



COURSE DESCRIPTIONS

2023-2024

146th Session

School Mission

*We create opportunities for discovery and reflection
by engaging the minds, hands, and hearts of our students.*

MILLER SCHOOL OF ALBEMARLE COURSE OF STUDY

Curricular Offerings 2023-2024

Highlighted courses are new in the 2023-2024 year.

All courses are offered contingent upon adequate enrollment and staffing.

English

Humanities (Grade 8)
English 9 (Literature & Society)
English 10 (World Literature)
English 11 (American Literature)
English 12
Intro to Creative Writing
Creative Writing
AP English Language & Comp
AP English Literature & Comp
Film Analysis
Philosophy, Ethics, & Religion
Literature of the Environment
Professional Writing

History & Social Sciences

Humanities (Grade 8)
Human Civilization (Grade 9)
World History (Grade 10)
Virginia History
World Religions
US History
Government & Civics
Introduction to Economics
Principles of Psychology
Student Leadership
AP World History
AP US History
AP US Government & Politics
AP Human Geography
AP Macroeconomics
AP Psychology

Science

Integrated Science (Grade 8)
Biology
Chemistry
Physics
Introduction to Engineering
Engineering 4 Us All (e4usa)
Engineering: Music, Art, and Games
Applied Engineering 1, 2, 3, Adv
Land Management
Sustainable Agriculture 1, 2
AP Biology
AP Chemistry
AP Physics 1, 2
Astrophysics
DE Anatomy & Physiology
DE Principles of Nutrition & Human Development

Mathematics

Pre-Algebra
Algebra 1
Geometry
Algebra 2
Algebra 3
Trigonometry
Pre-Calculus
Calculus
Statistics
AP Statistics
AP Pre-Calculus
AP Calculus AB
AP Calculus BC
Differential Equations
Computer Programming

World Language

French 1, 2, 3, 4, Adv
Spanish 1, 2, 3, 4, Adv
Latin 1, 2, 3, 4, Adv
Cultural Linguistics

Fine Arts

Art 1, 2, 3, Adv
Music/Singing 1, 2, 3, Adv
Design/Build 1, 2, 3, Adv
Photography 1, 2, 3, Adv
Drama 1, 2, 3, Adv
Pottery 1, 2, 3, Adv

Non-Departmental (SSC)

Study Skills
Life 101
Independent Studies, Internships

Miller School Curriculum Guide and Course Descriptions

Miller School of Albemarle offers a rigorous college preparatory curriculum for all our students. Our academic advising helps students chart the path that is right for them and their long-term goals. Students learn through a combination of traditional classroom methodologies and opportunities to engage in hands-on activities. We offer a Grade 8 integrated curriculum and an Upper School (Grades 9-12) college preparatory curriculum. In addition, students can earn major and minor certificates of study in our Applied Engineering and Humanities signature programs.

GRADE 8

HUMANITIES

The 8th-grade humanities curriculum will embrace the mission of the Miller School by promoting student-centered learning through respect and appreciation of the world around them and by the development of skills to foster educational growth. The 8th-grade humanities course is a year-long course and students are awarded two credits upon successful completion.

The 8th Grade Humanities curriculum embraces an interdisciplinary approach to the study of the world and its people. This course interweaves the subjects of history, geography, literature, science, and writing to reveal the influence and interconnectedness of all these disciplines and how the skills of critical thinking, organization, writing, and research are relevant in diverse areas of study. Ultimately, this exploration of global history and the reading and discussion of various perspectives will serve the course's ultimate goal of cultivating cultural awareness and empathy. The class will engage with literature that will help students grapple with the global issues facing our world, including the impacts of epidemics, the battle for human rights, women's suffrage, and racial equality, the causes and effects of cycles of violence within society, and the experience of refugees. Our readings take us to Jerusalem, Cuba, Sudan, Syria, the United States, and many more locations around the world. However, underlying all of these various issues and locations is the theme of belonging, and how the search for a sense of identity, acceptance, and connection defines the human experience. Students will also work through the Civic Online Curriculum to develop their information literacy and become more judicious in interpreting the information that they encounter on a daily basis, from news on their social media stream to mainstream news outlets to primary sources that they encounter in class.

ENGLISH

Introduction to Creative Writing (8th, 9th and 10th grade)

Students will be initiated into the experience of writing creatively. While students will be introduced to the various genres and fundamental tools of creative writing, this course will focus more on exploring creativity and the creative mind. There will be frequent group projects and in-class activities, with the singular intention of helping students discover their individual voice, gain confidence, and find joy in the writing process. Students will be introduced to the workshop format and will consider short examples of writing approaches and genres for students to emulate.

HISTORY & SOCIAL SCIENCES

Virginia History (8th and 9th grades)

Virginia History examines the historical origins, and cultural developments of the state of Virginia and the Miller School. Central themes highlighted include the various cultural influences on the region, the impact of expansion and technology, the development of political institutions and practices and the role of dissent and reform in a democracy. Students will also gain knowledge about local history and the place The Miller School holds within that narrative. By identifying these themes and tracing their historical paths, the relationships between our past and present are revealed on a local and state level.

World Religions (8th and 9th grades)

During the course of this semester we will explore how different world religions, belief systems & cultures have developed and evolved throughout the course of time. Major philosophies explored will be Hinduism, Buddhism, Confucianism, Taoism, Native American Spirituality, Sikhism, Judaism, Christianity & Islam. A major theme of this class is to also explore if there are different “ways of knowing” the answers to universal questions through the use of different faculties: reason, emotion, faith, imagination, intuition, language, memory, and experience. The goal of this course is to assist students in the exploration of these questions by looking at how different religions, cultures, and belief systems have approached them. As such, we will not only read about religious ideas but also experience them through doing yoga, meditation, mandala-making, tai-chi, calligraphy, guest speakers, and field trips.

MATHEMATICS

Pre-Algebra

This course is designed to provide the necessary foundation to assist students in the transition from elementary mathematics to Algebra. Students discover the underlying concepts and principles of algebra and geometry and how they relate. Topics include percents, probability, statistics, multi-step equations, geometric relationships and formulas, and the coordinate plane. An exploratory and discovery approach will be emphasized in this course. A scientific calculator is required for this course.

Algebra 1 (Prerequisite: Pre-Algebra)

This course serves as the first in the sequence of college preparatory mathematics. Concepts are introduced in the context of real-world problems in order to increase the conceptual development of the student. This course covers graphs in the coordinate plane, linear equations and inequalities, radicals, polynomials, quadratics, and data analysis. The concept of functions is emphasized using graphical, verbal, numerical, and algebraic methods. A scientific calculator is required for this course.

Geometry (Prerequisite: Algebra 1)

This class emphasizes two- and three-dimensional reasoning skills, coordinate and transformational geometry, the use of geometric models to solve problems, and algebraic connections in Geometry. Concepts are introduced in the context of real-world problems in order to increase conceptual development. A variety of application problems and problem-solving skills are included. This course covers properties of geometric figures, coordinate geometry, constructions, introduction to Trigonometry, informal proofs, and cultural, artistic and historical contexts of Geometry. Students will need a computer for this class and use of Geogebra and Google SketchUp.

Algebra 2 (Prerequisite: Geometry)

This course is a continuation of the Algebra 1 course. It is designed to give the student a strong connection between algebraic, numerical, verbal, and graphical representations of functions. It includes a review of basic algebra skills at the start of this course. A thorough study of advanced algebraic topics is done based on the study of functions, parent functions and their families, equations, inequalities, systems of equations, quadratics, radicals, exponents, and logarithms. Emphasis is placed on multiple representations of functions, including the use of technology. Students will also be expected to clearly communicate their understanding of the concepts in written form. The goals in this course are to develop a knowledge base of algebraic functions, types of equations, and the connections between the different formats in which these functions can be represented. A graphing calculator is required for this course.

SCIENCE

Integrated Science with Study Skills component

This year-long course will incorporate scientific and engineering practices, crosscutting concepts, and disciplinary core ideas within the earth, life, and physical sciences. This will support students in deepening conceptual understanding, analysis of data, and argumentation. The physical science units will include atoms and the periodic table, chemical reactions, and forces and motion. The life science units will include genes and heredity as well as natural selection and evolution. The earth science units will include the history of Earth, energy in the atmosphere and oceans, climate factors and climate change, the Earth-Sun-Moon system, and a study of the solar system and the universe.

A portion of the Integrated Science course will be dedicated to helping all 8th grade students develop essential study habits, study skills, and study strategies that will prepare them for the high school curriculum and expectations. Students will receive two credits upon completion of the Integrated Science/Study Skills course.

Introduction to Engineering (8th – 9th Grades)

This is a much more structured version of the more advanced Applied Engineering course. Students will generally work in teams (conditions permitting) or individually on a prescribed design challenge. Each design challenge consists of an introductory lesson and discussion opportunity followed by a short set of reflective questions. The design challenges themselves are centered around the iterative engineering design process combining design, initial design, test, redesign, and completion. Upon completion of the design challenge, students will hone their technical writing skills by engaging in an exploratory writing assignment designed to further explore the principles contained in the design challenge.

In addition to design challenges, students will frequently read, reflect on, and write about short passages from an engineering-themed textbook to further explore both the principles of engineering as well as some of the most impactful engineering inventions of human-kind. Lastly, students will watch, reflect on, and write about a series of videos entitled Engineering Connections where the host explores some of the greatest engineering achievements of modern times and draws connections back to the roots of engineering inventions and ideas.

This course is ideally suited for students with no previous experience with engineering but who may have a curiosity in understanding how and why “things” work. Out-of-class assignments are limited with the intent being that ample in-class time is made available for the completion of homework.

Sustainable Agriculture 1, 2 (8th - 12th grades)

Sustainable Agriculture is an in-depth and interdisciplinary class that provides students an opportunity to study a wide range of farming principles and practices. Returning to MSA’s agricultural roots, students study organic, no-till gardening, animal husbandry, hydroponics, and permaculture in a mission-focused and hands-on course.

MSA's 1,600-acre campus becomes a laboratory where students learn and experiment. The program includes a small farming operation with pigs, chickens, bees as well as three types of produce gardens--no-till, raised bed, and hydroponic. Students study the economics of agriculture and have an opportunity to learn marketing and small business management skills through selling meat, produce, honey, and other products from the farm in local farmers markets.

