prerequisites: American Literature or AP English Language & Composition. Required: English teacher recommendation & a final average of 90 or above across all previous high school English courses, or a final average of 85 or above in AP English Language and Composition. Units: 1.0. This course offers three college credits through SUNY Albany. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## Creative Writing

Over the course we will study several short stories and poetry samples, observing and discussing the structure and style that published authors have used. We will follow *Gotham Writers' Workshop: Writing Fiction* to learn about and practice strategies for crafting fiction. We will write original fiction and nonfiction pieces, including several poems of various styles, two fictional short stories, a nonfiction narrative, and a one act play. These pieces will go through three drafts, as we revise, edit, and modify our written work with our peers. Students will work throughout the semester to compile a creative writing portfolio, a thoughtful compilation of their favorite work. Our course concludes with an oral presentation of

students' creative writing portfolios. Throughout the semester students will have opportunities to submit some of their stories, poems, and other written works to writing contests and teen literary journals. No previous creative writing experience is required.

*Prerequisite: American Literature or AP English Language Composition. Units: 0.5.*

## Public Speaking

This is an introductory course in public speaking. Students will examine and perform several kinds of speeches, including argumentative, debate, demonstrative, extemporaneous, persuasive, narrative, memorized, and special occasion speeches. We will analyze and discuss filmed speeches from previous years, as well as sample speeches from Ted talks and other websites. We will give oral and written feedback to our classmates and will practice using peer feedback constructively to make changes in our future performances. Our final speeches will be performed for the LCS upper school.

*Prerequisite: American Literature or AP English Language Composition. Units: 0.5.*

## Science Fiction & Fantasy Literature

In this course, students read, discuss, and write about multiple pieces of literature from the science fiction/fantasy genre. Some of these pieces may include *Ender's Game* by Orson Scott Card, *The Night Circus* by Erin Morgenstern, *Brave New World* by Aldous Huxley, and *Harry Potter and The Sorcerer's Stone* by J. K. Rowling. Science Fiction and Fantasy literature create worlds that are different from our reality. By doing so, they compel the reading to consider our own world, traditions, and present happenings. As we explore these works of literature, we will discuss and debate various Christian responses to science fiction/fantasy worlds.

*Grade Level: 11 & 12. Units: 0.5.*

## LANGUAGE OTHER THAN ENGLISH

### Spanish 1

For students who did not earn Spanish 1 credit in grade 8, they will be placed in Spanish 1. This course establishes a foundation for learning the basics of the Spanish language. Students will start out learning how to answer simple conversation questions about themselves. Students will learn how to greet people, tell time, classroom vocabulary, places in the city, transportation, food, family, hobbies, personal descriptions, and other topics. Students will learn Spanish grammar with a focus on the present tense. They will learn about Spanish culture in Spain along with the culture of other Spanish speaking countries. Students will be introduced to the video series *El Cuarto Misterioso*. The story is centered around the lives of teenagers who find themselves in mysterious

circumstances. Students will enjoy learning vocabulary through various games and class activities.

*Grade Level: 9. Unit: 1.0.*

## Spanish 2

Spanish 2 builds on the vocabulary and grammar learned in Spanish 1. Students start with a review of the present tense before learning the preterite, the present progressive, imperfect, and imperfect progressive tenses. They will also learn reflexive verbs and commands. Students will finish the year with an introduction to the Subjunctive mood. Students will learn vocabulary related to technology and communication, vacations, everyday activities, daily routines, parts of the body, health, places in the city, directions, parts of a car, amusement parks, the circus, animals, supermarket, food and dining, clothing, home and family, household items and chores. Students will continue to learn about the cultural nuances of various Spanish-speaking countries. They will also look forward to viewing more of the exciting El Cuarto Misterioso series.

