

Upper School Curriculum Guide 2020-21

FGSR – Fulfills Global Studies Requirement

FHR – Fulfills Humanities Requirement

FSR – Fulfills Service Requirement

FWR – Fulfills Writing Requirement

One semester = ½ credit

[Refer to the Upper School Courses and Elective Sheet for prerequisites](#)

English Curriculum

English 9 - Developing a Written Voice

This course helps each student develop a unique written voice in preparation for more advanced writing. Students read, think, and write their way toward a fuller and more interesting sense of themselves, of their place in the contemporary world, and of their relationship to the larger and more abstract world of ideas. Work includes intensive study and practice of the art of personal narrative, student-led Harkness discussions of model texts, and writing workshops where students both pursue their own writing projects and consider each other's written work. This class introduces students to reading practices, discussion principles, and writing strategies they will use in subsequent years.

English 10 - Literature, History, and the Human Imagination

Sophomore English is a study of human experience through the prism of literary genre. Using English, European, and African literature, it asks how the literary imagination over the course of several centuries has helped human beings make sense of their world. The course seeks to build on the foundation of ninth grade English by studying a variety of genres, including novels, plays, short stories, and poems. Through readings from these varied sources, class discussion, grammar drills, and lots of writing, the course asks students to consider what literature does and whether or not it has value in the modern world of movies, television, smartphones, and computers. It also encourages students to think critically and skeptically, and it emphasizes the importance of evidence in reaching literary - or any other kinds of – conclusions.

English 11/12 - Brave New Worlds: Utopias, Dystopias, and Society

Can utopias really exist? Conversely, is a dystopian reality closer than we might think? This course will explore these questions and more as we read and watch texts that will help us envision a better (or more terrifying) future. We will discuss fictional alternate worlds, delve into philosophers' treatises on the ideal social order, and study real-life communities that have imagined a more harmonious way of living, all while analyzing the social issues that underpin each vision and evaluating these societies for ourselves. Possible texts include Shakespeare's *The Tempest*, excerpts from Plato's *Republic* and Thomas More's *Utopia*, Kazuo Ishiguro's *Never Let Me Go*, literature circle choices of dystopian fiction, and television shows and films from *Black Panther* to *Black Mirror*. We may also take a field trip to Kentucky's own attempt at utopia, Shaker Village.

English 11/12 - Hybrid Literature: Mash-ups and Remixes in Books, Science, and Culture

With this course, students will explore the different facets of the term “hybrid,” from hybrid creatures like the Minotaur and griffins to hybrid writing such as the graphic novel, to cultural hybridity in films like *Crazy Rich Asians*, to the linguistic hybridity of musical artists like Shakira. In considering remixed spaces and species mash-ups – everything that does not fit neatly in to separate categories—we will expand our understanding of ourselves, of society, of how we communicate ideas, and of how we connect with others. Our investigation into hybridity will incorporate novels, poetry, memoir, music, and film. Possible texts include *The Island of Dr. Moreau*; *The Thrilling Adventures of Lovelace and Babbage*; *Boy, Snow, Bird*; and *Pan’s Labyrinth* in conjunction with critical and philosophical texts.

AP English 11 - Language and Composition: Rhetoric, Rebellion and Reason

This is a college-level writing workshop course in linguistics, philosophy, and rhetoric. We study logic, argument, persuasion, and advanced usage. Rigorous evaluation of radical and culturally important texts examining the relationships between ideas, individuals, and societies helps us hone our analytical, critical and synthetic skill. Texts of mostly nonfiction include authors like Plato, Marx, Freud, Didion, Thoreau, Emerson, Camus, Wallace, and Melville.

AP English 12 - Literature and Composition

As a study of literature, this course engages students in the careful reading and critical analysis of influential works of fiction, poetry, and drama. Through the close reading of selected texts, students will deepen their understanding of the ways writers use language to provide both meaning and pleasure. As they read, students will consider a work’s diction, structure, style, and themes, as well as literary devices such as the use of figurative language, imagery, symbolism, and tone. Writing instruction will include attention to developing and organizing ideas in clear, coherent, and persuasive language; a study of the elements of style; and attention to precision and correctness. Authors studied will likely include Faulkner, Hawthorne, Morrison, Woolf, Dickinson, Frost, Ginsberg, Hughes, Whitman, and Beckett.

English Electives

Creative Writing (FWR)

This one-semester course explores a wide variety of informal, fictional, and poetic forms of writing. Students work on weekly writing exercises and share their writing in order to get feedback from as many readers as possible. Grades are based on the quality of three rewritten pieces in each term.

Honors Philosophy: The Art of Living (juniors & seniors only, with instructor approval, FWR)

What does it mean to live a good life? What kind of world do we want to live in? What’s the best way to make decisions? How do we achieve happiness, well-being, peace, or flourishing, and avoid suffering, angst, sadness, & anxiety? What do those words even mean? This course will explore age old questions of meaning, value, morality, and action connected to the art of a life well lived. We’ll consider a diverse array of ancient practical philosophy, modern literature & film, and contemporary social science on our quest to gather, understand, & experiment with different ideas about living better. You can expect to encounter media considering fields from

economics & politics to psychology & neuroscience, and topics from stoicism & daoism to utilitarianism & infinite ethics. Please email Mr. Leer if interested.

Philosophy of the Future (FWR)

What does the future hold? How do we want it to look? How will we deal with the ethics around robotics, automation, human enhancement, and virtual realities? Are those things even possible? What about time travel or conscious artificial intelligence? How will we cope with environmental, viral, political, or economic threats? This introduction to Philosophy open to all students will explore all Philosophy can tell us about approaching, considering, and dealing with the problems & opportunities of our species' future. We'll encounter diverse media from ancient & contemporary Philosophy to popular film & TV along the way (*Star Wars* & *Ricky & Morty* anyone?).

