Albemarle County Public Schools

High School Program of Studies

2024-25

K12ALBEMARLE.ORG/HSPROGRAMOFSTUDIES

K12ALBEMARLE.ORG/HSPROGRAMOFSTUDIES

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High School Program of Studies

Introduction

Welcome to the High School Program of Studies for Albemarle County Public Schools (ACPS) for the **2024-25 school year**. This online, interactive guide serves as a tool to assist students with course selections and long-term educational and career planning. Each January, school counselors, in collaboration with parents and teachers, assist each student in planning a program of study and selecting courses for the next school year.

The content in this online guide is updated on an as-needed basis. A printable PDF version is produced annually:

PRINTABLE PROGRAM OF STUDIES

Course Requests

The course request process for the upcoming year is an opportunity for students to think carefully about their interests, achievements, and educational and career goals. We encourage students to give serious consideration to this process.

Course Request Timeline

NOVEMBER

1. High School Program of Studies is updated for the following school year and made available online to students and parents to prepare for the course request process
2. Career Learning Community presentations in Freshman Seminar classes
3. Mailing to families about career learning opportunities

DECEMBER – JANUARY

4. Classroom Curriculum Showcase for current high school students
5. Virtual family information sessions for all rising ninth-grade students to discuss opportunities available during the high school years and to prepare for immediate transition to the base school
6. Portal opens for families to complete initial course requests; school counselors begin meeting with students individually to discuss five-year plans, learning community options, and transcripts

JANUARY – MARCH

7. Families schedule a meeting with school counselors to finalize course requests
8. Teachers enter comments regarding student progress and course requests

LAST FRIDAY IN MARCH

9. To allow for the building of a balanced master schedule, all course request adjustments must be made by the last Friday in March.

EARLY AUGUST

10. High school summer orientation for rising ninth-grade students

SchoolLinks Career Planning

All Albemarle County high school students will graduate with a career plan. With the support of school counselors and career specialists, students will develop and refine their SchoolLinks career plan through a 4-year planning process that allows students to:

- Establish short-term and long-term education/career goals;
- Assess personal interests as they relate to career decisions;
- Formulate thoughtful educational plans that reflect rigorous academics in their chosen career directions;
- Participate in electives, extracurricular activities, and community service projects supporting their career directions; and
- Include internships or cooperative work experiences during their junior and/or senior years.

Making a Career Plan: Getting Started

According to research, there are four main pillars of career planning:

1. **Self-Assessment:** Learn more about you; be clear about your likes, dislikes, values, personality, and learning style.
2. **Research:** Find out more about the careers that interest you— about the output of these careers and what the working situations will be like.
3. **Make a Fit:** Match your skills with the career that best suits you and your skill sets.
4. **Create a Plan:** Craft a whole plan that includes finding an educational program, selection of a school, financial aid, resume preparation, standardized admission tests, and interviewing techniques.

Parents and guardians are encouraged to create a **guardian account** in SchoolLinks to support your students through the career planning process. A guardian account also gives you access to student college planning and allows you to register for district events and communicate with your child's school counselor.

SchoolLinks Resource: Guardian: How to Create an Account and Claim a Student

Career Clusters: Pathways to College & Career Readiness

Career clusters help students investigate careers and design their courses of study to advance their career goals. A career cluster is a grouping of occupations and broad industries based on commonalities. Within each career cluster, there are multiple career pathways that represent a common set of skills and knowledge, both academic and technical, necessary to pursue a full range of career opportunities within that pathway—ranging from entry level to management, including technical and professional career specialties.

To learn more about each of Virginia's 17 career clusters, visit the **Careers** link in the left-navigation of your SchoolLinks account (Careers > Career Center > Clusters).

Plans of Study

Academic and career plans of study support successful student transitions between secondary and post-secondary education. The Virginia Department of Education (VDOE) has established regulations that include provisions for each high school student to have a personal learning plan and course of study that aligns with their academic and career goals. More information, including comprehensive career and college planning resources, is available on the VDOE's Academic & Career Plan web page.

Note: *The VDOE's regulations do not include Freshman Seminar, which is a required course for all ninth-grade ACPS students.*

Expanding Opportunities for Students

ACPS allows students the opportunity to participate in unique courses and explore career pathways of interest at a location other than their base high school. In this scenario, students maintain their base high school status for sports and extracurricular activities.

By eliminating geography from the equation, ACPS is expanding student access to our current learning communities and newly-developed programs like the National Defense Cadet Corps, the Early College Scholars Degree Program, and our Career Learning Communities.

ACPS is committed to increasing learning opportunities for students and making our students' high school experience more engaging, meaningful and relevant to their futures!

Career Learning Communities

Albemarle County Public Schools currently offers 14 Career Learning Communities (CLCs) that encourage **students in grades 10-12** to explore career pathways based on their interests. CLCs link academic subjects to career fields and connect student interests and passions to rigorous academic content in a small, collaborative learning environment. CLCs are designed to broaden learning opportunities for students and prepare students for college and career through interactive, project-based, and work-based learning.

Program Overview

Participation begins with identifying a CLC of interest and registering for the **Gateway** course for that CLC. Students then progress through courses in a **Pathway Sequence** and finally complete a **Capstone** course in 12th grade. Throughout the CLC journey, **Pathway Plus** courses are available to students who want to extend or deepen their learning. In addition to participating in **work- and community-based learning experiences**, students have the opportunity to earn **industry credentials**, and all CLC students are encouraged to pursue the Virginia Board of Education's **Seal of Biliteracy**.

CAREER LEARNING COMMUNITIES

- Architecture, Urban Design & Building Construction
- Education & Human Development
- Entrepreneurship, Business & Innovation
- Environmental Studies
- Geospatial Technologies, Logistics, Robotics & Transportation
- Global Leadership, Law & Social Justice
- Health & Medical Sciences
- HEART: Hospitality, Eateries, Amusements, Recreation & Tourism
- Information & Communication Technology
- International Baccalaureate
- Math, Engineering & Sciences
- Visual Arts
- CATEC: Health & Medical Sciences
- CATEC: Skilled Trades

Course progression looks like this:

GATEWAY
10th Grade

Complete the Gateway course for the CLC of interest (1 course).

PATHWAY SEQUENCE
11th – 12th Grade

Choose a pathway within the CLC of interest and complete the sequence of courses for that pathway (2 courses).

CAPSTONE
12th Grade

Complete the Capstone course for the CLC of interest (1 course).

PATHWAY PLUS
10th – 12th Grade

Complete at least one Pathway Plus course for the CLC of interest (1 course required; additional courses optional).

Expand the sections below to learn more about each type of CLC course:

Gateway

In addition to providing content education and training required to pursue a career goal, this first foundational year is designed to orient students to pathways in a CLC. Students will gain an initial understanding of work, various industries, and different career pathways

Expand the sections below to learn more about the benefits of our CLC program:

Work-Based & Community-Based Learning Experiences

CLCs are designed to broaden learning opportunities for students through field experiences, guest speakers, industry tours, virtual consultations and mentoring, entrepreneurship, internships, mentorships,

by participating in activities and introductory coursework designed to provide foundational knowledge, skills and qualities necessary for each pathway within a career cluster. As they deepen their knowledge of career pathways, students are expected to collaborate with their peers and begin applying skills learned in the classroom.

Pathway Sequence

During this stage, students begin developing workplace readiness skills necessary for making informed decisions about their secondary and post-secondary training and education. The pathway sequence includes authentic learning experiences that provide opportunities for students to explore, deepen their understanding, receive feedback, and apply learning as they continue to develop their personal interests. Throughout, students are expected to collaborate with an expert as they deepen their understanding of career pathways.

Capstone

In preparation for high school graduation, students will apply fundamental technical and practical knowledge and skill in their chosen pathways through various work-based learning opportunities and additional interest-aligned coursework. In this last year, students will articulate their journey through authentic field experiences aligned to student interests. Students are expected to collaborate with an authentic audience in order to obtain feedback on their culminating capstone project, which they may choose to share through a showcase or exhibition.

Pathway Plus

Pathway Plus courses are aligned to each CLC and allow students to extend or deepen their learning. Students can choose to take one or more of these courses at any point in high school.

shadowing, research, service learning, clinical experience, and apprenticeships.

Seal of Biliteracy

All CLC students are encouraged to pursue the Virginia Board of Education's Seal of Biliteracy. The Seal of Biliteracy is an award made by a state department of education or local district to recognize a student who has attained proficiency in English and one or more other world languages by high school graduation. The Seal serves to certify attainment of biliteracy for students, employers, and institutions of higher education. It is a statement of accomplishment that helps to signal evidence of a student's readiness for career and college, and for engagement as a global citizen.

Industry Credentials

CLC students receive opportunities to earn industry credentials that will prepare them to be more competitive in the workforce and when applying to advanced training schools or postsecondary institutions. Explore our CLCs below to see a list of industry credentials aligned to each CLC!

Course Descriptions

Click on a CLC below to explore our course offerings. Students may attend any CLC, regardless of whether the CLC is hosted at their base school.

Hosted at Albemarle High School

EDUCATION & HUMAN DEVELOPMENT

ENTREPRENEURSHIP, BUSINESS & INNOVATION

GLOBAL LEADERSHIP, LAW & SOCIAL JUSTICE

MATH, ENGINEERING & SCIENCES

Hosted at Monticello High School

GEOSPATIAL TECHNOLOGIES, LOGISTICS, ROBOTICS & TRANSPORTATION

HEALTH & MEDICAL SCIENCES

VISUAL ARTS

Hosted at Western Albemarle High School

ARCHITECTURE, URBAN DESIGN & BUILDING CONSTRUCTION

ENVIRONMENTAL STUDIES

HEART: HOSPITALITY, EATERIES, AMUSEMENTS, RECREATION & TOURISM

Hosted at Center I

INFORMATION & COMMUNICATION TECHNOLOGY

Hosted at Community Lab School

INTERNATIONAL BACCALAUREATE

Hosted at CATEC

HEALTH & MEDICAL SCIENCES

SKILLED TRADES

Center II coming soon!

For more information about our Career Learning Communities, please view our CLC Guide for Students and Families.

Architecture, Urban Design & Building Construction

General Information

Students in the **Architecture, Urban Design & Building Construction** Career Learning Community (CLC) will discover and hone their specific interests while getting hands-on project experience and gaining critical skills. Students will enter the workforce or college with a head start and an advanced understanding of technical concepts.

Who should consider this CLC?

Students who are interested in:

- Deciding where different types of buildings are built, what those buildings look like; and how those buildings are constructed;
- Building structures; or
- Maintaining structures for future generations.

What are some career fields that align with this CLC?

- Architecture
- Building trades (carpentry, electrical, HVAC, plumbing, masonry, etc.)
- General construction
- Geography or cartography
- Historic preservation
- Rental property management
- Urban planning and design

Industry Credentials Aligned to CLC

- Autodesk Certification
- NCCER Core
- OSHA 10

Location

Western Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Technical Drawing & Design

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

DESIGN
Design 1 and 2

CONSTRUCTION
Engineering 1 and 2 **or** one of the following CATEC programs: Carpentry or Electricity

CAPSTONE

12th Grade

Complete the Capstone course:

Architectural Drawing & Design

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

AP Environmental Science
Computer Science 1 **or** AP Computer Science Principles
Physics 1 **or** AP Physics 1
Geospatial Technology 1 **or** JMU GEOG 161 Geospatial Tools and Techniques
Drawing & Design 2
PVCC CAD 151 Engineering Drawing Fundamentals

Architecture, Urban Design & Building Construction Course Descriptions

Gateway

Complete the following Gateway course:

Technical Drawing & Design

In this foundational course, students design, sketch, and make technical drawings, models, or prototypes of real design problems while learning the language of technical drawing and design. The course introduces the language of graphic communication to all science, technology, engineering and mathematics (STEM) students and is especially recommended for those planning a future in engineering and architecture. (CTE Code: 8435)

Pathway Sequence

Complete the course sequence in one of the following pathways:

Design

Design 1: Prototyping

Foundational design theory course that introduces students to a variety of tools that focuses specifically on the nature of design and aesthetic appeal. Students will identify the specific needs of worldly concern or a customer, generate concepts, pitch ideas, and create physical or digital prototypes for evaluation. Students may interact with a variety of problems or iterate a few designs based on the needs of the class. (CTE Code: 8425)

Design 2: Product Design

Students will work in teams to design and create unique, functional and meaningful products that will benefit society. Teams will apply knowledge and skills of design and manufacturing techniques combined with entrepreneurial thinking and social justice to bring ideas and products to market. Throughout the process, they will evaluate how aesthetics, materials, societal impact, and people's interactions with their creations influence the final product or idea. (CTE Code: 8427)

Construction

Complete the following course sequence -OR- complete **CATEC's Carpentry program** or **CATEC's Electricity program**:

Engineering 1: Materials & Processes

This is an introductory course in design tools and advanced manufacturing technologies. This course is a foundation for learning creative problem solving using a variety of hand tools and CAD/CAM machines. Students will learn the basics in 3D modeling, 2D design, maintenance through application of wood and metalworking equipment, and a variety of technology, including CNC machines, laser cutters, and 3D printers. Students will utilize these tools to solve a variety of problems and create physical and digital solutions. (CTE Code: 8433)

Engineering 2: Construction

Students will apply design thinking to solve real world problems with advanced manufacturing tools and techniques. Throughout this course, students will iterate ideas utilizing software simulation and physics applications to bring functional and practical designs to life. (CTE Code: 8431)

Capstone

Complete the following Capstone course:

Architectural Drawing & Design

Students learn the principles of architecture and increase understanding of working drawings and construction techniques learned in the prerequisite course. Experiences include residential and commercial building designs, rendering, model development, and structural details. Students use computer-aided drawing and design (CADD) equipment and established standards or codes to prepare models for presentation. The course is especially beneficial to future architects, interior designers, or home builders. (CTE Code: 8437)

Prerequisite: Technical Drawing & Design

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Computer Science Principles

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. (CTE Code: 10019)

AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

AP Physics 1, 2

AP Physics 1: Focuses on Newtonian mechanics, including rotational motion; work, energy and power; mechanical waves and sound; and introductory circuits.

AP Physics 2: Covers fluid statics and dynamics; thermodynamics with kinetic theory; PV diagrams and probability; electrostatics; electrical circuits with capacitors; magnetic fields; electromagnetism; physical and geometric optics; and quantum, atomic and nuclear physics.

These courses, which were designed by the College Board to parallel first-semester college-level courses in algebra-based physics, may also include college-level laboratory investigations.

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Drawing & Design 2

Students use a graphic language for product design and technical illustration. They increase their understanding of drawing techniques learned in the prerequisite courses. They research design-related fields while identifying the role of advanced drawing and design in manufacturing and construction industry processes. They apply the design process, analyze design solutions, reverse engineer products, create 3D solid models using CADD, construct physical models, and create multimedia presentations of finished designs. They complete a work portfolio based on a chosen graphic project. (CTE Code: 8438)

Prerequisite: Architectural Drawing & Design or Engineering Drawing & Design

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Geospatial Technology 1, 2

The geospatial technology program provides experiences pertaining to the study and use of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), and mobile technologies. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, locally, globally, and beyond.

Geospatial Technology 1: Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of geospatial technologies. (CTE Code: 8423)

Geospatial Technology 2: Builds upon the study and use of Geospatial Technology 1. Students further explore and analyze the natural and human-made world, locally, globally, and beyond. Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. Data is created, collected, and used to analyze spatial relationships. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. Students will also use network-based data management systems. (CTE Code: 8424)

Courses must be taken in sequence.

JMU GEOG 161 Geospatial Tools and Techniques

An introduction to the use of geospatial tools, such as geographic information systems (GIS), global positioning systems (GPS) and remote sensing, applied to a variety of areas, including cultural geography, environmental science, ecology, geology and public planning. (CTE Code: 8423)

Physics 1

Physics courses involve the study of the forces and laws of nature affecting matter, such as equilibrium, motion, momentum, and the relationships between matter and energy. The study of physics includes examination of sound, light, and magnetic and electric phenomena.

PVCC CAD 151 Engineering Drawing Fundamentals

Introduces technical drafting from the fundamentals through advanced drafting practices. Includes lettering, geometric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners. Teaches theory and application of dimensioning and tolerances, pictorial drawing, and preparation of drawings. (CTE Code: 8436)

Prerequisite: Technical Drawing & Design

Education & Human Development

General Information

The **Education & Human Development** Career Learning Community (CLC) prepares students to pursue careers in education and human services, but it also provides many transferable skills around human behaviors and interactions that are valuable in all career fields.

Who should consider this CLC?

Students who enjoy learning about people—how we are alike, what makes us different—and have an interest in promoting healthy development in individuals and in our communities.

What are some career fields that align with this CLC?

- Childcare
- Counseling
- Education
- Human resources
- Mental health
- Occupational therapy
- Social services

Industry Credentials Aligned to CLC

- Praxis Core Academic Skills for Educators
- Family & Community Services First Aid & CPR

Location

Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Introduction to Family and Human Services

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

EDUCATION
PVCC EDU 200 Teaching as a Profession 1 **+** Teaching as a Profession 2

HUMAN DEVELOPMENT
Psychology **+** Sociology

CAPSTONE

12th Grade

Complete the Capstone course:

Psychology Applications & Research

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
Sociology
Peer Tutoring 1, 2

Probability & Statistics **or** PVCC MTH 154/155 Quantitative Reasoning/Statistics **or** AP Statistics
Biology 2: Anatomy & Physiology

Education & Human Development Course Descriptions

Gateway

Complete the following Gateway course:

Introduction to Family and Human Services

The focus of Introduction to Family and Human Services is to identify professional opportunities within the Human Services career cluster. Students will use practical problem solving, research, critical thinking, and career decision-making to investigate services for clients as well as family and social services to preserve, promote and protect public health. Students will assess the needs of clients, determine the support needed, and demonstrate human services career skills.

Pathway Sequence

Complete the course sequence in one of the following pathways:

Education

PVCC EDU 200 Teaching as a Profession 1

Provides an orientation to the teaching profession in Virginia, including historical perspectives, current issues, and future trends in education on the national and state levels. Emphasizes information about teacher licensure examinations, steps to certification, teacher preparation and induction programs, and attention to critical shortage areas in Virginia. Includes supervised field placement (recommended: 40 clock hours) in a K-12 school. (CTE Code: 9062)

Teaching as a Profession 2

Students continue to explore careers in the Education and Training Cluster and pathways. This course provides the opportunity for students to prepare for careers in education as they research postsecondary options, learn about the process of teacher certification in Virginia, and participate in a practicum experience. (CTE Code: 9072)

Human Development

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

Sociology

Sociology courses introduce students to the study of human behavior in society. These courses provide an overview of sociology, generally including (but not limited to) topics such as social institutions and norms, socialization and social change, and the relationships among individuals and groups in society.

Capstone

Complete the following Capstone course:

Psychology Applications & Research

This course provides students the opportunity to continue their study of topics introduced in AP Psychology with added emphasis on independent research and the study of current advances in the field. Students will form research groups that select one general topic (e.g., learning, developmental psychology, social psychology) each quarter to study in greater depth. They will then narrow their focus to a specific application and will conduct research using one of the methods psychologists typically employ (e.g., observation, survey, field or lab experiments.) The groups will collect data, analyze the results, and report their findings following the American Psychological Association guidelines.

Prerequisite: AP Psychology

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Biology 2: Anatomy & Physiology

Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.

Prerequisite: Comprehensive initial study of biology recommended

Peer Tutoring 1, 2, 3

Peer Tutoring 1: Students are responsible for operating the school's peer tutoring center. They will learn a variety of pedagogical approaches and practice leadership skills that will serve them in their future professions. In addition to tutoring, students will strengthen their own knowledge in areas such as study habits, resume writing, and research skills. All students are required to tutor for approximately 45 minutes outside of class, once per week.

Peer Tutoring 2: Students apply the knowledge they gained in Peer Tutoring 1 to take on an enhanced leadership role in the peer tutoring center. They will contribute to managing center operations, mentoring new tutors, and heightening school-

wide academic achievement. They will make at least one significant contribution to the wider peer tutoring community; for example, by presenting at a conference or publishing a scholarly article.

Peer Tutoring 3: Building on the leadership skills they established in Peer Tutoring 2, tutors in Peer Tutoring 3 apprentice with a sponsor teacher for the duration of the school year, engaging in a deep study of that educator's approach to instruction in his or her academic field. These seniors will also work with a consistent group of clients on an ongoing basis. They will report on their learning via regular reflection logs, and both create a portfolio of their learning across their three years as a tutor, and innovate a permanent learning tool for the benefit of the school.

Prerequisites: Peer Tutoring 2 students must successfully complete Peer Tutoring 1 and be tutors in good standing.

Peer Tutoring 3 is a weighted course.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Sociology

Sociology courses introduce students to the study of human behavior in society. These courses provide an overview of sociology, generally including (but not limited to) topics such as social institutions and norms, socialization and social change, and the relationships among individuals and groups in society.

Entrepreneurship, Business & Innovation

General Information

The **Entrepreneurship, Business & Innovation** Career Learning Community (CLC) prepares students to grow their leadership and innovation skills with a cohort of peers who share their interests.

Who should consider this CLC?

Students who want to learn about and create businesses, products and services that will impact their school, community and world.

What are some career fields that align with this CLC?

- Accounting, finance or economics
- Administration or operations
- Advertising and marketing
- Hospitality
- Human resources
- Project management
- Sales

Industry Credentials Aligned to CLC

- Intuit Innovator
- Intuit Small Business
- Student Choice

Location

Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Entrepreneurship 1

PATHWAY SEQUENCE

11th – 12th Grade

Complete a sequence of electives or content courses to support a capstone project driven by future career or business interest. Examples include, *but are not limited to*:

Art 1 and 2
Photography 1 and 2
Data Science and Computer Science 1
AP Environmental Science and AP Biology
Media and Web Design 1 and 2
Game Design and Development 1 and 2
Hospitality and Tourism 1 and 2

CAPSTONE

12th Grade

Complete the Capstone course:

Entrepreneurship 2

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Business Management **or** PVCC BUS 100/200 Business and Management
Marketing 1
Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology

Leadership & Design Thinking
Digital and Social Media Marketing
Probability & Statistics **or** PVCC MTH 154/155 Quantitative Reasoning/Statistics **or** AP Statistics

Entrepreneurship, Business & Innovation Course Descriptions

Gateway

Complete the following Gateway course (Part 1):

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Pathway Sequence

Complete a sequence of electives or content courses to support a capstone project driven by future career or business interest. Examples include, *but are not limited to*:

- Art 1 and 2
- Photography 1 and 2
- Data Science and Computer Science 1
- AP Environmental Science and AP Biology
- Media and Web Design 1 and 2
- Game Design and Development 1 and 2
- Hospitality and Tourism 1 and 2

AP Biology

AP Biology courses emphasize four general concepts: evolution; cellular processes (energy and communication); genetics and information transfer; and interactions of biological systems. For each concept, these courses emphasize the development of scientific inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. AP Biology courses include college-level laboratory investigations.

AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process,

ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

Art 1, 2, 3, 4

These courses enable students to explore several art forms to create individual works of art. Initial courses emphasize observations, interpretation of the visual environment, visual communication, imagination, and symbolism. Courses cover the language, materials, media, and processes of a particular art form and the design elements used.

Art 3 and 4 are weighted courses.

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Game Design and Development 1, 2

Game Design and Development 1: In this project-based course, students will create innovative games through the application of graphic design, animation, audio, and writing skills. Students will work in teams while developing problem-solving, critical thinking, and effective communication skills. They will analyze, design, prototype, and critique interactive games within a project management environment. Career opportunities across multiple industries, including the entertainment and educational arenas, will be explored. (CTE Code: 8400)

Game Design and Development 2: Students will work collaboratively in teams to refine their game design skills as they apply graphic design, animation, audio and writing skills to create innovative games for education and entertainment. This project-based course enhances problem solving, project management, and communication skills through the analysis, design, construction, and critique of interactive games. Students will learn about career opportunities in game design and development and investigate the training and certification requirements. (CTE Code: 8401)

Courses must be taken in sequence.

Hospitality and Tourism 1, 2

Hospitality and Tourism 1: Students begin preparation for employment in hospitality industries by focusing on principles of operations in food services, recreation, hospitality planning, and business relations. Special attention is paid to the development of culinary skills (food sanitation, food preparation, and serving) and customer service skills.

Hospitality and Tourism 2: Students continue preparation for employment in hospitality industries by focusing on principles of operations in travel and tourism, lodging, food services, hospitality planning, and business relations. Special attention is paid to the development of skills used in the lodging industry (rooms, sales and marketing, front office, and housekeeping divisions) and customer-service skills.

*Related to the Hospitality, Eateries, Amusements, Recreation & Tourism (HEART) Career Learning Community (CLC), Hospitality and Tourism 1 is the **Gateway** course, and Hospitality and Tourism 2 is the **Capstone** course.*

Media and Web Design 1, 2

Media and Web Design 1: Students develop proficiency in designing and creating desktop-published projects, multimedia presentations/projects, and websites, using industry-standard application software. Students apply principles of layout and design in completing projects. Students create portfolios that include a résumé and a variety of desktop-published, multimedia, and website projects produced in the course. (CTE Code: 6630)

Media and Web Design 2: Students develop advanced skills for creating desktop-published, interactive multimedia, and website projects. Students work with sophisticated hardware and software, applying skills to real-world projects. (CTE Code: 6631)

Photography 1, 2, 3, 4

Photography courses provide students with an understanding of photographic media, techniques, and processes. These courses focus on development of photographic compositions through manipulation of the fundamental processes of artistic expression. Students may learn to make meaningful visual statements with an emphasis on personal creative expression to communicate ideas, feelings, or values. Photography courses may also include the history of photography, historic movements, image manipulation, critical analysis, and some creative special effects. Students engage in critiques of their photographic images, the works of other students, and those by professional photographers for the purpose of reflecting on and refining work. Each subsequent course builds on the skills, processes and ideas explored in the previous level.

Photography 3 and 4 are weighted courses.

