Course Descriptions 2015-2016

Middle School

CORE

ENGLISH -- These courses provide instruction and practice in reading a variety of genres, including media literacy, and writing a wide variety of compositions, listening and speaking at higher levels. ***Technology integration – Word Documents***

English / Language Arts 6

This course is designed to provide an introduction to the skills and concepts necessary to read across a variety of genres, write in a wide variety of composition, and use listening and speaking skills at the secondary level. Scholars will use grammar, usage, vocabulary, and other English language skills and develop summarization and note taking strategies. Scholars will be introduced to narrative, informational, and argumentative writing, with narrative writing being the primary focus in sixth grade. Scholars will develop a writing portfolio that demonstrates achievement and growth. Scholars will read both nonfiction and fiction pieces, woven into the World Civilizations content. Homework can be expected daily.

English / Language Arts 7

This course provides instruction and practice in reading a variety of genres, including media literacy, writing a wide variety of compositions, listening and speaking at higher levels. Scholars complete research projects that require them to understand and evaluate a variety of textual and visual materials. They learn grammar, usage, vocabulary, and other English language skills within the context of reading and writing, and will develop summarization and note taking strategies. Scholars will continue to work with to narrative, informational, and argumentative writing, with informational writing being the primary focus in seventh grade. Scholars will continue to maintain a writing portfolio that demonstrates achievement and growth.Scholars will read both nonfiction and fiction pieces, woven into the New Mexico History and World Geography content. Homework can be expected daily.

English / Language Arts 8

This course is designed to further promote the skills and concepts related to reading, writing, speaking, listening, viewing, and research. A wide variety of writing techniques and forms will be utilized. Scholars will use complex syntax, paragraphing, application of literary techniques, develop summarization and note taking strategies, and the use of a thesis with support. Scholars will continue to work with to narrative, informational, and argumentative writing, with argumentative writing being the primary focus in eighth grade. Scholars will continue to maintain a writing portfolio that demonstrates achievement and growth.Scholars will read both nonfiction and fiction pieces, woven into the American History content. Homework can be expected daily

MATHEMATICS -- Throughout mathematics in 6th,7th, and 8th grade, scholars will build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships and algebraic thinking; geometry and special reasoning; measurement; and probability and statistics. Homework can be expected daily. ***Technology integration – Graphing Calculators***

Mathematics 6

This course develops skills related to ratios and proportions, the number system and understanding how numbers work, expressions and equations, geometry and statistics and probability.

Mathematics 7

This course develops and reinforces the basic operations. Scholars will explore ratios, proportions, percent, data analysis, probability, measurement, and geometry. Number theory, integers, statics, and pre-algebra skills will be developed. Conceptual applications and problem solving and project based learning are emphasized throughout the course.

Mathematics 8

This course major emphasis is placed on algebraic concepts, geometry, data analysis, probability, and measurement. Scholars entering 8th grade should have a thorough understanding of their multiplication facts, be proficient at fractions, decimals, and percentages.

Algebra Data Analysis & Probability (Algebra 1)

This course will study the concepts of Algebra, Data Analysis and Probability. The Algebra concepts studied concentrate on linear relationships. The course emphasizes a4-dimensional approach of numerical, analytical, graphical, and verbal representations to manipulate linear equations. The Data Analysis and Probability course begins with the vocabulary of statistics and experimental design, and then moves into descriptive statistics. There is a heavy emphasis on graphing and understanding the measures of central tendency. Scholars learn counting principals as they study probability.

Credit Value: .5 **high school graduation credit** per semester

Science -- Scholars will utilize mathematics skills in relation to science curriculum. Concepts are reinforced through lab activities, demonstrations, and research projects. Scholars will develop scientific vocabulary and process through investigations utilizing the scientific method to solve problems. They will develop their scientific skills of observation, comparison, sequencing, hypothesizing, and inferring. ***Technology integration - Excel Spread Sheet***

Science 6

This course will cover the Earth science standards. This will include rocks and minerals, plate tectonics, geologic time and fossils, the water cycle and how water shapes the Earth, Earth's atmosphere and weather and energy sources first semester. Second semester will include our solar system, the sun, Stars, galaxies and the universe.

Science 7

This course will include Life science standards. This will include cellular structure and reproduction, cellular respiration and photo synthesis, genetics and heredity, medical advancements, ecology, classification and taxonomy, biomes and how living organisms interact with other organisms and their environment.

Science 8

This course will include Physical science standards. This includes matter, atoms and the periodic table of elements, basic chemistry concepts, energy, waves, electricity and magnetism, and Newtonian physics.

Social Studies -- Scholars learn about events, leaders, beliefs and geography in economic and political systems and cultures. ***Technology integration – Power Point***

Social Studies 6

This course studies the ancient civilizations of the world. In particular, scholars will study the Nomadic tribes, the cultures of Mesopotamia, Egypt, India, Greece, and Rome. In addition, the Middle Ages, Reformation and the Renaissance with be studied.

Social Studies 7

This course emphasis is on New Mexico history, the influence of our diverse cultures, both past and present. They will explore the history, geography, culture, government and the economy of the state of New Mexico.

Social Studies 8

This course explores U.S. History. This course will examine historical figures, critical events, values and traditions in our country that have shaped the national identity of the United States. Major features and purposes of the Constitution will be studied. Ideas, principals, practices and challenges of American democracy and the responsibility of citizenship will be discussed.

ELECTIVES

Physical Education / Health 6, 7 & 8

All Middle School scholars must take at least one year of physical education. Scholars will demonstrate competence in fundamental skills and concepts in accordance with New Mexico Physical Education Standards. The programs will be based on developmental personal skills such as classroom leadership, team collaboration, respect and self-discipline and develop an awareness of key elements foe success. Scholars are expected to participate in physical activity both in and out of school maintaining a healthy level of fitness as their bodies grow and change. Instruction is directed toward encouraging the incorporation of physical activity into a daily routine and less toward fundamental skill development. ***Health Education*** is incorporated into physical education courses. ***All scholars will be required to dress-out for PE. ASK grade level color Tee-shirts, black shorts or black sweat bottoms, white socks, sneakers/tennis shoes.***

Fundamental Connections 6, 7 & 8

This course is designed as a math and reading intervention course that accelerates the learning of scholars who are in need of assistance. Homework can be expected daily.

Math - Scholars will learn, practice, discuss and interact with math in unique innovative ways. It will include core skills, problem solving concepts; classroom management and individual differentiate instruction. In this course we will encourage scholars in math and help them become better math learners-a skill they will take to future math classes and challenges.

