

UME Course Catalog 2019-2020

Algebra I (1 credit)

Students will build on the knowledge and skills for mathematics in Grades 6-8, which provide a foundation in linear relationships, number and operations, and proportionality. Students will study linear, quadratic, and exponential functions and their related transformations, equations, and associated solutions. Students will connect functions and their associated solutions in both mathematical and real-world situations. Students will use technology to collect and explore data and analyze statistical relationships. Students will study polynomials of degree one and two, radical expressions, sequences, and laws of exponents. Students will generate and solve linear systems with two equations and two variables.

Algebra II (1 credit)

Prerequisite: Algebra I & Geometry

Students will broaden their knowledge of quadratic functions, exponential functions, and systems of equations. Students will study logarithmic, square root, cubic, cubic root, absolute value, rational functions, and their related equations. Students will connect functions to their inverses and associated equations and solutions in both mathematical and real-world situations. In addition, students will extend their knowledge of data analysis and numeric and algebraic methods.

Anatomy & Physiology (1 credit)

Prerequisite: 3 science credits

Students will conduct investigations and use scientific methods and equipment during laboratory or field investigations. Students use critical thinking, scientific reasoning and problem solving while investigating a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis.

Art I, II, III, IV (1 credit each)

The following knowledge and skills will be incorporated: perception, creative expression, historical & cultural heritage, and critical evaluation. Students will express ideas through original artworks, using a variety of media.

Art II: Ceramics

Students will use the medium of ceramics to use creative expression and develop artistic skill and appreciation.

Athletics (1 required PE credit; up to 3 elective credits)

Participation in athletics will be based on a decision by the coach(es) and/or a tryout when appropriate. Students receiving credit for athletics should be playing on a team during the season of the sport or sports. When the sport is in off-season, students should be conditioning and working on skills related to the sport for which they are receiving athletic credit.

Bible (.5 - 1 credit)

Students will study Old Testament and New Testament from the perspective of their impact on

the history and literature of western civilization. Students will examine biblical content, characters, poetry, and narratives.

Biology (1 credit)

Students will conduct investigations and uses scientific methods and equipment during laboratory or field investigations. Students use critical thinking, scientific reasoning and problem solving while investigating a variety of topics that include: structures and functions of cells, tissues, and organs; nucleic acids and genetics; biological evolution; taxonomy, metabolism and energy transfers in living organisms; living systems; homeostasis; and ecosystems and the environment.

Calculus - dual credit (1 credit)

Prerequisite: dual credit Pre-Calculus

Pre-Calculus Math: This course consists of the study of algebraic and trigonometric topics including polynomial, rational, exponential, logarithmic and trigonometric functions and their graphs. Conic sections, polar coordinates, and other topics of analytical geometry will be included.

Calculus I: This course is a study of limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation; applications of the derivative to maximizing or minimizing a function; the chain rule, mean value theorem, and rate of change problems; curve sketching; definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas.

Chemistry (1 credit)

Prerequisite: Biology

Students will conduct investigations and uses scientific methods and equipment during laboratory or field investigations. Students use critical thinking, scientific reasoning and problem solving while investigating a variety of topics that include: characteristics of matter, use of the Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our lives.

Choir I, II, III, IV (1 - 4 credits)

Students will participate in singing performances and critical evaluation. Students will develop aesthetic and cultural awareness through exploration, leading to creative expression.

College PATH (1 credit)

Students will develop critical thinking and reasoning skills through research related to college and career opportunities and pathways. Students will understand various methods of decision-making and negotiation while working on interpersonal communication skills. Students will also apply the decision-making model to real-world and work-place issues, as well as gain personal awareness by participating in group community service activities. Students will also practice study skills related to preparation for college entrance exams.

Communications Applications (.5 credit)

Students will be expected to identify, analyze, develop, and evaluate communication skills needed for professional and social success in interpersonal situations, group interactions, and personal and professional presentations.