Capstone

Complete the following Gateway course (Part 2):

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Business Management

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course. (CTE Code: 6135)

Digital and Social Media Marketing

This course introduces students to digital and social media marketing. Students explore principles, strategies, tools, and tactics related to consumers, branding, advertising, and promotions. Students explore how success is measured in a digital and social media marketing campaign. This course emphasizes ethics, laws, and security. Students also investigate business and marketing plans as well as careers in digital and social media marketing. (CTE Code: 8125)

Leadership & Design Thinking

Students develop competencies in identifying individual aptitudes in relation to effective leadership skills, understanding organizational behavior, using effective communication in the workplace, handling human resources and organizational problems, supervising and training employees, resolving conflict, and planning for the future. Continuing education in leadership is emphasized as well as practical leadership experiences in cooperation with school and community leaders. (CTE Code: 9097)

Marketing 1, 2

Marketing 1: Students examine activities in marketing and business important for success in marketing employment and postsecondary education. Students will learn how products are developed, branded, and sold to businesses and consumers. Students will analyze industry trends and gain hands-on experience in the marketing of goods, services, and ideas. Topics will include professionalism in the workplace, product planning and positioning, promotion, pricing, selling, economic issues, and the impact of technology on the marketplace. (CTE Code: 8120)

Marketing 2: Students build on knowledge gained in a prior Marketing course. Students participate in supervisory and management activities focusing on the marketing mix, purchasing, financing, human resources, global marketing, pricing, and emerging technologies. Students will prepare for advancement in marketing careers and postsecondary education. (CTE Code: 8130)

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior,

and abnormal psychology.

PVCC BUS 100/200 Business and Management

Teaches management and the management functions of planning, organizing, leading, and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. (CTE Code: 6135)

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Environmental Studies

General Information

Students in the **Environmental Studies** Career Learning Community (CLC) study the intersections of biology, ecology, geology, and human life. The curricula is enhanced with field experiences that aid in the understanding of natural resources and how they are impacted by the human population.

Who should consider this CLC?

Students with an interest in and a passion for the environment or nature, or who simply enjoy the outdoors.

What are some career fields that align with this CLC?

- Environmental law and policy
- Forensic science
- Forestry
- Gardening
- Geotechnical engineering
- Meteorology
- Wildlife biology

Location

Western Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Foundations of Environmental Science

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

PLANT SYSTEMS
Horticulture 1: Plant Systems **+** Horticulture 2: Greenhouse Plant Production and Management

FORESTRY MANAGEMENT
Forestry Management 1 and 2

ECOLOGY & ENVIRONMENTAL MANAGEMENT
Environmental Management 1: Ecology **+** AP Environmental Science **or** PVCC BIO 107 Biology of the Environment

CAPSTONE

12th Grade

Complete the Capstone course:

Environmental Literature/Law/Policy

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

World Geography **or** AP Human Geography
Biology 2: Animal Studies
Oceanography
Earth Science 2: Geology
AP Environmental Science **or** PVCC BIO 107 Biology of the Environment
Geospatial Technology 1 **or** JMU GEOG 161 Geospatial Tools and Techniques

Environmental Studies Course Descriptions

Gateway

Complete the following Gateway course:

Foundations of Environmental Science

This course serves as the introductory-level course for the Natural Resources Career Pathway. Students will explore environmental science, conservation management, and the study of natural resources to develop the knowledge and skills required for employment in occupations and careers related to ecology, forestry, and wildlife and natural resources management.

Pathway Sequence

Complete the course sequence in one of the following pathways:

Plant Systems

Horticulture 1: Plant Systems

In Horticulture 1: Plant Systems, students develop competencies in each of the major areas of the Plant Systems career pathway, including applied botany, plant propagation, and plant care and selection. Instructional content also includes an introduction to the various aspects of the plant systems industry. Students learn agricultural mechanics applicable to plant systems.

Horticulture 2: Greenhouse Plant Production and Management

Horticulture 2: Greenhouse Plant Production and Management prepares students for postsecondary educational career programs and entry-level positions in the greenhouse plant production and management industry. Instruction includes industry safety in greenhouse plant production, development of plant production facilities, greenhouse management and operations, plant identification, the science of plant production, business management, and marketing skills.

Forestry Management

Forestry Management 1, 2

Forestry Management 1: Provides instruction in the management of the forest as a resource and as a business. Students develop knowledge in tree physiology, forest ecology, silviculture, and the management and marketing of forest products. Strong emphasis is placed on developing career skills for the forestry industry.

Forestry Management 2: Offers students instruction in forestry ecology, map interpretation, and timber management practices. Additionally, students will investigate ways to protect and preserve forested land, including pest identification and management, identification of common tree diseases, and forest fire prevention.

Ecology & Environmental Management

AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

Environmental Management 1: Ecology

Students develop conservation competencies and skills through the understanding of environmental concerns. Instructional content includes the care, management and preservation of soil, air, water, forests and wildlife. Students identify and discuss prevalent environmental problems and learn methods and practices used to preserve natural resources and maintain a healthy ecology. Teachers incorporate specific environmental concerns and issues common to the local community. This course supports components of biology and chemistry.

PVCC BIO 107 Biology of the Environment

BIO 107 presents the basic concepts of environmental science through a topical approach. Includes the scientific method, population growth, and migration, use of natural resources and waste management, ecosystem simplification recovery, evolution, biogeochemical cycles, photosynthesis and global warming, geological formations, atmosphere and climate, and ozone depletion and acid deposition.

Prerequisites: VPT placement into ENF 3 or SAT Critical Reading score of 500 or greater or ACT score of 21 or greater **and** completion of MTE 1-5 or placement test score equivalent

Capstone

Complete the following Capstone course:

Environmental Literature/Law/Policy

Through the analysis of environmental literature and examination of important laws and policy, students will explore the complex relationship between human beings and the environment. Students will develop a comprehensive understanding of how literature, philosophy, and governmental action have correlated historically with important environmental issues. Content will include local, regional and global policy changes and current legislation and will be supported by a combination of fiction, non-fiction, poetry, and case studies.

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

AP Human Geography

Following the College Board's suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth's surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

Biology 2: Animal Studies

This course is an introduction to the world of Zoology designed for 11th and 12th grade students. Students will survey the animal world from protists through chordates. Using a comparative approach, the study of each group will emphasize diversity, anatomy, evolutionary relationships, functional adaptations, and environmental relationships. Extensive lab work, including dissections, will be an integral part of the course.

Earth Science 2: Geology

Geology courses provide an in-depth study of the forces that formed and continue to affect the earth's surface. Earthquakes, volcanoes, and erosion are examples of topics that are presented.

Geospatial Technology 1, 2

The geospatial technology program provides experiences pertaining to the study and use of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), and mobile technologies. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, locally, globally, and beyond.

Geospatial Technology 1: Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of geospatial technologies. (CTE Code: 8423)

Geospatial Technology 2: Builds upon the study and use of Geospatial Technology 1. Students further explore and analyze the natural and human-made world, locally, globally, and beyond. Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. Data is created, collected, and used to analyze spatial relationships. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. Students will also use network-based data management systems. (CTE Code: 8424)

Courses must be taken in sequence.

JMU GEOG 161 Geospatial Tools and Techniques

An introduction to the use of geospatial tools, such as geographic information systems (GIS), global positioning systems (GPS) and remote sensing, applied to a variety of areas, including cultural geography, environmental science, ecology, geology and public planning. (CTE Code: 8423)

Oceanography

This course will invite students to explore the ocean and study the geological and physical components of the ocean. Students will also investigate the ocean's effects on weather and climate. As students explore the ocean's environments, they will see the impact that the physical properties and geographical locations have on the populations of the ocean. An

investigation of the impacts caused by humans will provide an opportunity for students to learn how we impact the ocean habitats.

PVCC BIO 107 Biology of the Environment

BIO 107 presents the basic concepts of environmental science through a topical approach. Includes the scientific method, population growth, and migration, use of natural resources and waste management, ecosystem simplification recovery, evolution, biogeochemical cycles, photosynthesis and global warming, geological formations, atmosphere and climate, and ozone depletion and acid deposition.

Prerequisites: VPT placement into ENF 3 or SAT Critical Reading score of 500 or greater or ACT score of 21 or greater **and** completion of MTE 1-5 or placement test score equivalent

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World Geography

World Geography courses provide students with an overview of world geography, but may vary widely in the topics they cover. Topics typically include the physical environment; the political landscape; the relationship between people and the land; economic production and development; and the movement of people, goods, and ideas.

Geospatial Technologies, Logistics, Robotics & Transportation

General Information

In the **Geospatial Technologies, Logistics, Robotics & Transportation** Career Learning Community (CLC), students make interactive maps, apps, and story maps; use Geographic Information System (GIS) technologies such as ArcGIS Pro, Network Analyst, and Drone2Map; get hands-on, project-based decision-making experiences; and leave high school with high-tech skills that are in high demand.

Who should consider this CLC?

Students who are excited about:

- Maps, Google Earth, and drones;
- Using leading-edge, dynamic software;
- Developing skills to design maps and apps to solve community, environmental and social challenges; or
- Augmented reality, virtual reality, and 3D mapping.

What are some careers that align with this CLC?

- Climate Scientist
- Conservationist
- Forester
- GIS Manager
- Health Geographer
- Helicopter Firefighter
- App Developer

Industry Credentials Aligned to CLC

- Certified Logistics Associate
- SPACE | STARS
- SMART Automation
- Small UAS

Location

Monticello High School

Course Overview

GATEWAY
10th Grade

Complete the Gateway course:

Global Logistics 1

PATHWAY SEQUENCE
11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

GEOSPATIAL TECH
Geospatial Technology 1 and 2

ROBOTICS
Robotics & Automation 1 and 2

COMPUTER SCIENCE
Computer Science 1 and 2 **or** AP Computer Science Principles and AP Computer Science A

CAPSTONE
12th Grade

Complete the Capstone course:

Global Logistics 2

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

World Geography **or** AP Human Geography **or** PVCC GEO 210 Cultural Geography
Sociology
Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
Data Science **or** Computer Science 1 **or** AP Computer Science Principles
AP Environmental Science
Probability & Statistics **or** PVCC MTH 154/155 Quantitative Reasoning/Statistics **or** AP Statistics

Geospatial Technologies, Logistics, Robotics & Transportation Course Descriptions

Gateway

Complete the following Gateway course (Part 1):

Global Logistics 1, 2

Logistics is moving the right goods to the right place at the right time for the right price at the right quality. The two-course sequence is designed to build a workforce to capitalize on the projections from the Commonwealth Center of Advanced Logistics Systems (CCALS) to meet the rapidly increasing demand for high-skilled, high-wage supply chain and logistics systems professionals.

Global Logistics 1: Introduces students to global logistics in a virtual enterprise systems environment. Topics include navigating logistics management and enterprise resource planning (ERP) systems while managing procurement, fulfillment, and warehouse processes.

Global Logistics 2: Requires students to have completed Global Logistics 1 and worked with global logistics processes in a virtual enterprise systems environment. Advanced topics addressed by this course include managing material handling, transportation issues, accounting and finance, production processes, process integration, facility location decisions, and international logistics.

*Related to the Geospatial Technologies, Logistics, Robotics & Transportation Career Learning Community (CLC), Global Logistics 1 is the **Gateway** course, and Global Logistics 2 is the **Capstone** course.*

Pathway Sequence

Complete the course sequence in one of the following pathways:

Geospatial Tech

Geospatial Technology 1, 2

The geospatial technology program provides experiences pertaining to the study and use of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), and mobile technologies. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, locally, globally, and beyond.

Geospatial Technology 1: Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of geospatial technologies. (CTE Code: 8423)

Geospatial Technology 2: Builds upon the study and use of Geospatial Technology 1. Students further explore and analyze the natural and human-made world, locally, globally, and beyond. Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. Data is created, collected, and used to analyze spatial relationships. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. Students will also use network-based data management systems. (CTE Code: 8424)

Courses must be taken in sequence.

Robotics

Robotics & Automation 1, 2

Robotics & Automation 1: This is a lab-based course that uses a team-based approach to introduce the basic concepts of robotics, construction and programming of autonomous and semi-autonomous robots. The course will focus on careers in engineering, robotics, programming and game design. Course instruction will primarily be tied to lab experiments, as students will work collaboratively to build and test increasingly more complex robots. (CTE Code: 8421)

Robotics & Automation 2: Students engage in the study of computers and microprocessors and their applications to manufacturing, transportation, and communication systems. Topics include computer programming using Java, robotic design, control systems, and social/cultural impact of these technologies. Problem-solving activities challenge students to design, program, and interface devices with computer systems. Learning activities include building robots, using computer-aided design, 3D printing, and control of electromechanical devices. Students will participate in hands-on projects in a laboratory setting as they communicate information through team-based presentations, proposals, and technical reports. In addition, students will have the ability to compete in the First Tech Challenge (FTC) Robotics. This will challenge their engineering skills and give them the ability to communicate with other schools, businesses, and industry. (CTE Code: 8405)

Computer Science

Complete **Computer Science 1 and 2** or **AP Computer Science Principles** and **AP Computer Science A**.

AP Computer Science A

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. (CTE Code: 3185)

AP Computer Science Principles

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. (CTE Code: 10019)

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the

course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Capstone

Complete the following Capstone course (Part 2):

Global Logistics 1, 2

Logistics is moving the right goods to the right place at the right time for the right price at the right quality. The two-course sequence is designed to build a workforce to capitalize on the projections from the Commonwealth Center of Advanced Logistics Systems (CCALS) to meet the rapidly increasing demand for high-skilled, high-wage supply chain and logistics systems professionals.

Global Logistics 1: Introduces students to global logistics in a virtual enterprise systems environment. Topics include navigating logistics management and enterprise resource planning (ERP) systems while managing procurement, fulfillment, and warehouse processes.

Global Logistics 2: Requires students to have completed Global Logistics 1 and worked with global logistics processes in a virtual enterprise systems environment. Advanced topics addressed by this course include managing material handling, transportation issues, accounting and finance, production processes, process integration, facility location decisions, and international logistics.

*Related to the Geospatial Technologies, Logistics, Robotics & Transportation Career Learning Community (CLC), Global Logistics 1 is the **Gateway** course, and Global Logistics 2 is the **Capstone** course.*

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Computer Science Principles

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. (CTE Code: 10019)

AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

AP Human Geography

Following the College Board's suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth's surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC GEO 210 Cultural Geography

Cultural Geography focuses on the relationship between culture and geography. The course presents a survey of modern demographics, landscape modification, material and non-material culture, language, race and ethnicity, religion, politics, and economic activities. The course introduces the student to types and uses of maps. It also is the study of the landscape on which human activity occurs. In addition to basic geography concepts, map reading, and the current state of the world, this course will introduce students to the historical and contemporary patterns and processes that are shaping our world. A major focus of this course is the examination of the cultural landscapes resulting from human modification of the environment. This will include the study of the geographic distribution of non-material culture, including language, religion, ethnicity, and political behavior. Another focus is human modes of survival, including agriculture, urban environments, and economic activities.

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Sociology

Sociology courses introduce students to the study of human behavior in society. These courses provide an overview of sociology, generally including (but not limited to) topics such as social institutions and norms, socialization and social change, and the relationships among individuals and groups in society.

World Geography

World Geography courses provide students with an overview of world geography, but may vary widely in the topics they cover. Topics typically include the physical environment; the political landscape; the relationship between people and the land; economic production and development; and the movement of people, goods, and ideas.

Global Leadership, Law & Social Justice

General Information

The **Global Leadership, Law & Social Justice** Career Learning Community (CLC) prepares students to address local and global challenges by engaging in civil discourse, building leadership capacity, and providing a deeper understanding of economic, social and political systems.

Who should consider this CLC?

Students who want to build the skills and knowledge necessary to become a local, national or global leader.

What are some career fields that align with this CLC?

- Corrections
- Foreign service
- Global security
- Law
- Military
- Politics
- Public service and administration

Industry Credentials Aligned to CLC

- Cybersecurity Analyst Examination
- ASVAB
- Leadership Essentials

Location

Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Issues of the Modern World

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

SOCIAL JUSTICE
Sociology **+** African American History **or** Ethnic Studies

CIVIL DISCOURSE
Debate 1 **+** Public Speaking

Leadership
Army JROTC 1 and 2 **or** Leadership 1 and 2

CAPSTONE

12th Grade

Complete the Capstone course:

Global Leadership in Action

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Leadership & Design Thinking **or** Army JROTC 1
Practical Law

Debate 1
Probability & Statistics **or** PVCC MTH 154/155 Quantitative Reasoning/Statistics **or** AP Statistics
AP Microeconomics - VA Personal Finance **or** AP Comparative Government **or** AP Human Geography
Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology

Global Leadership, Law & Social Justice Course Descriptions

Gateway

Complete the following Gateway course:

Issues of the Modern World

This is an elective course recommended for students who are interested in the study of current events and recent American and world history. Topics, will be discussed, explored, researched, and analyzed using readings (newspaper articles, academic journals), internet research, films (feature and documentary), broadcast news reports, and class discussions. Topics may include: modern terrorism; the modern global economy (globalization); the environment; America's "culture wars;" gun control; the modern Middle East; problems and issues in American foreign policy; and more.

Pathway Sequence

Complete the course sequence in one of the following pathways:

Social Justice

Complete **Sociology** followed by **African American History** or **Ethnic Studies**.

African American History

African American History is designed to provide students with a broad overview of the African American experience and explore ancient Africa moving through modern times. The course, supported by a local division curriculum and five online modules, address the introduction of Africans to the Americas and the African American experience between 1619 and the present. In addition, the course will highlight the social, cultural and political contributions of African Americans to American society.

Ethnic Studies

U.S. Ethnic Studies courses examine the history, politics, economics, society and/or culture of one or more of the racial/ethnic groups in the United States. These courses may focus primarily on the history of an individual racial/ethnic group or take a more comprehensive approach to studying the contemporary issues affecting racial/ethnic groups overall.

Sociology

Sociology courses introduce students to the study of human behavior in society. These courses provide an overview of sociology, generally including (but not limited to) topics such as social institutions and norms, socialization and social change, and the relationships among individuals and groups in society.

Civil Discourse

Complete **Debate 1** followed by **Public Speaking**.

Debate 1, 2, 3

Debate teaches students how to coordinate the written and oral communication process through a study of logical thinking and research techniques culminating in written and oral presentations. A study of the national debate topic, leading to participation in interscholastic debate competition, is one strategy for accomplishing this goal.

Debate 3 is a weighted course.

Public Speaking

Public Speaking courses enable students, through practice, to develop communication skills that can be used in a variety of speaking situations (such as small and large group discussions, delivery of lectures or speeches in front of audiences, and so on). Course topics may include (but are not limited to) research and organization, writing for verbal delivery, stylistic choices, visual and presentation skills, analysis and critique, and development of self-confidence.

Leadership

Complete **Army JROTC 1 and 2** or **Leadership 1 and 2**.

Army JROTC 1, 2, 3, 4

Army Junior Reserve Officer Training Corps (JROTC) 1: Courses include instruction in the organization and functions of the U.S. Army, leadership skills, and life skills education. The content of these courses covers, but is not limited to, the history and evolution of the Army, including its structure, operations, customs and courtesies; maps and navigation; first aid, personal hygiene, and field sanitation; and substance abuse prevention. These courses also introduce students to principles of leadership and citizenship. (CTE Code: AR7913)

Army JROTC 2: Courses build upon the content of Army JROTC 1 and include, but are not limited to, ongoing instruction in leadership principles and citizenship; drill and ceremonies; organizational structure; command and staff relationships, functions, and responsibilities; significant military campaigns and leaders; map reading and orienteering; weapon safety and marksmanship; and survival training. (CTE Code: AR7916)

Army JROTC 3: Courses build upon prior Army JROTC courses, giving more emphasis to leadership development. These courses serve to strengthen students' leadership skills (including planning, problem solving, motivation, and performance appraisal) and management skills (with regard to time, personnel, and other resources) through allowing them to assume leadership duties. Students study topics introduced in earlier years—such as military history, map reading and orienteering, marksmanship, and drill and ceremonies—at a more advanced level and are also provided with military service opportunities. (CTE Code: AR7918)

Army JROTC 4: Students continue instruction in the Army JROTC program, consisting of U.S. citizenship rights and responsibilities, leadership, military history, discipline, citizenship, physical fitness, career education, and workplace readiness skills. Students receive additional instruction in military customs and courtesies, proper uniform wear, and personal appearance guidelines. Adherence to the guidelines is required in leadership lab, drill, and military ceremonies.

Leadership 1, 2, 3, 4

Leadership/SCA at is a one-year elective course designed to prepare students for and offer students leadership opportunities in high school, the community, college and in the work environment. The course offers students with experiential opportunities to foster a variety of essential skills such as communication, organization, goal setting, collaboration, event planning, time management, public speaking, and critical thinking. The purpose of associated student body leadership is to plan and implement activities that not only serve but also enrich the student body, the staff, and the community.

Leadership 3 and 4 are weighted courses.

Capstone

Complete the following Capstone course:

Global Leadership in Action

Global Leadership in Action courses examine the concepts and issues imperative for leadership in the global economy, including managing complex and rapid change; cooperative problem solving; and understanding the interconnectedness of the global economic and political systems. Additionally, students will understand differing political and cultural traditions in order to navigate the political changes across the world and increased interaction among governments.

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Comparative Government

Following the College Board's suggested curriculum designed to parallel college-level Comparative Government and Politics courses, these courses offer students an understanding of the world's diverse political structures and practices. The courses encompass the study of both specific countries and general concepts used to interpret the key political relationships found in virtually all national policies. Course content generally includes sovereignty, authority, and power; political institutions; the relationships among citizens, society, and the state; political and economic change; and public policy.

AP Human Geography

Following the College Board's suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth's surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

AP Microeconomics - VA Personal Finance

Following the College Board's suggested curriculum designed to parallel college-level microeconomics, AP Microeconomics courses provide students with a thorough understanding of the principles of economics that apply to the functions of individual decision makers (both consumers and producers). They place primary emphasis on the nature and functions of product markets, while also including a study of factor markets and the role of government in the economy.

Students learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit, insurance, financing postsecondary education, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship and career success. (CTE Code: 6121)

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using

technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Army JROTC 1, 2, 3, 4

Army Junior Reserve Officer Training Corps (JROTC) 1: Courses include instruction in the organization and functions of the U.S. Army, leadership skills, and life skills education. The content of these courses covers, but is not limited to, the history and evolution of the Army, including its structure, operations, customs and courtesies; maps and navigation; first aid, personal hygiene, and field sanitation; and substance abuse prevention. These courses also introduce students to principles of leadership and citizenship. (CTE Code: AR7913)

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Debate 1, 2, 3

Debate teaches students how to coordinate the written and oral communication process through a study of logical thinking and research techniques culminating in written and oral presentations. A study of the national debate topic, leading to participation in interscholastic debate competition, is one strategy for accomplishing this goal.

Debate 3 is a weighted course.

Leadership & Design Thinking

Students develop competencies in identifying individual aptitudes in relation to effective leadership skills, understanding organizational behavior, using effective communication in the workplace, handling human resources and organizational problems, supervising and training employees, resolving conflict, and planning for the future. Continuing education in leadership is emphasized as well as practical leadership experiences in cooperation with school and community leaders. (CTE Code: 9097)

Practical Law

This course provides the high school student with the practical legal background one needs to function as an adult. It enables the young adult to foresee and avoid legal problems and to obtain professional help when necessary. Topics covered include contracts, property, marriage, wills, civil and criminal procedure, and consumer protection.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Health & Medical Sciences

General Information

The **Health & Medical Sciences** Career Learning Community (CLC) prepares students to pursue post-secondary education and career interests in medicine, nursing, dentistry, and other health fields. Students will complete a variety of health sciences courses according to their abilities, interests, and educational needs. Students also will become more knowledgeable consumers of health services.

Who should consider this CLC?

Students who are interested in:

- The science of human health and how the human body works;
- Developing relationships and helping others;
- Studying diseases, analyzing data, and problem-solving on a case-by-case basis; or
- Occupations in health sciences.

What are some career fields that align with this CLC?

- Clinical research
- Community health
- Emergency medicine
- Health education
- Nursing
- Pharmacology
- Sports Medicine

Industry Credentials Aligned to CLC

- National Health Science Assessment
- NASM Certified Personal Trainer
- Nurse Aide Certification
- Certified Veterinary Assistant
- Emergency Medical Technician
- OSHA
- HIPPAA

Location

Monticello High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Biotechnology Foundations in Health & Medical Sciences

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

BIOLOGICAL SCIENCES
Biology 2: Anatomy & Physiology **+** Biology 2: Animal Studies

BIOMEDICAL TECHNOLOGY
Biology 2: Anatomy & Physiology **+** Genetics

MEDICINE
Emergency Medical Technician (EMT) 1 and 2 **or** Health & Medical Sciences 1 and 2 **or** Sports Medicine/Physiology 1 and 2 **or** one of the following CATEC programs: Emergency Medical

CAPSTONE

12th Grade

Complete the Capstone course:

Biomedicine 2

Technician, Fire Science, Nurse Assistant, or Veterinary Science

PATHWAY PLUS

10th – 12th Grade

Complete at least one of the following Pathway Plus courses or any AP or dual enrollment science course:

Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
AP Human Geography
PVCC HLT 141 Medical Terminology
Data Science
Probability & Statistics **or** PVCC MTH 154/155 Quantitative Reasoning/Statistics **or** AP Statistics

Health & Medical Sciences Course Descriptions

Gateway

Complete the following Gateway course:

Biotechnology Foundations in Health & Medical Sciences

This course focuses on various techniques that are used to modify living organisms, or parts of organisms, to improve plants and animals, and the development of microorganisms for specific purposes. Student activities range from bioprocessing and DNA analysis, to medicine, biomechanical systems, and the environment. Students gain insight and understanding about biotechnology career fields. (CTE Code: 8344)

Pathway Sequence

Complete the course sequence in one of the following pathways:

Biological Sciences

Biology 2: Anatomy & Physiology

Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.

Prerequisite: Comprehensive initial study of biology recommended

Biology 2: Animal Studies

This course is an introduction to the world of Zoology designed for 11th and 12th grade students. Students will survey the animal world from protists through chordates. Using a comparative approach, the study of each group will emphasize diversity, anatomy, evolutionary relationships, functional adaptations, and environmental relationships. Extensive lab work, including dissections, will be an integral part of the course.

Biomedical Technology

Biology 2: Anatomy & Physiology

Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.

Prerequisite: Comprehensive initial study of biology recommended

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Genetics

Genetic courses offer students the opportunity to study molecular genetics, chromosomal genetics, genetics and human health, synthetic biology, and population genetics. Students in this course will investigate how the structure of DNA enables the processes of both protein synthesis and inheritance. They will also understand meiosis and its impact on the transmission of alleles from one generation to the next. In addition to studying Mendelian genetics, students will learn about sex-linked genes and multifactorial traits and their attributes to both the environment and genes. Students will investigate and understand that synthetic biology has been applied in numerous fields including agriculture, medicine and industry. A study on population genetics will allow students an opportunity to investigate and understand that random occurrences affect the genetic makeup of a population.

Medicine

Complete one of the following course sequences -OR- complete **CATEC's Emergency Medical Technician program**, **CATEC's Fire Science program**, **CATEC's Nurse Assistant program**, or **CATEC's Veterinary Science program**.