Reading- Scholars will participate in anticipatory activities, focus on developing vocabulary, concepts, and fluency for content areas, practice strategies to enhance reading comprehension, participate in read a louds and shared reading/discussion groups, collaborate for literacy and learning and making and taking notes and writing to learn.

Research- Scholars will conduct a research project to help prepare them for the Research In Action projects required in our ASK High School curriculum.

Language Arts in Biomed and Engineering
Science & Math in Biomed and Engineering

The ASK Academy has created courses to help middle school scholars who have been identified as weak in the areas of reading, writing, math and/or science. These courses will help develop these skills based on the individual scholar's needs while focusing on how these skills relate to the real-world skills needed in the areas of biomedical sciences, and engineering and design.

Computers and Technology I

Scholars will have the opportunity to learn and demonstrate an understanding of various applications and resources, which may include Office, Windows XP operating systems, internet use and research, and a wide variety of computer peripherals. Technology will be used as productivity tools, communication tools, and as problem solving tools. Scholars will be involved in project oriented research, multimedia presentations and desktop publications. An emphasis will be placed on employability skills and exploration and integration of technology into current curriculum.

Computers and Technology II

Scholars will develop ideas and concepts from Computers and Technology I further in depth.

Foundations of Biomedical Sciences I

This course will focus on different body processes and on Earth and in outer space. This will allow ample opportunity for tie-ins to the core 7th and 8th grade science curriculum. The course will be divided into 4 sections: Sleep and Daily Rhythms, Muscles and Bones, Heart and Circulation, and The Brain in Space. Each unit is more or less aligned with one progress reporting period, and each focusing on a different aspect of human physiology.

Foundations of Biomedical Sciences II

This course will build upon scholar knowledge from the Foundations of Biomedical Sciences I and prepare scholars for entry into the high school biomedical pathway. The course will delve into the pathway that patients take through the medical system and explore the different technologies that they may encounter. They will also have in depth instruction over the skeletal system, forensic investigation, and the epidemiological tracking of outbreaks.

Gateway to Engineering & Design I – to include the following for 9 weeks each

Automation and Robotics (AR) Scholars trace the history, development, and influence of automation and robotics. They learn about mechanical systems, energy transfer, machine automation and computer control systems. Scholars use a robust robotics platform to design, build and program a solution to solve an existing problem.

Design and Modeling (DM) Scholars begin to recognize the value of an engineering notebook to document and capture their ideas. They are introduced to and use the design process to solve problems and understand the influence that creative and innovative design has on our lives. Scholars use industry standard 3D modeling software to create a virtual image of their designs and produce a portfolio to showcase their creative solutions.

Gateway to Engineering & Design II

This is a continuation of the study of technology begun in Gateway to Technology I. Through topics like robotics, flight and space, and DNA and crime scene analysis, scholars find their natural curiosity and imagination engaged in creative problem solving. Using the same advanced software and tools as those used by the world's leading companies, scholars learn how to apply math, science, technology, and engineering to their everyday lives.

Automation & Robotics I

This beginning course in robotics will allow scholars to utilize Lego Mindstorm kits software and various Lego Robotics materials. The objective of this course is to introduce the student to basic programming as well as problem solving strategies. This course will involve scholars in the development, building and programming of a LEGO Mindstorm robot. Scholars will work hands-on in teams to design, build, program and document their progress. Topics may include motor control, gear ratios, torque, friction, sensors, timing, program loops, decision making, timing sequences, propulsion systems and binary number systems. Scholar designed robots will be programmed to compete in various challenges

High School

ENGLISH

English 9

Theme: English Literature

The purpose of this course will be to introduce scholars to the development of the English language and British culture from earliest literature through the Victorian period. The course will study several genres, including epic, drama (Shakespeare's "Romeo & Juliet"), poetic narrative, lyric poetry, and satire. Thematically, literature will be tied to "awakenings" such as religious controversy, the tragic hero, and social critique. As scholars explore the development and features of the literature, they will improve in their writing of critical and persuasive essays. As scholars engage in an extensive PBL on the Renaissance Movement, they will improve in their collaborative learning skills and the art of oral presentation.

Credit Value: .5 credit per semester

Honors English 9

This course is designed to give scholars the skills necessary to be successful in the AP Literature and Language courses they take as juniors and seniors. By building and sharpening these skills in 9th grade, scholars have a greater probability of earning qualifying scores on the examinations that grant college credit. The objectives of this course are to develop close reading skills of literature and nonfiction texts, analyze the impact of a writer's stylistic and rhetorical decisions, develop techniques for developing a logical, carefully reasoned argument, and learn how to synthesize several cited sources into a researched argument.

Credit Value: .5 credit per semester

English 10

Theme: World Literature

This survey course of world literature explores how themes such as heroism, religion, and political conflict are central to stories defining cultures. Scholars will explore a variety of short stories, novels, poetry, myths, and religious texts spanning the past two thousand years from countries throughout the world. This course will provide scholars with the stories that define the cultures they study in World History.

Credit Value: .5 credit per semester

Honors English 10

Pre-AP English 10 is the threshold to the AP Language and Literature Program. To ensure success in junior and senior level courses and examinations for college credit, the 10th grade course reinforces the reasoning and analytical skills foundational to both classes. The objectives of this course are to explore the roots of Western civilization and examine world cultures in representative literary works, as well as working to develop a mature writing style. Scholars strengthen their ability to interpret literature during class discussions and small group work. Scholars are instructed in formal research paper writing and essay forms with an emphasis on vocabulary and grammatical development.

Credit Value: .5 credit per semester

English 11

Theme: American Literature

This survey course of American literature explores the literature associated with the seminal events in American history. Scholars will explore a variety of fiction and nonfiction texts from the founding of our country to present day. Scholars will read short stories, poetry, novels, and primary documents highlighting seminal periods in the development of American culture.

Credit Value: .5 credit per semester

English 12

Theme: Rhetoric and Non-Fiction Literature

The central focus of English 12 is to develop close reading and careful analysis of nonfiction texts and primary documents, as well as develop college level writing and oral communication skills. Scholars will increase their abilities to interpret an author's purpose, comprehend expository prose, and manipulate the mechanics of language: syntax, word choice, and tone. They will analyze and use rhetorical strategies such as ethos, pathos, and logos through the development of expository and narrative essays, research papers, and analysis of visual art and documentary film. Scholars will also develop skill in oral persuasion through debate and expository speech.