*Prerequisite: A grade of 80 or above on the Spanish proficiency exam, or an average of 85 or above in 8<sup>th</sup> grade Spanish with a passing final grade, or Spanish 1. Unit: 1.0.*

## Spanish 3

The goal of Spanish 3 is to increase students' confidence in their Spanish speaking abilities to prepare them to use Spanish in travel, business, or missions situations, or wherever God may lead. The text ¡Qué chévere! 2 will be completed. Students will begin with a review of the vocabulary and grammar learned in Spanish 1 and 2 before learning the present perfect tense and past participles, the past perfect tense, passive voice, future and conditional tenses, and present perfect subjunctive. Students will learn vocabulary related to sports, news and journalism, travel, careers and aspirations. They will also look forward to viewing the exciting conclusion to the El Cuarto Misterioso series. In Spanish 3 students will have the unique opportunity to complete a Spanish novel. Students will continue to improve their fluency in Spanish with authentic opportunities to converse with native Spanish speakers.

*Prerequisite: Spanish 2. Unit: 1.0. This course offers three college credits through Roberts Wesleyan College.*

## **HEALTH & PHYSICAL EDUCATION**

### Health

In this course, students will explore the aspects of their physical, social, mental, emotional, and spiritual health. They will get to know and understand themselves and the people around them in deeper and healthier ways. Emphasis is placed on how they can care for themselves now, in order to maintain better health into their adult years. We see why the decisions they

make now matter, and gain an understanding of how God calls us to care for ourselves and others.

*Grade Level: 10. Units: 0.5.*

## **Food & Nutrition**

In this course, students will get an introduction to what nutrients our bodies need to function well, and what foods they come from. We will take a look at what is in our food through learning to read and understand nutrition labels. We will seek answers to questions such as, what are GMO's? How can we know where our food is coming from? What are the benefits of different lifestyle diets? Students will also be exposed to basic kitchen skills and cooking knowledge. They will have the opportunity to work with their peers to cook, bake and taste different dishes by following recipes and implementing the skills learned in the classroom. Other topics explored include organic vs. non-organic food, processed vs. whole foods, & food allergies.

*Prerequisite: Health. Grade Level 11 & 12. Seats available: 10. Units: 0.5.*

## **High School Physical Education**

Students are exposed to a variety of activities, sports, and fitness regimens, all in an effort to get them active during the school day; as well as inspire them to be active outside of the school day. Students will participate in high-intensity games such as flag football and Ultimate Frisbee, as well as lifetime-fitness activities that involve more skill and precision such as archery and badminton. It is the hope that every student develops a love for physical activity so that they seek to maintain an active and healthy lifestyle throughout their lives.

*Grade Levels: 9-12. Units: 0.5.*

# **MATHEMATICS**

## **Pre-AP Algebra 1**

The Pre-AP Algebra 1 course is designed to deepen students' understanding of linear relationships by emphasizing patterns of change, multiple representations of functions and equations, modeling real world scenarios with functions, and methods for finding and representing solutions of equations and inequalities. Pre-AP Algebra builds on the knowledge that students have already attained in previous courses, and prepares them for future AP STEM courses. The course covers four units developed by the College Board (and supplemented by the teacher): Linear Equations and Functions, Systems of Linear Equations and Inequalities, Quadratic Functions, and Exponent Properties and Exponential Functions.

## **Pre-AP Geometry with Statistics**

Pre-AP Geometry with Statistics builds on the concepts already learned in Pre-AP Algebra I, and the relationship between geometry and algebra in the solution of problems related to practical applications and word-specific problems. The course begins with a unit of Statistics and Probability, followed by units covering geometric measurement (the basics of Geometry, constructions, similar triangles and trigonometry), measurement in congruent and similar figures (transformations, triangle and parallelogram proofs, and circles) and measurement in two and three Dimensions (area and volumes) .