Learning sustainable agriculture at MSA introduces students to the many social and ethical impacts that food production can have. In addition to hands-on learning, students read articles and books related to the impact of the agriculture industry on health and society. Furthermore, students engage with local farmers and organizations such as Bundoran Farm, Polyface Farms, and Chiles Orchards to learn more about local agriculture in Charlottesville.

WORLD LANGUAGE

French 1, 2

French 1 is an introduction to the French language as well as francophone countries. French is spoken in class from the onset, enabling students to recognize as well as be comfortable with the language. Students develop skills in reading, writing, listening, and speaking. Over the course of the year, students are exposed to vocabulary and language structures to develop a basic ability to communicate in the language. Students will compose basic sentences and short paragraphs communicating about themselves and familiar topics in French. Students will work toward mastering spoken and written narrations using the present, past, and future tenses. Students will also study French and francophone culture.

Latin 1, 2

Latin 1 introduces students to Latin vocabulary, sentence construction, grammatical rules, syntax and the richness of Roman culture. Students acquire beginning translation and construction skills for the written word, as well as learn proper pronunciation and inflection for oral reading. This is a proficiency-based course, which provides active practice in listening, speaking, reading, and writing in the Latin language. It is also enriched with numerous elements of Roman civilization, including daily life, customs, architecture, and historical relevance.

Spanish 1, 2

In Spanish 1, students will receive an introduction to the basic vocabulary, grammar, and sentence structures found in the Spanish language. Students will study vocabulary ranging from the basic Spanish conversation to vocabulary related to daily activities, the school environment, and family. Spanish 1 students will explore the cultures and traditions of Spanish-speaking countries through interactive presentations and hands-on projects. Throughout the course of Spanish 1, students will consistently work in all of the language domains, including speaking, reading, writing, listening, and culture.

Cultural Linguistics (8th - 12th grades)

Miller is incredibly diverse for its size with many of the stakeholders being bilingual, multilingual, multiracial, and/or have those backgrounds. We are living on the edge--constantly crossing borders, literally and figuratively. This class explores international borders as well as socially constructed ones. Meant for students looking to learn and appreciate other languages without having to commit to fluency or students incredibly interested in other languages in addition to the world languages they are already taking, this class explores relevant themes through primary sources in their native languages and contexts as well as their international translations and implications. It incorporates a variety of primary texts such as propaganda posters, photographs, music, art, paintings, short stories, poetry, etc. to learn about living on the edge as well as allowing students to choose and demonstrate texts relevant for themselves. Being open and flexible to students' prior experiences and goals for the course, this class encourages dialogue and student input.

FINE ARTS

Art 1 (8th - 12th grades)

Art 1 is an entry-level art class designed for students in grades 8-12 who have no prior art credits at the secondary level. Through opportunities and challenges in the studio arts of drawing, painting, printmaking, and sculpture, students will gain a breadth of artistic knowledge and skills. The emphasis of the course is on art production and foundational skills as building blocks to developing a unique artist's voice. Art history is integrated into the curriculum through the study of various artists and art periods, as they relate to the students' projects.

Studio Music and Singing 1 (8th - 12th grades)

Open to singers and instrumentalists in Grades 8 through 12 of all skill levels, this class offers individual and ensemble coaching, studio music production, and performance opportunities. Dedicated to the growth of young musicians, the MSA music program is designed to benefit a range of different skill levels and interest areas. Students will examine music through artistic critique, learn college level music theory and harmony, engage in performance and/or composition projects, and build musical skills through traditional practice and/or experience with software. Students will be asked to examine their own growth in the form of reflective assignments so that they can develop understanding of their own process of creating and/or performing music. Each student has a unique sense of artistry and process. We celebrate this diversity by offering a more exploratory, project based curriculum.

Drama 1 (8th - 12th grades)

Open to students in grades 8 - 12. Drama engages the individual who is interested in growing their knowledge of theater production, learning techniques and skills unique to theatrical production, and developing as a performer and technician. The course will involve producing and performing a theatrical production from start to finish. Students will focus on applying student knowledge and experience to pick a suitable play, audition, cast, rehearse, design and build sets, design and produce costumes, and perform a full length play. Students have the opportunity to build a quality resume by continuing to advanced coursework in Drama.

UPPER SCHOOL

Classes are offered in a core curriculum enhanced by the addition of many opportunities for interdisciplinary learning, made possible by the frequent interaction of faculty on joint projects and cooperative learning for all. Furthermore, MSA's co-curricular programs and opportunities for community service complement the learning experience. Successful completion of the requirements for graduation prepares students to continue that academic progress in college and beyond.

GRADUATION REQUIREMENTS

Miller School of Albemarle requires the following to qualify for a diploma:

- 4 credits in English (including 4 core literature courses)
- 4 credits in History & Social Sciences (three credits must be history courses, including one government course. The 4th credit can be either a history or social science course.)
- 3 credits in Mathematics (must complete through Algebra 2)
- 3 credits in Science (including Biology and Chemistry)
- 3 credits in World Language (at least 2 credits must be two levels of the same language)
- 3 credits in Fine Arts
- 8 credits in Elective Courses*
- 4 credits in Health and Physical Education (completed during participation in annual mandatory athletics)

* An elective is any course above the minimum requirement in a department

32 credits for graduation → 28 academic credits, 4 PE credits

- Class of 2024 - 32 credits (28 academic)
- Minimum of three academic courses/semester (only one study hall/semester allowed)

Successful completion of a senior speech is required for graduation.

ENGLISH

The English curriculum is designed to reinforce and develop a student's ability to think, read, write, and speak. Students explore connections between literature and the human experience, learning to consider increasingly complex questions through the analysis of a great variety of texts that range from the canonical to the contemporary. Over the course of their MSA career, students study the great texts of literature in English and of world literature. Students study vocabulary and grammar throughout their MSA career, although students in their junior and senior years are expected to have mastered formal grammar studies and have increased responsibility for the application of grammar in their writing. Students receive a systematic introduction to academic argument, rhetoric, and the scholarly writing process. They are taught to structure their essays around conceptually rich claims, to support all assertions with well-chosen evidence, to address other viewpoints, and to edit carefully. Students' writing progress is assessed regularly. In sum, the goal of the English Department is to develop thoughtful, confident, well-read, and articulate students who are fully prepared for the rigors of the college classroom and a life of intellectual adventure.

English 9 - Literature, Citizenship, & Society

The theme of ninth grade English is "Literature, Citizenship, and Society." Students will engage with literature as a reflection of our world and a tool to promote self-awareness, social engagement, and empathy. Students will develop their critical thinking skills, analyzing how writers use their craft to share their experiences, offer commentary, invite compassion, and challenge readers to think deeply about the systems and behaviors of our society – and their own role and responsibility as a citizen. We explore these themes through the study of different literary forms (novels, short stories, memoir, drama, poetry) and genres (science/dystopian fiction, horror, allegory, realism, and comedy). In addition to building the skills of reading comprehension and analysis, students will focus on the writing process, particularly developing strong paragraphs and organizing and revising the critical five-paragraph essay, personal narratives, and a portfolio of creative work. Students will also engage creatively in several long-term projects, including the *Lord of the Flies* Mock Election Campaign and a Storytelling Video Project based on the narrative techniques of Trevor Noah.

English 10 - World Literature

In this course we explore literature from around the world, from South America to Africa. Students will hone skills in writing, analysis and public speaking through various projects during the year. They will learn to communicate effectively, evaluate sources and collaborate within a group. A primary goal of this course is to encourage students to engage with cultures, ideas and perspectives. In an increasingly pluralistic time, students must become citizens of the world and learn to be empathetic, analytical and reflective. Through novels like *Chronicle of a Death Foretold*, *Anthem* and *1984* students address essential questions such as "Who are you," "What is a human's purpose," and "How do we know what we know?" In addition, students reflect on their relationship to the world, and begin to question and observe their own place in society.

English 11 - American Literature

In this course, we begin our studies with the nation's founding documents. We then delve deeply into how some classics of American literature responded to the tenets proposed in these documents; among these national favorites are the short stories of Edgar Allan Poe, the poetry of Walt Whitman and Emily Dickinson, and the major works that came out of the Harlem Renaissance. These works will be studied with an eye to their literary genius, their historical significance, and the timeless themes that make them relevant to all people in all eras. Students will also embark on a whirlwind tour of our rich literary canon through a nightly reading curriculum designed to instill a powerful habit of reading and foster a genuine love of great stories and poems. In addition to serving as a solid introduction to our national literature, this course follows a writing curriculum tailored to the college-bound junior. We begin the year ironing out stubborn grammatical problems and reviewing argumentative structure and end it with a focus on developing an authentic voice and an engaging style, qualities that will prove

invaluable to rising seniors as they prepare to tackle some of the most important writing assignments of their lives: the senior speech and the college application essay.

AP English Language and Composition (Grade 10 teacher recommendation required)

AP English Language and Composition follows the same trajectory as English 11, but its reading and writing load are far more intensive. In order to prepare for the AP exam, students are given a rigorous introduction to rhetorical analysis and logical fallacies. Reading comprehension is developed through challenging assignments, regular reading questions, and systematic test preparation.

English 12 – The Art of Reading, Thinking, Writing, and Speaking

Why do we read? Why do we write? How do these two actions help us find our place in our worlds? How do writing and reading help us to think? This course proposes that thinking and writing and reading are inextricably linked. The students' ability to think critically will enhance their ability to further develop writing skills they have begun developing in their earlier high school years. Through engaging poetry, stories, essays, and texts such as Jon Krakauer's *Into the Wild*, F. Scott Fitzgerald's *The Great Gatsby*, Shakespeare's *Othello*, and J.D. Salinger's *The Catcher in the Rye*, students sharpen their own emotional intelligence as they pursue such themes as conformity, individual responsibility, ethical dilemmas, and the pursuit of self knowledge. The composition and presentation of their Senior Speech, along with *Poetry Out Loud* and Shakespeare recitations, satisfy the major public speaking component of the course.