Credit Value: .5 credit per semester

AP English Language & Composition

Theme: AP English Language & Composition/ Rhetoric and Non-Fiction Literature

AP Language and Composition is an introductory, college-level language arts course. Through close reading and careful analysis of a broad range of challenging texts, scholars deepen their awareness of rhetoric and how language functions. Scholars will increase their abilities to identify an author's purpose, determine the needs of an audience, understand the demands of the subject, and manipulate the mechanics of language: syntax, diction, imagery, and tone. Course readings are narrative, exploratory, expository, analytical, personal, and argumentative texts from authors spanning the past two hundred years. The breadth and depth of resources will create a greater understanding of how language and literature has evolved and affected American culture and thinking. Advanced Placement scholars prepare to take the Advanced Placement test in English Language & Composition, which may lead to college credit. **May count as English 11 or English 12 credit .**

Credit Value: .5 credit per semester

AP English Literature & Composition

Theme: AP English Literature & Composition/American and British Literature

AP Literature and Composition is an introductory, college-level literature course. Scholars will read a variety of literature spanning the past 500 years. The focus of this class is the careful reading and critical analysis of imaginative literature. Through close reading and discussion, scholars will deepen their understanding of the methods writers use to provide both meaning and pleasure to the audience. As they read, scholars will consider a work's structure, style, intertextuality, and themes, as well as smaller-scale elements as the use of figurative language, imagery, symbolism, and tone. **May count as English 11 or English 12 credit.**

Credit Value: .5 credit per semester

MATH

Math Progression Flow Charts

Regular Scholar

9th Grade Algebra Data Analysis & Probability → **10th Grade** Geometry & Trigonometry → **11th Grade** Algebra Functions & Graphs → **12th Grade** Hon Pre-Calculus ***OR*** Financial Algebra

Advanced Scholar – (took Algebra 1 or Algebra Data & Probability in 8th Grade)

9th Grade Geometry & Trigonometry → **10th Grade** Algebra Functions & Graphs → **11th Grade** Honors Pre-Calculus → **12th Grade** Honors Calculus I **OR** AP Calculus

Algebra, Data Analysis & Probability -- (Algebra 1)

This course will study the concepts of Algebra, Data Analysis and Probability. The Algebra concepts studied concentrate on linear relationships. The course emphasizes a4-dimensional approach of numerical, analytical, graphical, and verbal representations to manipulate linear equations. The Data Analysis and Probability course begins with the vocabulary of statistics and experimental design, and then moves into descriptive statistics. There is a heavy emphasis on graphing and understanding the measures of central tendency. Scholars learn counting principals as they study probability.

Credit Value: .5 credit per semester

Geometry & Trigonometry

This course will provide knowledge on the topics of deductive and inductive reasoning through construction and measurement. Scholars will develop Geometric vocabulary, definitions and theorems in proofs as applied in inter-relations between lines, planes, polygons, circles and polyhedral forms. They will learn the basic concepts involving congruency and similarities between shapes, primarily triangles, quadrilaterals and circles, as well as, the basic data presentation techniques used in statistics. They will be introduced to trigonometric identities, basic right triangle relationships of sine, cosine and tangent. Scholars will be expected to spend time outside of class to complete all assignments, tasks, and projects.

Credit Value: .5 credit per semester **Prerequisite:** Algebra, Data Analysis & Probability or Algebra I

Algebra Functions & Graphs -- (Algebra 2)

This course will continue the development of algebraic concepts. This course is highly recommended for the college-bound scholar, but is also important for a scholar considering a technical training program. **Scholars considering AP Calculus in the future should take this course during their 10th grade year**. Scholars will continue to explore and develop their algebra skills in the areas of real numbers, imaginary numbers, equations and inequalities, linear, quadratic exponential and logarithmic functions, sequences and series, and some conics as well as graphing analysis.

Credit Value: .5 credit per semester **Prerequisite:** Algebra, Data Analysis & Probability or Algebra I

Financial Algebra

This course will teach the scholar many essential elements of the financial workings of our society in the context of mathematics. It will assist them in making wise decisions with money, both now and in the future. Scholars will learn and apply mathematical concepts in the context of personal finances.

Credit Value: .5 credit per semester

Honors Pre-Calculus

In this course scholars will further their development of advanced algebra, trigonometry, limits, and basic calculus concepts. The goal is to gain a solid foundation in preparation for introductory calculus classes. Topics will include advanced work in polynomials, complex analysis, rational, logarithmic and exponential functions, partial fractions, systems of equations, sequences and series, polar equations, parametric equations, limits, and basic derivatives. This course is recommended for the college-bound scholar seeking entry into more selective colleges and greater scholarship opportunities.

Credit Value: .5 credit per semester **Prerequisite:** Geometry & Trigonometry

Honors Calculus I

This course integrates concepts that scholars have studied in previous classes and introduces the concepts of calculus. Calculus deals with calculating and exploring things that change at variable rates. The major concepts of calculus include limit, derivative, and integrals. In addition to these major concepts we will apply those concepts to various contextual settings. This class will focus on the application of the derivative to understand mathematical relationships and how we analyze variable rates of change. Scholars will explore the notion of limits, the difference-quotient, power rule, product rule, quotient rule, chain rule, exponential and other transcendental function differentiation, and many of their applications as the focal points of the class. Scholars will explore the fundamental theorem of calculus as they learn about the anti-derivative and how it connects to integrals. Integrals will be studied from the perspective of an accumulation function. We will explore each concept in four different ways; graphically, numerically, algebraically, and verbally emphasizing the connections and applications.
Technology — *A graphing calculator* (a TI-84+ or equivalent) *is required* to help scholars solve problems, explore relationships, interpret results and justify conclusions.
Credit Value: .5 credit per semester **Prerequisite:** Geometry & Trigonometry

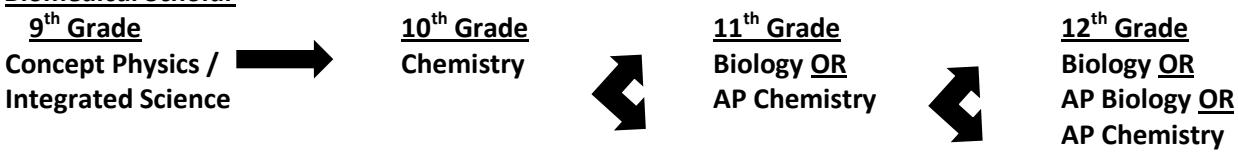
AP Calculus AB

This course will provide scholars with a safe, interesting, and challenging classroom environment. Through a variety of differentiated instruction strategies scholars will learn in modalities including: hands on, through movement, discovery, experiential, and more. Scholars will have opportunities to use technology and real life applications to enhance their learning experience. It is a pleasure to get to work with bright hard working scholars. **Unit Topics:** Pre-Calculus review, Functions and Models, Limits, Derivatives, Applications of Differentiation, Integrals, Applications of Integration, Inverse Functions, and Techniques of Integration.
Credit Value: .5 credit per semester **Prerequisite:** Geometry & Trigonometry