Non-Fiction Writing (FWR)

This elective is a performance-based class in which students write a variety of non-fiction pieces from personal narratives to feature articles to opinion pieces. The objective of the class is for students to become comfortable with the writing process, specifically with non-fiction writing, and more accomplished writers. Students write a series of drafts for each article, considering subject matter, length, style, and syntactical issues before finalizing pieces. We will also read samples of good non-fiction writing for inspiration and discussion.

Public Speaking

Public Speaking is a required semester course, taken primarily by sophomores, designed to develop effective communication and listening skills. A variety of speeches are written on topics chosen by students and designed to persuade, inform, and entertain. Every member of the class is required to give a speech at Morning Meeting.

History Curriculum

History 9/Experiments in Ethical Government: The Ancient World

Themes and Content

The focus is directed at a number of historical attempts to create an “ideal” society that balances the needs of the individual with the needs of the community. The course investigates Confucianism in China, democracy in Athens, republicanism in Rome, and the Christian theocracy of the late Roman Empire. In each case, the course examines not only the ideas and origins of these social experiments, but also how well they met the challenges of their times.

Curriculum Goals

- Developing the skills of critical thinking, close reading, analytical writing, and also mastering the importance of skills like note-taking and organization
- Exploring a global variety of past cultures and events and examining connections among those cultures and the present
- Making connections between student's modern experiences and those of people from the past

Essential Questions

- What is the purpose of government?
- What do people expect from their governments?
- How do different governments balance the needs of society against individual ambition and the desire for self-fulfillment?
- What role do ethical systems (like religions) play in government?
- How do societies based on an ideal form adapt to practical problems and challenges?

History 10/World History

This course introduces sophomores to the major people, events, and trends that have shaped modern world history. Building a foundation on the major eras of western civilization – from the Renaissance to Revolutions to World Wars, it places event in a global context while broadening students’ perspectives and strengthening their intellectual connections between past and present. Through research, critical analyses of sources and differentiated instruction, students come to better understand how people of diverse cultures have overcome obstacles, achieved goals, and sought to shape the world around them. Those themes beg certain questions, including:

- **Power and Authority:** Who has it? How do they keep or lose it? Why?
- **Political Revolution:** What stimulates radical change in governments, institutions, and ideas? What are the results of such change?
- **Religious and Ethical Systems:** How do religious groups compare and contrast to one another? How do they interact with and react to others?
- **Geography:** How do geographical features impact political decisions and economic development?
- **Economics:** Who controls the wealth and resources within societies? How do economies expand or contract?
- **Cultural Interaction:** How do various cultures interact? What do they pass to one another? Can cultural interaction be positive and negative?
- **Expansion and Empire Building:** How and why do groups seek to conquer others?
- **Science and Technology:** How do people gain and use knowledge? How do they use it to solve problems and change lives?

History 11/United States History

This survey course covers major themes in American history, from the creation of a new nation from colonial beginnings to the challenges facing a super power in the 21st century. The historical narrative deepens as students gain depth and precision in their understanding of cause and effect. Through synthesis of primary sources and a college –preparatory text, students explore private and public lives, ordinary and celebrated people, dividing and unifying trends, as well as national and international trends and context. Examining U.S. history through a variety of lenses – political, social, economic, and cultural – we continuously address these essential questions:

- Who cares? Why does what happened in the past matter to me? To anybody?

- What is the American Dream? Is it still possible?
- How much inequality can America tolerate and still have a democracy?
- How has diversity shaped American society? What factors are most important in determining the American experience?
- What forces have drawn the nation together and enabled it to survive and flourish, despite division?
- How has America's role in global affairs changed and what are its biggest challenges ahead for domestic and foreign policy?

Advanced Placement United States History

This course is offered in the junior year, and is one of the options to fulfill the U.S. History graduation requirement. Like all classes it is designed to be a college level course. The course is appropriate for the advanced student who wants both a rigorous and in-depth study of American history as well as the opportunity to take the College Board's AP US history exam offered in May. Students are required to take the exam if enrolled in the course. The class covers American history from the Age of Exploration through the present. Considerable reading and writing is required. Critical thinking skills, historiography, and methods of historical analysis are also stressed.

History 12: The Supreme Court in U. S. History (year-long)

For those students not taking the year-long AP US Government and Politics, "The Supreme Court in United States History" comprises the year-long History requirement.

This course introduces the student to the role of the United States Supreme Court in the shaping of American history through its interpretation of the Constitution. After examining the social, political and intellectual origins of the Constitution, we use primary sources from Supreme Court cases to explore such constitutional issues as judicial review, judicial philosophy, federalism, separation of powers, national security, equal protection, due process, the commerce clause, right to counsel, immigration, civil liberties in wartime. Daily readings from primary and secondary sources are the basis for class discussions. Classes emphasize discussion, the exchange of ideas through informed deliberation, the substantiation of opinions and respect for diverse viewpoints. Much of the work, particularly in the second semester, is project-based. All students are required to write a comprehensive research paper on the early part of the second semester as part of their course work. This paper is a culminating project, and takes the place of a final exam.

AP US Government and Politics (year-long)

This year-long, senior-level course provides an analytical perspective on government and politics in the United States. The course examines the Constitutional underpinnings of the US government, landmark Supreme Court cases, the structure and function of the government at the federal, state and local levels, the roles of belief, media and parties in the shaping of public policy, and the role of the individual citizen at every level of government. While it prepares students for the AP US Government exam, it also teaches the fundamentals of researching and writing a college-level history research paper in the first semester. Credit as an AP course is granted to students completing the full two-semester requirement.

History Electives

Hey Kentucky! Hot Topics in your Commonwealth (FGSR) (FWR)

This course will focus on how Kentucky governs itself at the local and state levels (starting with how Lexington and Frankfort handled the COVID-19 pandemic). It will be project-based with students talking to local/state officials and agencies about problems facing citizens of the Commonwealth. In addition, students interested in attending KYA (the Kentucky Youth Assembly) in November will have the opportunity to write bills, lobby legislation and prepare for the conference.