AP English Literature and Composition (Grade 11 teacher recommendation required)

This course hones the advanced English student's ability to render close literary analysis of literature, in order to prepare him or her for the AP exam and college-level courses. Students sharpen their close reading skills while examining various rhetorical styles in poems, stories, novels, and plays. Authors studied include Ernest Hemingway, James Joyce, Hermann Hesse, J. D. Salinger and F. Scott Fitzgerald. The plays of Shakespeare and Samuel Beckett provide rich examples of how rhetoric and style are delivered in dramatic works. In a university seminar-style environment, students pay particular attention to their own use of style and rhetoric in both timed and formal essays, and they compose their own poems according to the forms presented in *The Making of a Poem*. The composition and presentation of their Senior Speech, along with *Poetry Out Loud* and Shakespeare recitations, satisfy the major public speaking component of the course. Final assessments of their writing portfolios allow students to analyze and reflect on their growth in written expression.

Introduction to Creative Writing (8th - 10th Grades)

Students will be initiated into the experience of writing creatively. While students will be introduced to the various genres and fundamental tools of creative writing, this course will focus more on exploring creativity and the creative mind. There will be frequent group projects and in-class activities, with the singular intention of helping students discover their individual voice, gain confidence, and find joy in the writing process. Students will be introduced to the workshop format and will consider short examples of writing approaches and genres for students to emulate. This will be an introductory course geared to 8th, 9th and 10th graders, earning a single English credit, and will prepare students for Creative Writing.

Creative Writing (11th - 12th Grades)

Through daily journals, the reading of great literature, creative exercises, and class discussion, Creative Writing students develop a spectrum of writing abilities. Units of study include short fiction, poetry, play and screenwriting, the personal essay, journalism, book arts, and persuasive writing. Students write with the intent of "finding a voice." The course teaches grammar for the purpose of improving the clarity and sophistication of student writing. Daily journals and reflection pieces form the bulk of the workload; all students should expect to write between 100 - 150 pages of polished work over the course of the year. The course assesses a student-writer's development through a portfolio system. By the end of the course, students have a portfolio of writing across

genres, a clearly developed voice on the page, and several artist statements to accompany their work. Readings change from year to year. Creative Writing may be taken for a second year, allowing students to pursue more ambitious writing projects and to further hone their talents.

Film Analysis (10th - 12th Grades)

This class will expose students to the basics of film study. First, it will develop skills in film analysis. Students will become fluent in the vocabulary of film form and learn to construct an argument about what a film's sounds and images mean and how it structures and achieves its meanings. Second, the course will emphasize specific aspects of film style and narrative form through analysis of scenes from the films screened each week and from a range of outside examples. Each week will introduce historical, cultural and theoretical topics relevant to the films shown while focusing on the films' self-reflexivity of their medium, and considering the politics of image-making from the postwar period to today.

Beyond teaching students how to recognize and describe formal choices and techniques, students will be asked to engage in close readings of films, attending to the greater aesthetic significance and stakes of formal choices and innovations evident within a particular film, directorial oeuvre, period or movement. Understanding form as an extension of content, we will look at the conventions of narrative film, the employment of formal techniques like the close-up, point of view, editing, framing and the use of sound as they function within particular filmic contexts and as they function within film's systemic languages (like that of continuity editing and genre). The final of this course will be the creation of a short film. When possible we will also read the literature that has inspired these films.

Philosophy, Religion, and Ethics (11th - 12th Grades)

This exploratory high-level course is divided into two areas of exploration: Philosophy, and Religion & Ethics -- which are complimentary but also mutually exclusive; that is, one may be taken without the other. The foundation of the both rests upon exploring questions fundamental to human existence, including (but not limited to): What does it mean "to be in the world"? What is the nature of experience? Of knowledge? Of truth? Of morality? And perhaps most importantly: How can one lead a fulfilling life in the midst of the reality of suffering? While we explore the nature of these and other relevant questions in both sections, the content by which these questions are approached vary in discipline:

In Philosophy, we will examine how these questions have been addressed through the lenses of prominent modern philosophers and their most important literary contributions to our collective understanding of life, while asking how such perennial questions inform our lives today. This topical approach will provide students with an introduction to major traditions in the history of ideas, such as Idealism, Existentialism, Rationalism, Empiricism, and Phenomenology, among others.

In Religion & Ethics, we will perform a comparative exploration of how major religious traditions have approached these same questions albeit in much different ways, and which are often accompanied by applied practice. This area of study will therefore emphasize the reading of primary sources and the religious philosophies of these systems while also attending to how these beliefs inform their adherents' ethical and material practice. The religions to be studied are as follows: Judaism, Christianity, Islam, Buddhism (Tibetan, Zen, Chinese, Indian), Hinduism, and Daoism. These have been chosen particularly for their historical and contemporary influence on our world, as well as for their concrete systems of philosophy, ethics, and practice.

The purpose of the course is to not only provide students with perhaps their first encounters with the methodological studies of philosophy, ethics, and religion; but also to inspire students to think critically for themselves about being in the world, as well as to appreciate differences of religion and the role that ethics plays in everyday experience.

NEW Literature and the Environment (11th - 12th Grades)

In this course, students will encounter a diverse array of authors and literary forms which respond to ecology and care of the living world. At a moment when the condition of what is often abstracted as “the environment”—and the language around it—is hotly contested, students will have the opportunity to wrestle with writing and literature that addresses this global issue central to their era and their lives.

We will read poetry, fiction, and nonfiction; we will listen to TEDtalks and watch documentaries; we will interview experts—all as we grapple with what it means to be part of the living world. We will examine the rhetorical situation of texts and tie our original arguments to broader problems, subjects, and questions. Students will benefit from trips to the Miller School farm, writing together outdoors, and building a writing portfolio of their own.

Additionally, students will compose their own creative and critical writing, give presentations, and practice seminar discussions on complex and meaningful topics. Ultimately, we will examine and challenge the rhetorical situation of writing from leading and popular voices in the field—such as Wendell Berry, Greta Thurnberg or Wangari Maathai—making this a perfect opportunity for students to foster, develop or hone their writing and analytical thinking skills. Students will find rich connections between this course and Sustainable Agriculture and Land Management, and reading lists will be developed in consultation with faculty across these programs.

NEW Professional Writing (9th - 12th Grades)

Professional Writing is a course designed to instruct students who may wish to pursue a college major or future career in writing, editing, publishing, and Media studies, as well as students who may simply wish to improve their writing skills. In this course, students will study writing as an artform as well as a vital public utility, one which is necessary for supporting a functioning democracy, documenting our cultural moment, and connecting us to one another. Forms of writing that students will study and practice in this course will primarily fall into three categories, or units: journalism (reportive and narrative), culture writing (reviews and “think-pieces”), and community publishing, though students will also study practical professional writing skills, such as grant proposals and cover letters. Students will prepare pieces of writing for print publication as well as “new media” (online, podcast, and video), edit their classmates and their own work, and contribute to a final group project: the creation of a student-centered print publication that they will write, edit, design, and produce together.

HISTORY & SOCIAL SCIENCES

The History & Social Sciences Department is committed to teaching students effective analytical and communication skills to prepare them for future academic endeavors and good citizenship. Students will engage in collaborative learning through a variety of research methods and will learn how to think critically about these methods.

Human Civilizations (9th Grade)

The course is a global history course that provides a cohesive approach to learning and understanding the history of the world. In this course, you will explore our long human history—beginning before there were people and ending in around 1750’s. This course will help students learn how to use stories about the past to orient themselves to their present moment and prepare for the future. This course is not a typical march-through-time history class that covers one thing after another. Rather, this course uses a set of overarching inquiry problems and narrative frames, situated at a variety of scales, to organize and facilitate teaching and learning.

World Religions (8th and 9th grades)

During the course of this semester we will explore how different world religions, belief systems & cultures have developed and evolved throughout the course of time. Major philosophies explored will be Hinduism, Buddhism, Confucianism, Sikhism, Judaism, Christianity & Islam. A major theme of this class is to also explore if there are different “ways of knowing” the answers to universal questions through the use of different faculties: reason, emotion, faith, imagination, intuition, language, memory, and experience. The goal of this course is to assist students in the exploration of these questions by looking at how different religions, cultures, and belief systems have approached them. As such, we will not only read about religious ideas but also experience them through class discussion, guest speakers, experiential learning, guest speakers, and field trips.

World History (10th Grade)

Students will study the major events and individuals that form the foundation of the modern world and develop an understanding of history as an academic discipline. This course is designed to serve as an introduction to historical thinking, themes, and inquiry. An project-based approach will accompany critical writing, discussion, and research will be used to accomplish the course goals of a better understanding of history’s content and structure.

AP World History (11th - 12th Grades) (Prerequisite: 90+ average in previous history course and a recommendation from that teacher is required) Tenth graders may take this course if they have received a 90+ in World History and are recommended by the teacher.

The AP World History course focuses on developing students’ understanding of world history from approximately 1200 C.E. to the present. The course has students investigate the content of world history for significant events, individuals, developments, and processes in six historical periods, and develop and use the same thinking skills and methods employed by historians when they study the past. The course also provides five themes (interaction between humans and the environment; development and interaction of cultures; state building, expansion, and conflict; creation, expansion, and interaction of economic systems; development and transformation of social structures) that students explore throughout the course in order to make connection among historical developments in different times and places encompassing the five major geographical regions of the globe: Africa, the Americas, Asia, Europe, and Oceania.

Virginia History (8th and 9th grades)

Virginia History examines the historical origins, and cultural developments of the state of Virginia and the Miller School. Central themes highlighted include the various cultural influences on the region, the impact of expansion and technology, the development of political institutions and practices and the role of dissent and reform in a democracy. Students will also gain knowledge about local history and the place The Miller School holds within that narrative. By identifying these themes and tracing their historical paths, the relationships between our past and present are revealed on a local and state level.

United States History

United States History covers the spectrum of American history from the pre-Columbian era to the present. The course examines the nations’ political, diplomatic, cultural, social, environmental, and economic history, and challenges student’s prior knowledge of the past. In addition to exposing students to the historical content, this course should also help students analyze and interpret primary sources, including primary and secondary source material, maps, statistical tables, and images of historical events. Using both chronological and thematic approaches to the material, the course exposes students to primary and secondary sources, and to the interpretations of various historians on critical eras in United States History.