Emergency Medical Technician (EMT) 1, 2, 3

EMT 1 and EMT 2: In EMT 1 and 2, students explore and apply the fundamentals of emergency medical services (EMS), anatomy, physiology, and medical terminology while demonstrating skills in assessing and managing patient care, including assessing the scene and understanding shock, resuscitation and trauma. Students must complete a minimum of 85% of the didactic and lab aspects of the course, per 12VAC5-31-1501 in the Code of Virginia. Successful completion of all course requirements may lead to eligibility to take the Virginia State Psychomotor Exam and the National Registry of Emergency Medical Technicians (NREMT) cognitive exam. Students must meet the requirements of the Functional Position Description for the Basic Life Support Provider (refer to EMS.TR.14B and 12VAC5-31-1501 in the Code of Virginia). (CTE Code: 8333 and 8334)

Note: Students must be at least 16 years old prior to the first day of EMT instruction. All students will need to undergo a criminal background check that includes fingerprinting and drug screening.

EMT 3: The EMT 3 course is intended for students who have completed EMT 1 and 2, and who may have obtained EMT certification from the Virginia Office of Emergency Medical Services (OEMS). Students will strengthen the skills mastered in the basic courses as they acquire skills to assist advanced life support (ALS) providers, build on the foundations of EMS education, and meet education requirements for certification or recertification. Students also learn to coordinate with other public health and safety services, such as fire control, law enforcement, and emergency management. The course includes mentored as well as instructional experiences. Students must complete a minimum of 85% of the didactic and lab aspects of the course. (CTE Code: 8335)

Health & Medical Sciences 1: Intro

Introduces the student to a variety of healthcare careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. healthcare system and to learn basic healthcare terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the healthcare

environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field. In addition, instruction may include the basics of medical laboratory procedures, pharmacology fundamentals, biotechnology concepts, and communication skills essential for providing quality patient care. (CTE Code: 8302)

Health & Medical Sciences 2: Careers

Students explore opportunities in the health care field by developing basic skills common to several health care careers. They study body structure and function, principles of health and disease, and an overview of the health and patient care system. Supervised work-based learning may be part of the course in health care settings and is managed by the health and medical sciences education teacher. (CTE Code: 8331)

Sports Medicine/Physiology 1, 2

Sports Medicine/Physiology 1: Introduces students to topics such as human anatomy and physiology, nutrition, biomechanics, medical terminology, injuries and illnesses, and legal and ethical issues in sports medicine. Students also examine prospective careers in the sports medicine field. Upon successful completion of this course, students are eligible to take Sports Medicine II and pursue certification as a personal trainer. In this course, students earn a certification in First Aid/CPR/AED. (CTE Code: 8316)

Sports Medicine/Physiology 2: Builds upon basic knowledge acquired in Sports Medicine I on topics such as exercise physiology, biomechanics, exercise program design, and injury prevention, assessment, treatment, and management. Students prepare for a career in sports medicine, including completing an internship.Upon successful completion of this course, students will be eligible to take the National Academy of Sports Medicine-Certified Personal Trainer (NASM-CPT) exam. (CTE Code: 8317)

Courses must be taken in sequence.

Capstone

Complete the following Capstone course:

Biomedicine 2

In Biomedicine 2, students gain advanced knowledge and skills related to diverse medical-related pathways. They will explore diagnostic and therapeutic laboratory procedures that support bioscience research and practice. They will also investigate safety and ethical concerns associated with the field. As a part of the course, students will engage in field experiences in which students learn alongside mentor partners from our local healthcare community. (CTE Code: 8347)

Pathway Plus

Complete at least one of the following Pathway Plus courses or any AP or dual enrollment science course:

AP Human Geography

Following the College Board’s suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth’s surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

AP Psychology

Following the College Board’s suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of

human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC HLT 141 Medical Terminology

This course is designed to help students learn health care language. Topics are presented in order beginning with each body system’s anatomy and physiology and progressing through pathology, diagnostic procedures, therapeutic interventions, and finally pharmacology. Students learn concepts, terms and abbreviations for each topic. (CTE Code: 8383)

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

HEART: Hospitality, Eateries, Amusements, Recreation & Tourism

General Information

The **HEART: Hospitality, Eateries, Amusements, Recreation & Tourism** Career Learning Community (CLC) provides students the skills and experience they need to pursue a future in a fun, exciting and dynamic industry that offers ample growth opportunities. Beyond skill development, students will figure out which jobs and which segments of the industry they like the most.

Who should consider this CLC?

Students who are inspired by:

- A fun, fast-paced work environment where every day is different;
- Limitless growth potential;
- Collaboration and communication;
- First-hand interactions with diverse people and cultures;
- Potential for travel and adventure;
- Providing exceptional customer service and creating memorable experiences for customers or guests; or
- A love for food, entertainment, sports, or travel

What are some career fields that align with this CLC?

- Culinary arts
- Entertainment
- Event planning
- Marketing
- Parks and recreation
- Sports management
- Tourism management

Industry Credentials Aligned to CLC

- ServSafe
- Hospitality and Tourism Management
- Recreation, Amusement & Attractions

Location

Western Albemarle High School

Course Overview

GATEWAY
10th Grade

Complete the Gateway course:

Hospitality and Tourism 1

PATHWAY SEQUENCE
11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

CULINARY
Introduction to Culinary Arts **+** Culinary Arts Specialization **or** CATEC's Professional Culinary Arts I class

LODGING, TRAVEL & TOURISM
Travel, Tourism and Destinations 1 and 2

CAPSTONE
12th Grade

Complete the Capstone course:

Hospitality and Tourism 2

RECREATION & AMUSEMENTS
Sports & Entertainment Marketing 1 and 2

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Business Management **or** PVCC BUS 100/200 Business and Management
Entrepreneurship 1 **or** PVCC BUS 116/165 Entrepreneurship and Small Business
Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
Leadership & Design Thinking
Geospatial Technology 1 **or** JMU GEOG 161 Geospatial Tools and Techniques
World Geography **or** AP Human Geography

HEART Course Descriptions

Gateway

Complete the following Gateway course (Part 1):

Hospitality and Tourism 1, 2

Hospitality and Tourism 1: Students begin preparation for employment in hospitality industries by focusing on principles of operations in food services, recreation, hospitality planning, and business relations. Special attention is paid to the development of culinary skills (food sanitation, food preparation, and serving) and customer service skills.

Hospitality and Tourism 2: Students continue preparation for employment in hospitality industries by focusing on principles of operations in travel and tourism, lodging, food services, hospitality planning, and business relations. Special attention is paid to the development of skills used in the lodging industry (rooms, sales and marketing, front office, and housekeeping divisions) and customer-service skills.

*Related to the Hospitality, Eateries, Amusements, Recreation & Tourism (HEART) Career Learning Community (CLC), Hospitality and Tourism 1 is the **Gateway** course, and Hospitality and Tourism 2 is the **Capstone** course.*

Pathway Sequence

Complete the course sequence in one of the following pathways:

Culinary

Complete **Introduction to Culinary Arts** followed by **Culinary Arts Specialization** or CATEC's Professional Culinary Arts I class.

Culinary Arts Specialization

Continuing from Introduction to Culinary Arts, this course provides students with opportunities to obtain comprehensive knowledge of the food service industry as well as to expand their technical skills in a food service specialty. Students explore careers and refine their skills in implementing safety and sanitation standards, applying nutritional principles, planning menus, using business and math skills, and selecting and maintaining food service equipment. (CTE Code: 8279)

Students will prepare to take the ServSafe Industry Certification, and with a passing score, will test out of PVCC HRI 158 Sanitation and Safety.

Introduction to Culinary Arts

Introduction to Culinary Arts students investigate food safety and sanitation, culinary preparation foundations, basic culinary skills, diverse cuisines, service styles, nutrition and menu development, and the economics of food. Students also explore postsecondary education options and career opportunities within the food service industry. (CTE Code: 8250)

Lodging, Travel & Tourism

Travel, Tourism and Destinations 1: Marketing

Examines the components of the travel and tourism industry, including attractions, lodging, transportation, and food and beverage. Other topics include the history, political, social and cultural effects of travel and tourism on local, state and global environments. Students develop competencies in the areas of communication, customer service, marketing, industry technology, economics, and management functions, and are provided with opportunities for hands-on, real-world applications. Applying academic skills is also part of this course.

Travel, Tourism and Destinations 2: Management

Designed to provide students with an in-depth look at travel, tourism, and destination marketing. Students learn about business management, communications strategies, and the importance of sales and marketing in the travel and tourism industry. Students gain an understanding of soft skills, career trends, and opportunities. They develop advanced competencies in the areas of human relations, finance, safety and environmental issues, industry-specific technology, promotional planning, and market research. Academic skills related to the content are also a part of this course.

Recreation & Amusements

Sports & Entertainment Marketing 1, 2

Sports & Entertainment Marketing 1: This introductory course helps students develop a thorough understanding of fundamental marketing concepts and theories as they relate to the sports and entertainment industries. Students will investigate the components of customer service skills, branding, product development, pricing and distribution strategies, business structures, sales processes, social media, sponsorships and endorsements, as well as promotion plans needed for sports and entertainment events. (CTE Code: 8175)

Sports & Entertainment Marketing 2: Students will build on prior knowledge of sports, entertainment, and recreation marketing. This course focuses on the principles of management and planning supported by research, financial, economic, ethical, and legal concepts. Students will be able to plan and execute an event, establish a sports, entertainment, or recreation marketing product/business, and develop a career plan. (CTE Code: 8177)

Capstone

Complete the following Capstone course (Part 2):

Hospitality and Tourism 1, 2

Hospitality and Tourism 1: Students begin preparation for employment in hospitality industries by focusing on principles of operations in food services, recreation, hospitality planning, and business relations. Special attention is paid to the development of culinary skills (food sanitation, food preparation, and serving) and customer service skills.

Hospitality and Tourism 2: Students continue preparation for employment in hospitality industries by focusing on principles of operations in travel and tourism, lodging, food services, hospitality planning, and business relations. Special attention is paid to the development of skills used in the lodging industry (rooms, sales and marketing, front office, and housekeeping divisions) and customer-service skills.

*Related to the Hospitality, Eateries, Amusements, Recreation & Tourism (HEART) Career Learning Community (CLC), Hospitality and Tourism 1 is the **Gateway** course, and Hospitality and Tourism 2 is the **Capstone** course.*

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Human Geography

Following the College Board's suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth's surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

Business Management

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course. (CTE Code: 6135)

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Geospatial Technology 1, 2

The geospatial technology program provides experiences pertaining to the study and use of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), and mobile technologies. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, locally, globally, and beyond.

Geospatial Technology 1: Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of geospatial technologies. (CTE Code: 8423)

Geospatial Technology 2: Builds upon the study and use of Geospatial Technology 1. Students further explore and analyze the natural and human-made world, locally, globally, and beyond. Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. Data is created, collected, and used to analyze spatial relationships. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. Students will also use network-based data management systems. (CTE Code: 8424)

Courses must be taken in sequence.

JMU GEOG 161 Geospatial Tools and Techniques

An introduction to the use of geospatial tools, such as geographic information systems (GIS), global positioning systems (GPS) and remote sensing, applied to a variety of areas, including cultural geography, environmental science, ecology, geology and public planning. (CTE Code: 8423)

Leadership & Design Thinking

Students develop competencies in identifying individual aptitudes in relation to effective leadership skills, understanding organizational behavior, using effective communication in the workplace, handling human resources and organizational problems, supervising and training employees, resolving conflict, and planning for the future. Continuing education in leadership is emphasized as well as practical leadership experiences in cooperation with school and community leaders. (CTE Code: 9097)

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC BUS 100/200 Business and Management

Teaches management and the management functions of planning, organizing, leading, and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. (CTE Code: 6135)

PVCC BUS 116/165 Entrepreneurship and Small Business

Presents the various steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations of the business, development of business plans, buyouts versus starting from scratch, and franchising. Uses problems and cases to demonstrate implementation of these techniques. (CTE Code: 9093)

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

World Geography

World Geography courses provide students with an overview of world geography, but may vary widely in the topics they cover. Topics typically include the physical environment; the political landscape; the relationship between people and the land; economic production and development; and the movement of people, goods, and ideas.

Information & Communication Technology

General Information

The **Information & Communication Technology** Career Learning Community (CLC) at Center I is really three separate learning communities all loosely focused around technology, coding, music, video, and social media. Students grow their skills through project-based learning in a collaborative, dynamic, 21st century learning space.

Who should consider this CLC?

Students who want to:

- Learn how to turn their passion into a business;
- Learn how to turn their gaming into a YouTube career;
- Get certifications in cybersecurity and instantly be valuable to a business; or
- Design and market a self-created video game or app.

What are some career fields that align with this CLC?

- Broadcast journalism
- Cybersecurity
- Film production
- Game design
- Graphic design
- Public relations
- Software development

Location

Center I

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Information Technology Fundamentals

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

MEDIA COMMUNICATIONS
Video & Media Tech 1 and 2

CYBERSECURITY
Cybersecurity 1 and 2

GAME DESIGN & DEVELOPMENT
Game Design and Development 1 and 2

CAPSTONE

12th Grade

Complete the Capstone course:

Entrepreneurship 1

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Video & Media Tech 3
Data Science
Media and Web Design 1
AP Computer Science A
Cybersecurity 3
Film Study
Astronomy
Creative Writing
Practical Law

Information & Communication Technology Course Descriptions

Gateway

Complete the following Gateway course:

Information Technology Fundamentals

Information Technology Fundamentals introduces the essential technical and professional skills required for students to pursue programs leading to professional careers and information technology certifications. The course introduces skills related to digital technology, digital applications, maintenance/upgrading/troubleshooting, and networking fundamentals. Students also explore ethical issues related to computers and Internet technology and examine web page and game design. (CTE Code: 6670)

Pathway Sequence

Complete the course sequence in one of the following pathways:

Media Communications

Complete **Video & Media Tech 1 and 2**.

Video & Media Tech 1, 2, 3

Video & Media Tech 1: Communication Systems provides experiences in the fields of imaging technology, graphic productions, video and media, technical design, and various modes of communicating information through the use of data. Students develop critical-thinking and problem-solving skills using the universal systems model. Students also learn about the impact of communication on society and potential career fields relating to communications. (CTE Code: 8415)

Video & Media Tech 2: Video and Media Technology offers students a hands-on opportunity to study all aspects of video and media production. Students will conceptualize, plan, and contribute through all production phases: preproduction, production, and postproduction. In addition, students will practice various methods of gathering and recording information and creating novel content to create a variety of video and media productions while operating studio editing software and video and audio equipment. (CTE Code: 8497)

Video & Media Tech 3: Digital Visualization provides experiences related to computer animation by using graphics and design concepts. Students solve problems involving 3D object manipulation, storyboarding, texturing/mapping, lighting concepts, and environmental geometry. Students create a variety of animations that reflect real-world applications and are introduced to interactive and 3D animation software. Production of a portfolio showcasing examples of original student work is included. (CTE Code: 8459)

Cybersecurity

Complete **Cybersecurity 1 and 2**.

Cybersecurity 1: Fundamentals

Cybersecurity 1: Fundamentals focuses on the evolving and all-pervasive technological environment with an emphasis on securing personal, organizational, and national information. Students will be introduced to the principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity. (CTE Code: 6302)

Cybersecurity 2: Software Operations

Cybersecurity 2: Software Operations is designed to teach many aspects of computer support and network administration. Students learn networking concepts, from usage to components, and create peer-to-peer network systems and client server networks. Students learn how to install and configure network cards and connect them to networks; to install the operating systems; to create, set up, and manage accounts; to load software; and to establish, implement, and maintain network integrity security plans. This course may cover software-based network operating systems, such as Windows Server or Linux, to prepare students with a foundation in computer network administration. (CTE Code: 6304)

Game Design & Development

Game Design and Development 1, 2

Game Design and Development 1: In this project-based course, students will create innovative games through the application of graphic design, animation, audio, and writing skills. Students will work in teams while developing problem-solving, critical thinking, and effective communication skills. They will analyze, design, prototype, and critique interactive games within a project management environment. Career opportunities across multiple industries, including the entertainment and educational arenas, will be explored. (CTE Code: 8400)

Game Design and Development 2: Students will work collaboratively in teams to refine their game design skills as they apply graphic design, animation, audio and writing skills to create innovative games for education and entertainment. This project-based course enhances problem solving, project management, and communication skills through the analysis, design, construction, and critique of interactive games. Students will learn about career opportunities in game design and development and investigate the training and certification requirements. (CTE Code: 8401)

Courses must be taken in sequence.

Capstone

Complete the following Capstone course (Part 1):

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Computer Science A

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. (CTE Code: 3185)

Astronomy

Astronomy courses offer students the opportunity to study the solar system, stars, galaxies, and interstellar bodies. These courses usually introduce and use astronomic instruments and typically explore theories regarding the origin and evolution of the universe, space, and time.

Creative Writing 1, 2, 3, 4

Creative Writing courses offer students the opportunity to develop and improve their technique and individual style in poetry, short story, drama, essays, and other forms of prose. The emphasis of the courses is on writing; however, students may study exemplary representations and authors to obtain a fuller appreciation of the form and craft. Although most creative writing classes cover several expressive forms, others concentrate exclusively on one particular form (such as poetry or playwriting).

Creative Writing 3 and 4 are weighted courses.

Cybersecurity 3: Advanced Software Operations

Cybersecurity 3: Advanced Software Operations continues to teach aspects of network administration, focusing on the management and support of network users and systems. The topics covered include understanding the responsibilities of computer professionals, training end users, evaluating new technology, developing system policies, troubleshooting workstations, managing network services and protocols, and effectively using email and business communications. Students learn communication protocols, troubleshooting techniques for systems and client-server networks, website management, and other advanced networking topics. Techniques that are used to install operating systems, set up and manage accounts, load software, and create and implement security plans are taught. This course may provide instruction about software-based network operating systems, such as Windows Server or Linux. Instruction will emphasize preparation for industry certification. (CTE Code: 6306)

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Film Study/Filmmaking 1, 2, 3, 4

These courses examine specific topics in audio and video technology and film.

Film Study/Filmmaking 3 and 4 are weighted courses.

Media and Web Design 1, 2

Media and Web Design 1: Students develop proficiency in designing and creating desktop-published projects, multimedia presentations/projects, and websites, using industry-standard application software. Students apply principles of layout and design in completing projects. Students create portfolios that include a résumé and a variety of desktop-published, multimedia, and website projects produced in the course. (CTE Code: 6630)

Media and Web Design 2: Students develop advanced skills for creating desktop-published, interactive multimedia, and website projects. Students work with sophisticated hardware and software, applying skills to real-world projects. (CTE Code: 6631)

Practical Law

This course provides the high school student with the practical legal background one needs to function as an adult. It enables the young adult to foresee and avoid legal problems and to obtain professional help when necessary. Topics covered include contracts, property, marriage, wills, civil and criminal procedure, and consumer protection.

Video & Media Tech 1, 2, 3

Video & Media Tech 1: Communication Systems provides experiences in the fields of imaging technology, graphic productions, video and media, technical design, and various modes of communicating information through the use of data. Students develop critical-thinking and problem-solving skills using the universal systems model. Students also learn about the impact of communication on society and potential career fields relating to communications. (CTE Code: 8415)

Video & Media Tech 2: Video and Media Technology offers students a hands-on opportunity to study all aspects of video and media production. Students will conceptualize, plan, and contribute through all production phases: preproduction, production, and postproduction. In addition, students will practice various methods of gathering and recording information and creating novel content to create a variety of video and media productions while operating studio editing software and video and audio equipment. (CTE Code: 8497)

Video & Media Tech 3: Digital Visualization provides experiences related to computer animation by using graphics and design concepts. Students solve problems involving 3D object manipulation, storyboarding, texturing/mapping, lighting concepts, and environmental geometry. Students create a variety of animations that reflect real-world applications and are introduced to interactive and 3D animation software. Production of a portfolio showcasing examples of original student work is included. (CTE Code: 8459)

International Baccalaureate

General Information

Students enrolled in the **International Baccalaureate (IB)** programme at Community Lab School commit to a rigorous, upper-level course load that challenges them to be reflective of their own learning and consider global viewpoints. IB students have the opportunity to earn course certificates or a full IB diploma.

The IB Diploma Programme (DP) is a two-year comprehensive and rigorous pre-university curriculum leading to an IB diploma. The DP curriculum is made up of six subject groups and the DP core, comprising the Theory of Knowledge course; the creativity, activity, service (CAS) programme; and the extended essay. There are four elements to the CP core: personal and professional skills, service learning, language development, and reflective project. Students reflect on the nature of knowledge, complete independent research, and undertake a project that often involves community service.

To learn more, visit our International Baccalaureate website:

INTERNATIONAL BACCALAUREATE AT COMMUNITY LAB SCHOOL

IB Course Descriptions

IB Biology I, II

IB Biology I and II investigate the fundamental topics of biology, including cell biology, molecular biology, genetics, and evolution through laboratory investigations and individual student research.

Prerequisites: Biology 1 is a prerequisite for IB Biology I; IB Biology I is a prerequisite for IB Biology II.

IB Dance

The course focuses on the composition, performance and analysis of dance, or “expressive movement,” which is practiced amongst peoples of various backgrounds and for a variety of purposes throughout the world. Students create, participate in, and reflect upon dance forms and styles from a range of cultures and traditions, both familiar and unfamiliar.

Prerequisite: Dance 1

IB Design Technology I, II

Design Technology courses are recognized International Baccalaureate courses. The courses are designed to promote an understanding and appreciation of the technology design process as a cycle. As students work through the technology course and related project, which unifies all aspects of IB design technology, they analyze and evaluate the impact and ethical considerations arising from technology. The courses focus on how design is used to produce outcomes. In Design Technology 2, the design project is assessed against the design technology criteria: planning, research, development, evaluation, and manipulative skills. (CTE Code: IB4585/IB4586)

IB English 11, 12

IB English 11 and 12 are organized into three parts, each focused on a different aspect of literature and performance. Together, the three parts of each course cover the critical study of literary texts, exploration of chosen approaches to a text, and realization of texts in performance. Students engage with a wide variety of textual genres to explore the concept of transformation, examining the ways in which the contexts of production and reception shape meaning.

Courses must be taken in sequence.

IB Environmental Systems and Societies

Through studying environmental systems and societies, students will be provided with a coherent perspective of the interrelationships between environmental systems and societies, one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face.

IB Environmental Systems & Societies

Through studying environmental systems and societies, students will be provided with a coherent perspective of the interrelationships between environmental systems and societies, one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face.

IB Film I, II

At the core of the IB Film course lies a concern with clarity of understanding, critical thinking, reflective analysis, effective involvement, and imaginative synthesis that is achieved through practical engagement in the art and craft of film.

IB History 11, 12

IB History 11 and 12 are world history courses based on a comparative, multi-perspective approach to history and focused around key historical concepts such as change, causation and significance. The courses involve the study of a variety of types of history, including political, economic, social and cultural, encouraging students to think historically and to develop historical skills. In this way, the courses involve a challenging and demanding critical exploration of the past.

IB History requires students to study and compare examples from different regions of the world, helping to foster international mindedness. Teachers have a great deal of freedom to choose relevant examples to explore with their students, helping to ensure that the course meets their students' needs and interests regardless of their location or context.

Courses must be taken in sequence.

IB Math: Analysis and Approaches I

This course focuses on developing important mathematical concepts in a coherent and rigorous way, with an emphasis on communication and independent inquiry. The course reviews the fundamentals of algebra, geometry and trigonometry, before delving into an in-depth investigation of statistics and single-variable calculus.

IB Math: Applications and Interpretation I, II

IB Math: Applications and Interpretation I focuses on introducing important mathematical concepts with an emphasis on statistics and introductory calculus. Instruction will focus on the application of mathematics to real-world phenomena and the interpretation of advanced mathematical notions in terms of concrete scenarios.

IB Math: Applications and Interpretation II focuses on introducing important mathematical concepts with an emphasis on statistics and introductory calculus. Instruction will focus on the application of mathematics to real-world phenomena and the interpretation of advanced mathematical notions in terms of concrete scenarios.

Prerequisites: Geometry and Algebra 2

IB Music I

Involving aspects of the composition, performance and critical analysis of music, the course exposes students to forms, styles and functions of music from a wide range of historical and sociocultural contexts. Students create, participate in, and reflect upon music from their own background and those of others. They develop practical and communicative skills which provide them with the opportunity to engage in music for further study, as well as for lifetime enjoyment.

Prerequisite: Audio Production

IB Philosophy

Philosophy is a systematic critical inquiry into profound, fascinating and challenging questions, such as: What is it to be human? Do we have free will? What do we mean when we say something is right or wrong? These abstract questions arise out of our everyday experiences, and philosophical tools such as critical and systematic thinking, careful analysis, and construction of arguments provide the means of addressing such questions. The practice of philosophy deepens and clarifies our understanding of these questions, as well as our ability to formulate possible responses.

IB Spanish IV, V

IB Spanish aims to develop students' intercultural understanding; enable students to understand and use the language they have studied in a range of contexts and for a variety of purposes; encourage, through the study of texts and social interaction, an awareness and appreciation of the different perspectives of people from other cultures; develop students' awareness of the role of language in relation to other areas of knowledge; develop students' awareness of the relationship between the languages and cultures with which they are familiar; provide students with a basis for further study, work and leisure through the use of an additional language; and provide the opportunity for enjoyment, creativity, and intellectual stimulation through knowledge of an additional language.

Prerequisite: Spanish 3 or equivalent

IB Theory of Knowledge I

As a thoughtful and purposeful inquiry into different ways of knowing and different kinds of knowledge, this course is composed almost entirely of questions. The most central of these is: How do we know? Other questions include: What counts as evidence for X? How do we judge which is the best model of Y? What does theory Z mean in the real world? Through discussions of these and other questions, students gain greater awareness of their personal and ideological assumptions and develop an appreciation of the diversity and richness of cultural perspectives.

IB Visual Arts I, II

IB Visual Arts courses encourage students to challenge their own creative and cultural expectations and boundaries. In these thought-provoking courses, students develop analytical skills in problem solving and divergent thinking, while working towards technical proficiency and confidence as art-makers. In addition to exploring and comparing visual arts from different perspectives and in different contexts, students are expected to engage in, experiment with, and critically reflect upon a wide range of contemporary practices and media. Courses are designed for students who want to go on to study visual arts in higher education as well as for those who are seeking lifelong enrichment through visual arts.

Courses must be taken in sequence.

Math, Engineering & Sciences

General Information

The **Math, Engineering & Sciences** Career Learning Community (CLC) prepares students to pursue post-secondary and career interests in STEM fields (science, technology, engineering and mathematics) through exploration of specific interests, hands-on project experience, and the development of critical STEM skills.