Computer Science I & II & III (1 credit each)

Recommended Prerequisite: Algebra I; Computer Science I is a prerequisite to Computer Science II; Computer Science I & II are prerequisites for Computer Science III.

Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems.

Creative Writing (.5 - 1 credit)

Students will demonstrate their skills in such forms as fictional writing, short stories, poetry, and drama. Students will evaluate their own work as well as the work of others.

Digital Video and Audio Design (1 credit)

Recommended for students in Grades 11 and 12

Students will use creativity and innovation to apply academic knowledge and skills in audio and video projects. Students will also use and develop skills in communication, collaboration, research, and information fluency in the pre-production process. Students will practice and understand digital citizenship and technology operations related to the production and post-production process.

Economics (.5 credit)

The focus of this course is on the basic principles concerning production, consumption, and distribution of goods and services in the United States and a comparison with those in other countries around the world. Students analyze the interaction of supply, demand, and price. Students will investigate the concepts of specialization and international trade, economic growth, key economic measurements, and monetary and fiscal policy. Students will study the roles of the Federal Reserve System and other financial institutions, government, and businesses in a free enterprise system. Students will also apply critical-thinking skills using economic concepts to evaluate the costs and benefits of economic issues.

Economics - dual credit = Principles of Macroeconomics (.5 credit)

Prerequisite: Acceptance to the dual credit program via Mountain View College

An introduction to principles of macroeconomics is presented. Economic principles are studied within the historical framework of classical, Keynesian, monetarist and alternative models. Emphasis is given to national income determination, money and banking, and the role of monetary and fiscal policy in economic stabilization and growth.

Engineering Design and Problem Solving (1 credit)

Prerequisite: Introduction to Engineering and Engineering Science (formerly known as Principles of Engineering)

This course is the creative process of solving problems by identifying needs and then devising solutions. The solution may be a product, technique, structure, or process depending on the problem. This course emphasizes solving problems, moving from well-defined toward more open-ended, with real-world application. Students will apply critical-thinking skills to justify a solution from multiple design options. Students will use the engineering design process cycle to investigate, design, plan, create, and evaluate solutions.

Engineering Science (also known as Principles of Engineering) (1 credit)

Prerequisite: Algebra I

This course is designed to expose students to some of the major concepts and technologies that they will encounter in a postsecondary program of study in any engineering domain. Students will employ science, technology, engineering, and mathematical concepts in the solution of real-world challenge situations. Students will develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges. Students will also learn how to document their work and communicate their solutions to their peers and members of the professional community.

English I, II, III, IV (1 credit each)

Prerequisite: Each preceding level of English is a prerequisite for the next level; The levels of English must be taken in sequence.

Students will read and understand a wide variety of literary and informational texts. Students will compose a variety of written texts with a clear controlling idea, coherent organization, and sufficient detail. Students will use and develop research skills to locate a range of relevant sources and evaluate, synthesize, and present ideas and information. Students will listen and respond to the ideas of others while contributing their own ideas in conversations and in groups. Students will learn how to use oral and written conventions of the English language in speaking and in writing.

English III - dual credit = Composition I & Composition II (1 credit)

Prerequisite: Acceptance to the dual credit program via Mountain View College

Composition I: Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus on writing the academic essay as a vehicle for learning, communicating, and critical analysis.

Composition II: Intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual, and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions.

English IV - dual credit = British Literature I & British Literature II (1 credit)

Prerequisite: English III dual credit

British Literature I: A survey of the development of British literature from the Anglo-Saxon period to the Eighteenth Century. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

British Literature II: A survey of the development of British literature from the Romantic period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions.

Foundations of Personal Fitness (PE) (1 credit)

Students acquire knowledge and skills for movement that provide the foundation for enjoyment, continued social development through physical activity, and access to a physically-active lifestyle. The basic purpose of this course is to motivate students to strive for lifetime personal fitness with an emphasis on the health-related components of physical fitness.