AP United States History (11th - 12th Grades) (Prerequisite: 90+ average in previous history course and a recommendation from that teacher is required)

Covering the spectrum of American history from the pre-Columbian era to the present, the Advanced Placement United States History course is designed to provide a rigorous college level experience in preparation for the AP

examination in May. The course examines the nations' political, diplomatic, cultural, social, environmental, and economic history, and challenges student's prior knowledge of the past. An emphasis will be placed on interpreting documents, mastering a significant amount of informational content, and writing critical essays in a timed environment. Students in this course will develop key historical thinking skills, including chronological reasoning, comparison and contextualization, crafting written arguments using historical evidence, and historical interpretation and synthesis as outlined by the College Board.

Government & Civics (11th - 12th Grades)

This course is designed to allow students the opportunity to engage in the study of citizenship and the foundations of government (local, state, federal) in the United States and abroad. Students will learn about the foundations of the Constitution and the laws it dictates, how power is shared amongst the three branches of government, and the effect of American politics on global affairs. In an effort to prepare our students to be global citizens, students will discover the rights and responsibilities of citizens in the United States and abroad. Students will also learn about international governmental systems: how those systems are organized, the role of civic engagement in those societies, and how they compare/contrast to the American system. The students will also learn about the economic systems used in different countries, their roots in those countries' histories, and how they affect the global economy today.

AP United States Government & Politics (Prerequisite: 90+ average in previous history course and a recommendation from that teacher is required)

The course in AP United States Government and Politics is a topical study which begins with various modern economic and political systems, and proceeds through those subjects which are emphasized by the College Board's United States Government and Politics Advanced Placement exam. The goal is to produce future members of the "informed public" and, thus, in our own small way, help contribute to the future viability of our American democracy. The theme of the course is the following: there are both privileges and responsibilities involved with holding American citizenship. There is a direct relationship between the knowledge and understanding one has of the American political and economic system, and the contributions one makes to society.

AP Human Geography (11th - 12th Grades) (Prerequisite: 90+ average in previous history course and a recommendation from that teacher is required)

Advanced Placement Human Geography is a college level course organized around cultural, political, and economic geography. The course is designed to increase understanding of the world in which we live. Specific topics covered in the class include: globalization; impacts of colonialism; conflict over resources, territories, and ideologies; impacts of technology; causes and consequences of human migration; economic development; cultural change; agricultural and urban land use; and environmental impacts of human activity. Students will develop critical thinking and writing skills as they become more knowledgeable about contemporary global issues.

Introduction to Economics (10th - 12th Grades)

This economics survey course examines the principles of the United States economy from a global perspective and is designed to give an overall view of a market-based economy, entrepreneurship, investments, and personal finance skills. Students will analyze the role of supply and demand in determining the prices individuals and businesses face in different markets, and the global nature of these markets. Students will also examine issues related to the larger economy such as inflation, unemployment, market structures, and the role of government in economic regulation. Students will study changes to the workforce in the United States and the importance of entrepreneurs in our economy. Through applying critical-thinking skills, students will utilize these economic concepts to evaluate the costs and benefits of economic issues by creating their own corporation. The ultimate goal of this class is to get students thinking like an economist. Economic decision making should be present in our everyday lives. Using economic thinking gained in this course, students will become better decision makers and global citizens.

NEW AP Macroeconomics (11th - 12th Grades)

This course will explore the principles of economics that apply to an economic system as a whole. Students will use graphs, charts, and data to analyze, describe, and explain economic concepts. Students will examine the concept of an open economy in which a country interacts with the rest of the world through product and financial markets. Students will also spend more time exploring the effects of fiscal and monetary policy actions and examine the concept of economic growth. Students will explore how changes in aggregate spending and production, economic fluctuations, and policy actions affect national income, unemployment, and inflation. The financial sector and monetary policy and how it is implemented and transmitted through the banking system will also be topics covered in this course. Skills students will learn include: defining economic principles and models, explaining given economic outcomes, determining outcomes of specific economic situations, and modeling economic situations using graphs or visual representations.

Principles of Psychology (10th - 12th Grades)

This course is a survey of the basic concepts of psychology. It covers the scientific study of behavior, behavioral research methods and analysis, and theoretical interpretations. Includes topics such as: physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology. In addition, the course will examine historical views and current perspectives of abnormal behavior. Major diagnostic categories and criteria, individual and social factors of maladaptive behavior, and types of therapy will be discussed. Includes methods of clinical assessment and research strategies.

NEW AP Psychology (11th - 12th Grade) (Prerequisites: biology and chemistry)

This course will examine the ideas, theories, and methods of the scientific study of behavior and mental processes. Students will examine the concepts of psychology through reading and discussion and you'll analyze data from psychological research studies. The course will cover the basis of psychological theory as the study of human and animal behavior and mental processes and learn how psychologists design and conduct research. Students will study behaviors and mental processes from a biological perspective and explore the effects of the interaction between human biology and our environment. Students will also study personality through the lens of behavior and mental processes and how they interact to produce an individual's personality while also learning how psychologists evaluate, study, and treat psychological disorders.

MATHEMATICS

Our Mission

The Mathematics Department provides a curriculum to help students develop the knowledge and skills for entrance into and success in college as well as a mathematical perspective of the world, which enables them to apply mathematical principles in other academic disciplines. Students begin by establishing a solid base in algebra and geometry, emphasizing logical reasoning, problem solving, the interpretation of data, functions, and algebraic manipulations. Students are exposed to different forms of technology throughout the curriculum to support and strengthen their understanding of the underlying mathematical principles. Students are encouraged to collaborate with their peers, creatively communicate their knowledge, and learn to be independent thinkers and learners.

To advance to the next math level, students should be recommended by their current mathematics teacher and must have completed the prerequisite course. Additionally for AP courses, students should have completed the prerequisite course with at least a B average to be considered for a recommendation. Students who do not meet these requirements but who have a strong desire to enroll in AP math courses should discuss their wishes with the math department head for individual guidance.

Our Assessment Philosophy

The math department at Miller School of Albemarle focuses on two main objectives in terms of assessing a student's journey through the curriculum. First, and most importantly is the continuous progress a student shows in terms of their mathematical knowledge. Assessing this progress is done in many formats: formally, informally, short response problems, problem sets, cooperative tasks, cumulative assessments, verbally, and other forms. The main purpose for these assessments is to develop a picture of where the student is currently and to help inform the student and the teacher how to continue to make progress in the future. Inherent in this process is the idea that a student's knowledge is always developing and moving forward, and a student will have the opportunity to show understanding of a topic through different methods, different perspectives, and at different times during the course.

The second main objective is to strengthen the student's ability to communicate understanding of math content. The ability to explain specific content and the connections between concepts within the mathematics curriculum and with other disciplines is at the forefront of assessing a student. Assessments will provide a student with an opportunity to highlight the content and connections they do understand instead of what the student has yet to learn.

Algebra 1 (Prerequisite: Pre-Algebra)

This course serves as the first in the sequence of college preparatory mathematics. Concepts are introduced in the context of real-world problems in order to increase the conceptual development of the student. This course covers graphs in the coordinate plane, linear equations and inequalities, radicals, polynomials, quadratics, and data analysis. The concept of functions is emphasized using graphical, verbal, numerical, and algebraic methods. A scientific calculator is required for this course.

Geometry (Prerequisite: Algebra 1)

This class emphasizes two- and three-dimensional reasoning skills, coordinate and transformational geometry, the use of geometric models to solve problems, and algebraic connections in Geometry. Concepts are introduced in the context of real-world problems in order to increase conceptual development. A variety of application problems and problem-solving skills are included. This course covers properties of geometric figures, coordinate geometry, constructions, introduction to Trigonometry, informal proofs, and cultural, artistic and historical contexts of Geometry. Students will need a computer for this class and use of Geogebra and Google SketchUp.

Algebra 2 (Prerequisite: Geometry)

This course is a continuation of the Algebra 1 course. It is designed to give the student a strong connection between algebraic, numerical, verbal, and graphical representations of functions. It includes a review of basic algebra skills at the start of this course. A thorough study of advanced algebraic topics is done based on the study of functions, parent functions and their families, equations, inequalities, systems of equations, quadratics, radicals, exponents, and logarithms. Emphasis is placed on multiple representations of functions, including the use of technology. Students will also be expected to clearly communicate their understanding of the concepts in written form. The goals in this course are to develop a knowledge base of algebraic functions, types of equations, and the connections between the different formats in which these functions can be represented. A graphing calculator is required for this course.

Algebra 3 (Prerequisite: Algebra 2)

Algebra III takes a broader look at the field of mathematics and introduces students to computer programming, explores more advanced statistics, and then continues to build on the algebra foundations that have been developed in previous classes. In the computer programming section of the class students will use the [CSO](#) curriculum developed by Carnegie Mellon University to learn about text-based coding. Students will learn how to use coding to problem solve, create a specific graphic outcome, and how to debug programs independently. In the statistics sections students will work with representing data graphically to organize and describe data sets.

Students will look at the normal distribution to find probabilities of events and use confidence intervals to estimate population parameters. Finally, students will be introduced to testing hypotheses and claims. During the last section of the class students will study functions from a transformational perspective, with a focus on quadratic, rational, and exponential functions. Students will continue to develop their skills in terms of solving equations, and understanding the connections between solutions and the graphical representations of functions. Students will be introduced to solving systems of 2 or 3 unknowns through matrices. A graphing calculator is required for this course.

Trigonometry (Prerequisites: Algebra 3 or recommendation from Algebra 2 teacher)

Students will study general and analytical trigonometry. Topics in applied trigonometry will be right angle trigonometry, Law of Cosines, Law of Sines, general area of triangles, circular motion, arc length, areas of sectors, and dimensional analysis problems. Students will also study the conic sections and will be introduced to the fundamental properties of vectors. Problems in these sections will focus on applied problems, with connections to problems in the natural sciences, which is the natural progression of these mathematical concepts. Topics in analytical trigonometry will include the six basic trigonometric functions and their inverses, using trigonometric identities, and solving trigonometric equations. The emphasis in this section will be more on understanding the functions from a math perspective, both graphically and numerically, and the algebraic manipulation required in higher level mathematics.