Who should consider this CLC?

Students who are excited about:

- Building rockets, airplanes, cars, bridges or buildings;
- Helping the environment or tackling climate change;
- Human, plant or animal biology;
- Computers, electronics, robotics, or artificial intelligence (AI); or
- Understanding how people think, feel and act.

What are some career fields that align with this CLC?

- Architecture or construction
- Astronomy, biology, chemistry, etc.
- Economics
- Engineering
- Environmental science
- Manufacturing
- Mechanics

Industry Credentials Aligned to CLC

- MATLAB Certified Associate
- Autodesk Certified Professional & User

Location

Albemarle High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Science, Technology & Society

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

MATH
Data Science **+** any math course of interest

ENGINEERING
Engineering 1 and 2 **or** Engineering Analysis and Applications 1, 2

SCIENCE
Data Science **+** any science or social science course of interest

TECHNOLOGY
Principles of Technology 1 and 2

CAPSTONE

12th Grade

Complete the Capstone course:

Scientific Research and Design

PATHWAY PLUS

10th – 12th Grade

Complete at least one of the following Pathway Plus courses or any AP math or AP science course:

Robotics & Automation 1 or 2
Computer Science 1 or 2 **or** AP Computer Science Principles **or** AP Computer Science A
Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
Engineering Concepts and Processes 3 **or** PVCC CAD 151 Engineering Drawing Fundamentals
PVCC EGR 121/122 Foundations of Engineering and Design
Probability & Statistics **or** any AP math course
Physics 1 **or** any AP science course

Math, Engineering & Sciences Course Descriptions

Gateway

Complete the following Gateway course:

Science, Technology & Society

Students explore and understand the ways in which science and technology shape culture, values and institutions, and how such factors, in turn, shape science and technology. Students examine science, technology and engineering fundamentals in relation to solving real-world problems. Students are introduced to engineering fundamentals using mathematical and scientific concepts, and they apply the engineering design process through participation in hands-on engineering projects. Students are introduced to scientific research fundamentals using scientific inquiry and experimentation methodologies, and they apply the scientific method through participation in hands-on science projects. An important outcome of this course is helping students decide on a STEM focus, either engineering or science, and a particular area of specialty.

Pathway Sequence

Complete the course sequence in one of the following pathways:

Math

Complete **Data Science** followed by **any math course of interest**.

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Engineering

Engineering 1: Materials & Processes

This is an introductory course in design tools and advanced manufacturing technologies. This course is a foundation for learning creative problem solving using a variety of hand tools and CAD/CAM machines. Students will learn the basics in 3D modeling, 2D design, maintenance through application of wood and metalworking equipment, and a variety of technology, including CNC machines, laser cutters, and 3D printers. Students will utilize these tools to solve a variety of problems and create physical and digital solutions. (CTE Code: 8433)

Engineering 2: Construction

Students will apply design thinking to solve real world problems with advanced manufacturing tools and techniques. Throughout this course, students will iterate ideas utilizing software simulation and physics applications to bring functional and practical designs to life. (CTE Code: 8431)

Engineering Analysis and Applications (formerly Engineering Research) 1, 2

Engineering Analysis and Applications 1 (formerly Engineering Research 1): Students examine technology and engineering fundamentals in relation to solving real-world problems. Students investigate engineering history, including major engineering achievements, and they examine the principle engineering specialty fields and their related careers. Students practice engineering fundamentals, using mathematical and scientific concepts, and they apply the engineering design process through participation in hands-on engineering projects. Students communicate project-related information through team-based presentations, proposals, and technical reports. (CTE Code: 8450)

Engineering Analysis and Applications 2 (formerly Engineering Research 2): Focuses on building an engineering team, working with case studies, managing projects, delivering formal proposals and presentations, and examining product and process trends. In addition, students continue to apply their engineering skills to determine what postsecondary education engineering pathway they want to follow. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports. (CTE Code: 8452)

Science

Complete **Data Science** followed by **any science or social science course of interest**.

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Technology

Principles of Technology 1, 2

Principles of Technology 1 and 2 are single-period laboratory science courses. Students apply physics and mathematics concepts through a unified systems approach to develop a broad knowledge base of the principles underlying modern technical systems. Students study seven technical principles: force, work, rate, resistance, energy, power, and force

transformers, emphasizing how each principle plays a unifying role in the operation of mechanical, fluid, electrical, and thermal systems in high-technology equipment. This “principles and systems” approach to studying these technical principles provides a foundation for further education and career flexibility as technology and technical systems advance.

Note: Students who complete Principles of Technology 1 and 2 may use these courses to satisfy one physics credit in laboratory science. A student must complete both courses in order to receive laboratory science credit. The sequence of Principles of Technology 1 and 2 will satisfy one unit of credit in laboratory science for physics and one elective credit. Students who enroll in Principles of Technology courses for a physics credit must have completed Algebra 1 and two other laboratory science courses as specified by the accrediting standards prior to enrolling in Principles of Technology. (CTE Code: 9811)

Prerequisite(s): Algebra 1 and two lab sciences if using for a physics credit

Capstone

Complete the following Capstone course:

Scientific Research and Design

Scientific Research and Design is a broad-based course designed to allow students the opportunity to research fields of interest in the areas of science, social science, math, technology, and engineering. The course has the components of any rigorous scientific or engineering program of study, including problem identification, investigation design, data collection, data analysis, formulation, and presentation of conclusions. These components are integrated through a career and technical education lens, with an emphasis on helping students gain entry-level employment in high-skill, high-wage jobs and/or continue their education.

Pathway Plus

Complete at least one of the following Pathway Plus courses or any AP math or AP science course:

AP Computer Science A

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. (CTE Code: 3185)

AP Computer Science Principles

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. (CTE Code: 10019)

AP Psychology

Following the College Board’s suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications,

including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Engineering Concepts and Processes 3

This is the third course of a four-course sequence that will enable students to solve real-world problems. This course focuses on building an engineering team, working with case studies, managing projects, delivering formal proposals and presentations, and examining product and process trends. In addition, students continue to apply their engineering skills to determine the postsecondary education engineering pathway they want to follow. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports.

Prerequisite: Engineering Analysis and Applications 2 (formerly Engineering Research 2)

Physics 1

Physics courses involve the study of the forces and laws of nature affecting matter, such as equilibrium, motion, momentum, and the relationships between matter and energy. The study of physics includes examination of sound, light, and magnetic and electric phenomena.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC CAD 151 Engineering Drawing Fundamentals

Introduces technical drafting from the fundamentals through advanced drafting practices. Includes lettering, geometric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners. Teaches theory and application of dimensioning and tolerances, pictorial drawing, and preparation of drawings. (CTE Code: 8436)

Prerequisite: Technical Drawing & Design

PVCC EGR 121/122 Foundations of Engineering and Design

Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer and operating systems. Includes engineering problem solving techniques using computer software. Applies principles of orthographic projection, and multi- view drawings. Teaches descriptive geometry including relationships of points, lines, planes and solids. Introduces sectioning, dimensioning and computer graphic techniques. Includes instruction in Computer Aided Drafting.

Prerequisite: PVCC MATH 162 PreCalculus or equivalent, such as Mathematical Analysis

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PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Robotics & Automation 1, 2

Robotics & Automation 1: This is a lab-based course that uses a team-based approach to introduce the basic concepts of robotics, construction and programming of autonomous and semi-autonomous robots. The course will focus on careers in engineering, robotics, programming and game design. Course instruction will primarily be tied to lab experiments, as students will work collaboratively to build and test increasingly more complex robots. (CTE Code: 8421)

Robotics & Automation 2: Students engage in the study of computers and microprocessors and their applications to manufacturing, transportation, and communication systems. Topics include computer programming using Java, robotic design, control systems, and social/cultural impact of these technologies. Problem-solving activities challenge students to design, program, and interface devices with computer systems. Learning activities include building robots, using computer-aided design, 3D printing, and control of electromechanical devices. Students will participate in hands-on projects in a laboratory setting as they communicate information through team-based presentations, proposals, and technical reports. In addition, students will have the ability to compete in the First Tech Challenge (FTC) Robotics. This will challenge their engineering skills and give them the ability to communicate with other schools, businesses, and industry. (CTE Code: 8405)

Visual Arts

General Information

Students in the **Visual Arts** Career Learning Community (CLC) learn to meet a variety of challenges by formulating creative solutions. Students study the human experience through art, gaining hands-on experience with various mediums for artistic expression, developing their critical thinking skills and their ability to critique art, and deepening their understanding of the history of art and its cultural significance.

Who should consider this CLC?

Students who:

- Love making things by hand;
- Love art, design, and visual creations;
- Are creative;
- Think outside the box; or
- Are searching for a community of like-minded artists.

What are some career fields that align with this CLC?

- Art education
- Art restoration
- Design (fashion, graphic, industrial, interior, landscape, set/costume, etc.)
- Fine art (painting, drawing, sculpture, photography, crafts, film, etc.)
- Marketing
- Museum or gallery curation
- Web design or content creation

Industry Credentials Aligned to CLC

- MATLAB Certified Associate
- Autodesk Certified Professional & User

Location

Monticello High School

Course Overview

GATEWAY

10th Grade

Complete the Gateway course:

Fundamentals of Design

PATHWAY SEQUENCE

11th – 12th Grade

Choose a pathway and complete the sequence of courses for that pathway:

PHOTOGRAPHY
Photography 1 and 2

CRAFT
Multimedia Crafts 1 and 2

DIGITAL DESIGN
Digital Arts 1 and 2 **or** Graphic Arts Design 1 and 2

FILM STUDY
Film and Video Production 1 and 2 **or** Film

CAPSTONE

12th Grade

Complete the Capstone course:

Visual Communications Design

Study/Filmmaking 1 and 2

PATHWAY PLUS

10th – 12th Grade

Complete at least one Pathway Plus course:

Psychology **or** PVCC PSY 200/230 Principles of Psychology/Developmental Psychology **or** AP Psychology
Journalism 1
Entrepreneurship 1 **or** PVCC BUS 116/165 Entrepreneurship and Small Business
AP Studio Art: 2-D Design **or** AP Studio Art: Drawing **or** AP Art History
PVCC BUS 100/200 Business and Management

Visual Arts Course Descriptions

Gateway

Complete the following Gateway course:

Fundamentals of Design

This course centers on the principles of design through an expansive exploration of a variety of methodologies, processes and careers. Students also learn about concepts/big ideas that make connections between art and life through the disciplines of aesthetics, art criticism, art history, and art production. An emphasis will be placed on the ability to understand the elements of art and principles of design through a variety of media processes and visual resources so that students demonstrate versatility in visual language. Students learn to respond to their work and the work of others. This course is designed to enrich the lives of its participants' cultures, artistic styles, and art media through discovery, creative problem solving, and ideation. It provides students with a broader perception of their community, environment, and cultural perspectives in preparation for deeper study toward a professional focus.

Pathway Sequence

Complete the course sequence in one of the following pathways:

Photography

Complete **Photography 1 and 2**.

Photography 1, 2, 3, 4

Photography courses provide students with an understanding of photographic media, techniques, and processes. These courses focus on development of photographic compositions through manipulation of the fundamental processes of artistic expression. Students may learn to make meaningful visual statements with an emphasis on personal creative expression to communicate ideas, feelings, or values. Photography courses may also include the history of photography, historic movements, image manipulation, critical analysis, and some creative special effects. Students engage in critiques of their photographic images, the works of other students, and those by professional photographers for the purpose of reflecting on and refining work. Each subsequent course builds on the skills, processes and ideas explored in the previous level.

Photography 3 and 4 are weighted courses.

Craft

Complete **Multimedia Crafts 1 and 2**.

Multimedia Crafts 1, 2, 3, 4

These courses help students apply fundamental processes of artistic expression to the materials and accompanying aesthetics of crafts. Students may explore types of folk art and the materials and ways in which objects have been created for practical, religious, spiritual, and cultural needs of people around the world. These courses may survey a wide range of crafts or may focus on only one type of craft; some possibilities include calligraphy, quilting, silk-screening, cake-decorating, tole-painting, mask-making, knitting, crocheting, paper-making, and so on. These courses may also explore aesthetic issues surrounding folk art and artists and engage in critiques of this authentic art form. Multimedia Crafts 4 students are highly skilled and can work independently.

Multimedia Crafts 3 and 4 are weighted courses.

Digital Design

Complete **Digital Arts 1 and 2** or **Graphic Arts Design 1 and 2**.

Digital Arts 1, 2, 3, 4

Digital Arts (previously called Digital Imaging/Multimedia Art) courses emphasize applying the fundamental processes of artistic expression for the purpose of creating multimedia productions that explore contemporary social, cultural and political issues. These courses include the history and development of multiple forms of media, including a combination of text, audio, still images, animation, video, and interactive content. These courses provide students with the opportunity to develop foundational skills and knowledge while they also become more adept in cinema, video, digital live production, and electronic time-based media. Students engage in critique of their multimedia work, that of others, and the multimedia video, digital, and live production work of artists for the purpose of reflecting on and refining work for presentation.

Digital Arts 3 and 4 are weighted courses.

Graphic Arts Design 1, 2, 3

Graphic Arts Design (levels 1, 2 and 3) is a course series that emphasizes applying fundamental processes of artistic expression through the exploration of the purposeful arrangement of images, symbols and text to communicate a message. These courses may include investigations of how technology influences the creation of graphic and digital designs and study of historical and contemporary visual communications design. These courses also provide instruction in the process of responding to your own art and that of others, including master designers, through analysis, critique and interpretation for the purpose of reflecting on and refining work.

Graphic Arts Design 3 is a weighted course.

Film Study

Complete **Film and Video Production 1 and 2** or **Film Study/Filmmaking 1 and 2**.

Film and Video Production 1, 2, 3, 4

These courses emphasize the application of the fundamental processes of artistic expression for the purpose of shooting and processing of the image. These courses include the history and development of cinema, television, and video production. Students explore a range of skills needed to explore contemporary social, cultural, and political issues and

creatively solve problems within and through cinematic or video productions. Students engage in critiques of their cinematic or video productions, those of others, and productions of professional cinematographers or video artists for the purpose of reflecting on and refining work for presentation.

Film and Video Production 3 and 4 are weighted courses.

Film Study/Filmmaking 1, 2, 3, 4

These courses examine specific topics in audio and video technology and film.

Film Study/Filmmaking 3 and 4 are weighted courses.

Capstone

Complete the following Capstone course:

Visual Communications Design

Graphic Arts Design is a course series that emphasizes applying fundamental processes of artistic expression through the exploration of the purposeful arrangement of images, symbols and text to communicate a message. These courses may include investigations of how technology influences the creation of graphic and digital designs and study of historical and contemporary visual communications design. These courses also provide instruction in the process of responding to your own art and that of others, including master designers, through analysis, critique and interpretation for the purpose of reflecting on and refining work.

Pathway Plus

Complete at least one of the following Pathway Plus courses:

AP Art History

Designed to parallel college-level Art History courses, AP Art History courses provide the opportunity for students to critically examine and respond to works of art within their historical and cultural contexts. In covering the art and movements of several centuries (not necessarily in chronological order), students learn to identify different styles, techniques, media and influences. Students formulate and articulate their reactions to various kinds of artwork to understand and appreciate themselves, others, and the world around them.

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP Studio Art: 2-D Design

Designed for students with a professional or academic interest in two-dimensional art, the course focuses on a variety of concepts and approaches in drawing and 2-D design, enabling students to demonstrate a range of abilities and versatility with media, technique, problem solving, and scope. Such conceptual variety can be demonstrated through the use of one or several media. Students refine their skills and create artistic works to submit via a portfolio to the College Board for evaluation.

AP Studio Art: Drawing

Designed for students with a professional or academic interest in the art of drawing, the course focuses on a variety of concepts and approaches in drawing, enabling students to demonstrate a depth of knowledge of the processes, and a range of abilities, and versatility with media, technique, problem solving, and scope. They can demonstrate such conceptual variety through either the use of one or the use of several media.These courses enable students to refine their skills and create artistic works to submit via portfolio to the College Board for evaluation.

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Journalism 1, 2, 3, 4

Journalism courses (typically associated with the production of a school newspaper, yearbook, or literary magazine) emphasize writing style and technique as well as production values and organization. Journalism courses introduce students to the concepts of newsworthiness and press responsibility; develop students' skills in writing and editing stories, headlines, and captions; and teach students the principles of production design, layout, and printing. Photography, photojournalism, and digital technology skills may be included.

Journalism 3 and 4 are weighted courses.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

PVCC BUS 100/200 Business and Management

Teaches management and the management functions of planning, organizing, leading, and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. (CTE Code: 6135)

PVCC BUS 116/165 Entrepreneurship and Small Business

Presents the various steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations of the business, development of business plans, buyouts versus starting from scratch, and franchising. Uses problems and cases to demonstrate implementation of these techniques. (CTE Code: 9093)

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Charlottesville Area Technical Education Center (CATEC)

General Information

Charlottesville Area Technical Education Center (CATEC) currently offers 9 high school programs to students from Charlottesville City Schools and Albemarle County Public Schools, free of charge. CATEC high school students have opportunities to practice hands-on and work-based learning activities alongside academically-driven curricula that prepare them to enter the workforce and continue their education.

CATEC offerings are grouped into two learning communities: **Health & Medical Sciences** and **Skilled Trades**. Click the links below to learn more about the programs offered within each learning community:

HEALTH & MEDICAL SCIENCES

Emergency Medical Technician
Nurse Assistant
Veterinary Science

SKILLED TRADES

Automotive Service Technology
Carpentry
Cosmetology
Culinary Arts
Electricity
Fire Science

Departments & Course Descriptions

- Career & Technical Education (CTE)
- English
- Fine and Performing Arts
- Health, Physical Education & Driver Education
- History & Social Science
- Mathematics
- Science
- Special Education
- World Languages

Career and Technical Education (CTE)

Career and Technical Education (CTE) programs provide learners with the sequential electives required for graduation and the knowledge and skills they need to be prepared for college and careers. CTE courses emphasize real-world skills and practical knowledge within a selected career focus, and they lead to opportunities across a variety of careers, industries and pathways.

All CTE courses include contextual instruction and participation in co-curricular career and technical student organization (CTSO) activities, through which students will develop leadership, interpersonal and career skills. High-quality work-based learning (HQWBL) is embedded in CTE courses and provides experiential learning opportunities related to students' career goals and interests, integrated with instruction and performed in partnership with local businesses and organizations.

All CTE courses are aligned with state-approved industry credentials as a part of the Virginia Department of Education's High School Industry Credentialing initiative. CTE students have an opportunity to earn a credential or license by passing an approved exam as part of participation and learning in their chosen CTE program.

CTE Program Areas & Course Descriptions

Our CTE program areas are aligned with Virginia's CTE Career Clusters. Career clusters organize CTE courses around various career pathways, helping students to create plans of study based on their interests, strengths and goals.

All courses with Advanced Placement (AP), Dual Enrollment (PVCC or JMU), Honors, and International Baccalaureate (IB) designations are weighted. Additionally, **beginning with students entering 9th grade in the 2022-23 school year**, students will earn a weighted credit for the third and fourth CTE courses they take within a CTE Career Cluster.

Agriculture, Food & Natural Resources

Environmental Management 1: Ecology

Students develop conservation competencies and skills through the understanding of environmental concerns. Instructional content includes the care, management and preservation of soil, air, water, forests and wildlife. Students identify and discuss prevalent environmental problems and learn methods and practices used to preserve natural resources and maintain a healthy ecology. Teachers incorporate specific environmental concerns and issues common to the local community. This course supports components of biology and chemistry.

Environmental Management 2: Fisheries and Wildlife

Offers an introduction to conservation and management of both terrestrial and aquatic wildlife and their habitats. Content addressing the issues related to endangered species and organizations that protect fisheries and wildlife is also included.

Forestry Management 1, 2

Forestry Management 1: Provides instruction in the management of the forest as a resource and as a business. Students develop knowledge in tree physiology, forest ecology, silviculture, and the management and marketing of forest products. Strong emphasis is placed on developing career skills for the forestry industry.

Forestry Management 2: Offers students instruction in forestry ecology, map interpretation, and timber management practices. Additionally, students will investigate ways to protect and preserve forested land, including pest identification and management, identification of common tree diseases, and forest fire prevention.

Foundations of Environmental Science

This course serves as the introductory-level course for the Natural Resources Career Pathway. Students will explore environmental science, conservation management, and the study of natural resources to develop the knowledge and skills

required for employment in occupations and careers related to ecology, forestry, and wildlife and natural resources management.

Horticulture 1: Plant Systems

In Horticulture 1: Plant Systems, students develop competencies in each of the major areas of the Plant Systems career pathway, including applied botany, plant propagation, and plant care and selection. Instructional content also includes an introduction to the various aspects of the plant systems industry. Students learn agricultural mechanics applicable to plant systems.

Horticulture 2: Greenhouse Plant Production and Management

Horticulture 2: Greenhouse Plant Production and Management prepares students for postsecondary educational career programs and entry-level positions in the greenhouse plant production and management industry. Instruction includes industry safety in greenhouse plant production, development of plant production facilities, greenhouse management and operations, plant identification, the science of plant production, business management, and marketing skills.

Architecture & Construction

Architectural Drawing & Design

Students learn the principles of architecture and increase understanding of working drawings and construction techniques learned in the prerequisite course. Experiences include residential and commercial building designs, rendering, model development, and structural details. Students use computer-aided drawing and design (CADD) equipment and established standards or codes to prepare models for presentation. The course is especially beneficial to future architects, interior designers, or home builders. (CTE Code: 8437)

Prerequisite: Technical Drawing & Design

Design 1: Prototyping

Foundational design theory course that introduces students to a variety of tools that focuses specifically on the nature of design and aesthetic appeal. Students will identify the specific needs of worldly concern or a customer, generate concepts, pitch ideas, and create physical or digital prototypes for evaluation. Students may interact with a variety of problems or iterate a few designs based on the needs of the class. (CTE Code: 8425)

Design 2: Product Design

Students will work in teams to design and create unique, functional and meaningful products that will benefit society. Teams will apply knowledge and skills of design and manufacturing techniques combined with entrepreneurial thinking and social justice to bring ideas and products to market. Throughout the process, they will evaluate how aesthetics, materials, societal impact, and people’s interactions with their creations influence the final product or idea. (CTE Code: 8427)

Drawing & Design 2

Students use a graphic language for product design and technical illustration. They increase their understanding of drawing techniques learned in the prerequisite courses. They research design-related fields while identifying the role of advanced drawing and design in manufacturing and construction industry processes. They apply the design process, analyze design solutions, reverse engineer products, create 3D solid models using CADD, construct physical models, and create multimedia presentations of finished designs. They complete a work portfolio based on a chosen graphic project. (CTE Code: 8438)

Prerequisite: Architectural Drawing & Design or Engineering Drawing & Design

Engineering 1: Materials & Processes

This is an introductory course in design tools and advanced manufacturing technologies. This course is a foundation for learning creative problem solving using a variety of hand tools and CAD/CAM machines. Students will learn the basics in 3D modeling, 2D design, maintenance through application of wood and metalworking equipment, and a variety of technology, including CNC machines, laser cutters, and 3D printers. Students will utilize these tools to solve a variety of problems and create physical and digital solutions. (CTE Code: 8433)

Engineering 2: Construction

Students will apply design thinking to solve real world problems with advanced manufacturing tools and techniques. Throughout this course, students will iterate ideas utilizing software simulation and physics applications to bring functional and practical designs to life. (CTE Code: 8431)

Engineering Drawing & Design

Students use a graphic language for product design, technical illustration, evaluation of designs, and engineering drawings. They increase their understanding of drawing techniques learned in the prerequisite course. Students use computers, calculators, and descriptive geometry and adhere to established standards to solve design problems. They work in teams to design solutions for an identified need. (CTE Code: 8436)

Prerequisite: Technical Drawing & Design

PVCC CAD 151 Engineering Drawing Fundamentals

Introduces technical drafting from the fundamentals through advanced drafting practices. Includes lettering, geometric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners. Teaches theory and application of dimensioning and tolerances, pictorial drawing, and preparation of drawings. (CTE Code: 8436)

Prerequisite: Technical Drawing & Design

Technical Drawing & Design

In this foundational course, students design, sketch, and make technical drawings, models, or prototypes of real design problems while learning the language of technical drawing and design. The course introduces the language of graphic communication to all science, technology, engineering and mathematics (STEM) students and is especially recommended for those planning a future in engineering and architecture. (CTE Code: 8435)

Arts, Audio/Visual Technology & Communications

Media and Web Design 1, 2

Media and Web Design 1: Students develop proficiency in designing and creating desktop-published projects, multimedia presentations/projects, and websites, using industry-standard application software. Students apply principles of layout and design in completing projects. Students create portfolios that include a résumé and a variety of desktop-published, multimedia, and website projects produced in the course. (CTE Code: 6630)

Media and Web Design 2: Students develop advanced skills for creating desktop-published, interactive multimedia, and website projects. Students work with sophisticated hardware and software, applying skills to real-world projects. (CTE Code: 6631)

PVCC ITD 110/210 Web Page Design I/II

Students taking ITD 110 develop a working knowledge of web site designs, construction, and management using HTML or XHTML. Includes headings, lists, links, images, image maps, tables, forms, and frames. (CTE Code: 6630)

ITD 210 incorporates advanced techniques in web site planning, design, usability, accessibility, advanced site management, and maintenance utilizing web editor software(s). (CTE Code: 6631)

Prerequisites: ITD 110 or Media and Web Design 1 is required for ITD 210.