Geometry (1 credit)

Prerequisite: Algebra I

Students will begin to focus on more precise terminology, symbolic representations, and the development of proofs. Students will explore concepts covering coordinate and transformational geometry; logical argument and constructions; proof and congruence; similarity, proof, and trigonometry; two- and three- dimensional figures; circles; and probability.

Government (.5 credit)

A significant focus of the course is on the U.S. constitution, its underlying principles and ideas, and the form of government it created. Students analyze major concepts of republicanism, federalism, checks and balances, separation of powers, popular sovereignty, and individual rights and compare the U.S. system of government with other political systems. Students analyze the impact of individuals, political parties, interest groups, and the media on the American political system, evaluate the importance of voluntary participation in a constitutional republic, and analyze the right guaranteed by the U.S. Constitution.

Government - dual credit = Federal Government (.5 credit)

Prerequisite: Acceptance to the dual credit program via Mountain View College

This course covers the origin and development of the U.S. Constitution, structure and powers of the national government including the legislative, executive, and judicial branches, federalism, political participation, the national election process, public policy, civil liberties and civil rights.

Integrated Physics and Chemistry (1 credit)

Students conduct laboratory and field investigations, use scientific methods during investigation, and make informed decisions using critical thinking and scientific problem solving. This course integrates the disciplines of physics and chemistry in the following topics: force, motion, energy, and matter.

Introduction to Engineering Design (1 credit)

Recommended prerequisite: Algebra I

Students are introduced to the engineering design process, applying math, science, and engineering standards to identify and design solutions to a variety of real problems. Students work both individually and in collaborative teams to develop and document design solutions using engineering notebooks and 3D modeling software.

Mathematical Models with Applications (1 credit)

Prerequisite: Algebra I

Students learn to apply mathematics through experiences in personal finance, science, engineering, fine arts, and social sciences. Students use algebraic, graphical, and geometric reasoning to recognize patterns and structure, model information, solve problems, and communicate solutions. Students will select from tools such as physical objects; manipulatives; technology, including graphing calculators, data collection devices, and computers; and paper and pencil and from methods such as algebraic techniques, geometric reasoning, patterns, and mental math to solve problems.

Musical Theater (1 credit)

Musical Theater will expose students to a wide range of on-stage performance disciplines, including acting performance, vocal performance, and dance performance. This course will enhance and cultivate the creative gifts of each student while encouraging a sense of self-confidence. The course will enable students to study and perform the varied styles of musical theater with special attention to the principles of stage movement, stage vocal technique, stage choreography, acting, characterization, and other aspects of musical production.

Personal Financial Literacy (.5 credit)

Students will gain knowledge in the following areas related to personal finance: interest & credit card debt, rights & responsibilities of renting or buying a home, starting a small business, investing, savings programs, bankruptcy, managing accounts, loans & low-risk borrowing, insurance, charitable giving, federal student aid applications, paying for college.

Physics (1 credit)

Recommended Prerequisite: Algebra I

Students conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include: laws of motion; changes with physical systems and conservation of energy and momentum; forces, thermodynamics; characteristics and behavior of waves; and atomic, nuclear, and quantum physics.

Pre-Calculus (1 credit)

This course is preparation for Calculus. It approaches topics from a functional point of view, and is designed to strengthen and enhance conceptual understanding of mathematical reasoning used when modeling and solving mathematical real-world problems. The study of precalculus deepens students' mathematical understanding and fluency with algebra and trigonometry and extends their ability to make connections and apply concepts and procedures at higher levels.

Pre-Calculus - dual credit (1 credit)

Prerequisite: Algebra II & Acceptance into the dual credit program via Mountain View College

College Algebra: This course is an in-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included.

Plane Trigonometry: In depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates, and parametric equations may be included.

Principles of Arts, Audio/Video Technology, and Communications

This course will introduce students to careers in the audio/video/technology and communications industry. Students will apply professional communications strategies and problem-solving methods in the completion of audio/video technology projects. Students will also learn how these principles are applied to fashion design, graphic design, animation, printing, and imaging.