Media Literacy (FWR) (FGSR)

This course will be focused on developing the 21st century skill of media literacy. As we become more and more entrenched in the Information Age, the acquisition of knowledge becomes less and less essential. As so many students reiterate, “why do I need to know the date of Pearl Harbor? I can just Google it!” As a teacher, I obviously see value in internalizing historical information, but to a certain extent, that student is right; the Information Age makes knowledge acquisition less essential for success, as immeasurable amounts of information are always right at our fingertips. However, the Information Age presents its own challenges. With so much information right at your fingertips, how do you know what to believe? Often, information from different sources conflicts, so which source is reliable? “Media literacy” technically means being able to “read media,” and developing the critical and analytical skills necessary to do so will be the crux of this class.

We will focus our attention around The Center for Media Literacy’s Five Core Concepts:

1. All media messages are constructed
2. Media messages are constructed using a creative language with its own rules.
3. Different people experience the same media message differently.
4. Media have embedded values and points of view.
5. Most media messages are organized to gain profit and/or power.

Throughout the progression of this course, we will discuss what constitutes media, what constitutes bias, how we evaluate media, and how we evaluate ourselves to properly understand the way media acts upon us, consciously or subconsciously. By the end of this semester, you should be well on your way to being an engaged, critical reader of media, and thereby an engaged, critical citizen of the world.

Hot Spots in US Foreign Policy & Int'l Relations (FGSR) (FWR)

This project-based elective allows students to learn about current events, namely conflicts and concerns in different parts of the world, how the US responds, and what the United Nations might do to address or solve the problems. In addition, students planning to attend KUNA (Kentucky United Nations Assembly) in March will have the chance to write resolutions and create cultural displays for the countries that Sayre will represent at that conference.

The US Since 1945 (FGSR) (FWR)

This seminar and project based course will focus on social movements in the era after the Second World War, particularly the Civil Rights movements of the 1940s-1970s. Some foreign policies issues will also be covered. Students will have an opportunity to study this era in-depth while focusing on areas of particular interest. It will also be an opportunity for interested students to learn, explore concepts and events not covered in 11th grade American history.

Mathematics Curriculum

Algebra I

Algebra I's focus is on the theoretical concepts and essential problem solving skills needed in higher-level mathematics and science courses. The course introduces students to abstract thought and logical structure while at the same time requiring students to apply the concepts they are learning to do a variety of realistic situations. Topics covered include real numbers, variables, expressions, equations, inequalities, problem solving strategies, coordinate plane and graphing on the coordinate plane, systems of linear equations, polynomials, rational expressions, factoring, solving quadratic equations, exponents, radicals, and functions. Note: Students who score below a "C-" for their second semester grade are required to receive summer remediation or to repeat this course before continuing in the mathematics sequence.

Geometry

Discovering Geometry takes an inductive approach to studying geometric terminology, relationships of parallel and perpendicular lines, triangles, quadrilaterals, circles, proportions, similarity, trigonometry, area, surface area, and volume of three-dimensional shapes. Students will use geometric terminology to discover various relationships between two-dimensional geometric figures. Throughout the course students learn to use rulers, protractors, compasses as well as Geometer's Sketchpad to construct various geometric figures to help them better understand the conjectures learned during class. Various coordinate geometry formulas will be used during class including: midpoint, distance, and slope. Throughout the year students create their own electronic notebooks, which serves for a great resource for years to come! The course is broad based, but is essential knowledge for higher-level mathematics courses and the ACT and SAT tests.

Algebra II

Algebra II builds upon the skills and concepts learned in Algebra I and also integrates reading, writing, and problem solving skills in order to prepare students for more in-depth study of mathematical concepts. Students develop proficiency in working with algebraic expressions, functional analysis, and coordinate geometry. Graphing calculator technology is integrated throughout the course to provide concrete visual aids in the study of abstract concepts as well as problem solving. Topics covered include equations and formulas, variation, linear equations and inequalities, systems of linear equations and inequalities, quadratic functions, functional analysis, exponential, radical, rational, and logarithmic functions.

Honors Algebra II

Honors Algebra II operates on a more rigorous, theoretical level and covers a broader range of

topics and applications than the regular Algebra II course. Students should expect the course to move at a rapid pace and be prepared to study and learn concepts independently. All topics covered in Algebra II are covered in greater depth. Topics covered beyond those listed under Algebra II include: analysis of trigonometric functions, logistic functions, and polynomial functions.

Precalculus

This course bridges the Algebra II and Honors Precalculus curriculum by combining an in-depth study of Algebra II topics with those of an introductory Precalculus course. The course is intended to provide the necessary background for continued study in mathematics as well as further prepare students for the mathematics section of college entrance exams. Graphing calculator technology is integrated throughout the course as problems are presented both algebraically and graphically. Topics covered include functions and their graphs, matrices, polynomials, graphical analysis, trigonometric functions and their graphs and inverses, conic sections, exponential and logarithmic functions, sequences, and series, and polar and parametric functions.

Honors Precalculus

This course incorporates graphing technology throughout the course. Technology allows the focus of the course to be on problem solving and exploration while at the same time building a deeper understanding of advanced mathematical ideas and techniques. Concepts and problems are analyzed and discussed algebraically, graphically, verbally, and numerically. Topics covered include graphing, manipulating and finding the solutions of linear, polynomial, exponential, logarithmic, rational, and trigonometric functions, complex numbers and polar equations, sequences and series, parametric equations, limits, and vectors.

Calculus

Calculus is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, axiomatic geometry, trigonometry, and analytic geometry. It is a course in introductory calculus with elementary function. Topics covered include: functions and graphs, limits and continuity, differential calculus including applications such as graphing, integral calculus including applications such as finding areas under the curve. Problems are analyzed by using both an algebraic representation and a graphical, or geometric, representation of a problem.