Video & Media Tech 1, 2, 3

Video & Media Tech 1: Communication Systems provides experiences in the fields of imaging technology, graphic productions, video and media, technical design, and various modes of communicating information through the use of data. Students develop critical-thinking and problem-solving skills using the universal systems model. Students also learn about the impact of communication on society and potential career fields relating to communications. (CTE Code: 8415)

Video & Media Tech 2: Video and Media Technology offers students a hands-on opportunity to study all aspects of video and media production. Students will conceptualize, plan, and contribute through all production phases: preproduction, production, and postproduction. In addition, students will practice various methods of gathering and recording information and creating novel content to create a variety of video and media productions while operating studio editing software and video and audio equipment. (CTE Code: 8497)

Video & Media Tech 3: Digital Visualization provides experiences related to computer animation by using graphics and design concepts. Students solve problems involving 3D object manipulation, storyboarding, texturing/mapping, lighting concepts, and environmental geometry. Students create a variety of animations that reflect real-world applications and are introduced to interactive and 3D animation software. Production of a portfolio showcasing examples of original student work is included. (CTE Code: 8459)

Business Management & Administration

Business Management

Students study basic management concepts and leadership styles as they explore business ownership, planning, operations, marketing, finance, economics, communications, the global marketplace, and human relations. Quality concepts, project management, problem solving, and ethical decision making are an integral part of the course. (CTE Code: 6135)

Digital and Social Media Marketing

This course introduces students to digital and social media marketing. Students explore principles, strategies, tools, and tactics related to consumers, branding, advertising, and promotions. Students explore how success is measured in a digital and social media marketing campaign. This course emphasizes ethics, laws, and security. Students also investigate business and marketing plans as well as careers in digital and social media marketing. (CTE Code: 8125)

Entrepreneurship 1, 2

Entrepreneurship 1: Introduces students to the exciting world of creating, owning, and launching their own business. Students will learn concepts and techniques for planning an entrepreneurial venture, using design thinking and business model development. Students will learn about financial statements, marketing principles, sales and customer service, and basic economic principles for successful operation. (CTE Code: 9093)

Entrepreneurship 2: Designed for students who wish to concentrate on advanced strategies for entrepreneurship, building upon concepts introduced in Entrepreneurship 1. The focus of the course is on development of a business plan and small business management. Students will establish, market, and maintain a business. (CTE Code: 9094)

Courses must be taken in sequence.

*Related to the Entrepreneurship, Business & Innovation Career Learning Community (CLC), Entrepreneurship 1 is the **Gateway** course, and Entrepreneurship 2 is the **Capstone** course. Entrepreneurship 2 is also the **Capstone** course for the Information & Communication Technology CLC.*

Leadership & Design Thinking

Students develop competencies in identifying individual aptitudes in relation to effective leadership skills, understanding organizational behavior, using effective communication in the workplace, handling human resources and organizational

problems, supervising and training employees, resolving conflict, and planning for the future. Continuing education in leadership is emphasized as well as practical leadership experiences in cooperation with school and community leaders. (CTE Code: 9097)

Marketing 1, 2

Marketing 1: Students examine activities in marketing and business important for success in marketing employment and postsecondary education. Students will learn how products are developed, branded, and sold to businesses and consumers. Students will analyze industry trends and gain hands-on experience in the marketing of goods, services, and ideas. Topics will include professionalism in the workplace, product planning and positioning, promotion, pricing, selling, economic issues, and the impact of technology on the marketplace. (CTE Code: 8120)

Marketing 2: Students build on knowledge gained in a prior Marketing course. Students participate in supervisory and management activities focusing on the marketing mix, purchasing, financing, human resources, global marketing, pricing, and emerging technologies. Students will prepare for advancement in marketing careers and postsecondary education. (CTE Code: 8130)

PVCC BUS 100/200 Business and Management

Teaches management and the management functions of planning, organizing, leading, and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. (CTE Code: 6135)

PVCC BUS 116/165 Entrepreneurship and Small Business

Presents the various steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations of the business, development of business plans, buyouts versus starting from scratch, and franchising. Uses problems and cases to demonstrate implementation of these techniques. (CTE Code: 9093)

Sports & Entertainment Marketing 1, 2

Sports & Entertainment Marketing 1: This introductory course helps students develop a thorough understanding of fundamental marketing concepts and theories as they relate to the sports and entertainment industries. Students will investigate the components of customer service skills, branding, product development, pricing and distribution strategies, business structures, sales processes, social media, sponsorships and endorsements, as well as promotion plans needed for sports and entertainment events. (CTE Code: 8175)

Sports & Entertainment Marketing 2: Students will build on prior knowledge of sports, entertainment, and recreation marketing. This course focuses on the principles of management and planning supported by research, financial, economic, ethical, and legal concepts. Students will be able to plan and execute an event, establish a sports, entertainment, or recreation marketing product/business, and develop a career plan. (CTE Code: 8177)

Career Exploration

Army JROTC 1, 2, 3, 4

Army Junior Reserve Officer Training Corps (JROTC) 1: Courses include instruction in the organization and functions of the U.S. Army, leadership skills, and life skills education. The content of these courses covers, but is not limited to, the history and evolution of the Army, including its structure, operations, customs and courtesies; maps and navigation; first aid, personal hygiene, and field sanitation; and substance abuse prevention. These courses also introduce students to principles of leadership and citizenship. (CTE Code: AR7913)

Army JROTC 2: Courses build upon the content of Army JROTC 1 and include, but are not limited to, ongoing instruction in leadership principles and citizenship; drill and ceremonies; organizational structure; command and staff relationships, functions, and responsibilities; significant military campaigns and leaders; map reading and orienteering; weapon safety and marksmanship; and survival training. (CTE Code: AR7916)

Army JROTC 3: Courses build upon prior Army JROTC courses, giving more emphasis to leadership development. These courses serve to strengthen students' leadership skills (including planning, problem solving, motivation, and performance appraisal) and management skills (with regard to time, personnel, and other resources) through allowing them to assume leadership duties. Students study topics introduced in earlier years—such as military history, map reading and orienteering, marksmanship, and drill and ceremonies—at a more advanced level and are also provided with military service opportunities. (CTE Code: AR7918)

Army JROTC 4: Students continue instruction in the Army JROTC program, consisting of U.S. citizenship rights and responsibilities, leadership, military history, discipline, citizenship, physical fitness, career education, and workplace readiness skills. Students receive additional instruction in military customs and courtesies, proper uniform wear, and personal appearance guidelines. Adherence to the guidelines is required in leadership lab, drill, and military ceremonies.

Design Your Future Capstone

This course consists of a high-quality work-based learning (HQWBL) experience (e.g., internship, part-time job, mentoring, job shadow, student-run business) combined with an in-depth study of career pathways through a variety of exploration activities. Students analyze career assessment results, compare various educational options, develop or revise a plan related to their academic and career-related goals; and participate in HQWBL experiences related to their goals and/or interests in partnership with local businesses and organizations. (CTE Code: 9071)

For more information about the course and HQWBL experiences, contact your school's Career Specialist.

Note: This is a 1-credit course; however, additional credit can be earned based on the number of hours completed in the HQWBL experience. Students can earn a combined 2 credits (1 credit for the Design Your Future Capstone course and 1 credit for 280 hours of HQWBL experience) or a combined 1.5 credits (1 credit for the Design Your Future Capstone course and a 0.5 credit for 140 hours of HQWBL experience).

Education for Employment 1, 2, 3, 4

These courses teach students to make informed career and continuing education choices as they transition from school, gain technical skills, and adapt to the workplace. Students are taught ethical behaviors and career research, job acquisition, workplace communication, self-awareness, self advocacy, customer service, and life skills. These courses offer students integrated labor market needs through an applied employment education format. (CTE Code: 9078)

Education & Training

Introduction to Family and Human Services

The focus of Introduction to Family and Human Services is to identify professional opportunities within the Human Services career cluster. Students will use practical problem solving, research, critical thinking, and career decision-making to investigate services for clients as well as family and social services to preserve, promote and protect public health. Students will assess the needs of clients, determine the support needed, and demonstrate human services career skills.

PVCC EDU 200 Teaching as a Profession 1

Provides an orientation to the teaching profession in Virginia, including historical perspectives, current issues, and future trends in education on the national and state levels. Emphasizes information about teacher licensure examinations, steps to certification, teacher preparation and induction programs, and attention to critical shortage areas in Virginia. Includes supervised field placement (recommended: 40 clock hours) in a K-12 school. (CTE Code: 9062)

Teaching as a Profession 2

Students continue to explore careers in the Education and Training Cluster and pathways. This course provides the opportunity for students to prepare for careers in education as they research postsecondary options, learn about the process of teacher certification in Virginia, and participate in a practicum experience. (CTE Code: 9072)

Finance

AP Microeconomics - VA Personal Finance

Following the College Board's suggested curriculum designed to parallel college-level microeconomics, AP Microeconomics courses provide students with a thorough understanding of the principles of economics that apply to the functions of individual decision makers (both consumers and producers). They place primary emphasis on the nature and functions of product markets, while also including a study of factor markets and the role of government in the economy.

Students learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit, insurance, financing postsecondary education, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship and career success. (CTE Code: 6121)

Economics/Personal Finance

Students learn how economies and markets operate and how the United States economy is interconnected with the global economy. Additionally they learn how to navigate the financial decisions they must face and to make informed decisions relating to career exploration, budgeting, banking, credit, insurance, spending, financing postsecondary education, taxes, saving and investing, buying/leasing a vehicle, and living independently. They also learn the importance of investing in themselves in order to gain the knowledge and skills valued in the marketplace. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship, more effective participation in the workforce, and career success. The course incorporates all economics and financial literacy objectives included in the Code of Virginia §22.1-200-03B. (CTE Code: 6120)

Personal Finance

Students learn how to navigate the financial decisions they must face and to make informed decisions related to career exploration, budgeting, banking, credit, insurance, financing postsecondary education, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Development of financial literacy skills and an understanding of economic principles will provide the basis for responsible citizenship and career success. (CTE Code: 6121)

Personal Living and Finances

Students learn how to navigate the financial decisions they must face and to make informed decisions related to budgeting, banking, credit, insurance, spending, taxes, saving, investing, buying/leasing a vehicle, living independently, and inheritance. Instruction in personal finance prepares students to function effectively as consumers, savers, investors, entrepreneurs, and active citizens. The course incorporates all personal living and finances objectives included in the Code of Virginia §22.1-253.13:1.B. (CTE Code: 3120)

PVCC FIN 107 Personal Finance

Presents a framework of personal money management concepts, including establishing values and goals, determining sources of income, managing income, preparing a budget, developing consumer buying ability, using credit, understanding savings and insurance, providing for adequate retirement, and estate planning. (CTE Code: 6121)

Health Science

Biomedicine 2

In Biomedicine 2, students gain advanced knowledge and skills related to diverse medical-related pathways. They will explore diagnostic and therapeutic laboratory procedures that support bioscience research and practice. They will also investigate safety and ethical concerns associated with the field. As a part of the course, students will engage in field experiences in which students learn alongside mentor partners from our local healthcare community. (CTE Code: 8347)

Biotechnology Foundations in Health & Medical Sciences

This course focuses on various techniques that are used to modify living organisms, or parts of organisms, to improve plants and animals, and the development of microorganisms for specific purposes. Student activities range from bioprocessing and DNA analysis, to medicine, biomechanical systems, and the environment. Students gain insight and understanding about biotechnology career fields. (CTE Code: 8344)

Emergency Medical Technician (EMT) 1, 2, 3

EMT 1 and EMT 2: In EMT 1 and 2, students explore and apply the fundamentals of emergency medical services (EMS), anatomy, physiology, and medical terminology while demonstrating skills in assessing and managing patient care, including assessing the scene and understanding shock, resuscitation and trauma. Students must complete a minimum of 85% of the didactic and lab aspects of the course, per 12VAC5-31-1501 in the Code of Virginia. Successful completion of all course requirements may lead to eligibility to take the Virginia State Psychomotor Exam and the National Registry of Emergency Medical Technicians (NREMT) cognitive exam. Students must meet the requirements of the Functional Position Description for the Basic Life Support Provider (refer to EMS.TR.14B and 12VAC5-31-1501 in the Code of Virginia). (CTE Code: 8333 and 8334)

Note: Students must be at least 16 years old prior to the first day of EMT instruction. All students will need to undergo a criminal background check that includes fingerprinting and drug screening.

EMT 3: The EMT 3 course is intended for students who have completed EMT 1 and 2, and who may have obtained EMT certification from the Virginia Office of Emergency Medical Services (OEMS). Students will strengthen the skills mastered in the basic courses as they acquire skills to assist advanced life support (ALS) providers, build on the foundations of EMS education, and meet education requirements for certification or recertification. Students also learn to coordinate with other public health and safety services, such as fire control, law enforcement, and emergency management. The course includes mentored as well as instructional experiences. Students must complete a minimum of 85% of the didactic and lab aspects of the course. (CTE Code: 8335)

Health & Medical Sciences 1: Intro

Introduces the student to a variety of healthcare careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. healthcare system and to learn basic healthcare terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the healthcare environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field. In addition, instruction may include the basics of medical laboratory procedures, pharmacology fundamentals, biotechnology concepts, and communication skills essential for providing quality patient care. (CTE Code: 8302)

Health & Medical Sciences 2: Careers

Students explore opportunities in the health care field by developing basic skills common to several health care careers. They study body structure and function, principles of health and disease, and an overview of the health and patient care system. Supervised work-based learning may be part of the course in health care settings and is managed by the health and medical sciences education teacher. (CTE Code: 8331)

Medical Laboratory Technology 1

In Medical Laboratory Technology 1, students gain foundational knowledge and skills appropriate for a variety of medical-related career paths in the field of medical technology. They are introduced to diagnostic and therapeutic laboratory procedures that support medical research and practice, and investigate safety, quality assurance, and ethical concerns associated with the field of medical technology. (CTE Code: 8377)

Nutrition & Wellness

Students investigate the principles of nutrition and wellness, use science and technology in food management, ensure food safety, plan menus, prepare food, and explore careers. Students prepare for careers by using critical thinking and practical problem-solving skills as well as other workplace readiness skills.

PVCC HLT 141 Medical Terminology

This course is designed to help students learn health care language. Topics are presented in order beginning with each body system's anatomy and physiology and progressing through pathology, diagnostic procedures, therapeutic interventions, and finally pharmacology. Students learn concepts, terms and abbreviations for each topic. (CTE Code: 8383)

Sports Medicine/Physiology 1, 2

Sports Medicine/Physiology 1: Introduces students to topics such as human anatomy and physiology, nutrition, biomechanics, medical terminology, injuries and illnesses, and legal and ethical issues in sports medicine. Students also examine prospective careers in the sports medicine field. Upon successful completion of this course, students are eligible to take Sports Medicine II and pursue certification as a personal trainer. In this course, students earn a certification in First Aid/CPR/AED. (CTE Code: 8316)

Sports Medicine/Physiology 2: Builds upon basic knowledge acquired in Sports Medicine I on topics such as exercise physiology, biomechanics, exercise program design, and injury prevention, assessment, treatment, and management. Students prepare for a career in sports medicine, including completing an internship.Upon successful completion of this course, students will be eligible to take the National Academy of Sports Medicine-Certified Personal Trainer (NASM-CPT) exam. (CTE Code: 8317)

Courses must be taken in sequence.

Hospitality & Tourism

Culinary Arts Specialization

Continuing from Introduction to Culinary Arts, this course provides students with opportunities to obtain comprehensive knowledge of the food service industry as well as to expand their technical skills in a food service specialty. Students explore careers and refine their skills in implementing safety and sanitation standards, applying nutritional principles, planning menus, using business and math skills, and selecting and maintaining food service equipment. (CTE Code: 8279)

Students will prepare to take the ServSafe Industry Certification, and with a passing score, will test out of PVCC HRI 158 Sanitation and Safety.

Hospitality and Tourism 1, 2

Hospitality and Tourism 1: Students begin preparation for employment in hospitality industries by focusing on principles of operations in food services, recreation, hospitality planning, and business relations. Special attention is paid to the development of culinary skills (food sanitation, food preparation, and serving) and customer service skills.

Hospitality and Tourism 2: Students continue preparation for employment in hospitality industries by focusing on principles of operations in travel and tourism, lodging, food services, hospitality planning, and business relations. Special attention is paid to the development of skills used in the lodging industry (rooms, sales and marketing, front office, and housekeeping divisions) and customer-service skills.

*Related to the Hospitality, Eateries, Amusements, Recreation & Tourism (HEART) Career Learning Community (CLC), Hospitality and Tourism 1 is the **Gateway** course, and Hospitality and Tourism 2 is the **Capstone** course.*

Introduction to Culinary Arts

Introduction to Culinary Arts students investigate food safety and sanitation, culinary preparation foundations, basic culinary skills, diverse cuisines, service styles, nutrition and menu development, and the economics of food. Students also explore postsecondary education options and career opportunities within the food service industry. (CTE Code: 8250)

Travel, Tourism and Destinations 1: Marketing

Examines the components of the travel and tourism industry, including attractions, lodging, transportation, and food and beverage. Other topics include the history, political, social and cultural effects of travel and tourism on local, state and global environments. Students develop competencies in the areas of communication, customer service, marketing, industry technology, economics, and management functions, and are provided with opportunities for hands-on, real-world applications. Applying academic skills is also part of this course.

Travel, Tourism and Destinations 2: Management

Designed to provide students with an in-depth look at travel, tourism, and destination marketing. Students learn about business management, communications strategies, and the importance of sales and marketing in the travel and tourism industry. Students gain an understanding of soft skills, career trends, and opportunities. They develop advanced competencies in the areas of human relations, finance, safety and environmental issues, industry-specific technology, promotional planning, and market research. Academic skills related to the content are also a part of this course.

Information Technology

AP Computer Science A

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. (CTE Code: 3185)

AP Computer Science Principles

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing. (CTE Code: 10019)

Computer Science 1, 2

Computer Science 1: Students explore programming concepts, use algorithmic procedures, implement programming procedures with one or more standard languages, and master programming fundamentals. Coding is used throughout the course. Graphical user interfaces may be used as students design and develop interactive multimedia applications, including game programs. In addition, students employ HTML or JavaScript to create Web pages. Students develop their employability skills through a variety of activities. (CTE Code: 6640)

Computer Science 2: Building on their foundation of programming skills, students use object-oriented programming to develop database applications, interactive multimedia applications including game applications, mobile applications, and Web applications. Students continue to develop their employability skills as they research pathways for continuing education and careers in the information technology industry and engage in various career-building activities. (CTE Code: 6641)

Cybersecurity 1: Fundamentals

Cybersecurity 1: Fundamentals focuses on the evolving and all-pervasive technological environment with an emphasis on securing personal, organizational, and national information. Students will be introduced to the principles of cybersecurity, explore emerging technologies, examine threats and protective measures, and investigate the diverse high-skill, high-wage, and high-demand career opportunities in the field of cybersecurity. (CTE Code: 6302)

Cybersecurity 2: Software Operations

Cybersecurity 2: Software Operations is designed to teach many aspects of computer support and network administration. Students learn networking concepts, from usage to components, and create peer-to-peer network systems and client server networks. Students learn how to install and configure network cards and connect them to networks; to install the operating systems; to create, set up, and manage accounts; to load software; and to establish, implement, and maintain network integrity security plans. This course may cover software-based network operating systems, such as Windows Server or Linux, to prepare students with a foundation in computer network administration. (CTE Code: 6304)

Cybersecurity 3: Advanced Software Operations

Cybersecurity 3: Advanced Software Operations continues to teach aspects of network administration, focusing on the management and support of network users and systems. The topics covered include understanding the responsibilities of computer professionals, training end users, evaluating new technology, developing system policies, troubleshooting workstations, managing network services and protocols, and effectively using email and business communications. Students learn communication protocols, troubleshooting techniques for systems and client-server networks, website management, and other advanced networking topics. Techniques that are used to install operating systems, set up and manage accounts, load software, and create and implement security plans are taught. This course may provide instruction about software-based network operating systems, such as Windows Server or Linux. Instruction will emphasize preparation for industry certification. (CTE Code: 6306)

Game Design and Development 1, 2

Game Design and Development 1: In this project-based course, students will create innovative games through the application of graphic design, animation, audio, and writing skills. Students will work in teams while developing problem-solving, critical thinking, and effective communication skills. They will analyze, design, prototype, and critique interactive games within a project management environment. Career opportunities across multiple industries, including the entertainment and educational arenas, will be explored. (CTE Code: 8400)

Game Design and Development 2: Students will work collaboratively in teams to refine their game design skills as they apply graphic design, animation, audio and writing skills to create innovative games for education and entertainment. This project-based course enhances problem solving, project management, and communication skills through the analysis, design, construction, and critique of interactive games. Students will learn about career opportunities in game design and development and investigate the training and certification requirements. (CTE Code: 8401)

Courses must be taken in sequence.

Geospatial Technology 1, 2

The geospatial technology program provides experiences pertaining to the study and use of geographic information systems (GIS), global positioning systems (GPS), remote sensing (RS), and mobile technologies. Fundamentally, these technologies allow students to explore and analyze the natural and human-made world, locally, globally, and beyond.

Geospatial Technology 1: Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of geospatial technologies. (CTE Code: 8423)

Geospatial Technology 2: Builds upon the study and use of Geospatial Technology 1. Students further explore and analyze the natural and human-made world, locally, globally, and beyond. Students use tools, processes, and techniques to create, store, access, manipulate, and revise data to solve human challenges. Data is created, collected, and used to analyze spatial relationships. These experiences employ real-world spatial analysis models and guidelines for integrating, interpreting, analyzing, and synthesizing data, with a focus on both the implications and the limitations of such technologies. Students will also use network-based data management systems. (CTE Code: 8424)

Courses must be taken in sequence.

Global Logistics 1, 2

Logistics is moving the right goods to the right place at the right time for the right price at the right quality. The two-course sequence is designed to build a workforce to capitalize on the projections from the Commonwealth Center of Advanced Logistics Systems (CCALS) to meet the rapidly increasing demand for high-skilled, high-wage supply chain and logistics systems professionals.

Global Logistics 1: Introduces students to global logistics in a virtual enterprise systems environment. Topics include navigating logistics management and enterprise resource planning (ERP) systems while managing procurement, fulfillment, and warehouse processes.

Global Logistics 2: Requires students to have completed Global Logistics 1 and worked with global logistics processes in a virtual enterprise systems environment. Advanced topics addressed by this course include managing material handling, transportation issues, accounting and finance, production processes, process integration, facility location decisions, and international logistics.

*Related to the Geospatial Technologies, Logistics, Robotics & Transportation Career Learning Community (CLC), Global Logistics 1 is the **Gateway** course, and Global Logistics 2 is the **Capstone** course.*

Information Technology Fundamentals

Information Technology Fundamentals introduces the essential technical and professional skills required for students to pursue programs leading to professional careers and information technology certifications. The course introduces skills related to digital technology, digital applications, maintenance/upgrading/troubleshooting, and networking fundamentals. Students also explore ethical issues related to computers and Internet technology and examine web page and game design. (CTE Code: 6670)

JMU GEOG 161 Geospatial Tools and Techniques

An introduction to the use of geospatial tools, such as geographic information systems (GIS), global positioning systems (GPS) and remote sensing, applied to a variety of areas, including cultural geography, environmental science, ecology, geology and public planning. (CTE Code: 8423)

PVCC ITE 120 Principles of Information Systems

Provides an overview of the fundamentals of computer information systems. Focuses on the role of computers in business today, including hardware, software, analysis, design, and implementation of information systems. Includes an introduction to computer ethics and business and personal security. Exposes students to techniques used in programming and system development. Utilizes a hands-on component for spreadsheets, databases, and web design applications.

Robotics & Automation 1, 2

Robotics & Automation 1: This is a lab-based course that uses a team-based approach to introduce the basic concepts of robotics, construction and programming of autonomous and semi-autonomous robots. The course will focus on careers in engineering, robotics, programming and game design. Course instruction will primarily be tied to lab experiments, as students will work collaboratively to build and test increasingly more complex robots. (CTE Code: 8421)

Robotics & Automation 2: Students engage in the study of computers and microprocessors and their applications to manufacturing, transportation, and communication systems. Topics include computer programming using Java, robotic design, control systems, and social/cultural impact of these technologies. Problem-solving activities challenge students to design, program, and interface devices with computer systems. Learning activities include building robots, using computer-aided design, 3D printing, and control of electromechanical devices. Students will participate in hands-on projects in a laboratory setting as they communicate information through team-based presentations, proposals, and technical reports. In addition, students will have the ability to compete in the First Tech Challenge (FTC) Robotics. This will challenge their engineering skills and give them the ability to communicate with other schools, businesses, and industry. (CTE Code: 8405)

Science, Technology, Engineering & Mathematics

Engineering Analysis and Applications (formerly Engineering Research) 1, 2

Engineering Analysis and Applications 1 (formerly Engineering Research 1): Students examine technology and engineering fundamentals in relation to solving real-world problems. Students investigate engineering history, including major engineering achievements, and they examine the principle engineering specialty fields and their related careers. Students practice engineering fundamentals, using mathematical and scientific concepts, and they apply the engineering design process through participation in hands-on engineering projects. Students communicate project-related information through team-based presentations, proposals, and technical reports. (CTE Code: 8450)

Engineering Analysis and Applications 2 (formerly Engineering Research 2): Focuses on building an engineering team, working with case studies, managing projects, delivering formal proposals and presentations, and examining

product and process trends. In addition, students continue to apply their engineering skills to determine what postsecondary education engineering pathway they want to follow. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports. (CTE Code: 8452)

Engineering Concepts and Processes 3

This is the third course of a four-course sequence that will enable students to solve real-world problems. This course focuses on building an engineering team, working with case studies, managing projects, delivering formal proposals and presentations, and examining product and process trends. In addition, students continue to apply their engineering skills to determine the postsecondary education engineering pathway they want to follow. Students will participate in STEM-based, hands-on projects as they communicate information through team-based presentations, proposals, and technical reports.

Prerequisite: Engineering Analysis and Applications 2 (formerly Engineering Research 2)

IB Design Technology I, II

Design Technology courses are recognized International Baccalaureate courses. The courses are designed to promote an understanding and appreciation of the technology design process as a cycle. As students work through the technology course and related project, which unifies all aspects of IB design technology, they analyze and evaluate the impact and ethical considerations arising from technology. The courses focus on how design is used to produce outcomes. In Design Technology 2, the design project is assessed against the design technology criteria: planning, research, development, evaluation, and manipulative skills. (CTE Code: IB4585/IB4586)

Principles of Technology 1, 2

Principles of Technology 1 and 2 are single-period laboratory science courses. Students apply physics and mathematics concepts through a unified systems approach to develop a broad knowledge base of the principles underlying modern technical systems. Students study seven technical principles: force, work, rate, resistance, energy, power, and force transformers, emphasizing how each principle plays a unifying role in the operation of mechanical, fluid, electrical, and thermal systems in high-technology equipment. This “principles and systems” approach to studying these technical principles provides a foundation for further education and career flexibility as technology and technical systems advance.

Note: Students who complete Principles of Technology 1 and 2 may use these courses to satisfy one physics credit in laboratory science. A student must complete both courses in order to receive laboratory science credit. The sequence of Principles of Technology 1 and 2 will satisfy one unit of credit in laboratory science for physics and one elective credit. Students who enroll in Principles of Technology courses for a physics credit must have completed Algebra 1 and two other laboratory science courses as specified by the accrediting standards prior to enrolling in Principles of Technology. (CTE Code: 9811)

Prerequisite(s): Algebra 1 and two lab sciences if using for a physics credit

PVCC EGR 121/122 Foundations of Engineering and Design

Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer and operating systems. Includes engineering problem solving techniques using computer software. Applies principles of orthographic projection, and multi- view drawings. Teaches descriptive geometry including relationships of points, lines, planes and solids. Introduces sectioning, dimensioning and computer graphic techniques. Includes instruction in Computer Aided Drafting.