*Prerequisites: Algebra I. Unit: 1.0.*

## **Pre-AP Algebra II**

Pre-AP Algebra II is designed by the College Board to optimize students' readiness for college-level mathematics classes. Building off of the material learned in Algebra I and Geometry, students will explore four main units: modeling with functions (using linear, quadratic, and exponential functions to make sense of relationships between two quantities, rates of change, and piecewise defined models), Algebra of functions (Compositions, transformations, and inverses of functions), families of functions (Exponential, logarithmic, polynomial, rational, square root and cube root functions), and trigonometric functions (radian measures, sinusoidal functions, tangent and reciprocal trigonometric functions, and inverting trigonometric functions). Successful completion of Pre-AP Algebra II will result in readiness for College-level Pre-Calculus.

*Prerequisite: Pre-AP Geometry and Statistics. Unit: 1.0.*

## **Financial Algebra**

This course is offered as an alternative to Pre-AP Algebra II. Financial Algebra teaches and uses advanced algebra in the content areas of discretionary spending, banking, credit, auto and home ownership, employment, taxes, investments, entrepreneurship, retirement, & budgeting. The program draws upon selected topics from Advanced Algebra, Geometry, Precalculus, Statistics and Probability..

*Juniors are placed in Financial Algebra based on their previous math year. Grade Level 11 or 12. Units 1.0.*

## **AP Statistics**

AP Statistics will introduce students to the major concepts and tools for collecting, analyzing, and drawing conclusions from data, including frequency distributions, measures of central tendency and dispersion, probability and sampling, estimation, testing of hypotheses, linear regression, and correlation. This course is designed to give students who are considering any major from science or business to psychology or social sciences an introductory look at both descriptive and inferential statistics.

*Prerequisites: three years of high school math. Required: Math teacher recommendation & final average of 90 or above across all previous high school math courses. Units: 1.0. This course offers three college credits through SUNY Albany. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## Pre-Calculus

Pre-Calculus is a college-level course that is designed to prepare students for Calculus, by extending the basic foundation provided in previous math courses to more advanced concepts, enabling students to perform detailed analyses of more sophisticated problems. Topics include solving higher order polynomial, rational, trigonometric, exponential and logarithmic functions, synthetic division, matrix algebra, mathematical induction, and conic sections. All topics are approached using the “Rule of Four” in which they are examined graphically, analytically, numerically, and verbally.

*Prerequisite: Algebra II. Unit: 1.0. This course offers three college credits through SUNY Albany.*

## AP Calculus A/B

AP Calculus is the culmination of the advanced math students’ high school mathematics. As such, it ties together all of the loose pieces of math that students have been taught throughout their earlier classes and answers the “when are we ever going to use this stuff?” question that so many students ask. It covers the four main topics of calculus: Limits and Continuity, Derivatives, Indefinite Integrals, and Definite Integrals, with an emphasis placed on memorization of techniques and formulas, followed by the application of those techniques and formulas to real-life situations. Calculator technology is used as an aid, but there is an emphasis on “doing it by hand” in order to further understanding. All topics are approached using the “Rule of Four” in which they are examined graphically, analytically, numerically, and verbally. *Prerequisites: Precalculus course, Required: Math teacher recommendation & final average of 90 or above across all previous high school math courses. Units: 1.0. This course offers three college credits through SUNY Albany. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## SCIENCE

### Pre-AP Biology

The Pre-AP Biology course introduces students to higher level thinking and scientific reasoning. This course is designed to stimulate critical thinking surrounding the study of life. Students will engage in class discussions, activities, and labs that will explain the fundamental concepts of living organisms and the necessity for further study. Students will practice and apply the Shared Principles of close observation and analysis, evidence-based writing, higher-order questioning, and academic conversation of the Pre-AP program.

Students will specifically investigate and identify ecological systems, the change over time, cellular systems, and genetics. Students will be encouraged to build a better understanding of God's creation through the study of biology.