Advanced Placement Calculus (AB Level)

Calculus (AB) is intended for students who have a thorough knowledge of college preparatory mathematics, including algebra, geometry, advanced algebra, functions, and trigonometry. Concepts and problems in the course are analyzed and discussed using a combination of algebraic, graphic, numeric, and verbal methods. Graphing calculator technology is integrated throughout the course. Topics covered include functions and graphs, limits and continuity, differential calculus and applications of derivatives, and integral calculus and applications of integration. The course is the equivalent to a college level Calculus I course. All students are expected to take the AP Examination in May.

Advanced Placement Calculus (BC Level)

AP Calculus BC is intended for students who have a thorough knowledge of college preparatory mathematics, including Algebra, Axiomatic Geometry, Trigonometry, and Analytic Geometry. It is recommended for those students who love math and will possibly be majoring in Engineering or another math related field in college. The course covers the equivalent of two semesters of college calculus and moves at an extremely fast pace! Topics covered include: limits and continuity, differential calculus including applications such as graphing, integral calculus including applications such as finding areas and volumes, as well as integration by parts and partial fractions, a heavy concentration on series and sequences as well as an introduction to parametric equations and polar coordinates. Problems are analyzed by using both an algebraic representation and a graphical, or geometric, representation of a problem. The students are expected to take the AP examination in May.

Advanced Placement Statistics

Advanced Placement Statistics is an introductory college level statistics course. The focus of the course is on understanding statistical reasoning and practices rather than rote memorization of formulas and procedures. AP Statistics is built around four main themes: exploring data, planning statistical studies, modeling with probability and simulation, and using statistical inference. Technology is integrated around these themes through the use of graphing calculators and computer software (Stat Crunch). Topics covered include basic numerical and graphical analysis of one and two variable data, introductory experimental and sampling designs, basic probability theory and probability models, estimation and tests of hypotheses, and using inference with probability distributions and simple linear regression.

College Algebra

College Algebra follows Algebra II or Precalculus in a student's course sequence. The approach of this course is to view data analysis as a foundation for mathematical modeling; thus, seeing mathematics in context with the real world. Basic algebra skills will be reviewed with focus on verbal, numerical, graphical and symbolic representations of mathematical concepts. Fewer topics will be covered in greater depth. Topics include trigonometry, logarithms, polynomial and rational functions, and matrices.

Advanced Placement Computer Science Principles

An introductory course to Computer Science where students work with data, collaborate with one another to solve problems and develop computer programs. One semester will be spent coding through code.org curriculum where students will learn abstraction, algorithms, and program. The second semester will be spent exploring data and information, the internet and the global impact of computing. The course allows students to be creative throughout all of its content. All students are expected to complete one performance task and take the AP exam in May.

AP Computer Science

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Science Curriculum

Biology

Biology is a required full year laboratory course for ninth graders, designed to survey basic concepts and principles of life science and to encourage research and inquiry. Topics in Biology are introduced through a combination of classroom and laboratory activities. The laboratory activities are designed to further develop knowledge in content areas and to increase proficiency in such scientific processes as experimental design, data collection, and data analysis. Throughout the year, mathematical skills of graphing, slope determination, and statistics are used to further student understanding of the scientific process. Students are introduced to concepts that unify all living organisms: ecology, cell structure and function, energy acquisition.

Advanced Placement Biology

AP Biology is a college level Biology course designed to conform to the goals defined by the AP program of the College Board. Students cultivate their understanding of biology through inquiry-based investigations as they explore 8 specific units. Advanced topics included are: chemistry of life, cell structure and function, cellular energetics, cell communication and cell cycle, heredity, gene expression and regulation, natural selection, and ecology. The Big Ideas of evolution, information storage and transfer, energetics, and system interactions will be spiraled through these units. All students taking the course are required to take the AP Biology Examination in May. **NOTE:** The class includes summer reading.

Principles of Chemistry

The Principles of Chemistry course at Sayre provides a solid background in conceptual chemistry ideas through the use of modeling, inquiry lab activities and hands-on manipulatives. Students develop a working knowledge of scientific theories and laws and chemical principles through an emphasis on critical thinking, data analysis, and development of models. Students dive deeper into the ideas presented through independent exploration in topics related to the content. Topics of study include properties, pH, reaction rates, atomic structure and ions, light, periodic table, states of matter, gas laws, and energy.

NOTE: The course provides the basis for the chemistry needed to succeed in Biology 2.

Chemistry

Chemistry at Sayre is both traditional and progressive. The course provides an excellent background in beginning chemistry which applies traditional concepts with modern laboratory techniques. Chemical principles are applied to a number of areas including environmental concerns and energy sources. Topics of study include chemical and physical properties, reaction rates, atomic structure, nuclear reactions, electromagnetism, periodic table, chemical bonding, types of chemical reactions, balancing equations, states of matter, gas laws, and thermodynamics. A strong emphasis is placed on inquiry learning, modeling, and laboratory work.

NOTE: The course prepares students for the content required for AP Environmental Science, AP Biology, AP Physics II, and AP Chemistry.

Advanced Placement Chemistry

AP Chemistry is a year-long, college level Chemistry course designed to conform to the goals defined by the AP program of the College Board, including the recent emphasis on inquiry based labs. The course aims to duplicate the experiences and level of difficulty of the type of introductory chemistry taken by students majoring in science or science related fields as college freshmen. Activities are quite rigorous and challenging. Advanced topics of study include reaction rates, thermochemistry, electrochemistry, kinetics, chemical equilibrium, and organic chemistry. All students taking the course are required to take the AP Chemistry Exam in May.

NOTE: The class includes a summer assignment and classes begin before school starts in August.

Physics

This is a Modeling based course that gives students an understanding of the fundamental concepts and laws that govern the world. Through frequent laboratory activities students work together to collect and analyze data using a variety of mathematical techniques to discover fundamental principles and gain analytical skills. Although conceptual understanding is the emphasis of this course, students use Algebra I, Geometry, and basic trigonometry to express quantitative relationships and draw conclusions. Topics include experimental design (data collection and analysis techniques), one-dimensional/two-dimensional motion, linear forces, energy, impulse and linear momentum in one-dimension, and introduction to waves (sound and light).