Prerequisite: PVCC MATH 162 PreCalculus or equivalent, such as Mathematical Analysis

English

Effective reading and writing skills are as important for effective communication as speaking and listening skills. Reading and writing are the basis of written communication and, therefore, are an integral part of each educated individual's life. Written communication is an essential tool for people to express their ideas and learn about the ideas of others.

The Importance of Effective Reading Skills

Reading skills serve as a foundation for writing. Developed and mastered, effective reading skills give people the opportunity to learn new information about the world, people, events, and places. Reading enriches their vocabularies and improves their writing skills.

- Through reading, people learn to understand different ways of thinking and feelings of other people and become more flexible and open-minded.
- Reading enriches the inner world of a person and improves grammar and spelling.
- Avid readers not only read and write better than those who read less but also process information faster. The research presented by the Journal of Abnormal Child Psychology proves that poor readers have poorer short memory functions.
- As a result, avid readers have a broader outlook, are quicker to analyze facts, and find connections between seemingly unrelated ideas.
- A reader has better skills for comprehending, analyzing, understanding, responding, and, finally, learning from what he or she reads.
- As a result, it is easier for good readers to get used to new and unfamiliar circumstances or ideas. They are easier to communicate with and have higher chances to succeed in both professional and personal life.

Adapted from "The Importance of Reading and Writing Skills," by Alla Kondrat (February 21, 2009).

The Importance of Effective Writing Skills

- Excellent writing is sure to earn respect. Poor writing will, on the contrary, be difficult to understand and will leave a bad impression about the individual.
- Writing structures and crystallizes one's thoughts, improving learning.
- Writing improves the effectiveness of the person's word usage in both written and oral speech.
- Application essays, resumes, cover letters, and even e-mails often have to represent an individual. In such cases the person's writing is to form the reader's opinion about the individual's personality and abilities.
- A survey conducted among 64 American companies revealed that half of them pay attention to writing when considering a person for employment or promotion.
- According to Roger Howe, a former chairman and CEO of U.S. Precision Lens, the majority of the successful people are clear and persuasive in their writing.
- Developed reading skills lead to the development and improvement of writing skills. Regular readers' comprehension skills (ability to compare and contrast, evaluate and summarize, identify specific features and genres, make analogies) serve as a basis for good writing.

Adapted from "The Importance of Reading and Writing Skills," by Alla Kondrat (February 21, 2009).

English Course Descriptions

AP English Language & Composition

Following the College Board's suggested curriculum designed to parallel college-level English courses, AP English Language and Composition courses expose students to prose written in a variety of periods, disciplines, and rhetorical contexts. These courses emphasize the interaction of authorial purpose, intended audience, and the subject at hand, and through them, students learn to develop stylistic flexibility as they write compositions covering a variety of subjects that are intended for various purposes.

AP English Literature & Composition

Advanced Placement English is for twelfth-grade students who want an intensive, college-level English course that prepares them to take one or both of the AP English Exams. The course is conducted much like a college seminar, and therefore it requires high-quality work in and out of class.Students read works of literature analytically and critically, and they respond with increasing sensitivity and discrimination of language. Essays focus on literary analysis but students have some opportunity to practice creative writing.

Biblical Literature

Biblical Literature courses have the same aim as general literature courses (to improve students' language arts and critical-thinking skills), focusing on the books of the Bible. Students may compare techniques, styles, and themes of the various books; examine the Bible's influence on secular literature; and may study historical events of Biblical times. Oral discussion is an integral part of these courses, and written compositions are often required.

Core +

Tutorial courses provide students with the assistance they need to successfully complete their coursework. Students may receive help in one or several subjects.

English 9, 10, 11, 12

English 9 builds upon students' prior knowledge of grammar, vocabulary, word usage, and the mechanics of writing and usually include the four aspects of language use: reading, writing, speaking, and listening. Typically, this course introduces and defines various genres of literature, with writing exercises often linked to reading selections.

English 10 usually offers a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical, and creative multi-paragraph essays and compositions. Through the study of various genres of literature, students can improve their reading rate and comprehension and develop the skills to determine the author's intent and theme and to recognize the techniques used by the author to deliver his or her message.

English 11 continues to develop students' writing skills, emphasizing clear, logical writing patterns, word choice, and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses.

English 12 blends composition and literature into a cohesive whole as students write critical and comparative analyses of selected literature, continuing to develop their language arts skills. Typically, students primarily write multi-paragraph essays, but they may also write one or more major research papers.

Environmental Literature/Law/Policy

Through the analysis of environmental literature and examination of important laws and policy, students will explore the complex relationship between human beings and the environment. Students will develop a comprehensive understanding of how literature, philosophy, and governmental action have correlated historically with important environmental issues. Content will include local, regional and global policy changes and current legislation and will be supported by a combination of fiction, non-fiction, poetry, and case studies.

ESOL 1, 2, 3

ESOL 1: Students begin a journey of adding a new language and culture to their international experiences. The course fosters a love for reading by using a readers' workshop model that allows students to explore new texts in English. Students practice English across the domains of writing, speaking, listening, and reading in lessons that explore open-ended questions and model real-world environments to follow the interests of students. They use English to solve problems as well as to investigate personal interests and academic themes. Students learn social vocabulary quickly and build understanding of key academic vocabulary that spans across disciplines. The course explores students' cultures and how these connect to their new community. Students use their strengths in these cultures and their native languages to learn English. Each student in ESOL 1 forms a graduation plan to achieve individualized post-secondary goals.

ESOL 2: Students use academic English vocabulary in open-ended projects that require public speaking and writing for real audiences. Students continue their exploration of reading and supplement this with a writers workshop model that focuses on

learning the process of revision to express ideas in public forums. Students continue to use their own cultures and languages as strengths for gaining new insights and expressing themselves in English. They build on and refine their individual graduation plans, with teacher and counselor support, and explore options for connecting with school and community extracurricular resources and activities. Finally, the ESOL 2 teacher coordinates with content teachers to tailor instruction to the needs of students in ESOL 2 who are also taking courses required for graduation.

ESOL 3: Supports advanced English Learners taking rigorous academic courses required for meeting graduation requirements. Students who take ESOL 3 learn academic vocabulary that may be applied across a range of courses required for meeting graduation requirements. They explore their linguistic and cultural heritage and connect these to the civic and economic life of their community in individual and collaborative projects. The ESOL 3 course emphasizes applying academic vocabulary in advanced academic writing, research, and projects with real-world audiences. Students use these skills to excel on class assignments and give presentations using formal oral English. Students create, revisit, and revise individual graduation plans and connect their curricular and extracurricular activities to postsecondary goals. The ESOL 3 teacher coordinates with content course teachers to tailor instruction to the needs of students in ESOL 3 who are also taking courses required for graduation.

Prerequisite: Assessment

ESOL Study Skills 1, 2

This ESOL course is designed as a writing-intensive resource class to support English Learners who are taking a mainstream-level course load. The ESOL teacher works closely with content area teachers to design enrichment lessons that teach content curriculum with an emphasis on comprehension and academic vocabulary. Students also receive support in test-taking and study skills, organizational skills, SOL preparation, and effective reading strategies.

Genre Studies

This course will focus on one genre each quarter, rotating through a variety of genre over the course of a year. Quarterly offerings could include non-fiction, poetry, and contemporary literature, as well as more specialized studies such as historical fiction, dystopian/science fiction, or magical realism. Students will sample a variety of writers and literature in each studied genre, and will incorporate independent and individualized reading programs designed to allow each student the opportunity to explore a variety of topics.

IB English 11, 12

IB English 11 and 12 are organized into three parts, each focused on a different aspect of literature and performance. Together, the three parts of each course cover the critical study of literary texts, exploration of chosen approaches to a text, and realization of texts in performance. Students engage with a wide variety of textual genres to explore the concept of transformation, examining the ways in which the contexts of production and reception shape meaning.

Courses must be taken in sequence.

Media Studies

A multi-disciplinary course that will explore multimodal communication,including news writing, photojournalism, social media, fiction and documentary filmmaking, and entertainment, and their broader sociological implications. Designed to offer cross-curricular opportunities in the humanities, including English, history, psychology, sociology, and journalism. Students will be given the opportunity to explore various topics and interests through individualized projects.

Peer Tutoring 1, 2, 3

Peer Tutoring 1: Students are responsible for operating the school's peer tutoring center. They will learn a variety of pedagogical approaches and practice leadership skills that will serve them in their future professions. In addition to tutoring, students will strengthen their own knowledge in areas such as study habits, resume writing, and research skills. All students are required to tutor for approximately 45 minutes outside of class, once per week.

Peer Tutoring 2: Students apply the knowledge they gained in Peer Tutoring 1 to take on an enhanced leadership role in the peer tutoring center. They will contribute to managing center operations, mentoring new tutors, and heightening school-wide academic achievement. They will make at least one significant contribution to the wider peer tutoring community; for example, by presenting at a conference or publishing a scholarly article.

Peer Tutoring 3: Building on the leadership skills they established in Peer Tutoring 2, tutors in Peer Tutoring 3 apprentice with a sponsor teacher for the duration of the school year, engaging in a deep study of that educator's approach to instruction in his or her academic field. These seniors will also work with a consistent group of clients on an ongoing basis. They will report on their learning via regular reflection logs, and both create a portfolio of their learning across their three years as a tutor, and innovate a permanent learning tool for the benefit of the school.

Prerequisites: Peer Tutoring 2 students must successfully complete Peer Tutoring 1 and be tutors in good standing.

Peer Tutoring 3 is a weighted course.

PVCC ENG 111/112 College Composition I/II

ENG 111 College Composition I introduces students to critical thinking and the fundamentals of academic writing. Through the writing process, students refine topics: develop and support ideas; investigate, evaluate, and incorporate appropriate resources; edit for effective style and usage; and determine appropriate approaches for a variety of contexts, audiences, and purposes. Writing activities will include exposition and argumentation with at least one researched essay.

ENG 112 College Composition II continues to develop college writing with increased emphasis on critical essays, argumentation, and research, developing these competencies through the examination of a range of texts about the human experience. Requires students to locate, evaluate, integrate and document sources and effectively edit for style and usage.

Prerequisite: ENG 111 or its equivalent is a prerequisite for ENG 112.

Skills Development Read/Write 1, 2, 3, 4

This course is offered for students who need significant support in literacy. It is designed to develop and enhance fundamental reading and writing skills. Course content includes skills development through decoding and encoding, vocabulary development, comprehension practice, and exposure to various reading strategies. Course content in writing includes instruction in the areas of composition, written expression, usage, and mechanics.

Fine and Performing Arts

Visual and Performing Arts provide a natural and essential context for important habits and skills for lifelong learning, such as creating, risk-taking and perseverance, and also bring us joy as an expressive part of the human experience. Through our Fine Arts classes, students have the opportunity to:

- Apply musical, theatrical, and/or visual arts skills, independently and collaboratively, through performance and display opportunities, both inside and outside of the classroom.
- Communicate about the Arts by describing, analyzing, evaluating and critiquing using Arts-specific vocabulary.
- Recognize and appreciate the aesthetic nature of the Arts, anchored in cultural and historical contexts as well as personal preferences.
- Connect with Arts opportunities and careers, both locally and globally. The goal of Fine Arts instruction is ultimately to prepare all students for a lifetime of engagement with their creative side through art, music, theater, publishing, filmmaking, and creative writing.

Fine Arts courses are organized below by program area.

Fine Arts Program Areas & Course Descriptions

Performing Arts: Instrumental Music

AP Music Theory

AP Music Theory courses are designed to be the equivalent of a first-year music theory college course as specified by the College Board. AP Music Theory develops students' understanding of musical structure and compositional procedures. Usually intended for students who already possess performance-level skills, AP Music Theory courses extend and build upon students' knowledge of intervals, scales, chords, metric/rhythmic patterns, and the ways they interact in a composition. Musical notation, analysis, composition, and aural skills are important components of the course.

Concert Band 1, 2, 3, 4

Band courses help students develop techniques for playing brass, woodwind, and percussion instruments and their ability to perform a variety of concert band literature styles. These courses emphasize rehearsal and performance experiences in a range of styles and also include experiences in creating and responding to music. Concert Band I is an entry-level large ensemble and is required for all 9th grade band members, except with special permission of the director.

Prerequisite: One year previous instrumental training preferred or director approval

Concert Band 3 and 4 are weighted courses.

Concert Orchestra 1, 2, 3, 4

Strings courses provide students an introduction to, and refine the fundamentals of music and bowed-string instrument literature and techniques and may include more advanced techniques. These courses teach students the appropriate care, handling, and maintenance of musical instruments. Formal and informal performances are included as part of string instrument instructional courses as well as experiences in creating and responding to music.

Prerequisite: Previous instrumental training or director approval

Concert Orchestra 3 and 4 are weighted courses.

Guitar 1, 2, 3, 4

Guitar courses provide students an introduction to, and refine the fundamentals of music and guitar literature and techniques, such as strumming and chords and may offer instruction in more advanced techniques. These courses may include bass, ukulele and other plucked string instruments. Formal and informal performances are typically included as well as experiences in creating and responding to music.

Guitar 3 and 4 are weighted courses.

IB Music I

Involving aspects of the composition, performance and critical analysis of music, the course exposes students to forms, styles and functions of music from a wide range of historical and sociocultural contexts. Students create, participate in, and reflect upon music from their own background and those of others. They develop practical and communicative skills which provide them with the opportunity to engage in music for further study, as well as for lifetime enjoyment.

Prerequisite: Audio Production

Jazz Band 1, 2, 3, 4

Small Ensemble courses help students perform a variety of musical styles. At the same time, these courses help cultivate students' technique on instruments appropriate to the style(s) performed and provide experiences in creating and responding to music. The Jazz Band focuses on the performance, theory, and practice of jazz and popular music including style, articulations, phrasing, improvisation, and ensemble playing. The Jazz Band performs throughout the year in the community, in school concerts, and at jazz festivals.

Jazz Band 3 and 4 are weighted courses.

Marching Band 1, 2, 3, 4

Courses in Marching Band are intended to develop students' technique for playing brass, woodwind, and percussion instruments and cover appropriate band literature styles, primarily for marching performances.

Marching Band 3 and 4 are weighted courses.

Music Theory

This course provides students with an understanding of the fundamentals of music and includes the following topics: composition, arranging, analysis, aural development, and sight reading.

Percussion Ensemble 1, 2, 3, 4

Small Ensemble courses help students perform a variety of musical styles. At the same time, these courses help cultivate students' technique on instruments appropriate to the style(s) performed. Percussion ensemble is offered for students interested in drumming and keyboard percussion (e.g., marimba, xylophone, bells, etc.) It places emphasis on continued development of skills as well as proper rehearsal and performance techniques. It also includes instruction in theory, ear-training, and music history. The Percussion Ensemble performs winter and spring concerts and at other times at the discretion of the director.

Percussion Ensemble 3 and 4 are weighted courses.

Piano/Keyboard 1, 2, 3, 4

Piano courses provide students an introduction to and refine the fundamentals of music and keyboard, including literature and techniques such as scales, chords, and melodic lines, and may offer instruction in more advanced techniques.

Piano/Keyboard 1: Designed for students of various levels to learn to play the piano. Students work individually, at their own pace, with teacher supervision and instruction. Class time will be used for instruction, practice and performance for peers.

Piano/Keyboard 2: Students will refine skills and techniques required to play the piano and be introduced to new concepts and more challenging pieces that build on the foundation provided in Piano/Keyboard 1.

Piano/Keyboard 3 and 4: Designed for students who have attained intermediate fluency in piano and wish to continue developing as pianists and musicians. Students will refine skills and techniques required to play the piano and be introduced to new concepts and more challenging pieces that build on the foundation provided in previous Piano/Keyboard courses.

Courses must be taken in sequence.

Piano/Keyboard 3 and 4 are weighted courses.

String Ensemble 1, 2, 3, 4

Strings courses provide students an introduction to, and refine the fundamentals of music and bowed-string instrument literature and techniques and may include more advanced techniques. These courses teach students the appropriate care, handling, and maintenance of musical instruments. Formal and informal performances are included as part of string instrument instructional programs as well as experiences in creating and responding to music.

Prerequisite: Audition

String Ensemble 3 and 4 are weighted courses.

Symphonic Band 1, 2, 3, 4

Band courses help students develop techniques for playing brass, woodwind, and percussion instruments and their ability to perform a variety of concert band literature styles. These courses emphasize rehearsal and performance experiences in a range of styles (e.g., concert, marching, orchestral, and modern) and also include experiences in creating and responding to music. The Symphonic Band is an intermediate, large ensemble or for students who do not choose to engage in the commit level of wind ensemble.

Prerequisites: Two years previous instrumental training or director approval; Audition

Symphonic Band 3 and 4 are weighted courses.

Wind Ensemble 1, 2, 3, 4

Band courses help students develop techniques for playing brass, woodwind, and percussion instruments and their ability to perform a variety of concert band literature styles. These courses emphasize rehearsal and performance experiences in a range of styles and also include experiences in creating and responding to music. The Wind Ensemble is the most advanced large ensemble and serves as a primary performing ensemble at the school.

Prerequisites: Two years previous instrumental training or director approval; Audition

Wind Ensemble 3 and 4 are weighted courses.

Performing Arts: Theatre

Debate 1, 2, 3

Debate teaches students how to coordinate the written and oral communication process through a study of logical thinking and research techniques culminating in written and oral presentations. A study of the national debate topic, leading to participation in interscholastic debate competition, is one strategy for accomplishing this goal.

Debate 3 is a weighted course.

Improvisation and Comedy

Students will study the history of improvisation as well as the modern schools of improvisation. Students will learn the skills of long and short form improv, examine comedy across cultures over the past fifty years, and write and perform their own sketch comedy.

Musical Theatre Ensemble 1, 2, 3, 4

These courses explore the styles and periods of musical theatre development, and explore singing techniques, various styles of dance and movement, and opportunities to choreograph. This ensemble class works toward one completed musical revue performance or musical (per semester) for presentation at various venues.

Musical Theatre Ensemble 3 and 4 are weighted courses.

Public Speaking

Public Speaking courses enable students, through practice, to develop communication skills that can be used in a variety of speaking situations (such as small and large group discussions, delivery of lectures or speeches in front of audiences, and so on). Course topics may include (but are not limited to) research and organization, writing for verbal delivery, stylistic choices, visual and presentation skills, analysis and critique, and development of self-confidence.

PVCC CST 100 Public Speaking

Applies theory and principles of public address with emphasis on preparation and delivery.

Speech & Communication

Students learn the basic principles of public speaking by evaluating their own and others' speeches. Technology will be used to produce a computer-generated slide show. Students will learn to become critical listeners and analyze important speeches from history and current events.

Technical Theatre 1, 2, 3, 4

Technical Theatre courses provide students with an understanding of the various aspects of theatrical production, including lighting, costuming, sound, set construction, makeup, stage management, and the use of computer and media-based applications. These courses prepare students to engage in the hands-on application of these production elements in design and technology courses.

Technical Theatre 3 and 4 are weighted courses.

Theatre Arts 1, 2, 3, 4

Theatre Arts courses focus on the study and performance of drama in its many forms, including musical theater, drama, and comedy. These courses review a wide range of scripted materials (such as plays, screenplays, teleplays, readers' theater scripts); dramatic criticism; techniques for creating original dramatic works; and the role of dramatic arts in society. Theater Arts courses typically require students to perform collaboratively, be involved in the critique of dramatic works, and learn methods for self-expression.

Theatre Arts 3 and 4 are weighted courses.

Performing Arts: Vocal Music

Advanced Concert Choir 1, 2, 3, 4

Chorus courses develop students' vocal skills within the context of a large choral ensemble in which they perform a variety of styles of repertoire. These courses are designed to develop students' vocal techniques and their ability to sing parts and include experiences in creating and responding to music.

The Advanced Concert Choir is a mixed group and provides our most advanced choral students opportunities to develop their singing abilities to the greatest possible extent. Advanced chorus performs in public.

Prerequisite: Audition

Advanced Concert Choir 3 and 4 are weighted courses.

Advanced Women's Ensemble 1, 2, 3, 4

Vocal Ensemble courses help students develop vocal techniques and refine their ability to sing parts in small ensembles. Advanced Women's ensemble provides our most advanced female choral students the opportunity to develop their singing abilities to the greatest extent. The ensemble performs in public and all members must participate at all functions.

Advanced Women's Ensemble 3 and 4 are weighted courses.

Concert Choir 1, 2, 3, 4

Chorus courses develop students' vocal skills within the context of a large choral ensemble in which they perform a variety of styles of repertoire. These courses are designed to develop students' vocal techniques and their ability to sing parts and include experiences in creating and responding to music.

Concert Choir is available to students with an interest in developing singing ability. Students learn note reading, part singing (soprano, alto, tenor, bass), rhythm, and how to be a participating member of a group.

Concert Choir 3 and 4 are weighted courses.

Men's Ensemble 1, 2, 3, 4

Vocal Ensemble courses help students develop vocal techniques and refine their ability to sing parts in small ensembles. Men's Ensemble provides students the opportunity to sing in the lower register (tenor/bass). Repertoire is often a cappella.

Prerequisite: Audition

Men's Ensemble 3 and 4 are weighted courses.

Show Choir 1, 2, 3, 4

Vocal Ensemble courses help students develop vocal techniques and refine their ability to sing parts in small ensembles. Show Choir students concentrate on show choir techniques: blocking, choreography, staging, and microphone techniques. In show choir, students demonstrate an advanced knowledge of basic singing skills: pitch-matching, tonal memory, sight reading, theory, and harmony. Students perform major concerts with the possibility of several smaller performances. Students have the opportunity to participate in District Choir, All-State Chorus, District Choral Festival, and a spring competition.

Prerequisite: Audition (vocal and dance)

Show Choir 3 and 4 are weighted courses.

Vocal Jazz 1, 2, 3, 4

Vocal Ensemble courses help students develop vocal techniques and refine their ability to sing parts in small ensembles. In this ensemble, students perform standard and contemporary vocal jazz repertoire, with an emphasis on jazz technique. Students demonstrate an advanced knowledge of basic singing skills. Students perform three major concerts with the possibility of several smaller performances.

Vocal Jazz 3 and 4 are weighted courses.

Women's Ensemble 1, 2, 3, 4

Vocal Ensemble courses help students develop vocal techniques and refine their ability to sing parts in small ensembles. Women's Ensemble provides students the opportunity to sing in the upper register (treble). Repertoire is often a cappella.

Prerequisite: Audition

Women's Ensemble 3 and 4 are weighted courses.

Visual Arts: Art

AP 3D Art and Design

Designed for students with a professional or academic interest in three-dimensional art. These courses focus on a variety of concepts and approaches in 3D design and creation, enabling students to demonstrate a range of abilities and versatility with media, technique, problem solving, and scope. They can demonstrate such conceptual variety through the use of one or several media. Students refine their skills and create artistic works to submit via portfolio to the College Board for evaluation.

AP Art History

Designed to parallel college-level Art History courses, AP Art History courses provide the opportunity for students to critically examine and respond to works of art within their historical and cultural contexts. In covering the art and movements of several centuries (not necessarily in chronological order), students learn to identify different styles, techniques, media and influences. Students formulate and articulate their reactions to various kinds of artwork to understand and appreciate themselves, others, and the world around them.

AP Studio Art: 2-D Design

Designed for students with a professional or academic interest in two-dimensional art, the course focuses on a variety of concepts and approaches in drawing and 2-D design, enabling students to demonstrate a range of abilities and versatility with media, technique, problem solving, and scope. Such conceptual variety can be demonstrated through the use of one or several media. Students refine their skills and create artistic works to submit via a portfolio to the College Board for evaluation.

AP Studio Art: Drawing

Designed for students with a professional or academic interest in the art of drawing, the course focuses on a variety of concepts and approaches in drawing, enabling students to demonstrate a depth of knowledge of the processes, and a range of abilities, and versatility with media, technique, problem solving, and scope. They can demonstrate such conceptual variety through either the use of one or the use of several media.These courses enable students to refine their skills and create artistic works to submit via portfolio to the College Board for evaluation.

Art 1, 2, 3, 4

These courses enable students to explore several art forms to create individual works of art. Initial courses emphasize observations, interpretation of the visual environment, visual communication, imagination, and symbolism. Courses cover the language, materials, media, and processes of a particular art form and the design elements used.

Art 3 and 4 are weighted courses.

Ceramics 1, 2, 3, 4

Ceramics courses engage students in learning experiences that include the historical and cultural context of ceramics, aesthetic inquiry, and creative production. These courses provide knowledge of ceramic techniques (e.g., kiln firing and glazing) and processes with an emphasis on creative design and craftsmanship. Courses may include clay modeling, hand building, coil building, casting, and throwing on the potter's wheel.

Ceramics 3 and 4 are weighted courses.

Contemporary Media and Art

Contemporary Media and Art is an energetic, multidisciplinary course in Art, Design, and Making, in which students get experience in a wide variety of visual languages and exposure to the practice and history of creative technologies. Students work in traditional and digital media, learning how it can be used to create compelling and meaningful artwork. Class projects are thematically based. Students develop creative and personal expressions in response to relevant social matters, individual interests and experience, as well as explorations of design, composition and form. Students actively keep a visual journal for projects and experimentation, and through their work, students expand their knowledge about art and enhance their appreciation of its role in society. During the year, students use the habits of mind through imagination, expression and reflection. Through inquiry, effort and perseverance, students grow as artists, thinkers and people.

Digital Arts 1, 2, 3, 4

Digital Arts (previously called Digital Imaging/Multimedia Art) courses emphasize applying the fundamental processes of artistic expression for the purpose of creating multimedia productions that explore contemporary social, cultural and political issues. These courses include the history and development of multiple forms of media, including a combination of text, audio, still images, animation, video, and interactive content. These courses provide students with the opportunity to develop foundational skills and knowledge while they also become more adept in cinema, video, digital live production, and electronic time-based media. Students engage in critique of their multimedia work, that of others, and the multimedia video, digital, and live production work of artists for the purpose of reflecting on and refining work for presentation.

Digital Arts 3 and 4 are weighted courses.

Film Photography

Photography courses provide students with an understanding of photographic media, techniques, and processes. These courses focus on development of photographic compositions through manipulation of the fundamental processes of artistic expression. Students may learn to make meaningful visual statements with an emphasis on personal creative expression to communicate ideas, feelings, or values. Photography courses may also include the history of photography, historic movements, image manipulation, critical analysis, and some creative special effects. Students engage in critiques of their photographic images, the works of other students, and those by professional photographers for the purpose of reflecting on and refining work.