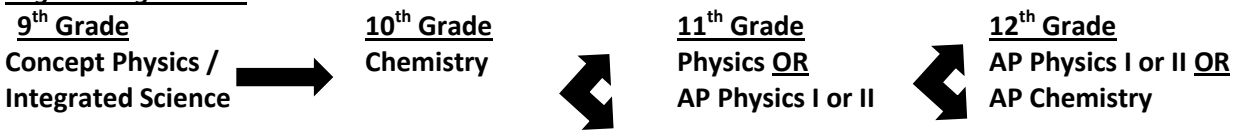
SCIENCE

Science Progression Flow Charts

Biomedical Scholar



Engineering Scholar



Conceptual Physics (Not Offered after 2014-2015)

This course involves the study of energy, motion and the nature of matter. As an introductory survey course, the topics covered include forms of energy, energy transformations, the nature of motion and Newton's Laws of Motion, electricity, magnetism, light, sound, waves, and current trends and issues in physical sciences.
Credit Value: .5 credit per semester

Integrated Sciences

(Semester 1 – Integrated Biology/Chemistry, Semester 2 – Integrated Physics/Earth Science)
Integrated Science is a yearlong project based class focused on a survey of four major fields of science; chemistry, biology, earth and space science, and physics. The course is designed to provide scholars with the content and skills needed to understand the various interrelationships of the universe, to identify and analyze problems and to propose and examine solutions to these problems using the algebra skills they are learning in their math class. The course will have distinct units based on the interactions between matter and energy in the contexts of chemical reactions, thermodynamics, geology, astronomy, cellular biology, genetics, mechanics and electromagnetism.
Credit Value: .5 credit per semester

Honors Integrated Sciences

(Semester 1 – Integrated Biology/Chemistry, Semester 2 – Integrated Physics/Earth Science)
Integrated Science is a yearlong project based class focused on a survey of four major fields of science; chemistry, biology, earth and space science, and physics. The course is designed to provide scholars with the content and skills needed to understand the various interrelationships of the universe, to identify and analyze problems and to propose and examine solutions to these problems using some advanced math skills. The course will have distinct units based on the interactions between matter and energy in the contexts of chemical reactions, thermodynamics, geology, astronomy, cellular biology, genetics, mechanics and electromagnetism.
Credit Value: .5 credit per semester **Prerequisite:** Algebra, Data Analysis & Probability or Algebra I

Chemistry

This course examines the chemical and physical behavior of matter. The structure and composition of substances as well as their properties and reactive characteristics (in particular, at the atomic and molecular levels) are concepts discussed in the course. Topics include; the periodic table of the elements, states of matter, atomic structure, and chemical reactions. Scholars will also develop basic laboratory and scientific inquiry skills by collecting, analyzing, and interpreting data.
Credit Value: .5 credit per semester **Prerequisite:** Algebra, Data Analysis & Probability or Algebra I

AP Chemistry (alternate years)

This course rotates every other year with AP Biology

This course will meet the objectives of a good college general chemistry course. Scholars will attain a depth of understanding of fundamentals and a reasonable competence in dealing with chemical problems. The course will contribute to the development of the scholars' abilities to think clearly and to express their ideas, orally and in writing, with clarity and logic. AP chemistry differs qualitatively from the first chemistry course taught at ASK with respect to using a textbook, the topics covered, the emphasis on chemical calculations and the mathematical formulation of principles, and the kind of laboratory work done by scholars. Quantitative differences appear in the number of topics treated, the time spent on the course by scholars, and the nature and the variety of experiments done in the laboratory. It is not recommended that scholars take AP chemistry unless they achieved an 85% or higher in their first chemistry course.

Credit Value: .5 credit per semester **Prerequisite:** Both semesters of Chemistry

Biology

This course is designed to provide information regarding the fundamental concepts of life and life processes. Topics include; characteristics, classification, and behaviors of living organisms as well as cell structure and function, plant and animal physiology, genetics, and taxonomy.

Credit Value: .5 credit per semester

AP Biology (alternate years)

This course rotates every other year with AP Chemistry

AP Biology is an advanced biology equivalent to an introductory college biology course. Scholars will gain understanding of biological concepts by examining four big ideas established by College Board: Evolution; Cellular Processes; Genetics and Information Transfer; and Interactions. In addition, the course focuses on inquiry, reasoning, and analysis skills by engaging in established science practices and lab procedures. Scholars will have the option to partake in the AP Biology exam in the spring for a fee and if passed may result in college credits. This course is recommended for scholars with a strong science background, especially in biology, and with the commitment to spending time studying including possibly working on a summer assignment.

Credit Value: .5 credit per semester **Prerequisite:** Both semesters of Biology

Physics

Scholars will explore the foundations our physical universe by investigating topics of study that include, but are not restricted to: motion, forces, gravity, energy, and momentum. The course may also include a study of heat, fluids, waves, sound, light, optics, electricity, magnetism, and/or atomic structure. As appropriate, these topics are examined at scales ranging from atomic to astronomical. The focus is on an in depth understanding and practical applications through mathematical modeling of concepts.

Credit Value: .5 credit per semester

AP Physics I

Scholars explore principles of Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits. The course is based on six Big Ideas, which encompass core scientific principles, theories, and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world. An emphasis on the mathematical models involved in understanding our physical universe will be prevalent, strong computational skills will be necessary for success.

Credit Value: .5 credit per semester **Prerequisite:** Algebra DAP or Algebra I **and** Geometry/Trigonometry or Geometry

Biomedical Sciences Courses and Engineering & Design Courses – some Courses within the Biomedical Sciences and Engineering & Design may count as Science Elective Courses (see those course descriptions)

SOCIAL STUDIES

New Mexico History

This survey course supports scholars to become more knowledgeable and aware of the historical, cultural, economic, and political history of New Mexico and their geographical connections. Scholars will analyze the role that New Mexico plays in national and international arenas.