*Grade Level: 9. Units: 1.0.*

### **Analytical Biology (Honors)**

This course was designed to help students develop a wonder for the gift of life that God has given the world from single-celled organisms to the human body to communities and ecosystems. Understanding is built through analyzing data from outside sources as well as data we collect in experiments completed in class. Several examples of labs we do include student designed labs to test a hypothesis, chemically testing food left at a crime scene as well as performing gel electrophoresis on DNA left at another crime scene, observing the circulatory system of a fish under a microscope (without killing it), and watching a "disease" spread through the classroom and finding patient zero. We also hone our skills through solving Breakout room puzzles, putting together brackets for March Mammal Madness and visiting Five Rivers to analyze several aspects of the aquatic ecology of the area.

*Grade Level: 8 & 9. Required: Science teacher recommendation. Unit: 1.0.*

### **Principles of Chemistry**

The Chemistry course is designed to understand the chemistry involved in our daily lives and everything that exists on earth. It starts with the basic understanding of atoms, elements, and the chemical composition of all matter that surrounds us. Students will go on to discover the formation and breaking of different types of chemical bonds while mass and energy are conserved. Concepts in kinetics & equilibrium, redox reactions, acid-base chemistry, organic chemistry, and nuclear chemistry lay a strong foundation for college courses. Students will take part in laboratory activities to apply their acquired knowledge including, identifying elements, observing chemical reactions, making ice-cream to differentiate phases of matter, and measuring physical & chemical properties. The goal of this class is to have at least one field trip, a guest speaker, and a science project by the end of the school year.

*Prerequisite: Pre-AP Biology. Unit: 1.0.*

### **Chemistry (Honors)**

Honors Chemistry encompasses the curriculum designed by NYS and includes basic introductory topics such as the atom, bonding, the periodic table, kinetics, stoichiometry, redox as well as a brief introduction to organic and nuclear chemistry. Honors Chemistry is designed for the student who wants to dig deeper while studying some advanced Chemistry theory, such as sublevel electron configuration, molecular geometry and equilibrium expressions. The course relies heavily on lab application and instruction in laboratory technique which is useful for the current course and will be a useful foundation for future

studies in science. The pace of the course is faster than Principles of Chemistry and requires a bit more investment of time, but students find the challenge rewarding as they understand the topics in more depth. Students work with various media in the classroom to help supplement the basic information taken through notes and reading. The use of models and laboratory experience related to the topics presented reinforces the material and encourages the student's curiosity as they learn. It is the goal of the class to have a guest speaker and a field trip each year.

*Prerequisite: Analytical Biology (Honors) or Pre-AP Biology. Required: Science teacher recommendation and an average of 85 or higher in previous science courses. Unit 1.0.*

## AP Environmental Science

In this course students engage with the scientific principles, concepts, and methodologies required to understand the interrelationships within the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. The course will be centered on the Big Ideas from the AP Environmental Science framework such as energy transfer, interactions between earth systems, interactions between different species and the environment, and sustainability. These big ideas are taught through using seven key science practices: concept explanation, visual representations, text analysis, scientific experiments, data analysis, mathematical routines, and environmental solutions. We will accomplish this through various hands on, inquiry based laboratory and/or fieldwork investigations. Environmental science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry, and geography.

*Prerequisites: Two years of high school laboratory science and Algebra I. Required: Science teacher recommendation & final average of 90 or above across all previous high school science courses. Unit 1.0. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## Applied Physics

This Physics course studies everyday objects and phenomena to understand why the objects work the way they do. These experiences introduce the concepts of physics to students as they observe and experiment with these common objects to make sense of their behavior. This class is a hands-on introduction to the principles of Physics such as the laws of motion, mechanical objects, fluids, thermodynamics, electricity, and optics.