Principles of Health Science (1 credit)

This course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.

Public Speaking – dual credit (.5 credit)

Prerequisite: Acceptance into the dual credit program via Mountain View College

This is an introductory course to develop the student's skills, knowledge, and understanding of the public speaking process. Topics include the principles of reasoning, audience analysis, collection of materials, outlining, and delivery. Emphasis is on the oral presentation of well-prepared speeches, using computer technology when appropriate.

Spanish I, II, III, IV (1 credit each)

Prerequisite: Each preceding level of Spanish is a prerequisite for the next level.

Students gain an understanding of two basic aspects of human existence: the nature of communication and the complexity of culture. Students focus on three components of communication in the foreign language of study: interpersonal communication, interpretive communication, and presentational communication.

Statistics and Business Decision Making (1 credit)

Prerequisite: Algebra II

Students will use statistics to make business decisions and determine the appropriateness of methods used to collect data to ensure conclusions are valid. Students will use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution. Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, and language.

Theatre I, II, III, IV (1 credit each)

Prerequisite: Advanced levels of theater may require instructor approval.

Through a variety of theatrical experiences, students communicate in a dramatic form, make artistic choices, solve problems, build positive self-concepts, and relate interpersonally. Students interpret characters using voice and body expressively, as well as apply design, directing, and theatre production concepts and skills. Students increase their understanding of heritage and traditions through historical and cultural studies in theatre.

U.S. History (1 credit)

Students study the history of the United States from 1877 to the present. The course content is based on the founding documents of the U.S. government, which provide a framework for its heritage. Historical content focuses on the political, economic, and social events and issues related to industrialization and urbanization, major wars, domestic and foreign policies, and reform movements, including civil rights. Students examine the impact of geographic factors on major events and eras and analyze their causes and effects. Students examine the impact of the constitutional issues on American society, evaluate the dynamic relationship of the three branches of the federal government, and analyze efforts to expand the democratic process.

U.S. History - dual credit (1 credit)

Prerequisite: Acceptance to the dual credit program via Mountain View College

United States History I : A survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction period. United States History I includes the study of pre-Columbian, colonial, revolutionary, early national, slavery and sectionalism, and the Civil War/Reconstruction eras. Themes that may be addressed in United States History I include: American settlement and diversity, American culture, religion, civil and human rights, technological change, economic change, immigration and migration, and creation of the federal government.

United States History II : A survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War/Reconstruction era to the present. United States History II examines industrialization, immigration, world wars, the Great Depression, Cold War and post-Cold War eras. Themes that may be addressed in United States History II include: American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy.

World Geography (1 credit)

Students examine people, places, and environments at local, regional, national, and international scales from the spatial and ecological perspectives of geography. Students will learn the influence of geography on events of the past and present with emphasis on contemporary issues. A significant portion of the course centers around the physical processes that shape patterns in the physical environment; the characteristics of major landforms, climates, and ecosystems and their interrelationships; the political, economic, and social processes that shape cultural patterns of regions; types and patterns of settlement; the distribution and movement of the world population; relationships among people, places, and environments; and the concept of region.

World History (1 credit)

The major emphasis is on the study of significant people, events and issues from the earliest of times to the present. Traditional historical points of reference in world history are identified as students analyze important events and issues in western civilization as well as in civilizations in other parts of the world. Students evaluate the causes and effects of political and economic imperialism and of major political revolutions since the 17th century. Students examine the impact of geographic factors on major historic events and identify the historic origins of contemporary economic systems.

Yearbook I, II, III (1 credit each)

Students enrolled in Advanced Journalism communicate in a variety of forms such as print, digital, or online media for a variety of audiences and purposes. Students are expected to plan, draft, and complete written and visual communications. Students will apply journalistic ethics and standards to produce school publications.