Credit Value: .5 credit -- one semester only

World History

In this course scholars will develop an understanding for different themes in World History from approximately the year 1300 until the present. These themes are important for scholars to comprehend how the world has been shaped. We will use critical thinking skills to understand and communicate perspectives of individuals, groups and societies from multiple contexts: Continuity and Change, Geography and History, Political and Social Systems, Religions and Value Systems, Diversity, Global Interaction, Impact of the Individual, Art and Literature.

Credit Value: .5 credit per semester

United States History

This course provides an overview of the history of the United States, examining time periods from discovery or colonialism through World War II or after. Political, military, scientific, and social developments are typically included in the historical overview. Course content may or may not include a history of the North American peoples prior to European settlement. History is not only a study of the past, but also a window into our future. U.S. History offers themes that tend to repeat itself in every generation. This class is designed for scholars to learn from our past, as well as to help better understand the challenges the country faces today and into the future.

Credit Value: .5 credit per semester

AP United States History
This course will meet the New Mexico Public Education Department graduation requirements for U.S. history and geography. AP US History accents in narrative form the events and people which shaped the United States from 1607 to the present. Scholars will learn to assess historical materials, and to weigh the evidence and interpretations presented in historical scholarship. History is not only a study of the past, but also a window into our future. U.S. History offers themes that tend to repeat itself in every generation. This class is designed for scholars to learn from our past, as well as to help better understand the challenges the country faces today and into the future. Scholars are preparing to take the AP exam for US History, which may lead to college credit.
Credit Value: .5 credit per semester

Economics
Course provides for an understanding of basic economic principles and use of economic reasoning skills to analyze the impact of economic systems (including the market economy) on individuals, families, businesses, communities, and governments.
Credit Value: .5 credit -- one semester only

Government
In this course scholars will develop an understanding of the ideals, rights and responsibilities of citizenship and the content and history of the major government documents at the federal and state level and how governments function at the local, state, and national levels.
Credit Value: .5 credit -- one semester only

AP Macroeconomics
This course will meet the New Mexico Public Education Department graduation requirements for economics. The study of AP macroeconomics introduces scholars to economic systems. Emphasis will be placed on the study of national income and price-level determination. Scholars will be introduced to economic performance measures, the financial sector, stabilization policies, economic growth, and international economics. These concepts will be applied to the current economic problems and trends in the United States and our relationship with the world. Scholars are preparing to take the AP exam for Macroeconomics, which may lead to college credit.
Credit Value: .5 credit -- one semester only

AP Government & Politics
This course will meet the New Mexico Public Education Department graduation requirements for government. This class will analyze the origins, progress, trends, and projections of government and politics in the United States and will include both the study of general concepts used to interpret U.S. politics and the analysis of specific examples. SCHOLARS WILL make an in-depth study of the formation and goals of various political parties, the leaders of those parties, and the effects they have had on American history. This class uses current issues to further understanding. Scholars are preparing to take the AP exam for Government & Politics, which may lead to college credit.
Credit Value: .5 credit -- one semester only

Physical Education & Health

Physical Education I
This course will develop personal practices that promote lifelong wellness. Scholars will develop skills in human movement, physical activities and physical fitness. Scholars will also be encouraged to develop habits that promote overall good health.
Credit Value: 1 credit -- one semester only

Physical Education & Health II
This course will develop personal practices that promote lifelong wellness. Scholars will develop skills in human movement, physical activities and physical fitness. Scholars will also be encouraged to develop habits that promote overall good health and cover the New Mexico Health Education standards addressing specific issues including nutrition, stress management, abuse prevention, disease prevention, first aid, and so on.
Credit Value: 1 credit -- one semester only

LANGUAGE

Spanish I
This course will include basic communication skills in the chosen language, and will introduce geography and culture (music, film, food) of the countries where the language is spoken. Personalized oral and written projects enrich the course. Scholars have opportunities to compare the new language and culture with their own and to observe the use of the language in communities beyond the classroom. Scholars will develop communication skills (listening, speaking, reading, and writing) for basic situations: greetings and introductions, descriptions of families and friends, and daily conversation.
Credit Value: 1 credit -- one semester only

Spanish II
This course will include individual and group projects to demonstrate cultural understanding and language proficiency. In most classes, service-learning opportunities are available. Language and cultural comparisons and community connections continue to be explored. Upon completion of the course, scholars should have the necessary knowledge and skills to enroll in a second semester university language course. Scholars will extend communication skills to other contexts: daily life, school, professions and work practices, and community life. Authentic cultural documents (newspapers, magazines, film, and music) enrich the cultural component of the course.

BIOMEDICAL SCIENCES

Progression Flow Chart

Level 1		Level 2		Levels 3 and 4 (alternate years)		
Principals of Biomedical Sciences	→	**Anatomy & Physiology I**	→	**Veterinary Sciences**	**OR**	**Microbiology**
AND		**AND**		**AND**		**AND**
Human Body Systems/Health		**Anatomy & Physiology II**		**Pharmacology**	**OR**	**Genetics**

Level 1

Principles of Biomedical Sciences

The course is designed to provide an overview of all the courses in the Biomedical Sciences program and to lay the scientific foundation necessary for scholar success in the subsequent courses. Scholars will get an overview of health care delivery, patient care, including assessment of vital signs, as well as anatomical terminology and other basics of the human body. Scholars will investigate the careers pursued in a Biomedical Science Program as they explore the concepts of human medicine and are introduced to research processes and bioinformatics.

Credit Value: 1 credit -- one semester only

Human Body Systems/Health

Scholars examine the processes, structures, and interactions of the human body systems to learn how they work together to maintain homeostasis (internal balance) and good health. This course is also intended to help scholars make positive and healthy choices. Scholars will examine health regulations, policies, drug companies, alternative medicine, and disease prevention. Ethical and Social issues related to health will be addressed. Scholars work through interesting real world cases and often play the role of biomedical professionals to solve medical mysteries. Scholars will also cover the New Mexico Health Education standards. **May count as elective science credit and/or cover the Health curriculum graduation requirement.**

Credit Value: 1 credit -- one semester only

Level 2

Anatomy & Physiology I & II

This course presents the human body and biological systems in more detail. Scholars will cover the major in the human body, and learn about different cells and tissues. They will also explore physiological processes and dissect a vertebrate animal to explore similarities in structure. In order to understand the structure of the human body and its functions, scholars learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals. **Second semester may count as lab or elective science credit.**

Credit Value: 1 credit per semester **Prerequisite:** Principals of Biomedical Science ***and/or*** Human Body Systems & Health