*Prerequisite: Principles of Chemistry. Unit 1.0.*

## AP Physics



Physics is an integral part of our everyday life, describing the motion, forces and energy involved in simple actions such as walking, driving a car or playing soccer. All the latest technologies used in today's world, exploit the laws of physics. The major purpose of this course is to provide an understanding of the theoretical concepts of physics and explore them practically through laboratory experiments. Students will apply mathematical concepts to understand vectors in two dimensions (2D) and acquire in-depth knowledge about acceleration, force, work, power and energy. Using these concepts, students will be able to describe the motion of objects in all dimensions. Topics such as waves, sound, and light are introduced which elaborate on reflection, refraction, interference and diffraction. Students will take part in laboratory activities to apply their acquired knowledge including, calculating the velocity and acceleration of a toy car, building a roller coaster, and simulating projectile motion. The goal of this class is to have at least one field trip, a guest speaker, and a science project by the end of the school year.

*Prerequisites: Principals of Chemistry or Chemistry Honors, Algebra II. Required: Science teacher recommendation & final average of 90 or above across all previous high school science courses Unit 1.0. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## AP Biology

This course is meant to deepen students' understanding of the unifying principles of created life using the practice of inquiry to guide them through the course. The course content will be centered around the "Big Ideas" from the AP Biology curriculum framework. Our Big Ideas for the year will provide broad contexts of relevance. They include energetics, evolution, information storage and transmission, and systems interactions. These big ideas are taught through using six key science practices: concept explanation, visual representations, questions and methods, representing and describing data, statistical tests and data analysis, and argumentation. We accomplish this through various lab experiences which include genetically engineering E. coli to be antibiotic resistant and glow in the dark, using gel electrophoresis to analyze DNA samples, testing hypotheses about insect behavior with pill bugs, and watching the spread of germs with a UV light and germ powder. We also build models of new content we are learning such as operons, developing embryos, and cell membranes, evaluate situations through case studies, and present findings of investigations through mini-poster presentations and gallery walks.

*Perquisites: 2 years of high school science. Required: Science teacher recommendation & final average of 90 or above across all previous high school science courses. Units 1.0. This course offers eight college credits through Roberts Wesleyan College. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## **SOCIAL STUDIES**

## Global History and Geography I

The Global History 1 course is an overview of the growth of civilization throughout the world. How did simple tribes of hunter-gatherers become the civilizations we know today? From the Neolithic Revolution to the Columbian Exchange, we trace complex systems: the acquisition and use of power, the impact of geography, the structures of society, the economic practices, and the belief systems that people use to make sense of the world around them. The study of belief systems around the world is an especially important unit. Within a civilization's religions, we find similarities to Christian truths. We learn to understand that these "connections" demystify the differences and help us build meaningful ways to share the grace and truth of Jesus with others. Viewing the world from many perspectives, students can deepen their appreciation for Christianity and realize a greater understanding of their place in today's increasingly complex world.

*Grade Level: 9. Unit: 1.0.*

## Global History and Geography II

Global History and Geography II is the second year of a two-year course. The course covers the time period from the Enlightenment through the present. As the contact between diverse cultures increases, students study the inherent complexities of global technology, economy, and society through the lens of a Christian worldview. Students examine a wide variety of primary and secondary sources, read, write, act out, and discuss course material. Students will take on many points of view, note patterns and changes over time, and integrate Christian principles throughout the course. The class meets for five blocks every two weeks.

*Prerequisite: Global History & Geography I. Unit: 1.0.*

## AP European History

In AP European History, students investigate significant events, individuals, developments, and processes from approximately 1450 to the present. Students develop and use the same skills, practices, and methods employed by historians: analyzing primary and secondary sources; developing historical arguments; making historical connections; and utilizing reasoning about comparison, causation, and continuity and change over time. The course also provides seven themes that students explore throughout the course in order to make connections among historical developments in different times and places: interaction of Europe and the world, economic and commercial development, cultural and intellectual development, states and other institutions of power, social organization and development, national and European identity, and technological and scientific innovations.