AP Physics I

AP Physics I is a Modeling based physics course that prepares students to take the AP Physics I exam. This course does emphasize a conceptual understanding, similar to Physics, but a stronger emphasis is placed on mathematical expressions (algebra II, geometry, and trigonometry) and on problem-solving. In addition to utilizing a more mathematical approach, this course moves at a quicker pace, explores concepts covered in Physics at a deeper level, and covers additional topics not covered in Physics. Topics include experimental design (data collection and analysis techniques), one-dimensional/two-dimensional motion, linear forces, uniform circular motion, gravity and planetary motion, impulse and linear momentum in one-dimension/two-dimension, energy, torque, rotational motion, angular momentum, static electricity, DC circuits, simple harmonic motion, and mechanical waves/sound. Homework assignments and lab experiments will be closely aligned with the AP Physics I curriculum published by the College Board to give students the best chance of earning college credit.

NOTE: The class includes a summer assignment and classes begin before school starts in August.

AP Physics II

AP Physics II is a Modeling based physics course that picks up where AP Physics I left off and prepares students to take the AP Physics II exam. Students in this course utilize the skills and knowledge they acquired by taking AP Physics I to continue their studies of physics into topics not covered in AP Physics I. Topics include experimental design (data collection and analysis techniques), thermodynamics, static and dynamic fluids, static electricity and electrical potential, DC and RC circuits, magnetostatics and electromagnetism, geometric optics and physics be closely aligned with the AP Physics II curriculum published by the College Board to give students the best chance of earning college credit.

NOTE: The class includes a summer assignment and classes begin before school starts in August.

Environmental Science

Environmental Science is the study of how organisms interact with each other and their environment. This science course is interdisciplinary. Physics, chemistry, biology, and the social sciences (sociology, psychology and economics) help us understand how all organisms (including humans) are interconnected with their environment in multiple ways. This course provides an introduction to basic ecological concepts: how ecosystems function and change, human population studies and problems, production and distribution of food, concepts related to both terrestrial and marine ecosystems, energy production - both renewable and nonrenewable - and explorations of current environmental topics and problems among many others. This course includes a strong lab component with appropriate field experiences.

Advanced Placement Environmental Science

AP Environmental Science is a college level science course designed to conform to the goals defined by the AP program of the College Board. This course covers the concepts of the environmental science class with greater depth and breadth, including a greater level of mathematical analyses. The work prepares students to take the AP Environmental Science exam in May. To that end, an appropriate attitude and work ethic are expected.

NOTE: The class includes summer reading, a few field trips before school starts, and a weekend trip in October/November as well as a variety of lab and field experiences.

Science Electives

Biology II: Anatomy & Physiology

Biology II is an upper level Biology class that will explore the structure and function of the human body and take a closer look at its evolution. Participants in this class will engage in hands-on laboratory experiments such as dissection of preserved specimens, microscopic study, physiologic experiments, computer simulations and lectures that explore the complexities of human anatomy and physiology. At the end of the class, students will understand the concept of homeostasis, how it interrelates to basic human body functions and life processes, and will demonstrate knowledge of the organization of the human body. Topics of study include the following body systems: nervous, integumentary, skeletal, muscular, digestive, circulatory, respiratory, reproductive, endocrine, and immune.

Nutritional Chemistry

Nutritional Chemistry is a one-semester elective science course for seniors. Students will concentrate their attention on the following themes – digestion, organic molecules, energy, vitamins, and the chemical reactions that occur in food preparation and preservation. Students will be involved heavily in laboratory activities and will gather information through a variety of sources. The course is intended to offer students a practical understanding of the chemical foundations of nutrition and food science. The course will be open to seniors only who have completed Chemistry.

AP Physics C Mechanics (Independent Study)

AP Physics C Mechanics is a Modeling based physics course that applies calculus to the study of physics. Students in this course are given greater autonomy to manage their learning and students proactively being responsible for completing work/seeking extra help is key to being successful in AP Physics C. Students utilize the skills and knowledge they acquired by taking AP Physics I and II as well as AP Calculus AB and AP Calculus BC to continue their studies of physics. Topics from both AP Physics I and AP Physics II are revisited with an emphasis on a more sophisticated mathematical approach. Also topics are covered in a greater depth. Topics include experimental design (data collection and analysis techniques), Newton's laws, work and energy, linear momentum, circular motion, rotational motion, oscillations and gravitation. Homework assignments and lab experiments will be closely aligned with the AP Physics C curriculum published by the College Board to give students the best chance of earning college credit.

Advanced Research Design

Dedicated juniors and seniors have the opportunity to work with a university professor (typically through the University of Kentucky) to conduct real research in a laboratory setting. With the oversight of Sayre faculty, students will contact prospective university departments and professors to find an appropriate setting to conduct research. A minimum of sixty hours in an approved lab is required for a 1/2 credit. Students will be required to attend an instructional meeting at the beginning of the semester, with arrangements to work in his/her prospective lab finalized within the first six weeks of the semester. At the end of the semester, a paper describing the activities completed is due, along with an evaluation from the lab mentor. If an appropriate avenue is available, students will be required to present their research in a professional setting. Students are also encouraged to present their research at available science fairs. This elective may be repeated.

Island Geology and Ecology

Island Geology and Ecology is taught to students who travel with the Science Department faculty. Students learn about the geology that forms islands and therefore the unique flora and fauna that evolve there. The course is taught on a biannual basis and locations of previous study have included Dominica, the Galapagos Islands, and Iceland. While on the island, students will document what they see and learn on the trip by keeping a daily journal. This journal will be submitted at the end of the trip; good quality journal entries that demonstrate understanding of the science taught and reference the required book reading will earn a semester of credit.