Levels 3 and 4 (alternate years)

Genetics

This course rotates every other year with Pharmacology

Scholars will investigate the microscopic world by learning about topics such as microbial nutrition, growth, control, metabolism, and diversity. Scholars will apply sterilization techniques and culture microorganisms within a biological safety level II lab environment. Other focuses of this course will include ecology and symbiosis, nonspecific resistance and immune responses, and microbial diseases. **May count as elective science credit.**

Credit Value: 1 credit -- one semester only **Prerequisite:** Anatomy & Physiology I ***and/or*** II

Microbiology

This course rotates every other year with Veterinary Sciences

Scholars will research different aspects of medical genetics including the basis of heredity, patterns of inheritance, genetic variation, and ethical issues in the field of genetics. There will be a special emphasis on the origin, diagnosis, and treatment of common genetic disorders. Scholars will be expected to raise generations of different species to understand genetic traits. **May qualify for elective science credit.**

Credit Value: 1 credit -- one semester only **Prerequisite:** Anatomy & Physiology I ***and/or*** II

Pharmacology

This course rotates every other year with Genetics

Scholars investigate the variety and the origins of medicine. They will explore the source, development and intended treatment of various types of medication. Scholars will focus on the field of pharmacology beginning with a botanical approach. They will investigate medicinal plants as well as common plant poisons. They will then focus on drug use and abuse throughout history, and gain an understanding of the different drugs used in different cultures. Finally the scholars will learn about the fundamentals of drug therapy and investigate different classes of medication based on their systemic functions. **May count as elective science credit.**

Credit Value: 1 credit -- one semester only **Prerequisite:** Anatomy & Physiology I ***and/or*** II

Veterinary Sciences

This course rotates every other year with Microbiology. Scholars will delve into the taxonomy and cladistics of the animal kingdom. A survey of select phyla and classes will occur, with special emphasis placed on the changes in different organ systems. Finally lifestyle, speciation, adaptation, convergence, divergence, and reproductive strategies will be investigated from the perspective of natural selection and reproduction of the fittest. Scholars will dissect several vertebrates and invertebrates to understand comparative anatomy. **May count as elective science credit.**

Credit Value: 1 credit -- one semester only **Prerequisite:** Anatomy & Physiology I ***and/or*** II

Biomedical Internship

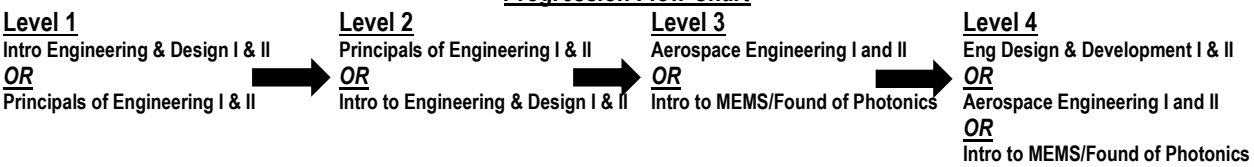
This course is not a course that takes place as a class in a scholar's daily schedule. Scholars in this course will find and work as an intern for a business on their own time (a suggested maximum of 10 hours per week). Curriculum includes projects, research papers, other tasks and a final exam.

Credit Value: .5 credit per semester (Max 2 credits at ASK) **Prerequisite:** Grades 11 & 12 -- Apply to the Career Internship Program Manager (Mr. Stephenson)

ENGINEERING & DESIGN

Engineering Pathway

Progression Flow Chart



Levels 1 and 2 (alternate years)

Introduction to Engineering Design I & II

This course rotates every other year with Principals of Engineering I & II

This course will teach problem-solving skills using a design development process. Scholars will create models of product solutions which will be analyzed and communicated using solid modeling computer design software. **Second semester may count as elective science credit.**

Credit Value: 1 credit per semester

Principals of Engineering I & II

This course rotates every other year with Introduction to Engineering Design I & II

This course will assist scholars understand the field of engineering and engineering technology. Scholars will explore various technology systems and manufacturing processes which will assist scholars learn how engineers and technicians use math, science and technology in an engineering problem solving process to benefit people. The course also includes concerns about social and political consequences of technological change. **Second semester may count as elective science credit.**

Credit Value: 1 credit per semester

Levels 3 and 4 (alternate years)

Aerospace Engineering I & II

This course rotates every other year with Introduction to MEMS and Fundamentals of Photonics

This course explores the evolution of flight, navigation and control, flight fundamentals, aerospace materials, propulsion, space travel, and orbital mechanics. In addition, this course presents alternative applications for aerospace engineering concepts. Scholars analyze, design, and build aerospace systems. They apply knowledge gained throughout the course in a final presentation about the future of the industry and their professional goals.

Credit Value: 1 credit per semester **Prerequisites:** Grades 11 & 12 -- Intro to Engineering Design **and** Principals of Engineering

These two courses are a semester each and rotate every other year with Aerospace Engineering I & II

Introduction to Micro-Electrical Mechanical Systems –MEMS

This course focuses on Micro-electro-mechanical Systems (MEMS) including micro and nano-enable systems and covers how these tiny devices work, are made, and designed, and where they are used in this emerging high technology field. Devices studied include those used in micro optical displays, sensors and microfluidic pumps used in Bio-MEMS, pressure sensors and inertial sensors used in transportation and gaming applications. No books required, all is provided online and includes reading, animations, and streaming lecture educational materials. **This course earns credit through CNM as Dual Enrollment, not as an ASK Course alone – Credit will appear on the transcript as credit earned at CNM.**

Credit Value: 1 credit -- one semester only **Pre/Co-requisites:** Grades 11 & 12 -- Intro to Engineering Design, Principals of Engineering, or Manager Permission.

Fundamentals of Photonics

This course presents: the elements of fiber optics including; theory and operation of fiber optics; integrated optics; optical circuitry. The course also presents light propagation theories. Safety procedures concerning lasers and related equipment are presented in this course. **This course earns credit through CNM as Dual Enrollment, not as an ASK Course alone – Credit will appear on the transcript as credit earned at CNM.**

Credit Value: 1 credit -- one semester only **Pre/Co-requisites:** Grades 11 & 12 -- Intro to Engineering Design, Principals of Engineering, or Manager Permission.