This course is intended for excelling students who have successfully completed Algebra 2 at a high level, or for students who have completed Algebra 3 and who are still interested in staying on track towards Calculus. This course will be a prerequisite for students who wish to take Pre-Calculus. A graphing calculator is required for this course.

Pre-Calculus (Prerequisite: Trigonometry)

In this course students study functions introduced through their applications. Students will study linear, absolute value, piece-wise, quadratic, polynomial, rational, exponential, and logarithmic functions. They will initially investigate these functions in depth from the perspective of transformations without the use of technology. Subsequently an emphasis will be placed on the use of elementary functions to investigate and analyze applied problems and questions, supported by the use of appropriate technology and the effective communication of quantitative concepts and results. The goals in this course are to learn how to manipulate functions and formulas, understanding the concepts involved in solving equations, and the ability to communicate this understanding clearly in written form. Such understanding is best gained from the combined viewpoints of geometry, algebra, logic, and numerical experiment. This course emphasizes the development of visual, numerical and logical intuition to complement the usual algebraic intuition. A graphing calculator is required for this course.

NEW AP Precalculus (Prerequisite: Pre-Calculus or Trigonometry with teacher recommendation)

In AP Precalculus, students explore everyday situations using mathematical tools and lenses. Through regular practice, students build deep mastery of modeling and functions, and they examine scenarios through multiple representations. They will learn how to observe, explore, and build mathematical meaning from dynamic systems, an important practice for thriving in an ever-changing world.

AP Precalculus prepares students for other higher-level mathematics and science courses. The framework delineates content and skills common to college precalculus courses that are foundational for careers in mathematics, physics, biology, health science, social science, and data science. Students will develop a toolkit of functions that at a minimum includes linear, absolute value, piece-wise, quadratic, polynomial, rational, exponential, logarithmic functions, and trigonometric functions. Students coming into this course will need to have mastery of trigonometry, as this is part of the AP curriculum.

Students electing to take this course need to be prepared for a fast paced course that touches upon a wide variety of mathematical content. This course will require students to devote additional time beyond the 30 minutes a day that is expected for classes not designated AP.

Calculus (Prerequisite: Pre-Calculus)

Standard Calculus is designed to be taught with the intention of learning the basic topics of Calculus without following the college level rigor and intensity of Advanced Placement Calculus. The primary aim of this class is to develop the student's understanding of the concepts of calculus and provide experience with its methods and applications. This course will be able to spend significant time on these topics, completing hands-on labs to help reinforce the methods and applications covered. A graphing calculator is required for this course.

AP Calculus AB (Prerequisite: Calculus or recommendation from AP Pre-Calculus teacher)

AP Calculus AB is designed to be taught with the intention that the student will earn college credit or placement. This course follows the requirements set out by the College Board. The primary aim of this class is to develop the student's understanding of the concepts of calculus and provide experience with its methods and applications. A graphing calculator is required for this course.

This course is intended for excelling students who have successfully completed Pre-Calculus at a high level, or for students who have completed Calculus.

AP Calculus BC (Prerequisite: AP Calculus AB)

This advanced mathematics course is designed for those students wishing to continue their study of calculus after the AP Calculus AB course. Students must be high achievers in the AP Calculus AB course, and they should wish to pursue their study of abstract mathematics further. This course will cover the topics of the BC curriculum that were not covered in the AB course and will prepare students for the BC exam in the spring. As time permits, interesting and relevant math topics will be covered including introduction to logic and proofs, elementary number theory topics, linear algebra introduction and applications as well as an introduction to complex analysis. A graphing calculator is required for this course.

Differential Equations (Prerequisite: AP Calculus BC)

Differential equations look at the world around us by focusing on how quantities change. In this course students will be exposed to differential equations in a calculus setting, with one of the main goals to show how differential equations can be used to model, predict, and solve systems of change. Differential equations are an important tool in the sciences, with a wide array of applications in physics, chemistry, and engineering to name a few disciplines. This is for students who successfully completed AP Calc AB and AP Calc BC and will be taught at an accelerated pace. This course will most likely not be offered every semester. A graphing calculator is required for this course.

Computer Programming (Corequisite: Algebra 2)

Students will use Carnegie Mellon's Computer Science 1 course developed for teaching High School students programming. Students will learn Python in a visually engaging way. Problems will allow for multiple correct solutions, and provide visual cues when there are errors. There are 12 Units to the course that will be paced for a semester block schedule. Each unit provides content for the topic to be investigated, worked problem(s) to illustrate and allow exploration of the topic, a set of exercises to hone mastery, some end-of-unit exercises that require usage to synthesize all the topics found in that Unit, and a creative task that allows further exploration of the topics in the Unit. Students will be expected to work both independently and collaboratively with other students. There will be several projects throughout the semester including a final end of semester project.

Statistics (Prerequisite: Algebra 2)

This course serves as an introduction to statistics, and will provide students with a solid foundation for further exploration of statistics. The focus of this course is on developing the ability of students to communicate confidently concerning topics within statistics. Students will learn how statistics is used in the world around us, and an emphasis will be placed on discussing statistical concepts in context both verbally and in written communications. Topics include data gathering, visual representations of data, experimental design, correlation

and regression, probability, binomial and normal distributions, and hypothesis testing. A graphing calculator is required for this course.

AP Statistics (Prerequisite: Precalculus or Trigonometry/Algebra III with teacher permission)

This course is intended for students who have finished their work in the Algebra-Calculus track of the curriculum or who are concurrently enrolled in a Calculus course. It is intended for 11th or 12th grade students interested in mathematics who also demonstrate solid reasoning and writing skills. AP Statistics is the equivalent of a one semester, introductory college statistics course which follows the requirements outlined by The College Board and prepares the students for the AP exam in May. In this course, students develop strategies for gathering, representing, analyzing, and drawing conclusions from data. Students design, administer, and tabulate results from surveys and experiments. Probability and simulations aid students in constructing models for chance phenomena. Sampling distributions provide the logical structure for confidence intervals and hypothesis tests. A graphing calculator is required for this course.

SCIENCE

The objectives of the Science Department are to develop students' scientific literacy as well as to provide a sound foundation of knowledge and skills for those students who pursue the study of science in college. Course designs and instructional methodologies are aimed at increasing students' awareness of science as a process of discovery as well as a body of knowledge about the natural world. Emphases are placed on developing students' understanding of the presence of natural processes in daily occurrences and the importance of basic science knowledge and problem-solving abilities in life.

Biology

Biology is a survey course designed to enhance students' appreciation of the living world and their understanding of how living systems function. The course teaches the scientific method and how to conduct lab-based inquiry, as well as how to be scientifically literate and judge the trustworthiness of information. The biology course covers cell structures and functions, cellular processes such as photosynthesis and cellular respiration, genetics, DNA and protein synthesis, evolution, and ecology. A survey of the diversity of life is spread throughout the semester. Students engage in hands-on labs and projects as a part of each unit, and these activities are designed both to enhance students' research skills and to develop practical skills such as accurate measurement, graphing, and safe handling of laboratory equipment. Students are challenged to use systems thinking to understand the interrelated nature of life processes, and are encouraged to engage with and appreciate the natural world as they experience it in their daily lives.

AP Biology (11th - 12th Grades)

This AP Biology course is designed to be similar to an introductory level college course about the science of our living world. This class incorporates topics that span four big ideas: the process of evolution, how organisms utilize free energy, the transfer of information essential to life processes, and how biological systems interact. For each of these topics, students will develop an in-depth understanding of what the concept is, its function on different levels, and its impact on life and society. AP Biology has an extensive lab component, comprising at least 25% of the class time. The lab work provides hands-on experience for understanding the material, develops good problem solving skills, promotes critical thinking, and applies each topic to everyday life situations. This course will help students develop a conceptual framework for modern biology and an appreciation of science as a process.

DE Anatomy and Physiology for Health Sciences (11th - 12th Grades)

PVCC BIO 145 (4 credit hours; lecture + lab)

This course will explore the structure and function of the human organism from the basic chemical and cellular components to the major organ systems, as well as how disorders and aging affect these systems. Lectures, discussions, and hands-on labs will be integrated to maximize understanding of concepts, and case studies will be used to reinforce their clinical applications.

DE Principles of Nutrition & Human Development (11th - 12th Grades) (Prerequisites: Biology and Chemistry)

PVCC HLT 230 (3 credit hours)

Principles of Nutrition and Human Development explores the relationship between nutrition and human development. Through regular group work rather than lectures, we emphasize nutrients, balanced diet, weight control, and the nutritional needs of an individual, from birth through old age.

Chemistry

The course in Chemistry explores the nature of matter on the atomic as well as macroscopic level. Students complete modeling, activities, labs, data collection with graphical representations and analysis, and algebraic mathematical problems as they seek an understanding of what things are made of and how these things can undergo different types of changes. Projects relating the theoretical to the real world practical applications are also completed.

AP Chemistry (Prerequisites: 90+ in Chemistry or Instructor Approval)

The Advanced Placement Chemistry course is designed to be the equivalent to an introductory college level chemistry course. The course is based around six big ideas: the structure of matter, bonding and intermolecular forces, chemical reactions, kinetics, thermodynamics, and chemical equilibrium. There is an extensive laboratory component with a focus on student-guided labs. Students will also work on basic science practices such as asking questions, making predictions, analyzing and evaluating data, and applying mathematical solutions to problems.

Physics (10th - 12th Grades) (Corequisite: Algebra 2)

Many people come to the subject of physics with a bit of fear. But as you begin your exploration of this broad-ranging subject, you may soon come to realize that physics plays a much larger role in your life than you first thought, no matter your life goals or career choice. This class is grounded in real-world examples to help you grasp fundamental physics concepts. It requires knowledge of algebra and some trigonometry. In this course we will focus on several topics including Kinematics, Forces, Circular Motion, Gravity, Energy, Momentum. We will look at Gas Laws, Fluids, Heat Transfer and Physics of Hearing if we have time later in the semester. We will do various labs/activities/demonstrations and collect and analyze data in order to make connections with the concepts.

AP Physics 1: Algebra based (10th - 12th Grades) (Prerequisites: 90+ in Algebra 2 or Instructor Approval)

AP Physics 1 is the equivalent of a first-semester introductory college course in algebra-based physics. Students cultivate their understanding of physics through inquiry-based investigations as they explore these topics: kinematics; dynamics; projectile motion, circular motion and gravitation; energy; momentum; simple harmonic motion; torque and rotational motion. Students explore principles of Newtonian mechanics.