Visual and Performing Arts Curriculum

Theatre I (FHR)

This semester-long course continues the student's introduction to the theatrical concepts of performance (acting, improvisation) and includes a brief survey of theatre history (Greek, Medieval, Renaissance/Shakespeare). Students will read plays in and outside of class, and will see at least one play outside of school. Students will learn some of the fundamentals of vocal production and stage movement and will engage in projects that challenge them vocally and physically.

Playwriting (FWR)

This semester-long course introduces students to the fundamentals of playwriting, through a wide variety of writing exercises and a study of the dramatic form. Students will also learn about the business of theatre, and will submit at least one play to a professional theatre for production or publication. The culminating project will be a public reading of short plays written by students. Students will read plays both in and outside of class, and will see at least one play outside of school.

Theatre II (FHR)

This semester-long follow up to Theatre I will continue with theatre history (Modern through contemporary, and musical theatre), as well as further improvisational and performance opportunities. They will also perform a scene or monologue from one of the curricular texts. Students will read plays both in and outside of class, and will see at least one play outside of school.

Acting Studio (FHR)

This semester-long course will focus on acting, through scene-work, monologues, and improvisation. Students will also learn about the business of theatre, including audition techniques and how to succeed as a theatre professional. Newer actors will be introduced to the fundamentals of performances, while more experienced students will have the opportunity to practice the craft at a more advanced level or create independent projects for themselves in performance, directing, playwriting, or design. Students will read plays both in and outside of class, and will see at least one play outside of school.

Music

Piano Class (FHR)

The piano class is open to any student wanting to learn: beginning piano skills, enrich his/her piano skills, improve music reading skills, and explore improvisation and composition in a group setting. Although students are not required to perform in concerts, in-class activities and recitals are part of the assessment. This class may be repeated. Seniors who have completed two semesters of piano and have permission from the director may receive honors credit by completing projects and/or performances outside the classroom.

Honors Music Theory (FHR)

This semester-long course is designed for the serious music student wanting to develop extensive knowledge of music theory through challenging study. In this class, students continue the study of music elements as well as all forms of aural dictation. Composition using music software and exploration of the historical significance of various composers and ideas related to the development of music theory are also implemented. Some AP assignments are given to provide an opportunity for honor students to experience college level work.

Advanced Placement Music Theory

This year-long course is designed after a year-long college level class and is for the advanced music student who has completed Honors Music Theory. Students are prepared to take the AP exam in Music Theory. The requirements of the College Board are implemented through in-depth assignments, exercises, and tests.

Independent Study in Music Competition

This class allows students to further pursue their interests in music through composition. Through improvisation exercises, studying other compositions and various genre forms, students will compose their own portfolio of music using music software.

Sayre Singers (FHR)

This year-long performance class is for female vocalists interested in singing choral music. Emphasis is on performance skills and sight reading skills needed for signing a variety of musical styles such as vocal jazz, contemporary, show tunes, as well as traditional choral music from all genres. **Attendance is mandatory at all performances as well as occasional after-school rehearsals and community functions.** Joint performances with the Spartones and Sayre Players Band will be implemented. This class may be repeated.

Spartones (FHR)

This year-long performance class is for male vocalists interested in singing choral music. Emphasis is on performance skills and sight reading skills needed for signing a variety of musical styles such as vocal jazz, contemporary, barbershop, show tunes, as well as traditional choral music from all genres. **Attendance is mandatory at all performances as well as occasional after-school rehearsals and community functions.** Joint performances with the Sayre Singers and Sayre Players Band will be implemented. This class may be repeated.

Sayre Players Band (FHR)

This year-long class is for the student who has had training on a musical instrument and desires to play in an ensemble with other students. Various styles of music and levels of difficulty are performed based on each student's ability. **Attendance is mandatory at all performances as well as occasional after-school rehearsals and community functions.** Joint performances with the Sayre Singers and Spartones will be implemented. This class may be repeated.

Digital Photography

In this class, you will learn to take pictures using the manual settings on a digital camera, giving you full artistic control of your images. We will talk about composition, mood, tone, and intent. We will practice various genres of photography, like landscape, portrait, tabletop, abstract, and street photography. We will also dive into the possibilities of Adobe Photoshop and learn how to do digital printing.

Publications

The purpose of this class is to provide “hands on” experience in the design and production of Sayre’s yearbook, *Pillars*. Students develop an aesthetic “eye” and learn practical techniques relating to publications such as photography, graphic design, journalism, and business. Specific course objectives include improvement or initial skill development in these four areas as well as learning to work as a team.

3 Dimensional Art I (FHR)

This is a foundation course that focuses on how to develop ideas and translate them into 3D hands-on work. While exploring a variety of media, such as clay, paper, spray paint and wood students learn to work in a studio environment that encourages their individuality and creative expression. Students also explore and discuss classical and contemporary artwork, contextualizing a variety of media with basic concepts, design terms and critique.

3 Dimensional Art II (FHR)

As a continuation of 3D Art I, students further explore making three-dimensional works of art. The emphasis is on working more independently and pushing ideas beyond basic concepts. Students are encouraged to pursue their own ideas and research artists who will inform their work. Materials such as cyanotype prints, metals and nature art are also explored.

Ceramics

This advanced 3D art course focuses on making art out of clay. Students learn a variety of techniques such as pinch, coil, and slab building. They explore surface applications, glazing techniques and the manipulation of geometric and organic forms. Ceramics students learn electric and alternative firing and visit local galleries and studios. Students also study contemporary ceramics and clay work of different cultures. The goal of this course is to make a variety of functional and non-functional pieces that reflect the students' design aesthetics. Learning to throw on the wheel is an option.

Metals

As an advanced 3D art course, students explore the elements of design in the metal pieces they create. Students learn basic metal techniques, such as sheet metal art, wire sculpting, cuttlebone casting, sawing, soldering, and polishing. The finished pieces may be functional such as jewelry or lanterns, or non-functional work such as engraved designs.