Level 4 – Optional Capstone Course

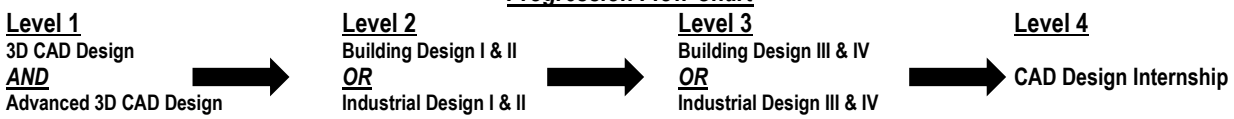
Engineering Design & Development I & II

The knowledge and skills scholars acquire throughout PLTW Engineering come together in EDD as they identify an issue and then research, design, and test a solution, ultimately presenting their solution to a panel of engineers. Scholars apply the professional skills they have developed to document a design process to standards, completing EDD ready to take on any post-secondary program or career.

Credit Value: 1 credit per semester **Prerequisites:** Aerospace Engineering I **and/or** II

CAD Design Pathway

Progression Flow Chart



Level 1

3D CAD Design

This course is designed to teach scholars the skills necessary to complete problems in various areas of applied design including using the problem solving design loop. Scholars are introduced to elements and principals of design and sketching techniques that apply to concepts and skills found in architecture, engineering, applied design, and various trades. Emphasis is placed on the development of the skills of sketching, technical drawing, and computer drafting using various software programs to demonstrate several different types of technical and non-technical drawings. Scholars begin the development of a portfolio.
Credit Value: 1 credit -- one semester only

Advanced 3D CAD Design

This course continues skills taught in 3D CAD Design from sketching ideas to more opportunities for broader computer applications in 3D Design Sketching and Graphic Applications including audio and video. Creative problem solving, materials analysis, and technical research will be employed. Scholars will be given the opportunity to apply engineering principals to create designs and then create prototypes to substantiate their designs. Scholars will apply their knowledge to direct applications, and utilization of various software programs to create technical drawings consistent with industry standards. Scholars continue the development of a portfolio; both hard copy and electronic.
Credit Value: 1 credit -- one semester only **Prerequisite:** 3D CAD Design

Level 2

Building Design I & II

This course offers an intensive study of architecture as it relates to design. Scholars will research, design, and produce a set of drawings while learning the Autodesk Rivet (BIM) software. The principals of design are studied and applied to their designs, including; basic principles of building design, form follows function, and environmental factors that impact design. Scholars will design and complete a set of plans for green/sustainable residential building measuring up to 2000 heated square feet. Scholars will learn several model making techniques resulting in a scaled model of their building design. Careers relating to architecture will be investigated. Scholars continue to develop their portfolio, both hard copy and electronic.
Credit Value: 1 credit per semester **Prerequisite:** Permission of CAD Manager

Industrial Design I & II

In this course, while learning the Autodesk Inventor (BIM) software, scholars will design objects that people use in their work, play, and daily lives. They will then produce models using various technology and equipment. The goal is to provide scholars opportunities in advanced drawing and design techniques and processes. Scholars will use 3D engineering and solid modeling CAD programs to create solutions to real-life problems and continue the design process through the prototyping level. Scholars will continue to develop their portfolio, both hard copy and electronic.
Credit Value: 1 credit per semester **Prerequisite:** Permission of CAD Manager

Level 3

Building Design III & IV

These courses continue an intensive study of architecture as it relates to design. Scholars continue to using the Autodesk Rivet (BIM). Scholars continue to study the principals of design and apply those principals to their designs. Scholars will design and complete a set of plans for green/sustainable commercial building measuring up to 5000 heated square feet. Careers relating to architecture will continue to be investigated. Scholars continue innovative development of their portfolio, both hard copy and electronic.
Credit Value: 1 credit per semester **Prerequisite:** Permission of CAD Manager

Industrial Design III & IV

In these courses, while continuing to use the Autodesk Inventor (BIM) software, scholars will design objects that people use in their work, play, and daily lives. They will then produce models using various technology and equipment. Scholars will use 3D engineering and solid modeling CAD programs to create solutions, based on real-life problems and continue the design process through the prototyping level. Finally, scholars will be able to visualize, realize, and redefine the product's characteristics so they can re-design and finish with an optimal solution. Scholars will continue to develop their portfolio, both hard copy and Internet.
Credit Value: 1 credit per semester **Prerequisite:** Permission of CAD Manager

Level 4

CAD Design Internships

This course is not a course that takes place as a class in a scholar's daily schedule. Scholars in this course will work on making connections within their industry focus and working on small scale projects for various companies. Depending on availability, scholars may meet with professionals in the design industry from a variety of industries. Scholars must have their internships approved in advance by ASK Academy faculty. Scholars produce a report about their internship program. Scholars will continue to develop their portfolio, both hard copy and electronic.
Credit Value: .5 credit per semester **Prerequisite:** Permission of CAD Manager and two (2) Specialized CAD Design Focus Courses (one focus - levels I and II)

Other Engineering Elective Courses

Robo Rave I
This course provides skills and knowledge necessary or useful for particular occupations or technologies within an industrial or technological field. Particular topics and skills, or their applications, covered in these courses may vary with the occupation or technology. Scholars at this level will use Lego Mindstorms software to program robots to compete in the open division at RoboRAVE in April.
Credit Value: 1 credit -- one semester only

Robo Rave II
This course provides skills and knowledge necessary or useful for particular occupations or technologies within an industrial or technological field. Particular topics and skills, or their applications, covered in these courses may vary with the occupation or technology. Scholars at this level will use Lego Mindstorms software to program robots to compete in the open division at RoboRAVE in April. Additionally, they will be paired as mentors with scholars from RoboRAVE I.
Credit Value: 1 credit -- one semester only **Prerequisite:** Robo Rave I

Robo Rave III
This course provides skills and knowledge necessary or useful for particular occupations or technologies within an industrial or technological field. Particular topics and skills, or their applications, covered in these courses may vary with the occupation or technology. Scholars at this level will use rBasic or similar software to program robots for fire-fighting competition at RoboRAVE in April. Additionally, scholars at this level may be paired, as mentors, with teams from RoboRAVE I and II.
Credit Value: 1 credit -- one semester only **Prerequisite:** Robo Rave II

Robo Rave IV
This course provides skills and knowledge necessary or useful for particular occupations or technologies within an industrial or technological field. Particular topics and skills, or their applications, covered in these courses may vary with the occupation or technology. Scholars at this level will use rBasic or similar software to program robots for fire-fighting competition at RoboRAVE in April. Scholars will also be challenged to design, construct, and program a non-kit robot. Additionally, scholars at this level may be paired, as mentors, with teams from RoboRAVE I, II, and III.
Credit Value: 1 credit -- one semester only **Prerequisite:** Robo Rave III