*Prerequisite: Global History & Geography I. Unit: 1.0. Social Studies teacher recommendation & final average of 90 or above across all previous high school social studies courses. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## U.S. History

United States History and Government is a comprehensive chronology of events in American history beginning with the colonization of America to the present day. Students examine the ever-increasing diversity of the American people how that has impacted political, economic and social policies. Emphasis is placed on the analysis of the structure and function of the American government, namely the Constitution of the United States. This study involves an examination of the basic principles and cultural heritage upon which our nation is founded. Students learn that Christianity, as well, has had a significant impact on the development of our country.

*Prerequisite: Global History & Geography II. Unit 1.0.*

## AP U.S. History

In AP U.S. History, students investigate significant events, individuals, developments, and processes in nine historical periods from approximately 1491 to the present. Students will analyze primary and secondary sources, develop historical arguments, make historical connections, and utilize reasoning about comparison, causation, and continuity and change. The course also provides eight themes that students explore throughout the course in order to make connections among historical developments in different times and places: American and national identity; work, exchange, and technology; geography and the environment; migration and settlement; politics and power; America in the world; American and regional culture; and social structures.

*Prerequisite: Global History & Geography II. Required: Social Studies teacher recommendation & final average of 90 or above across all previous high school social studies courses. Students will take the AP exam in May and can earn college credits that will transfer to the most competitive colleges.*

## Western Civilization: Holocaust

This course concentrates on primary source readings. An emphasis is placed on critical writing and discussion. The Holocaust was a gigantic national undertaking by Germany. The barbarism of this crime is only exceeded by its tremendous scale and scope. In order to truly grasp the immensity and significance of this event, approximately half the course is devoted to learning the history and mastering the facts and information. Another segment is devoted to documentaries and film. This is a gruesome subject, which to a degree must be experienced viscerally. At a certain point, the academic and intellectual inquiry must be given over to the visual. The impinging nature of the true horror of the Holocaust must be seen. This is best done through film and documentary. The final segment is devoted to analysis.

Additionally, we will briefly examine other attempts at genocide in the 20<sup>th</sup> century. Seeking the answer to the question, why was the 20<sup>th</sup> century the century of genocide?

*Grade Level: 11 & 12. Units 0.5. Requirements: This course is by invitation only. Mr. Thad Gaebelein is the instructor for this course. It is modeled after a course he taught at West Point Military Academy. This course offers three college credits through Roberts Wesleyan College.*

## **Participation in Government**

The course focuses on civics and active citizenship. It is designed to give students the skills needed to be informed citizens who live out their roles as Christians and Americans in our nation. Students will be able to identify their rights and responsibilities, discuss the role that Christianity has had in shaping our nation's founding and how that role has been interpreted over time. The course involves reading a variety of primary and secondary sources; reading, discussing, and presenting on current events; and interacting with different government entities. Fundamental to the course are activities that have students defining, analyzing, monitoring, and discussing issues and public policies on the federal, state, county, and local levels. Students will be given the opportunity to register to vote twice during the semester. (One time will be for those eligible to vote in the November election, and the second opportunity will be in January for those eligible to vote the next November).

*Prerequisite: AP U.S. History or U.S. History. Units: 1.0.*

## **Personal Finances & Economics**

The course is based on a Christian worldview, designed to give students the economic knowledge and skills that will enable them to function as informed and economically literate Christian citizens in our society and in the world. It will assist students to better understand the role that individuals, businesses, and governments play within the American economy. Ultimately, it is hoped that students will utilize rational decision-making in economic areas, thereby becoming wise consumers as well as better citizens.

*Prerequisite: AP U.S. History or U.S. History. Unit: 1.0.*

## **Psychology**

This course introduces students to the field of psychology and the study of the mind and behavior and is offered as an elective to students in their junior and senior years. It serves to give students familiarity with the basic ideas and theories of psychology. This course helps students develop an understanding of human behavior and attitudes and how they impact society in positive and negative ways. Students will be encouraged to integrate their Christian faith with their understanding of psychology and its impacts.

*Grade Level 11 & 12. Seats available: 10. Unit 1.0.*