Advanced 3D Art

Advanced 3D Art is a continuation of Ceramics, Metals and/or 3D Art II. Students create a body of work that demonstrates the integration of design and craftsmanship. Ceramics students develop design style and hone their building and glazing skills. They learn to load the kiln and fire clay pieces. Metals students learn more advanced metal techniques, such as stone setting and working with real silver. Sculpture students work in different media to create more sophisticated, unique 3D pieces such as casting, shadow boxes and balsa wood paper lanterns.

Honors 3D Art

Honors 3D Art is a year-long course that culminates in an exhibit off campus. Students choose the medium they want to explore and create a body of work that reflects their interests and deeper investigation. The class is set up like a working studio to encourage art dialogue between students and to let them work independently, exploring a variety of contemporary and local artists and multimedia.

Studio Art I (FHR)

This introductory course focuses on drawing using pencil, pen and ink, charcoal, colored pencil and includes a block printing unit. The class studies perspective, composition, shading, texture, and the principles of art. It is an introductory production class for students who wish to learn and express themselves through a variety of visual art media.

Studio Art II (FHR)

This course is designed as a continuation of Studio Art 1, but now focuses on painting with watercolors and acrylic paints. Further studies of the principles of art are applied through the use of color. Students will study color mixing and uses of painting techniques. Students will be introduced to several different art movements and the people who inspired them.

Drawing

This course enables the art student to further develop his/her interest in art by focusing on basic drawing skills. A series of drawing exercises explore line, value, perspective, and shapes. Media include: graphite, pencils, charcoal, colored pencils, and pen and ink. The students keep a portfolio of work that includes portraits, still life, landscapes, and exploratory work. The main assignment is a self-portrait drawn on a grid.

Painting

This class allows the art student to continue pursuing an interest in art by focusing on fundamental painting principles, methods, and materials. A series of exercises explore composition, color mixing, techniques, and varied subject matter. Media used include acrylic paints and watercolor. The painting student keeps a portfolio of work that includes representational work, exploratory concepts, and abstract work.

Honors Art

This course is designed for the serious student who wants to develop their skills and produce a stronger disciplined portfolio through challenging assignments. Finished projects culminate in a strong collected portfolio of work. Many AP assignments are given to allow the honor students to experience college level work. Media includes graphite, pen and ink, charcoal, watercolor, acrylics, and oils.

Advanced Placement Studio Art

This course is designed for the self-motivated, creative and talented student who plans to study visual art at the next level. The student is required to create a body of work which is evaluated by professionals at the end of the year. Much of the work is executed in class, the rest at home, according to the student's individual schedule. The content includes breadth, concentration, and quality. Media can include acrylics, oils, graphite, colored pencil, watercolors, etc.

Independent Senior Research in the Arts

Seniors in the arts have an opportunity to earn independent research credit. Independent research might include an art exhibition, drama production, music recital, or dance program. Each research project involves a written component. This written requirement may be completed in a number of ways such as building a historical framework for the pieces presented, preparing an artist's statement that enlightens the viewers to a deeper understanding of the art form as it is presented, writing the score for an original musical composition, or writing a script for an original short play.

Applicants for Independent Research must apply through the Upper School Office prior to the end of their junior year.

Please note:

- All Visual & Performing Arts courses are one semester in length unless otherwise note
- Graduation requirement for Fine Arts: 2 credits
1 credit of the two must also meet the Humanities Requirement for graduation

General Electives

Fitness Training

Arts and Crafts in Moroccan Life (FGSR)

This interdisciplinary, hands-on course (co-taught by Dr. Froehlich, Mr. Samples, and Ms. Wiggs) will guide students to understand the arts and crafts in Moroccan daily life and rituals as an expression of their rich multi-ethnic heritage, of their spirituality, and of national pride. As part of the course students will explore Moroccan geography and history in order to understand the origins of its multi-ethnic culture; study and create Islamic geometric patterns at the core of certain decorative arts, as well as apply them as they create Moroccan style objects; study the practices and perspectives of Moroccan rituals such as a tea ceremony or Henna application, and consult with Moroccan citizens via TalkAbroad about the role of rituals and arts and crafts in daily life.

A planned spring break 2021 trip to Morocco will allow participants to experience first-hand the role that various rituals and arts and crafts play in Moroccan daily life.

Service to Society

This class is designed to instill the critical aspect of good citizenship – giving back to one’s community. The course explores the concept of philanthropy, its historical significance to the development of the United States and its importance in American life. Throughout the course, students devote significant time and energy to volunteer service, both collectively and individually.

They serve a variety of local agencies to find the causes they most value. Organizational skills, interpersonal communication skills, teamwork, and goal setting are taught in a practical manner, leaving each student better prepared for active involvement in their communities.

WORLD LANGUAGES CURRICULUM

Spanish 1

This is an introductory course to the Spanish-speaking world and develops vocabulary acquisition to begin listening, speaking, reading, and writing with topical vocabulary related to everyday life. Competency goals include: expression of basic social and survival needs, and understanding and expressing familiar words, phrases, and simple sentences in spoken and written communication about familiar topics. Students will also study and identify some practices and basic values of target cultures.

TEXTBOOK: Avancemos 1 (Level 1) Houghton Mifflin Harcourt Publishing Co., 2013

Spanish 1P

This course acts as a bridge for students who need additional support and review before entering Spanish II. Some competency goals include expression of basic social and survival needs, and understanding and expressing familiar words, phrases, and simple sentences in spoken and written communication about familiar topics. Students are also taught to recognize pieces of information and understand the main idea of what is being said or written

Prerequisite: Approval of instructor and Division Head

TEXTBOOK: Avancemos 1 (Level 1) Houghton Mifflin Harcourt Publishing Co., 2013

Spanish III

This course emphasizes an interactive, communicative approach. The course focuses on developing students’ reading, writing, listening, and speaking skills, and instruction is in Spanish. Students also learn more about Hispanic geography and cultures, and explore attitudes and traditions. Examples of competency goals include the ability to meet all survival and most social needs, and to communicate on concrete topics such as daily routine, the environment, travel, family, etc. Supplemental materials include websites, podcasts, music, videos, and news reports.