Fundamentals of Design

This course centers on the principles of design through an expansive exploration of a variety of methodologies, processes and careers. Students also learn about concepts/big ideas that make connections between art and life through the disciplines of aesthetics, art criticism, art history, and art production. An emphasis will be placed on the ability to understand the elements of art and principles of design through a variety of media processes and visual resources so that students demonstrate versatility in visual language. Students learn to respond to their work and the work of others. This course is designed to enrich the lives of its participants' cultures, artistic styles, and art media through discovery, creative problem solving, and ideation. It provides students with a broader perception of their community, environment, and cultural perspectives in preparation for deeper study toward a professional focus.

Graphic Arts Design 1, 2, 3

Graphic Arts Design (levels 1, 2 and 3) is a course series that emphasizes applying fundamental processes of artistic expression through the exploration of the purposeful arrangement of images, symbols and text to communicate a message. These courses may include investigations of how technology influences the creation of graphic and digital designs and study of historical and contemporary visual communications design. These courses also provide instruction in the process of responding to your own art and that of others, including master designers, through analysis, critique and interpretation for the purpose of reflecting on and refining work.

Graphic Arts Design 3 is a weighted course.

IB Visual Arts I, II

IB Visual Arts courses encourage students to challenge their own creative and cultural expectations and boundaries. In these thought-provoking courses, students develop analytical skills in problem solving and divergent thinking, while

working towards technical proficiency and confidence as art-makers. In addition to exploring and comparing visual arts from different perspectives and in different contexts, students are expected to engage in, experiment with, and critically reflect upon a wide range of contemporary practices and media. Courses are designed for students who want to go on to study visual arts in higher education as well as for those who are seeking lifelong enrichment through visual arts.

Courses must be taken in sequence.

Multimedia Crafts 1, 2, 3, 4

These courses help students apply fundamental processes of artistic expression to the materials and accompanying aesthetics of crafts. Students may explore types of folk art and the materials and ways in which objects have been created for practical, religious, spiritual, and cultural needs of people around the world. These courses may survey a wide range of crafts or may focus on only one type of craft; some possibilities include calligraphy, quilting, silk-screening, cake-decorating, tole-painting, mask-making, knitting, crocheting, paper-making, and so on. These courses may also explore aesthetic issues surrounding folk art and artists and engage in critiques of this authentic art form. Multimedia Crafts 4 students are highly skilled and can work independently.

Multimedia Crafts 3 and 4 are weighted courses.

Photography 1, 2, 3, 4

Photography courses provide students with an understanding of photographic media, techniques, and processes. These courses focus on development of photographic compositions through manipulation of the fundamental processes of artistic expression. Students may learn to make meaningful visual statements with an emphasis on personal creative expression to communicate ideas, feelings, or values. Photography courses may also include the history of photography, historic movements, image manipulation, critical analysis, and some creative special effects. Students engage in critiques of their photographic images, the works of other students, and those by professional photographers for the purpose of reflecting on and refining work. Each subsequent course builds on the skills, processes and ideas explored in the previous level.

Photography 3 and 4 are weighted courses.

PVCC ART 121/122 Drawing I/II

Develops basic drawing skills and understanding of visual language through studio instruction/lecture. Introduces concepts such as proportion, space, perspective, tone, and composition as applied to still life, landscape, and the figure. Uses drawing media such as pencil, charcoal, ink wash, and color media. Includes field trips and gallery assignments as appropriate.

PVCC ART 153/154 Ceramics I/II

Students engage in learning experiences that include the historical and cultural context of ceramics, aesthetic inquiry, and creative production. Included are problems in the design and production of functional and nonfunctional ceramic works. Includes hand building, the potter’s wheel, and clays and glazes.

Visual Communications Design

Graphic Arts Design is a course series that emphasizes applying fundamental processes of artistic expression through the exploration of the purposeful arrangement of images, symbols and text to communicate a message. These courses may include investigations of how technology influences the creation of graphic and digital designs and study of historical and contemporary visual communications design. These courses also provide instruction in the process of responding to your own art and that of others, including master designers, through analysis, critique and interpretation for the purpose of reflecting on and refining work.

Visual Arts: Publishing and More

Audio Recording and Production 1, 2

Recording and Production courses provide students with an opportunity to learn and apply skills in music recording techniques, music editing, mixing, and creating finished musical recordings for distribution as sound files in order to enhance, convey, and capture the expressive intent of music.

Prerequisite: Audio Production 1 or instructor permission is required for Audio Production 2.

Creative Writing 1, 2, 3, 4

Creative Writing courses offer students the opportunity to develop and improve their technique and individual style in poetry, short story, drama, essays, and other forms of prose. The emphasis of the courses is on writing; however, students may study exemplary representations and authors to obtain a fuller appreciation of the form and craft. Although most creative writing classes cover several expressive forms, others concentrate exclusively on one particular form (such as poetry or playwriting).

Creative Writing 3 and 4 are weighted courses.

Film and Video Production 1, 2, 3, 4

These courses emphasize the application of the fundamental processes of artistic expression for the purpose of shooting and processing of the image. These courses include the history and development of cinema, television, and video production. Students explore a range of skills needed to explore contemporary social, cultural, and political issues and creatively solve problems within and through cinematic or video productions. Students engage in critiques of their cinematic or video productions, those of others, and productions of professional cinematographers or video artists for the purpose of reflecting on and refining work for presentation.

Film and Video Production 3 and 4 are weighted courses.

Film Study/Filmmaking 1, 2, 3, 4

These courses examine specific topics in audio and video technology and film.

Film Study/Filmmaking 3 and 4 are weighted courses.

Geometry and the Visual Arts

Students will discover how mathematics is related to art by studying examples of works of art from cultures around the world, examining the mathematical concepts and techniques underlying these works, and using graphic design software and other software tools to create original works of art employing these ideas and techniques. A tentative list of topics to be covered includes: recursion, symmetry transformations, perspective and projections, color mixing, the golden ratio, and sequences. Examples will be drawn from Asian, African and Arabic art, as well as European art.

IB Film I, II

At the core of the IB Film course lies a concern with clarity of understanding, critical thinking, reflective analysis, effective involvement, and imaginative synthesis that is achieved through practical engagement in the art and craft of film.

Journalism 1, 2, 3, 4

Journalism courses (typically associated with the production of a school newspaper, yearbook, or literary magazine) emphasize writing style and technique as well as production values and organization. Journalism courses introduce students to the concepts of newsworthiness and press responsibility; develop students' skills in writing and editing stories, headlines, and captions; and teach students the principles of production design, layout, and printing. Photography, photojournalism, and digital technology skills may be included.

Journalism 3 and 4 are weighted courses.

Yearbook 1, 2, 3, 4

Publication Production courses provide students with the knowledge and skills necessary to produce the school newspaper, yearbook, literary magazine, or other printed publication. Students may gain experience in several components (writing, editing, layout, production, and so on) or may focus on a single aspect while producing the publication.

Yearbook 3 and 4 are weighted courses.

Health, Physical Education & Driver Education

Health, Physical Education (PE), and Driver Education combine a range of activities and topics involving human health issues, physical skills, and safe driving:

- Human health coursework typically covers issues such as nutrition, stress management, drug/alcohol abuse prevention, and first aid.
- PE coursework draws on team, individual, dual, recreational, and/or conditioning activities.
- Driver Education usually includes legal obligations and responsibilities, rules of the road and traffic procedures, safe driving strategies, and related topics.

Health, PE & Driver Education Course Descriptions

Adaptive Physical Education

Adaptive Physical Education is a modified physical education program designed to meet the individualized gross motor needs, or other disability-related challenges, of an identified student.

Dance 1, 2

Dance 1: Serves as a dance fundamentals class using ballet, modern and jazz dance technique. Students will become proficient in genre specific warm up, preparatory exercises, and physical and creative skill, as well as the historic and cultural aspect of dance. Students will have the opportunity to experience, appreciate and evaluate dance performance.

Dance 2: Students integrate and build upon concepts and skills acquired in Dance I. Students will increase their range of physical skills through disciplined study of dance technique. Dance improvisation and composition studies will expand students' creativity and choreographic craftsmanship. They will also develop additional performance and production skills. Students will refine communicative, interpretive, and evaluative skills by responding to and analyzing a variety of dance experiences. Through historical and cultural studies, students will expand their appreciation of the dance arts as a richly expressive, vital contribution to society. While developing awareness of the diversity that exists within the art form, students will identify a personal aesthetic and criteria for evaluating the dance arts.

Driver Education: Classroom Instruction

Driver Education, Classroom Only, provides students with the knowledge to become safe drivers on America's roadways. Topics in these courses include legal obligations and responsibility, 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).

Health Education 1, 2

Topics covered within Health Education may vary widely, but typically include personal health (nutrition, mental health and stress management, drug/alcohol abuse prevention, disease prevention, and first aid) and consumer health issues. This course may also include brief studies of environmental health, personal development, and/or community resources.

Prerequisite: Ninth-grade students must be 15 by September 1 and acquire counseling director approval to register for Health 2.

IB Dance

The course focuses on the composition, performance and analysis of dance, or "expressive movement," which is practiced amongst peoples of various backgrounds and for a variety of purposes throughout the world. Students create, participate in,

and reflect upon dance forms and styles from a range of cultures and traditions, both familiar and unfamiliar.

Prerequisite: Dance 1

Physical Education 1, 2, 3, 4

Physical Education 1 and 2: Provide students with knowledge, experience, and an opportunity to develop skills in more than one of the following sports or activities: team sports, individual/dual sports, recreational sports, and fitness/conditioning activities that help develop muscular strength, flexibility, and cardiovascular fitness.

Physical Education 3 and 4: Emphasize acquiring knowledge and skills regarding lifetime physical fitness. Content may include related topics such as nutrition, stress management, and consumer issues. Students may develop and implement a personal fitness plan.

PVCC HLT 125 Anatomy and Physiology for Exercise Science

Presents basic principles of human anatomy and physiology including the body structure, systems and functions. The course provides a foundation to build and apply concepts in the study of Exercise Science, Group Fitness, Personal Training, and related fitness studies.

Team Sports

Team Sports provides to students the knowledge, experience and opportunity to develop skills in more than one team sport (such as volleyball, basketball, soccer, etc.).

Weight Training 1, 2, 3, 4

Weight Training helps students develop knowledge and skills with free weights and universal stations while emphasizing safety and proper body positioning; they may include other components such as anatomy and conditioning.

Weight Training 3 and 4 are weighted courses.

Yoga/Fitness 1, 2

Lifetime fitness education emphasizes acquiring knowledge and skills regarding lifetime physical fitness. Content may include related topics such as nutrition, stress management, and consumer issues. Students may develop and implement a personal fitness plan.

History & Social Science

The study of history and social science is vital in promoting a civic-minded, democratic society. The National Council for Social Studies proposes that social studies courses support college, career and civic life readiness by focusing on planning inquiry, evaluating sources, using evidence in decision-making, communicating conclusions, and taking informed actions.

Courses in History and Social Science are designed to:

- Develop the knowledge and skills of history, geography, civics, and economics that enable students to place the people, ideas, and events that have shaped our state, nation, and world in perspective.
- Support students in developing an understanding of diverse cultures, and of a shared humanity.
- Prepare students for informed, responsible, and participatory citizenship.
- Enhance students' ability to seek and recognize patterns and complex relationships such as change and continuity, conflict and cooperation, choice and consequence, and systems.
- Develop students' skills in inquiry, debate, discussion, writing, and critical reading.

Social Studies offerings in high school provide students with several means to explore new disciplines and expand on their work K-8 through both required courses and electives. Social science courses introduce complex content and support the development of critical thinking skills that are essential for student success in and beyond school as students grow as lifelong learners.

History & Social Science Course Descriptions

African American History

African American History is designed to provide students with a broad overview of the African American experience and explore ancient Africa moving through modern times. The course, supported by a local division curriculum and five online modules, address the introduction of Africans to the Americas and the African American experience between 1619 and the present. In addition, the course will highlight the social, cultural and political contributions of African Americans to American society.

AP Comparative Government

Following the College Board's suggested curriculum designed to parallel college-level Comparative Government and Politics courses, these courses offer students an understanding of the world's diverse political structures and practices. The courses encompass the study of both specific countries and general concepts used to interpret the key political relationships found in virtually all national policies. Course content generally includes sovereignty, authority, and power; political institutions; the relationships among citizens, society, and the state; political and economic change; and public policy.

AP European History

Following the College Board's suggested curriculum designed to parallel college-level European History courses, AP European History courses examine European civilization in four chronological periods, from 1450 to the present, and also expose students to the factual narrative. In addition, these courses help students develop an understanding of some of the principal themes in modern European history and the abilities to analyze historical evidence and to express that understanding and analysis in writing.

AP Human Geography

Following the College Board's suggested curriculum designed to parallel college-level Human Geography courses, AP Human Geography introduces students to the systematic study of patterns and processes that have shaped the ways in which humans understand, use, and alter the earth's surface. Students use spatial concepts and landscape analysis to examine human social organization and its environmental consequences and also learn about the methods and tools geographers use in their science and practice.

AP Psychology

Following the College Board's suggested curriculum designed to parallel a college-level introductory psychology course, AP Psychology courses introduce students to the systematic and scientific study of the behavior and mental processes of human beings and other animals, expose students to each major subfield within psychology, and enable students to examine the methods and ethics that psychologists use in their science and practice.

AP US Government & Politics

Following the College Board's suggested curriculum designed to parallel college-level U.S. Government and Politics courses, these courses provide students with an analytical perspective on government and politics in the United States, involving both the study of general concepts used to interpret U.S. politics and the analysis of specific case studies and foundational documents. The courses generally cover foundations of American democracy, interaction among branches of government, political beliefs and behaviors, political participation, and civil rights and liberties.

AP US History

Following the College Board's suggested curriculum designed to parallel college-level U.S. History courses, AP U.S. History courses provide students with the analytical skills and factual knowledge necessary to address critically problems and materials in U.S. history. Students learn to assess historical materials and to weigh the evidence and interpretations presented in historical scholarship. The course examines the discovery and settlement of the New World through the recent past.

AP World History

Following the College Board's suggested curriculum designed to parallel college-level World History courses, AP World History: Modern courses examine world history from 1200 CE to the present with the aim of helping students make connections of historical evolution across times and places. These courses highlight the 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; and technology and innovation.

Economics

Economics courses provide students with an overview of economics with primary emphasis on the principles of microeconomics and the U.S. economic system. These courses may also cover topics such as principles of macroeconomics, international economics, and comparative economics. Economic principles may be presented in formal theoretical contexts, applied contexts, or both.

Ethnic Studies

U.S. Ethnic Studies courses examine the history, politics, economics, society and/or culture of one or more of the racial/ethnic groups in the United States. These courses may focus primarily on the history of an individual racial/ethnic group or take a more comprehensive approach to studying the contemporary issues affecting racial/ethnic groups overall.

Global Leadership in Action

Global Leadership in Action courses examine the concepts and issues imperative for leadership in the global economy, including managing complex and rapid change; cooperative problem solving; and understanding the interconnectedness of the global economic and political systems. Additionally, students will understand differing political and cultural traditions in order to navigate the political changes across the world and increased interaction among governments.

History Lab

History Lab represents a hands-on "maker" approach to historical inquiry. Students will explore various topics in United States and World History through experiential processes and content creation, such as GIS, interactive exhibits, the creation of historical artifacts, interpretive displays (digital and "brick and mortar"), and other modes of content presentation.

History Through Film

This course will use film/movies as a medium to investigate the history of the United States and the World. Students are asked to explore the boundaries between history and film. Movies and film are given the same analysis and interpretation as any other sources and used as a medium to learn about history. Specific focus is on "valid" historical films, offering glimpses into

the social, political, and cultural moments when they were created. Students will examine ways in which films shape and influence understanding.

Humanities 1, 2, 3

Humanities courses examine and evoke student responses to human creative efforts and the world in particular historical periods and in particular cultures. Course content includes exploration, analysis, synthesis, and various responses to cultural traditions, including viewing, listening, speaking, reading, writing, performing, and creating. The courses may also examine relationships among painting, sculpture, architecture, and music.

Humanities 3 is a weighted course.

IB Environmental Systems & Societies

Through studying environmental systems and societies, students will be provided with a coherent perspective of the interrelationships between environmental systems and societies, one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face.

IB History 11, 12

IB History 11 and 12 are world history courses based on a comparative, multi-perspective approach to history and focused around key historical concepts such as change, causation and significance. The courses involve the study of a variety of types of history, including political, economic, social and cultural, encouraging students to think historically and to develop historical skills. In this way, the courses involve a challenging and demanding critical exploration of the past.

IB History requires students to study and compare examples from different regions of the world, helping to foster international mindedness. Teachers have a great deal of freedom to choose relevant examples to explore with their students, helping to ensure that the course meets their students' needs and interests regardless of their location or context.

Courses must be taken in sequence.

IB Philosophy

Philosophy is a systematic critical inquiry into profound, fascinating and challenging questions, such as: What is it to be human? Do we have free will? What do we mean when we say something is right or wrong? These abstract questions arise out of our everyday experiences, and philosophical tools such as critical and systematic thinking, careful analysis, and construction of arguments provide the means of addressing such questions. The practice of philosophy deepens and clarifies our understanding of these questions, as well as our ability to formulate possible responses.

IB Theory of Knowledge I

As a thoughtful and purposeful inquiry into different ways of knowing and different kinds of knowledge, this course is composed almost entirely of questions. The most central of these is: How do we know? Other questions include: What counts as evidence for X? How do we judge which is the best model of Y? What does theory Z mean in the real world? Through discussions of these and other questions, students gain greater awareness of their personal and ideological assumptions and develop an appreciation of the diversity and richness of cultural perspectives.

Issues of the Modern World

This is an elective course recommended for students who are interested in the study of current events and recent American and world history. Topics, will be discussed, explored, researched, and analyzed using readings (newspaper articles, academic journals), internet research, films (feature and documentary), broadcast news reports, and class discussions. Topics may include: modern terrorism; the modern global economy (globalization); the environment; America's "culture wars;" gun control; the modern Middle East; problems and issues in American foreign policy; and more.

Leadership 1, 2, 3, 4

Leadership/SCA at is a one-year elective course designed to prepare students for and offer students leadership opportunities in high school, the community, college and in the work environment. The course offers students with experiential opportunities to

foster a variety of essential skills such as communication, organization, goal setting, collaboration, event planning, time management, public speaking, and critical thinking. The purpose of associated student body leadership is to plan and implement activities that not only serve but also enrich the student body, the staff, and the community.

Leadership 3 and 4 are weighted courses.

Philosophy

Philosophy courses introduce students to the discipline of philosophy as a way to analyze the principles underlying conduct, thought, knowledge, and the nature of the universe. Course content typically includes examination of the major philosophers and their writings.

Practical Law

This course provides the high school student with the practical legal background one needs to function as an adult. It enables the young adult to foresee and avoid legal problems and to obtain professional help when necessary. Topics covered include contracts, property, marriage, wills, civil and criminal procedure, and consumer protection.

Psychology

Psychology courses introduce students to the study of individual human behavior. Course content typically includes (but is not limited to) an overview of the field of psychology, topics in human growth and development, personality and behavior, and abnormal psychology.

Psychology Applications & Research

This course provides students the opportunity to continue their study of topics introduced in AP Psychology with added emphasis on independent research and the study of current advances in the field. Students will form research groups that select one general topic (e.g., learning, developmental psychology, social psychology) each quarter to study in greater depth. They will then narrow their focus to a specific application and will conduct research using one of the methods psychologists typically employ (e.g., observation, survey, field or lab experiments.) The groups will collect data, analyze the results, and report their findings following the American Psychological Association guidelines.

Prerequisite: AP Psychology

PVCC ECON 201 Macroeconomics

Macroeconomics introduces macroeconomics including the study of Keynesian, classical, monetarist principles and theories, the study of national economic growth, inflation, recession, unemployment, financial markets, money and banking, the role of government spending and taxation, along with international trade and investments.

PVCC ECON 202 Microeconomics

Microeconomics introduces the basic concepts of microeconomics. Explores the free market concepts with coverage of economic models and graphs, scarcity and choices, supply and demand, elasticities, marginal benefits and costs, profits, and production and distribution.

PVCC GEO 210 Cultural Geography

Cultural Geography focuses on the relationship between culture and geography. The course presents a survey of modern demographics, landscape modification, material and non-material culture, language, race and ethnicity, religion, politics, and economic activities. The course introduces the student to types and uses of maps. It also is the study of the landscape on which human activity occurs. In addition to basic geography concepts, map reading, and the current state of the world, this course will introduce students to the historical and contemporary patterns and processes that are shaping our world. A major focus of this course is the examination of the cultural landscapes resulting from human modification of the environment. This will include the study of the geographic distribution of non-material culture, including language, religion, ethnicity, and political behavior. Another focus is human modes of survival, including agriculture, urban environments, and economic activities.

PVCC HIS 121/122 US History

These courses survey United States history from its beginnings to the present.

PVCC PHI 220 Ethics

Provides a systematic study of representative ethical systems.

PVCC PLS 135/136 US, State & Local Government

These courses teach structure, operation, and the process of national, state, and local governments. Courses include in-depth study of the three branches of government and public policy.

PVCC PSY 200/230 Principles of Psychology/Developmental Psychology

PSY 200 surveys the basic concepts of psychology. It covers the scientific study of behavior, including behavioral research methods, analysis, and theoretical interpretations. Included are topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology.

PSY 230 allows students the opportunity to study the development of the individual from conception to birth.It follows a life-span perspective on the development of the person's physical, cognitive and psychosocial growth.

If taken as a year-long course, PSY 200 is offered in the fall and PSY 230 is offered in the spring. The year-long course fulfills general education requirements for students interested in earning their Associate of Applied Science Degree in Diagnostic Medical Sonography or Nursing at PVCC.

Sociology

Sociology courses introduce students to the study of human behavior in society. These courses provide an overview of sociology, generally including (but not limited to) topics such as social institutions and norms, socialization and social change, and the relationships among individuals and groups in society.

VA/US Government

Course provides a comprehensive overview of the structure and functions of the U.S. government and political institutions and examine constitutional principles, the concepts of rights and responsibilities, the role of political parties and interest groups, and the importance of civic participation in the democratic process. Students may examine the structure and function of state and local governments and may cover certain economic and legal topics.

Women's Studies

Students will study history, literature, film and sociology related to Women's Studies. Students will understand the historical and modern roles and contributions of women. Students will analyze the changing issues related to women and discuss the perspectives of women. Students also will focus on women's leadership and consider solutions that will promote women leaders of a variety of perspectives.

World Geography

World Geography courses provide students with an overview of world geography, but may vary widely in the topics they cover. Topics typically include the physical environment; the political landscape; the relationship between people and the land; economic production and development; and the movement of people, goods, and ideas.

World History 1500 to the Present

Modern World History courses provide an overview of the history of human society in the past few centuries—from the Renaissance period, or later, to the contemporary period—exploring political, economic, social, religious, military, scientific, and cultural developments.

World History to 1500

Overview courses provide students with an overview of the history of human society from early civilization to the contemporary period, examining political, economic, social, religious, military, scientific, and cultural developments. World History—Overview courses may include geographical studies, but often these components are not as explicitly taught as geography.

Mathematics

Students today require more rigorous mathematical knowledge and skills to pursue higher education, to compete in a technologically sophisticated and connected workforce, and to be informed citizens. By taking a concept-centered approach to instruction and utilizing our K-12 essential standards, teachers help build capacity in students to make connections across content areas. This approach will help students gain an understanding of fundamental ideas in arithmetic, measurement, geometry, probability, data analysis and statistics, and algebra and functions while developing proficiency in mathematical skills.

Students also will learn to use a variety of methods and tools to compute, including paper and pencil, mental arithmetic, estimation, and calculators. Graphing utilities, spreadsheets, calculators, computers, and other forms of electronic information technology are now standard tools for mathematical problem-solving in science, engineering, business and industry, government, and practical everyday affairs; therefore, the use of technology must be an integral part of teaching, learning, and assessment.

Courses in mathematics are designed to build students' ability to:

- Analyze situations in mathematical terms, and pose and solve problems based on observed situations.
- Select and use various types of reasoning to develop and evaluate mathematical arguments and proof.
- Organize and consolidate mathematical thinking through precise verbal, written and graphical communication.
- Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
- Use representations to model and interpret physical, social and mathematical phenomena.
- Evaluate and use technology appropriately as a tool to support and apply the problem-solving process.

Mathematics Course Descriptions

Algebra 1, 2, 3

Algebra 1: Includes the study of properties and operations of the real number system; evaluating rational algebraic expressions; solving and graphing first-degree equations and inequalities; translating word problems into equations; operations with and factoring of polynomials; and solving simple quadratic equations.

Algebra 2: Topics typically include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear, and quadratic equations; properties of higher-degree equations; and operations with rational and irrational exponents.

Algebra 3: Reviews and extends algebraic concepts for students who have already taken Algebra 2. Course topics include, but are not limited to, operations with rational and irrational expressions; factoring of rational expressions; linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; properties of higher-degree equations; and operations with rational and irrational exponents. The courses may introduce topics in discrete mathematics, elementary probability and statistics, matrices and determinants, and sequences and series.

Algebra 1: Part 1, Part 2

Algebra 1, Part 1 is the first part in a multipart sequence of Algebra 1. This course generally covers the same topics as the first semester of Algebra 1, including the study of properties of rational numbers (i.e., number theory), ratio, proportion, and estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas, and solving first-degree equations and inequalities.

Algebra 1, Part 2 is the second part in a multipart sequence of Algebra 1. This course generally covers the same topics as the second semester of Algebra 1, including the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing first-degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials, and solving simple quadratics.

Algebra 2/Trigonometry

Algebra 2/Trigonometry courses combine trigonometry and advanced algebra topics and are usually intended for students who have attained Algebra 1 and Geometry objectives. Topics typically include right trigonometric and circular functions, inverses, and graphs; trigonometric identities and equations; solutions of right and oblique triangles; complex numbers; numerical tables; field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear and quadratic equations; and properties of higher-degree equations.

Algebra Functions Data Analysis

Within the context of mathematical modeling and data analysis, students will study functions and their behaviors, systems of inequalities, probability, experimental design and implementation, and analysis of data.

AP Calculus AB

Following the College Board's suggested curriculum designed to parallel college-level calculus courses, AP Calculus AB provides students with an understanding of the concepts of calculus and experience with its methods and applications. These courses introduce calculus and include the following topics: functions, graphs, limits, and continuity; differential calculus (including definition, application, and computation of the derivative; derivative at a point; derivative as a function; and second derivatives); and integral calculus (including definite integrals and antidifferentiation).