Robo Design and Applications I & II
This course provides skills and knowledge necessary or useful for particular occupations or technologies within an industrial or technological field. Particular topics and skills, or their applications, covered in these courses may vary with the occupation or technology. Scholars at this level will use C, C+, or similar software to program robots and 3-D design software to design robots for various applications. Additionally, scholars will be encouraged to compete in various competitions, such as BEST Robotics, Bot Ball, and Robo RAVE. In addition to developing their own project, scholars will serve as mentors for others in Robo RAVE classes.
Credit Value: 1 credit per semester **Prerequisite:** Robo Rave IV

Engineering & Design Internship / IT Internship
This course is not a course that takes place as a class in a scholar's daily schedule. Scholars in this course will find and work as an intern for a business on their own time (a suggested maximum of 10 hours per week). Curriculum includes projects, research papers, other tasks and a final exam.
Credit Value: .5 credit per semester (Max 2 credits at ASK) **Prerequisite:** Grades 11 & 12 -- Apply to the Career Internship Program Manager (Mr. Stephenson)

ELECTIVES

Achieving Success or Resource
Achieving Success is designed to help the scholars with study and organizational skills, individualized tutoring and mentoring, and it will provide academic monitoring. This course is a more comprehensive Tier II intervention that we are offering our scholars who are at risk of not earning credits and are in need of additional support.
Credit Value: .5 credit per semester

Career Pathways 9
Scholars will explore the questions "Who am I?", "What do I want?" and "How do I get there?" creating an electronic portfolio using guided exploration of interests and learning styles, as well as career exploration and research and evaluating individual academic strengths and weaknesses.
Credit Value: .5 credit per semester

Career Pathways 10
Scholars will further explore the questions "Who am I?", "What do I want?" and "How do I get there?" using their electronic portfolios to develop their plans for post-secondary education, career expectations, and life-long pathways to reach their goals.
Credit Value: .5 credit per semester

Career Pathways 11
Scholars will further explore the questions "Who am I?", "What do I want?" and "How do I get there?" using their electronic portfolios to follow the course they have set for college entrance, including in-depth research into the colleges of their choice to prepare them for admissions to these colleges, taking the necessary college entrance exams, and beginning research into scholarships and financial aid to assist them in paying for their post-secondary education.
Credit Value: .5 credit per semester

Career Pathways 12
Scholars will further explore the questions "Who am I?", "What do I want?" and "How do I get there?" using their electronic portfolios to follow the course they have set for college entrance, including submitting admissions applications to the colleges of their choice and applying for scholarships and financial aid to assist them in paying for their post-secondary education.
Credit Value: .5 credit per semester

Driver's Education

Scholars will receive the knowledge to become safe drivers on America's roadways. Legal obligations and responsibilities, rules of the road and traffic procedures, safe driving strategies and practices, and the physical and mental factors affecting the driver's capability (including alcohol and other drugs) are all included as topics of this course. Scholars will be preparing to take the state driver's license exam.
Credit Value: .5 credit -- one semester only **Prerequisite:** Must be 15 years old upon completion of the course **Cost**: There is a cost involved

Geography

This course introduces scholars to the systematic study of patterns and process that have shaped human understanding, use, and alteration of the Earth's surface. Scholars will employ spatial concepts and landscape analysis to analyze human social organization and its environmental consequences. Methods and tools geographers use in their science and practice will also be taught.
Credit Value: .5 credit -- one semester only

Publishing I & II (Literary Magazine & Yearbook)

Scholars enrolled in this course will contribute to the daily online school news site *The Catalyst*, submit pieces and edit an annual fiction magazine, and create an annual school yearbook. Scholars will learn interviewing skills, write news articles and headlines, and take photos and write captions. Scholars will study creative non-fiction, fiction, and other genres relevant to print media and journalism. Scholars will attend both on and off campus events, and record them through articles, pictures and video for the news site and yearbook.
Credit Value: 1 credit per semester

Publishing III & IV (Literary Magazine & Yearbook)

Scholars enrolled in this course will continue with the previous goals, along with purposefully taking leadership roles on the magazine and yearbook and staff.
Credit Value: 1 credit per semester

Junior Seminar

The objective of Junior Seminar is to help scholars prepare for entrance exams and begin the college process before they go into their senior year. The third quarter will focus on ACT/SAT test preparation and evaluating wants and needs. The fourth quarter will focus on identifying wants and needs, culling through the myriad of colleges, identifying possible colleges for summer visits, preparing for campus interviews and visits, and developing a master calendar of application and scholarship deadlines. You will also be required to identify and a minimum of 5 potential schools, as well as 10 potential scholarships. The course will also help scholars develop intrapersonal and interpersonal skills for successful independent living.
Credit Value: .5 credit -- one semester only

Senior Seminar

Culling through, applying, and selecting a college or university is the first "big" decision scholars make about their future. The objective of Senior Seminar is to help scholars identify colleges that meet their needs (as well as wants), make them aware of matriculation requirements and application deadlines, and prepare for entrance exams. The first quarter will focus on ACT/SAT test preparation and evaluating wants and needs. The second quarter will focus on completing college applications and essays, academic resumes, and preparing for campus interviews and visits. You will also be required to identify and apply to a minimum of ten scholarships. The course will also help scholars develop intrapersonal and interpersonal skills for successful independent living.
Credit Value: .5 credit -- one semester only

Office Aide I & II

Scholars will work in campus offices, developing skills related to clerical office work. Duties may include, among others, typing, filing, record keeping, receiving visitors, answering the telephone, and duplicating. Scholars may also act as guides for new scholars. Emphasis is placed on appropriate work attitude, human relations, and proper office procedures.
Credit Value: .5 credit per semester (Max 2 credits of any Aide courses) **Prerequisite:** Grades 11 & 12– Permission of Office Managers

Manager Aide I & II

Scholars will assist managers with their duties.
Credit Value: .5 credit per semester (Max 2 credits of any Aide courses) **Prerequisite:** Grades 11 & 12– Permission of Managers

Scholar Tutor I & II

Scholars will offer tutorial assistance to their peers or to younger scholars. Scholars will learn to work with other scholars and learn to capitalize on the available resources (staff, written material, internet, etc.) to assist other scholars requesting or needing help.
Credit Value: .5 credit per semester (Max 2 credits of any Aide courses) **Prerequisite:** Grades 11 & 12– Permission of Subject Managers