Prerequisite: Students must have received at least a C+ second semester grade in Spanish II and have passed the final exam, or have permission from the instructor to enroll in Spanish III.

TEXTBOOK: Avancemos 3 (Level III) Houghton Mifflin Harcourt Publishing Co., 2013

Spanish V: Topics in Hispanic Film (Fall)

Students improve listening comprehension and respond in writing and speech as they study a variety of films. They hone their skills in expressing opinions, using more complex and descriptive language, and narrating and comparing events. They also expand their knowledge of topics such as immigration, family and society, and politics as presented in films from various Spanish-speaking countries. Role-plays, scene writing, and presentations create further opportunities for self-expression in the target language

Prerequisite: Successful completion of Spanish 4 or Honors 4

Spanish V: Conversation, Culture and Current Events (Spring)

Students focus primarily on discussions and conversations skills while studying about culture and current events of the Hispanic world. Instructional time is also dedicated to reading a variety of texts, improving listening comprehension, vocabulary building, and grammar intervention. Websites, news reports, debates, role-plays, projects, and presentations create further opportunities for self-expression in the target language.

Prerequisite: Successful completion of Spanish 4 or Honors 4

Advanced Placement Spanish Language

This is an advanced class designed to prepare students to successfully pass the AP examination in Spanish Language in May. Students gain mastery in interpretive communication, presentational and interpersonal writing, and presentational and interpersonal speaking for the following six themes: 1) families and communities, 2) science and technology, 3) beauty and aesthetics, 4) contemporary life, 5) global challenges, 6) personal and public identities.

Prerequisite: Seniors who have completed Spanish 4, Honors 4, or 5 and the approval of the instructor

TEXTBOOK: Temas and AP Spanish, 2nd ed. 2020 (Vista Higher Learning)

French I

This introductory course introduces students to the francophone world and develops vocabulary acquisition to begin listening, speaking, reading, and writing with topical vocabulary related to everyday life. Competency goals include the following: formulation of questions, expression of basic social and survival needs, comprehension and retention of materials in simple paragraphs, and composition of short paragraphs and letters with some attention to syntax and grammar.

TEXTBOOK: Online course: *Français Interactif* (chapters 1-5)

French II

This course continues to build basic language skills through a variety of means, including story telling, with grammar expanded to include the verb tenses (present, imparfait, Passé compose, future simple). Competency skills include the ability to: initiate conversations, meet most survival and general social needs, discuss school situations, comprehend meaning through context, and compose short narratives on familiar topics. Topical vocabulary study is expanded and cultural awareness is deepened with an emphasis on French and Francophone life.

Prerequisite: French I or equivalent

TEXTBOOK: Online course: *Français Interactif* (chapters 6-9)

French III

This course continues to build language skills through a variety of means, including story telling, reading, listening comprehension, watching videos, skits, writing letters and expository texts with grammar expanded to include all verb modes (subjunctive, conditional) as well as a review of all indicative tenses. Examples of competency goals include the ability to meet all survival and most social needs, communicate on concrete topics such as education, professional life, and media, be able to write in a variety of formats (formal, informal, letters, posts, essays) and read and discuss materials printed for general distribution. The subjunctive mood is introduced and oral discussion takes place in all time frames as well as the conditional.

Knowledge of the culture of France and Francophone countries is expanded.

Prerequisite: Students must have received at least a “C+” second semester grade in French II and have demonstrated mastery of the DELF A1.

TEXTBOOK: Online course: *Français Interactif* (chapters 10-13)

French IV

Students study various aspects of francophone civilization through a variety of media (internet, movie, radio, newspapers, and so on). They hone their skills of summarizing, narrating, contrasting, and expressing their opinions orally and in writing and with structural and lexical accuracy through guided oral exercises and writing assignments. Students learn strategies to help them increase their vocabulary and they learn to utilize various language tools (the web, dictionaries, grammar references, spell check, translating tools, etc.). Students also explore Francophone culture and civilization through films, plays, poetry and other texts.

Prerequisite: Students must have received at least a “C+” second semester grade in French III and receive at least an average of 18/25 on the A2 level.

TEXTBOOK: *Bien Dit III*, Holt, Rinehart, Winston, 2008

Honors French IV

Students study various aspects of francophone civilization through a variety of media (internet, movie, radio, newspapers, and so on). They hone their skills of summarizing, narrating, contrasting, and expressing their opinions orally and in writing and with structural and lexical accuracy through guided oral exercises and writing assignments. Students learn strategies to help them increase their vocabulary and they learn to utilize various language tools (the web, dictionaries, grammar references, spell check, translating tools, etc.). Students also work and practice with DELF B1 materials to prepare willing individuals to pass the French Diploma.

Prerequisite: Students must have received at least a “B+” second semester grade in French III and must have permission from the instructor in order to enroll in Honors French IV.

TEXTBOOKS: *Bien Dit III*, Holt, Rinehart, Winston, 2008; *Le Nouvel Edito*, Didier, Niveau B1, 2012

French V: Conversation

Students delve deeply into modern day Francophone culture through a variety of different texts and media. The materials serve as a basis for broadening vocabulary acquisition as well as

sparking student discussion. Over the course of the year, students work on a variety of creative projects, involving, among others, skits, video productions, and larger competitive projects.

Prerequisite: Successful completion of French IV.

TEXTBOOK: *Edito*, multiple media. Content varies.

Advanced Placement French Language

Students gain mastery in speaking and writing with structural and lexical accuracy about a great variety of topics in different print formats (short stories, poetry, newspaper articles, short novels), movies, music, and radio journals. In addition, students conduct a thorough review of grammar, practice Advanced Placement test components and gain familiarity with the Advanced Placement test format.

Prerequisite: Students who wish to advance to AP French must have received a minimum second semester grade of "A-" in French IV or "B" in Honors French IV and have obtained the approval of the instructor.

TEXTBOOK: *Edito*; various texts.

5-1--2020