AP Physics 2: Algebra based (10th - 12th Grades) (Prerequisites: 90+ in Algebra 2 or Instructor Approval)

AP Physics 2 is equivalent to a second-semester introductory college course in algebra-based physics. Students cultivate their understanding of physics through inquiry-based investigations as they explore these topics: fluids; thermodynamics; electrical force, field, and potential; electric circuits; magnetism and electromagnetic induction; geometric and physical optics; and quantum, atomic, and nuclear physics. Students explore principles of fluids, thermodynamics, electricity, magnetism, optics, and topics in modern physics.

Astrophysics (Prerequisites: 85+ (or instructor approval) in the following courses: any Physics course and Algebra II)

Astrophysics will introduce students with serious interest in physical science to the breadth of astronomy, preparing them for more advanced topical courses in college. Astrophysics probes some of the most fundamental questions that humanity has sought to answer since the dawn of civilization. It links the experimental discipline of astronomy with the theoretical understanding of everything in the universe - cosmology. It offers insights into the universe and provides “tentative” answers to its size, age, and content. The weakest of the four fundamental forces, gravity, comes into its own on an astronomical scale. It provides the mechanism to attach planets to stars, stars to other stars (in galaxies), and galaxies to other galaxies (in clusters and superclusters).

Introduction to Engineering (8th – 9th Grades)

This is a much more structured version of the more advanced Applied Engineering course. Students will generally work in teams on a prescribed design challenge. Each design challenge consists of an introductory lesson and discussion opportunity followed by a short set of reflective questions. The design challenges themselves are centered around the iterative engineering design process combining design, initial design, test, redesign, and completion. Upon completion of the design challenge, students will hone their technical writing skills by engaging in an exploratory writing assignment designed to further explore the principles contained in the design challenge.

In addition to design challenges, students will frequently read, reflect on, and write about short passages from an engineering-themed textbook to further explore both the principles of engineering as well as some of the most impactful engineering inventions of human-kind. Lastly, students will watch, reflect on, and write about a series of videos entitled Engineering Connections where the host explores some of the greatest engineering achievements of modern times and draws connections back to the roots of engineering inventions and ideas.

This course is ideally suited for students with no previous experience with engineering but who may have a curiosity in understanding how and why “things” work. Out-of-class assignments are limited with the intent being that ample in-class time is made available for the completion of homework.

Engineering For Us All (9th - 12th Grades) (<https://e4usa.umd.edu/>) (Prerequisite: completion of Algebra 1)

The course, Engineering For Us All (e4usa), empowers, engages, and excites students to use what they know and find what they are passionate about to take control and boldly influence the world. Empowerment is built through an awareness of engineering in everyday life, the diversity of engineers, and by interrogating and emphasizing how engineering is embedded in society. Engagement occurs as students practice engineering design at multiple scales, considering local and global engineering design challenges.

E4USA is an on-ramp for students to learn about engineering as a profession and a personal practice, and increases student confidence to use engineering tools and thinking. Students will practice three systematic continuous improvement practices: consistent critical self-reflection, ethical action, and seeking feedback. This course will explore the interplay among society’s need for engineering, the intentions of engineers, and the positive and negative impacts of engineering. In multidisciplinary teams and individually, students will explore and embody various expert roles including both humanities and STEM-field experts as they grapple with humanity’s grand challenges. Students who complete this course will create a design portfolio and could earn placement and/or credit for introductory college courses at participating universities.

NEW Engineering Music, Art, & Games (9th - 12th Grades) (Prerequisite: Have taken an Engineering class (Introduction to Engineering, e4usa, or Applied Engineering))

This course provides a hands-on introduction to electrical engineering, computer engineering, and fabrication through music and art. Many engineers and scientists are also musicians and artists, and understanding engineering as a creative art creates interdisciplinary connections between the two worlds. Both engineers and

artists go through similar processes of design, prototyping, creation, and trial-and-error as they pursue new projects.

In this course, we will build circuits that make sounds, learn computer-aided design through the creation of 3D-printed art, and use electronic sensors to build games that interact with the physical world. We will also study the science behind how sound works and how data can be used to make art. Along the way, students will also learn other engineering skills such as soldering, deciphering circuit schematics, computer programming, and fabrication. At the end of the course, students will apply their newly acquired knowledge to design and build a project that combines music and art with engineering.

Applied Engineering 1, 2, 3, Adv (10th - 12th Grades or 9th grade students who have already completed Intro to Engineering)

This is a fluidly structured and custom designed course that serves as a means for students to learn and apply the principles of engineering to solve real-world problems. Students first learn about the principles of engineering such as how the engineering design process works, how engineering combines the disciplines of math and science, and how design and modeling can be used to turn an idea into reality. Students then explore the various fields of engineering disciplines followed by a reflective assessment of their similarities and differences. To reinforce these principles, students simultaneously engage in a variety of engineering challenges that develop creative problem-solving skills while working in a design team environment. A series of engineering-themed video documentaries that connect modern engineering technologies to their original applications are discussed. Additionally, students learn the basics of mechanism simulation and structural analysis through effective use of 3D CAD software. Lastly, 3D CAD software is further implemented in conjunction with 3D printing technology as a means for students to explore rapid prototyping and manufacturing engineering technologies.

After having acquired a working knowledge of the principles of engineering, students will then sharpen their skills by engaging in increasingly complex design projects and engineering challenges specifically chosen to provide hands-on practical experiences. Students will have the opportunity to gain valuable leadership and meaningful exposure to all phases of an engineering project, such as feasibility studies, planning, design, evaluation, construction, and delivery. By matching a student's capabilities with a project's complexity, the Applied Engineering course has the flexibility to be taken for up to 3 years, as an increasing role of leadership and responsibility is given to students as they complete increasingly involved assignments.

Land Management (10th - 12th Grades)

Land Management is an elective course that will explore many of the factors that are associated with responsible land management. Employing MSA's 1600 acre campus, students will study owner and user needs and desires to develop and implement plans for improved utilization and enjoyment. The course will also emphasize stewardship of the land, focusing on sustainable uses and practices. Land Management is an interdisciplinary course bringing together a range of topics that will include, but are not limited to: cartography, forestry, sustainable trail design and engineering, and ecotourism. It is recommended that prospective students also have a keen interest in Design/Build, Applied Engineering, and/or Environmental Science. Students will learn and be assessed through projects, research papers, class discussions, and hands-on field work. Please note that roughly half of the course will be spent in a classroom environment and the other half outdoors in the field. Required equipment includes work boots, gloves, and protective eyewear. Work pants and jacket are also highly recommended.

Sustainable Agriculture 1, 2 (8th -12th Grades)

Sustainable Agriculture is an in-depth and interdisciplinary class that provides students an opportunity to study a wide range of farming principles and practices. Returning to MSA's agricultural roots, students study organic, no-till gardening, animal husbandry, hydroponics, and permaculture in a mission-focused and hands-on course. MSA's 1,600-acre campus becomes a laboratory where students learn and experiment. The program includes a small farming operation with pigs, chickens, bees as well as three types of produce gardens--no-till, raised bed, and hydroponic. Students study the economics of agriculture and have an opportunity to learn marketing and

small business management skills through selling meat, produce, honey, and other products from the farm in local farmers markets.

Learning sustainable agriculture at MSA introduces students to the many social and ethical impacts that food production can have. In addition to hands-on learning, students read articles and books related to the impact of the agriculture industry on health and society. Furthermore, students engage with local farmers and organizations such as Bundoran Farm, Polyface Farms, and Chiles Orchards to learn more about local agriculture in Charlottesville.

WORLD LANGUAGE

The World Language Department offers instruction in English for Speakers of Other Languages, French, Latin, and Spanish. The advanced levels expose students to authors and content they would encounter in college level courses. In order to graduate, a student must complete three credits of world language study; two of these years must be in consecutive levels of the same language. While an underlying goal of the Department is to help students develop a greater awareness of the world as a whole, the specific area of concentration is on effective communication skills in the target language, that is, fluency. The traditional skills of listening, speaking, reading, and writing encourage students to understand and produce both spoken and written forms of the language, thus permitting them the means to communicate effectively with native speakers.

French 1

French 1 is an introduction to the French language as well as francophone countries. French is spoken in class from the onset, enabling students to recognize as well as be comfortable with the language. Students develop skills in reading, writing, listening, and speaking. Over the course of the year, students are exposed to vocabulary and language structures to develop a basic ability to communicate in the language. Students will compose basic sentences and short paragraphs communicating about themselves and familiar topics in French. Students will work toward mastering spoken and written narrations using the present. Students will also study French and francophone culture.

French 2 (Prerequisite: French 1)

French 2 students will expand their basic knowledge of French language and culture through the addition of new grammatical structures, verb tenses, and a broader vocabulary base. Students will continue to develop skills in reading, writing, listening, and speaking. Like French 1, this course will be taught primarily in French, allowing students to increase their comfort with the language as well as gain the ability to commence thinking in the language. Students will interpret and respond to a variety of media to develop their reading and listening skills. Students will continue to work toward mastering spoken and written narration of events using the present, past, imperfect, and future tenses. The course will foster a deeper knowledge and appreciation of the cultural aspects of the francophone world.

French 3 (Prerequisite: French 2)

French 3 builds upon the foundations built in levels 1 and 2, enhancing pronunciation skills, augmenting grammar skills, improving writing, and expanding general vocabulary. Students develop a greater understanding of French and francophone culture, as well as build upon their knowledge of French history, all through the use of the French language. Students will engage in a more profound study of grammar, including relative pronouns, object pronouns, the use of the subjunctive and indicative moods, and an array of verb tenses. Writing will include formal essays, journal entries, critiques, and short research papers in French. Vocabulary study includes words of everyday situations, groups of a topical nature, and words associated with the readings. Students will examine a variety of French poetry and read a short novel in French. Students are encouraged to express their own thoughts in French.

French 4 (Prerequisite: French 3)

French 4 students embark on the continuation of the French 3 level with an in-depth grammar study of various selected authentic works of literature, films, art, etc. This level serves as the bridge between the French 3 and Advanced French levels, as well as a pre-AP course, and therefore concentrates on solidifying and expanding vocabulary from the six major topic areas as required by the AP French language and culture course. Students are expected to freely discuss the texts and materials studied in speaking and writing. They will write on a variety of topics and will give oral presentations in the target language. While reading, listening to and watching authentic French materials, the students get exposed to and acquire a more profound knowledge of the French and francophone culture.

Advanced French (Prerequisite: 85+ in French 4 or Instructor Approval)

This course is designed for those students who have successfully completed four levels of French with a grade of 85 or higher. In some cases, admission to the course will also require permission of the instructor or a written test. The course has a dual purpose in that it develops the student's overall proficiency in the French language with concentrations in literature, writing, speaking, and advanced grammar, while also preparing students to continue their study of French at the university level. Students read a variety of traditional literature and poetry as well as contemporary works. Written work comprises textual analysis, essays, and a limited amount of creative writing. The class is conducted in French allowing students to further develop their pronunciation, vocabulary, and grammar skills. The course instructor will support students who wish to take the AP French exam.

Latin 1

Latin 1 introduces students to Latin vocabulary, sentence construction, grammatical rules, syntax and the richness of Roman culture. Students acquire beginning translation and construction skills for the written word, as well as learn proper pronunciation and inflection for oral reading. This is a proficiency-based course, which provides active practice in listening, speaking, reading and writing in the Latin language. It is also enriched with numerous elements of Roman civilization, including daily life, customs, architecture, and historical relevance.

Latin 2 (Prerequisite: Latin 1)

Latin 2 builds upon the Latin 1 foundation and exposes the students to more complex linguistic structures. The addition of these elements allows the students to significantly broaden the depth of their reading and writing. This is a proficiency-based course, which provides active practice in listening, speaking, reading and writing in the Latin language. Students in this course are exposed to aspects of Roman culture relevant to textbook readings. They will also begin to read longer passages in Latin that focus on a wider variety of grammatical structures.

Latin 3 (Prerequisite: Latin 2)

Latin 3 builds upon the Latin 1 and 2 foundation and exposes the students to more complex linguistic structures. The addition of these elements allows the students to significantly broaden the depth of their reading and writing. This is a proficiency-based course, which provides active practice in listening, speaking, reading and writing in the Latin language. Students in this course will continue to learn about aspects of Roman culture relevant to readings.

Latin 4 (Prerequisite: Latin 3)

Latin 4 is designed for the accomplished and self-motivated Latin student who is interested in solidifying his/her understanding of grammar from Latin 1, 2, and 3 and in gaining broader translation experience in the language. Sample works from some of the great Roman writers of both prose and poetry are translated within a historical context, and continued emphasis is placed on cultural appreciation.

Advanced Latin (Prerequisite: 85+ in Latin 4 or Instructor Approval)

This course is designed for those students who have successfully completed four or more years of high school Latin with an average of 85 or higher. In some cases, admission to the course may require permission of the

instructor or a written test. The focus of this class will be an advanced study of Latin prose and poetry, with special attention given to metrics, stylistic devices and thematic elements. Students will read selections from authors such as Vergil, Caesar, Catullus and Ovid. Readings may focus on a particular thematic topic as seen in the writings of multiple authors or focus on an individual author. The course instructor will support students who wish to take the AP Latin exam.

Spanish 1

Spanish 1 is an introduction to the Spanish language and culture. Students will study vocabulary ranging from the basics of conversation in Spanish, to vocabulary related to daily activities, the school environment, and family. Students will focus on discussing topics in the present tense with a moderate level of fluency. Students in Spanish 1 will also learn about the cultures and traditions of Spanish-speaking countries through interactive presentations. Students will be expected to complete nightly homework assignments to improve their understanding of the Spanish language, and are encouraged to use the target language whenever possible. Throughout the course of Spanish 1, students will consistently work in all areas, including speaking, reading, writing, listening, and culture.

Spanish 2 (Prerequisite: Spanish 1)

Students will continue to develop their skills from Spanish 1 in vocabulary, grammar while increasing their knowledge in presentational skills. Students will gradually work towards initiating and maintaining an extended conversation about work, school, as well as other topics. They will be able to interpret information spoken and written in Spanish;(images, voice recordings, videos, etc.). Writing will focus on expressing ideas across various times (present and past tenses) . Authentic resources, technology, meaningful context, and culture will all be utilized. Students will be expected to complete nightly homework assignments to improve their understanding of the Spanish language, and are encouraged to participate in the target language whenever possible.

Spanish 3 (Prerequisite: Spanish 2)

Students will further develop skills acquired in Spanish 2 ,while acquiring new vocabulary and improving the use and understanding of fundamental grammatical concepts. Their communicative skills will include narrating and describing familiar events in the present, past, future and conditional tenses. They will learn to interpret the information they hear and read in Spanish using visual aids and cues from the teacher. Writing exercises will focus on formulating complete sentences and constructing a well organized paragraph. Basic sequencing and transition words will be introduced to enhance their academic writing. Students will be expected to speak Spanish during class. They will explore artwork, music and culture . Poetry and literature are examined for vocabulary with emphasis on reading, speaking and writing.

Spanish 4 (Prerequisite: Spanish 3)

Spanish 4 students continue to develop and engage in the study of the Spanish language with an in-depth study of various selected authentic works of literature, films, art, etc. This level serves as the bridge between the Spanish 3 and Advanced Spanish level, and therefore, concentrates on solidifying and expanding vocabulary and grammar, particularly focusing on the six major topic areas as required by the AP Spanish language and culture courses. Students are expected to freely discuss the texts and materials studied in speaking and writing. They will write on a variety of topics and will give oral presentations and a continued emphasis is placed on cultural appreciation.

Advanced Spanish (Prerequisite: 85+ in Spanish 4 or Instructor Approval)

Students in Advanced Spanish will continue to engage in an in-depth study of grammar, language and vocabulary. Emphasis will continue to be placed on practicing grammatical structures studied in Spanish 1, 2 and 3 through targeted writing and listening exercises. Additionally, students will engage in longer writing assignments as well as learn to craft a formal introduction as well as an effective and interesting thesis and presentational speaking. They will read and interpret longer written works in Spanish including prose, news articles and informative essays. Students will be expected to speak Spanish exclusively during class. The course instructor will support students who wish to take the AP Spanish exam.

Cultural Linguistics (8th - 12th grades)

Miller is incredibly diverse for its size with many of the stakeholders being bilingual, multilingual, multiracial, and/or have those backgrounds. We are living on the edge--constantly crossing borders, literally and figuratively. This class explores international borders as well as socially constructed ones. Meant for students looking to learn and appreciate other languages without having to commit to fluency or students incredibly interested in other languages in addition to the world languages they are already taking, this class explores relevant themes through primary sources in their native languages and contexts as well as their international translations and implications. It incorporates a variety of primary texts such as propaganda posters, photographs, music, art, paintings, short stories, poetry, etc. to learn about living on the edge as well as allowing students to choose and demonstrate texts relevant for themselves. Being open and flexible to students' prior experiences and goals for the course, this class encourages dialogue and student input.

FINE ARTS

As a reflection of the School's Mission, the Fine Arts Program enables students to create with their own minds, hands, and hearts a variety of works of art and projects. Students can also develop their own instrumental and vocal skill, compose, produce, and perform music. Specific projects enable students to learn a process that includes planning, construction, and evaluation. The goals of the Fine Arts Program are to inspire a love of an art in order to obtain desire for excellence, increased creativity and problem solving skills, and an expanded knowledge of the arts.

Art 1

Art 1 is an entry-level art class designed for students in grades 8-12 who have no prior art credits at the secondary level. Through opportunities and challenges in the studio arts of drawing, painting, printmaking, and sculpture, students will gain a breadth of artistic knowledge and skills. The emphasis of the course is on art production and foundational skills as building blocks to developing a unique artist's voice. Art history is integrated into the curriculum through the study of various artists and art periods, as they relate to the students' projects.

Art 2 (Prerequisite: Art 1)

Art 2 is a course designed for students who have earned at least one studio art credit at the secondary level. Students will expand their knowledge and execution of foundational skills including the observation of live objects and forms as inspiration for creating a variety of projects in the studio arts of drawing, painting, printmaking, and sculpture. The emphasis of the course is on art production and further exploration of each student's artist's voice.

Please note that students who are new to Miller School may be required to complete some of the projects from the Art 1 curriculum in order to ensure that their skills and knowledge are comparable to students who have successfully completed the Art 1 program at MSA.

Art 3 (Prerequisite: Art 2)

Art 3 is designed for the serious art student who has earned at least two studio art credits at the secondary level. Through the teacher-directed exploration of various techniques, materials and themes, students will be challenged to further develop their studio art skills as well as their art knowledge and personal aesthetic. Portfolio development will be encouraged.

Advanced Art (Prerequisite: the preceding level)

Advanced Art is for students who have earned at least three studio art credits at the secondary level. Advanced Art is a course for the dedicated student artist who is motivated to further develop his or her art skills and knowledge. Through the exploration of various techniques and materials, students will explore in depth creative self-expression and may choose to narrow their focus to a specific medium or theme. Students will be encouraged to emphasize their artist's voice and find authentic audiences for their work. A student may take the Advanced Art course for more than one year, earning credit each year that the course is taken. Portfolio development will be encouraged.

Studio Music 1, 2, 3, Adv (Prerequisite - previous level)

Open to singers and instrumentalists in Grades 8 through 12 of all skill levels, this class offers individual and ensemble coaching, studio music production, and performance opportunities. Dedicated to the growth of young musicians, the MSA music program is designed to benefit a range of different skill levels and interest areas. Students will examine music through artistic critique, learn college level music theory and harmony, engage in performance and/or composition projects, and build musical skills through traditional practice and/or experience with software. Students will be asked to examine their own growth in the form of reflective assignments so that they can develop understanding of their own process of creating and/or performing music. Each student has a unique sense of artistry and process. We celebrate this diversity by offering a more exploratory, project based curriculum.

Design/Build 1

Design/Build 1 is open to students in grades 9-12. Design/Build 1 introduces students to computer aided design using Google SketchUp, prototyping using a 3-D printer, and safe, efficient use of tools to build a project. This class is a problem solving class based on the fundamentals of safety and the craftsmanship of woodworking. Through classroom instruction and the construction of woodworking projects, students will learn the fundamentals of working with wood, including project drawing and design, basic shop math, the use of hand tools, portable and stationary power tools, measuring techniques, the use of jigs and fixtures, joinery, fabrication and assembly processes.

Design/Build 2 (Prerequisite: Design/Build 1)

Design/Build 2 focuses on increasing proficiency with computer aided design, woodworking craftsmanship, and problem solving skills. An emphasis is placed on wood joinery techniques to ensure projects have strong, attractive joints. These joints are not possible without precision, accuracy, and attention to detail so these aspects are emphasized throughout the course. Different approaches to finishing a project are also addressed once a project is assembled.

Design/Build 3 (Prerequisite: Design/Build 2)

Design/Build 3 increases the complexity of projects that are designed and built while improving on a student's creativity. A skin-on-frame model glider is built to demonstrate various new techniques including lightweight, high strength building and incorporating 3-D printing into the final project. Student selected projects using advanced woodworking techniques are designed and constructed.

Advanced Design/Build (Prerequisite: Design/Build 3)

Advanced Design/Build is open to seniors who have completed Design/Build 3 and who wish to explore specific issues or techniques in order to build their portfolio.

Photo 1

Photo 1 is an entry level course designed for students in grades 9-12 who have no prior photography credits at the secondary level. Students investigate the use of cameras and other machines associated with photo production. Lessons include the characteristics of film, exposure time, depth of field, composition, chemical processing, and the ethics associated with photography. In addition to working in the darkroom, students have weekly photo

assignments and participate in class discussions and critiques. A 35mm Single Lens Reflex (SLR) camera with manual override of shutter speeds and aperture will be provided as well as film and paper.

Photo 2 (Prerequisite: Photo 1)

Photo 2 is a continuation of the Photo 1 course. Students build upon their knowledge of black and white photography in the areas of composition, exposure, and darkroom technique, and they learn advanced techniques in processing film and printing negatives. A variety of photographic subject matter is discussed and explored in this course. Students are also introduced to digital photography, scanners, and digital concepts. A student-furnished Single Lens Reflex (SLR) 35mm camera with manual override of shutter speeds and aperture is required for the course.

Photo 3 (Prerequisite: Photo 2)

In the Photo 3 course, students are introduced to digital capture in photography and in motion pictures. Students become familiar with the tools of digital capture such as computers, software (Adobe Photoshop & Lightroom), flatbed scanners, digital cameras and digital video cameras. Through a hands-on approach, students learn the similarities and differences of a digital workflow.

Adv Photo (Prerequisite: Photography 3)

Advanced Photo is open to students who wish to explore specific issues or techniques in order to build their photography portfolio.

Drama 1, 2, 3, Adv (Prerequisite- previous level)

Open to students in grades 8 - 12. Drama engages the individual who is interested in growing their knowledge of theater production, learning techniques and skills unique to theatrical production, and developing as a performer and technician. The course will involve producing and performing a theatrical production from start to finish. Students will focus on applying student knowledge and experience to pick a suitable play, audition, cast, rehearse, design and build sets, design and produce costumes, and perform a full length play. Students have the opportunity to build a quality resume by continuing to advanced coursework in Drama.

Ceramics 1, 2, 3, Adv (Prerequisite - previous level)

Open to students in grades 9 - 12. This course will focus on the methods and practices of creating unique ceramic forms, both sculptural and functional. We will touch on the historic as well as contemporary art of clay. Students will be introduced to the properties of clay, the fundamentals of clay/pottery design, various firing techniques including cone 6 oxidation firing as well as surface treatment and glazing. Students will spend class time actively designing while also creating using primitive to advanced hand-building techniques and wheel-throwing to culminate the semester having created a collection of projects.

NON-DEPARTMENTAL COURSES

Study Skills

The Study Skills course is designed to help students learn effective study habits and strategies and to become good self advocates as well as provide time during the academic day to complete work with support, if needed. The study skills instructors strive to get to know each student and understand his or her challenges and strengths. This course provides an individualized approach to helping students develop academic and life skills such as organization, time management, prioritization, goal setting, accountability, note taking, research writing, test preparation, and resilience. Due to the individualized approach, course enrollment is kept small, usually 4-6 students. This is a graded course and can be taken multiple years, as needed.

Life 101 (grades 10-12)

This student-conceived course is designed to teach students and allow them to practice essential life skills that they can employ now and in the future with confidence. Students identified the following topics to be covered in the course: resumes and the job search (setting up a LinkedIn account, job search platforms, etc...), interview skills and practice, finances (checking accounts, credit/debit cards, student loans, balancing a budget, investing, w-4s, w-2s and filing taxes), process of renting or buying a home (mortgages, rental leases), insurance (car, renters, and home), basic car maintenance (change a tire, change the oil, what to put in a car emergency kit, routine maintenance and inspection schedules), basic apartment/home maintenance including use of basic tools, personal and property safety, basic cooking skills, and problem solving practice. This course would be taken as an elective credit.

Independent Study

Students often have intellectual, artistic, or career interests which can not be fully pursued within the existing school curriculum. These students may apply for an Independent Study. Independent Studies may be designed by the student, developed in coordination with an expert/scholar in the field, or provided by an online institution. An Independent Study awards elective credit with a pass/fail grade. Specific information, including detailed guidelines for application and course credit requirements, are available in the Success Center.

Internship

Internships provide real world experience to those looking to explore or gain the relevant knowledge and skills required to enter a specific career field. Internships are also an excellent way to begin building a network for the future. Interns must seek out and find a willing sponsor who assigns specific tasks and evaluates the intern's overall work. Additionally, a Miller School faculty coordinator will work with the sponsor and intern to develop a contract outlining desired learning goals and outcomes. Off-campus weekend and summer internships can be arranged with local businesses and organizations. An Internship receives elective credit with a pass/fail grade. Specific information, including detailed guidelines for application and course credit requirements, are available in the Success Center.

Signature Programs

Guided by our mission & values, signature programs provide opportunities for discovery and reflection through unique offerings. These programs identify strengths in students and leverage the school's talented faculty, remarkable campus, and long history to offer one-of-a-kind avenues to engage the minds, hands, and hearts of students.

Applied Engineering Program

The Applied Engineering Program is designed to inspire and promote curiosity in this diverse field while exposing students to various disciplines from traditional engineering fields (such as Civil and Mechanical) to more modern engineering fields (such as Biomedical, Environmental, and Chemical). Multiple facets of academia are incorporated into the Applied Engineering Program curriculum, all of which are in line with the school mission of a continued emphasis on "mind, hands, and heart."

To gain entry into the Applied Engineering Program (which is available to students in all grade levels), students must submit an application, which includes a questionnaire and three brief essays. Those who complete the

program successfully, in addition to meeting MSA graduation requirements, will receive a Major or Minor Certificate of Completion upon graduation. The distinction between levels of achievement comes from how many Applied Engineering Program credits a student achieves during their tenure at MSA (see below for details). Additionally, graduates from the Applied Engineering Program will have the distinct advantage of being individually recognized at graduation for their outstanding achievement.

Goals

The goal of the Applied Engineering Program is to inspire and promote curiosity about engineering. It is through this awareness that students' perspectives are opened to the wide-reaching avenues of engineering. During this process, Applied Engineering students will explore the Engineering Method and how it differs from the Scientific Method. Additionally, students will learn the basics of 3D CAD (Computer-Aided Design) software and modeling along with its various applications within nearly all engineering fields. Above all, the ultimate goal is to prepare students for the exciting challenges and opportunities that await them as they pursue their engineering interests at the next level. Colleges and universities are specifically looking for students who have taken full advantage of every opportunity given to them. The Applied Engineering Program has been uniquely designed to allow students to do just that.

Credits

Two levels of achievement are available in the Applied Engineering Program. A Minor certificate is awarded by earning 18 credits, whereas a Major certificate is awarded by earning 28 credits and completion of either one Applied Engineering or e4usa course. For STEM-themed AP coursework such as AP Physics or AP Calculus (AB or BC), students can earn 3.0 credits. For non-AP STEM-themed coursework such as Computer Programming or Design/Build, students can earn 2.0 credits. Additionally, the Applied Engineering course itself and/or an Independent Study can earn a student 4.0 credits. Several options for partial credits are available through STEM-themed field trips, service groups, clubs, WWOWW offerings, professional experience, etc. For more information about earning credits, see the credit worksheet.

Humanities Program

The Humanities program seeks to engage students more deeply in the life of the mind during their time at the Miller School of Albemarle. Additionally, it exists to encourage students to pursue excellence in the Humanities by providing an organizational structure and incentive to make the most of their academic and cocurricular opportunities here. The program pursues this aim in the following ways:

- by providing students opportunities for increased engagement with their studies through field trips and special programming;
- by giving shape and direction to a student's curricular and cocurricular work;
- by inspiring students to engage proactively with their studies, while encouraging them to see their studies as an extension of their own interests and passions;
- by challenging students to maintain momentum in their senior year and to view it as a summative experience of their career at Miller.

The Humanities Program provides an overarching, long-term academic structure, affording students who are passionate about Literature, History, Fine Arts, Foreign Language, and Performing Arts an opportunity to flourish creatively and scholastically. Students accumulate credits toward the Humanities Certificate on a track of their own making. Credit is awarded for curricular work and cocurricular activities. Coursework in the junior and senior years is emphasized, with more weight being given to Advanced Placement, Dual Enrollment, and Senior Seminar options. See the credit worksheet here.

The amount of curricular credit applied toward the Humanities Certificate is capped; the remainder must be earned through co-curricular activities, so that students round out their studies in ways that emphasize enrichment, participation, and applying themselves. For a Major Certificate, students must engage in a yearlong Capstone Project, which is offered via Senior Seminars or an Independent Study. The Certificate of Distinction they can earn with their diploma is intended to be a crowning achievement of their high school career, and it is highly visible to college admissions committees, in that an Advanced Diploma status appears on a student's application.

Applications for the Humanities Program are accepted during certain application windows in the first and fourth quarters of the year. Seniors, juniors, and rising juniors are encouraged to apply! The credit worksheet is used to track humanities credits.