AP Calculus BC

AP Calculus BC applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series.

AP Statistics

AP Statistics is an introductory college-level statistics course that introduces students to the major concepts and tools for collecting, analyzing and drawing conclusions from data. Students cultivate their understanding of statistics using technology, investigations, problem solving, and writing as they explore concepts like variation and distribution; patterns and uncertainty; and data-based predictions, decisions and conclusions.

Computer Mathematics

This course is intended to provide students with experiences using computer programming techniques and skills to solve problems that can be set up as mathematical models. Students enrolled in Computer Mathematics are assumed to have studied the concepts and skills in Algebra 1 and beginning geometry.

Prerequisite: Algebra 1

Consumer Math

Consumer Mathematics courses reinforce general mathematics topics (such as arithmetic using rational numbers, measurement, ratio and proportion, and basic statistics) and apply these skills to consumer problems and situations. Applications typically include budgeting, taxation, credit, banking services, insurance, buying and selling products and services, home and/or car ownership and rental, managing personal income, and investment.

Data Science

The Data Science Standards of Learning provide an introduction to the learning principles associated with analyzing big data. Through the use of open source technology tools, students will identify and explore problems that involve the use of relational database concepts and data-intensive computing to find solutions and make generalizations. Students will engage in a data science problem-solving structure to interact with large data sets as a means to formulate problems, collect and clean data, visualize data, model using data, and communicate effectively about data formulated solutions. For students considering math, science or engineering pathways, this course will provide useful experiences and help build important skills.

Geometry

Geometry courses, emphasizing an abstract, formal approach to the study of geometry, typically include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems, and formal proofs; concepts of congruence, similarity, parallelism, perpendicularity, and proportion; and rules of angle measurement in triangles.

Geometry and the Visual Arts

Students will discover how mathematics is related to art by studying examples of works of art from cultures around the world, examining the mathematical concepts and techniques underlying these works, and using graphic design software and other software tools to create original works of art employing these ideas and techniques. A tentative list of topics to be covered includes: recursion, symmetry transformations, perspective and projections, color mixing, the golden ratio, and sequences. Examples will be drawn from Asian, African and Arabic art, as well as European art.

IB Math: Analysis and Approaches I

This course focuses on developing important mathematical concepts in a coherent and rigorous way, with an emphasis on communication and independent inquiry. The course reviews the fundamentals of algebra, geometry and trigonometry, before delving into an in-depth investigation of statistics and single-variable calculus.

IB Math: Applications and Interpretation I, II

IB Math: Applications and Interpretation I focuses on introducing important mathematical concepts with an emphasis on statistics and introductory calculus. Instruction will focus on the application of mathematics to real-world phenomena and the interpretation of advanced mathematical notions in terms of concrete scenarios.

IB Math: Applications and Interpretation II focuses on introducing important mathematical concepts with an emphasis on statistics and introductory calculus. Instruction will focus on the application of mathematics to real-world phenomena and the interpretation of advanced mathematical notions in terms of concrete scenarios.

Prerequisites: Geometry and Algebra 2

Mathematical Analysis

Students enrolled in Mathematical Analysis are assumed to have mastered geometry and Algebra 2 concepts. Mathematical Analysis develops students' understanding of algebraic and transcendental functions, parametric and polar equations, sequences and series, and vectors. The content of this course serves as appropriate preparation for a calculus course.

Probability & Statistics

Probability and Statistics courses introduce the study of likely events and the analysis, interpretation, and presentation of quantitative data. Course topics generally include basic probability and statistics: discrete probability theory, odds and probabilities, probability trees, populations and samples, frequency tables, measures of central tendency, and presentation of data (including graphs). Course topics may also include normal distribution and measures of variability.

PVCC MTH 154/155 Quantitative Reasoning/Statistics

PVCC MTH 154 Quantitative Reasoning presents topics in proportional reasoning, modeling, financial literacy, and validity studies (logic and set theory). Focuses on the process of taking a real-world situation, identifying the mathematical foundation needed to address the problem, solving the problem, and applying what is learned to the original situation. This is a Passport Transfer course.

PVCC MTH 155 Statistics presents elementary statistical methods and concepts including visual data presentation, descriptive statistics, probability, estimation, hypothesis testing, correlation, and linear regression. Emphasis is placed on the development of statistical thinking, simulation, and the use of statistical software. This is a Passport Transfer course.

Prerequisite: Algebra 2

PVCC MTH 161/261 PreCalculus I/Applied Calculus I

MTH 161 PreCalculus I presents topics in power, polynomial, rational, exponential, and logarithmic functions, and systems of equations and inequalities. Credit will not be awarded for both MTH 161: Precalculus I and MTH 167: Precalculus with Trigonometry or equivalent. This is a Passport Transfer course.

MTH 261 Applied Calculus I introduces limits, continuity, differentiation and integration of algebraic, exponential and logarithmic functions, and techniques of integration with an emphasis on applications in business, social sciences and life sciences. This is a Passport Transfer course.

PVCC MTH 167 PreCalculus with Trigonometry

This course presents topics in power, polynomial, rational, exponential, and logarithmic functions; systems of equations; trigonometry; trigonometric applications, including Law of Sines and Cosines; and an introduction to conics.

Note: Credit will not be awarded for both MTH 167 PreCalculus with Trigonometry and MTH 161/162 PreCalculus I/II, or equivalent.

Prerequisite: Algebra 2

PVCC MTH 263 Calculus I

Presents concepts of limits, derivatives, differentiation of various types of functions and use of differentiation rules, application of differentiation, antiderivatives, integrals, and application of integration. This is a Passport and Uniform Certificate of General Studies (UCGS) transfer course.

Prerequisite: MTH 167, or MTH 161 and MTH 162, with a grade of C or better, or qualifying placement test score

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PVCC MTH 265/267 Calculus III/Differential Equations

MTH 265 Calculus III focuses on extending the concepts of function, limit, continuity, derivative, integral and vector from the plane to the three-dimensional space. Topics include vector functions, multivariate functions, partial derivatives, multiple integrals, and an introduction to vector calculus. Designed for mathematical, physical and engineering science programs.

MTH 267 Differential Equations introduces ordinary differential equations. Includes first order differential equations, second and higher order ordinary differential equations with applications, and numerical methods.

Skills Development Math 1, 2, 3

This is an individualized and comprehensive course that covers the concepts and skills necessary to be successful in Algebra 1.

Science

Science and Engineering Practices

Science utilizes observation and experimentation along with existing scientific knowledge, mathematics, and engineering technologies to answer questions about the natural world. Engineering employs existing scientific knowledge, mathematics, and technology to create, design and develop new devices, objects or technology to meet the needs of society. By utilizing both scientific and engineering practices in the science classroom, students develop a deeper understanding and competence with techniques at the heart of each discipline.

High school science offerings provide students with multiple contexts in which to explore new disciplines and expand on their K-8 work through both required courses and electives. Science courses introduce complex content and support the development of critical thinking skills that are essential for student success in and beyond school as students grow as lifelong learners.

Engineering Design Process

1. Define: Define the problem, ask a question.
2. Imagine: Brainstorm possible solutions.
3. Research: Research the problem to determine the feasibility of possible solutions.
4. Plan: Plan a device/model to address the problem or answer the question.
5. Build: Build a device/model to address the problem or answer the question.
6. Test: Test the device/model in a series of trials:
   Does the design meet the criteria and constraints defined in the problem?
   - Yes? Go to Share (#8).
   - No? Go to Improve (#7).
7. Improve: Using the results of the test, brainstorm improvements to the device/model; return to #3.
8. Share: Communicate your results to stakeholders and the public.

Science Course Descriptions

Analytical Lab Investigations

The course provides an opportunity for students to focus on investigations across a wide range of science topics, with the goal of entering science fairs and similar competitions. Similar to a maker space focused on science, students will design, conduct and present laboratory investigations. This course is open to all students who wish to explore independent work in the science field.

AP Biology

AP Biology courses emphasize four general concepts: evolution; cellular processes (energy and communication); genetics and information transfer; and interactions of biological systems. For each concept, these courses emphasize the development of scientific inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. AP Biology courses include college-level laboratory investigations.

AP Chemistry

Concepts covered may include the structure of matter; bonding of intermolecular forces; chemical reactions; kinetics; thermodynamics; and chemical equilibrium. For each concept, these courses emphasize the development of scientific inquiry and reasoning skills, such as designing a plan for collecting data, analyzing data, applying mathematical routines, and connecting concepts in and across domains. AP Chemistry courses include college-level laboratory investigations.

Prerequisites: High school chemistry and Algebra 2 recommended

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AP Environmental Science

AP Environmental Science courses are designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

AP Physics 1, 2

AP Physics 1: Focuses on Newtonian mechanics, including rotational motion; work, energy and power; mechanical waves and sound; and introductory circuits.

AP Physics 2: Covers fluid statics and dynamics; thermodynamics with kinetic theory; PV diagrams and probability; electrostatics; electrical circuits with capacitors; magnetic fields; electromagnetism; physical and geometric optics; and quantum, atomic and nuclear physics.

These courses, which were designed by the College Board to parallel first-semester college-level courses in algebra-based physics, may also include college-level laboratory investigations.

AP Physics C: Electricity and Magnetism

AP Physics C: Electricity and Magnetism courses focus on electricity and magnetism, including topics such as electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism. This course is designed by the College Board to parallel college-level physics courses that serve as a partial foundation for science or engineering majors. Requires the use of calculus to solve problems posed.

AP Physics C: Mechanics

AP Physics C: Mechanics courses focus on classical mechanics, including topics in kinematics; Newton's laws of motion; work, energy, and power; systems of particles and linear momentum; circular motion and rotation; oscillations; and gravitation. This course is designed by the College Board to parallel college-level physics courses that serve as a partial foundation for science or engineering majors. Requires the use of calculus to solve problems posed.

Astronomy

Astronomy courses offer students the opportunity to study the solar system, stars, galaxies, and interstellar bodies. These courses usually introduce and use astronomic instruments and typically explore theories regarding the origin and evolution of the universe, space, and time.

Biology 1

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. These courses include (but are not restricted to) such topics as cell structure and function, general plant and animal physiology, genetics, and taxonomy.

Biology 2: Anatomy & Physiology

Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals.

Prerequisite: Comprehensive initial study of biology recommended

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Biology 2: Animal Studies

This course is an introduction to the world of Zoology designed for 11th and 12th grade students. Students will survey the animal world from protists through chordates. Using a comparative approach, the study of each group will emphasize diversity, anatomy, evolutionary relationships, functional adaptations, and environmental relationships. Extensive lab work, including dissections, will be an integral part of the course.

Chemistry 1

Chemistry courses involve studying the composition, properties, and reactions of substances. These courses typically explore such concepts as the behaviors of solids, liquids, and gases; acid/base and oxidation/reduction reactions; and atomic structure. Chemical formulas and equations and nuclear reactions are also studied.

Earth Science

Earth Science courses offer insight into the environment on earth and the earth's environment in space. While presenting the concepts and principles essential to students' understanding of the dynamics and history of the earth, these courses usually explore oceanography, geology, astronomy, meteorology, and geography.

Earth Science 2: Geology

Geology courses provide an in-depth study of the forces that formed and continue to affect the earth's surface. Earthquakes, volcanoes, and erosion are examples of topics that are presented.

Earth Science 2: Oceanography

Courses in Marine Science focus on the content, features, and possibilities of the earth's oceans. They explore marine organisms, conditions, and ecology and sometimes cover marine mining, farming, and exploration.

Ecology

Ecology is a laboratory science from the biology discipline dealing with the interrelationships of living things and their environments. Major topics include energy flow, bio-geochemical cycles, biotic and abiotic influences on communities of living things, population dynamics, and an in-depth study of aquatic and terrestrial ecosystem pollution.

Genetics

Genetic courses offer students the opportunity to study molecular genetics, chromosomal genetics, genetics and human health, synthetic biology, and population genetics. Students in this course will investigate how the structure of DNA enables the processes of both protein synthesis and inheritance. They will also understand meiosis and its impact on the transmission of alleles from one generation to the next. In addition to studying Mendelian genetics, students will learn about sex-linked genes and multifactorial traits and their attributes to both the environment and genes. Students will investigate and understand that synthetic biology has been applied in numerous fields including agriculture, medicine and industry. A study on population genetics will allow students an opportunity to investigate and understand that random occurrences affect the genetic makeup of a population.

Horticulture 1

This course combines an introduction to plant systems, taxonomy, anatomy, introductory botany, basic horticulture, and greenhouse management. Our concentration is on the growth, identification, classification and reproduction of various plant families. We will use the lens of a botanist to learn about these topics. Throughout this curriculum, students will learn some basic knowledge of horticulture, the tools and skills needed in this industry, and the environmental impact of cultivating plants. The focus for Horticulture 1 will be vegetable, herb gardening, seed propagation, pollination, and flowers.

IB Biology I, II

IB Biology I and II investigate the fundamental topics of biology, including cell biology, molecular biology, genetics, and evolution through laboratory investigations and individual student research.

Prerequisites: Biology 1 is a prerequisite for IB Biology I; IB Biology I is a prerequisite for IB Biology II.

IB Environmental Systems and Societies

Through studying environmental systems and societies, students will be provided with a coherent perspective of the interrelationships between environmental systems and societies, one that enables them to adopt an informed personal response to the wide range of pressing environmental issues that they will inevitably come to face.

Oceanography

This course will invite students to explore the ocean and study the geological and physical components of the ocean. Students will also investigate the ocean's effects on weather and climate. As students explore the ocean's environments, they will see the impact that the physical properties and geographical locations have on the populations of the ocean. An investigation of the impacts caused by humans will provide an opportunity for students to learn how we impact the ocean habitats.

Physics 1

Physics courses involve the study of the forces and laws of nature affecting matter, such as equilibrium, motion, momentum, and the relationships between matter and energy. The study of physics includes examination of sound, light, and magnetic and electric phenomena.

PVCC BIO 101/102 General Biology

These courses explore fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Students are introduced to the diversity of living organisms, their structure, function, and evolution.

Prerequisites: Completed MTE 1-9 or placement test score equivalent or SAT math score of 520 or greater or ACT math score of 22 or greater **and** placement into ENF3/ENG 111

PVCC BIO 107 Biology of the Environment

BIO 107 presents the basic concepts of environmental science through a topical approach. Includes the scientific method, population growth, and migration, use of natural resources and waste management, ecosystem simplification recovery, evolution, biogeochemical cycles, photosynthesis and global warming, geological formations, atmosphere and climate, and ozone depletion and acid deposition.

Prerequisites: VPT placement into ENF 3 or SAT Critical Reading score of 500 or greater or ACT score of 21 or greater **and** completion of MTE 1-5 or placement test score equivalent

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PVCC CHM 101 Introduction to Chemistry

Emphasizes experimental and theoretical aspects of inorganic, organic and biological chemistry. Discusses general chemistry concepts as they apply to issues within our society and environment.

PVCC CHM 111 College Chemistry I

Explores the fundamental laws, theories, and mathematical concepts of chemistry. Designed primarily for science and engineering majors.

Prerequisites: MTH 163 or MTH 167 is a prerequisite or corequisite for CHM 111; CHM 111 Lab is a corequisite for CHM 111.

PVCC GOL 105 Physical Geology

Introduces the composition and structure of the earth and modifying agents and processes. Investigates the formation of minerals and rocks, weathering, erosion, earthquakes, and crustal deformation.

PVCC GOL 106 Historical Geology

Traces the evolution of the earth and life through time. Presents scientific theories of the origin of the earth and life and interprets rock and fossil record.

PVCC NAS 131/132 Astronomy

This is an introductory astronomy course that emphasizes concepts rather than mathematics. The course is designed for non-science majors and there are no math prerequisites. The main goal of this course is for students to understand and appreciate the nature of science through the study of astronomy. After completing this class, students will have achieved basic understanding of: scientific method, patterns in the night sky, motion, energy, gravity, and light, telescopes, our solar system, nature of stars and galaxies, birth and death of stars, theories on beginning and end of the universe, and properties of planets beyond our solar system. Remote observatory viewing may be scheduled according to availability and time allowance.

Corequisite: NAS 131/132 lab

PVCC PHY 201 General College Physics

Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism, and selected topics in modern physics.

Prerequisite: MTH 164

Science, Technology & Society

Students explore and understand the ways in which science and technology shape culture, values and institutions, and how such factors, in turn, shape science and technology. Students examine science, technology and engineering fundamentals in relation to solving real-world problems. Students are introduced to engineering fundamentals using mathematical and scientific concepts, and they apply the engineering design process through participation in hands-on engineering projects. Students are introduced to scientific research fundamentals using scientific inquiry and experimentation methodologies, and they apply the scientific method through participation in hands-on science projects. An important outcome of this course is helping students decide on a STEM focus, either engineering or science, and a particular area of specialty.

Scientific Research and Design

Scientific Research and Design is a broad-based course designed to allow students the opportunity to research fields of interest in the areas of science, social science, math, technology, and engineering. The course has the components of any rigorous scientific or engineering program of study, including problem identification, investigation design, data collection, data analysis, formulation, and presentation of conclusions. These components are integrated through a career and technical education lens, with an emphasis on helping students gain entry-level employment in high-skill, high-wage jobs and/or continue their education.

Special Education

ACPS is committed to providing all children with opportunities to benefit from a public education. Special education programs and services are available to county residents who have children with special educational needs. These programs and services are provided for children with disabilities whose second birthday falls on or before September 30 through the age of 21 years. Each student receives special education services designed to meet his or her individual needs. These programs are discussed and planned by school personnel and the parents and student involved. Often instruction is carried out both in regular and special education classrooms.

Each special education student's progress is reviewed at least yearly and their need for special services is reassessed at a minimum of every three years. Special education programs and services are provided by trained personnel in the following areas of disability as defined by federal and state law: Autism, deaf-blindness, developmental delay, emotional disability, hearing impairment (including deafness), intellectual disability, multiple disabilities, orthopedic impairment, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, or visual impairment (including blindness).

Special Education Course Delivery Models

CONSULTATION/MONITOR

The Special Education Department offers support to students in mainstream classes through consultation with regular education teachers, monitoring of the student's performance, and direct assistance on an as-needed basis.

STUDY SKILLS

Direct assistance is available for a variety of student needs including the following: test-taking, homework and make-up work, project/research paper development, and organization and study skills. This class is designed for students in creditbearing classes.

COLLABORATIVE CLASSES

Regular and special education teachers work together to teach core subjects.

DEPARTMENTALIZED MODEL/SELF-CONTAINED CORE CLASSES

These classes are taught at the standard level by special education teachers. They are intended for students with significant levels of need such that they would not be successful in collaborative classes. In order for students to be enrolled in these departmentalized classes, need and placement must be documented through the IEP process. Small group and/or individualized instruction is provided in a setting where several content areas are being taught simultaneously. Students in these classes take the designated SOL tests, if appropriate.

DEPARTMENTALIZED MODEL/SELF-CONTAINED ELECTIVE CLASSES

These classes are taught by special education teachers. They are intended for students with significant levels of need such that they would not be successful in collaborative classes. In order for students to be enrolled in these departmentalized classes, need and placement must be documented through the IEP process. Small group and/or individualized instruction is provided in a setting where several content areas are being taught simultaneously.

Special Education Course Descriptions

Community Life/Living

Community Living courses place a special emphasis on the student's relationship to the surrounding community. Instruction varies with the students and their needs; however, these courses provide the skills necessary for independent functioning

within the surrounding environment. Course topics may also include available community resources and how to access them, emergency skills, and independent living strategies.

Functional Skills Writing & Communication

Communication Instruction courses are typically individualized according to each student's condition and needs. Increasing the student's communication skills—oral expression, listening comprehension, reading, and writing—is emphasized; communication techniques in several areas (educational, social and vocational) are often explored.

Life/Social Skills

Social Development Instruction courses teach students the social skills needed for independent functioning with the community. Topics may include self-control, self-expression, obeying rules, decision-making, appropriate situational behavior, interacting with others, and maintaining relationships. Students may develop independence, self-confidence, and self-reliance.

Resource

Tutorial courses provide students with the assistance they need to successfully complete their coursework. Students may receive help in one or several subjects.

Katy Compel
Director of Special Education
434-296-5885

World Languages

Languages are at the heart of what makes us human, allowing us to express thoughts and ideas, meet new people, and expand our world. Being multilingual improves attention, creativity, self-control, and organization. Multilingual students are better prepared to succeed in a global economy, connect across cultures, and be the problem-solvers our communities need to meet their greatest civic, social and economic potential. As a result of their study in the World Languages program, students will:

- Improve their communication skills across all languages;
- Enhance their cultural understanding of themselves and others;
- Expand their access to information; and
- Gain a global perspective.

World Languages Program Areas & Course Descriptions

French

AP French Language

The purpose of this class is to prepare students to take the Advanced Placement test for college credit. The emphasis is on listening to native speakers, reading literature intended for native speakers, writing compositions several paragraphs in length, and orally communicating facts and ideas. A thorough review of grammar is an integral part of this course.

French 1, 2, 3, 4

French 1: Students will learn to listen, speak, read, and write in the language through a study of cultures that use the language as part of their heritage. Students will learn basic vocabulary and essential grammar to communicate in simple sentences and navigate real-world experiences. Students will practice basic literacy and gain insight into the way of life of cultures associated with the language.

French 2: Continues to build on skills learned in the first year of the language. Students continue to work towards proficiency in all five-language skills: listening, reading, writing, studying culture, and a special emphasis on speaking.

French 3: Conducted almost entirely in the target language, French 3 refines speaking, reading, and writing skills as it emphasizes vocabulary building. There is also intense grammar work in preparation for standardized tests that are encountered in the upper levels of the target language. Culture, geography, and history are included.

French 4: Conducted exclusively in the target language. As an honors course, it places great responsibility for progress on the student. Students are expected to engage in self-instruction, independent work, readings, projects, and research. Emphasis is on communication skills and competency in the language. Literature and culture are studied and grammar is reviewed. Students are prepared for the SAT II Test.

French 3 and 4 are weighted courses.

German

AP German Language

This class prepares students to take the Advanced Placement test for college credit. The emphasis is on listening to native speakers, reading literature intended for native speakers, writing compositions, and communicating orally. A thorough review of grammar is an integral part of this course.

German 1, 2, 3, 4

German 1: The purpose of German 1 is to prepare students to take the Advanced Placement test for college credit. The emphasis is on listening to native speakers, reading literature intended for native speakers, writing compositions several paragraphs in length, and orally communicating facts and ideas. A thorough review of grammar is an integral part of this course.

German 2: Continues to build on skills learned in the first year of the language. Students continue to work towards proficiency in all five language skills: listening, reading, writing, studying culture, and a special emphasis on speaking.

German 3: Conducted entirely in the target language, German 3 refines speaking, reading, and writing skills as it emphasizes vocabulary building. There is also intense grammar work in preparation for standardized tests that are encountered in the upper levels of the target language. Culture, geography, and history are included.

German 4: Conducted exclusively in the target language. As an honors course, it places great responsibility for progress on the student. Students are expected to engage in self-instruction, independent work, readings, projects, and research. Emphasis is on communication skills and competency in the language. Literature and culture are studied and grammar is reviewed. Students are prepared for the SAT II Test. German 4 has an AP option.

German 3 and 4 are weighted courses.

Latin

AP Latin

The purpose of this class is to prepare students to take the Advanced Placement test for college credit.

Latin 1, 2, 3, 4

Latin 1: Through elementary readings and sentences, students in Latin 1 learn how the Latin language operates and how English grammar and vocabulary stem from it. Students learn the inflections, rules of syntax, and vocabulary needed for the comprehension and translation of simple Latin stories. Other activities include English to Latin translation, both oral and written; word study (derivatives and formation of words); and discussion of Roman civilization and mythology.

Latin 2: In the first half of Latin 2, students review Latin 1 (if needed). Stories about Roman life and customs are translated in the second half of Latin 2. Emphasis on vocabulary and word study is continued and an understanding and appreciation of the history and civilization of Rome is gained through various readings.

Latin 3: Students will read selections from various texts including Pliny, Aulus Gellius, Apuleius and/or passages in Medieval Latin. Emphasis is placed on acquiring an understanding of Roman culture and an appreciation of Roman literature and on developing an increased English vocabulary through observing derivations. Studies in rhetoric and classical philosophy provide students with a valuable background for collegiate scholarship.

Latin 4: Provides an in-depth study of the poetry of Virgil, Ovid, Catullus, Horace, and/or Martial. Mythology, Roman history, poetic devices, and linguistic forms peculiar to poetry are studied. This course may be offered in alternate years.

Prerequisite: Latin 1 students should possess good knowledge of English grammar.

Latin 3 and 4 are weighted courses.

Spanish

AP Spanish Language

This class is to prepare students to take the Advanced Placement test for college credit. The emphasis is on listening to native speakers, reading literature intended for native speakers, writing compositions several paragraphs in length, and orally communicating facts and ideas. A thorough review of grammar is an integral part of this course.

AP Spanish Literature

This AP Spanish Literature course is comparable to a third-year college introduction to Hispanic literature course. The required reading list of literary significance represents various historical periods, literary movements, genres, geographic areas, and groups within the Spanish-speaking world. The course will help students to interpret and analyze literature in Spanish.

IB Spanish IV, V

IB Spanish aims to develop students' intercultural understanding; enable students to understand and use the language they have studied in a range of contexts and for a variety of purposes; encourage, through the study of texts and social interaction, an awareness and appreciation of the different perspectives of people from other cultures; develop students' awareness of the role of language in relation to other areas of knowledge; develop students' awareness of the relationship between the languages and cultures with which they are familiar; provide students with a basis for further study, work and leisure through the use of an additional language; and provide the opportunity for enjoyment, creativity, and intellectual stimulation through knowledge of an additional language.

Prerequisite: Spanish 3 or equivalent

Spanish 1, 2, 3, 4

Spanish 1: Students will learn to listen, speak, read, and write in the language through a study of cultures that use the language as part of their heritage. Students will learn basic vocabulary and essential grammar to communicate in simple sentences and navigate real-world experiences. Students will practice basic literacy and gain insight into the way of life of cultures associated with the language.

Spanish 2: Continues to build on skills learned in the first year of the language. Students continue to work towards proficiency in all five-language skills: listening, reading, writing, studying culture, and a special emphasis on speaking.

Spanish 3: Conducted almost entirely in the target language, Spanish 3 refines speaking, reading, and writing skills as it emphasizes vocabulary building. There is also intense grammar work in preparation for standardized tests that are encountered in the upper levels of the target language. Culture, geography, and history are included.

Spanish 4: Conducted exclusively in the target language. As an honors course, it places great responsibility for progress on the student. Students are expected to engage in self-instruction, independent work, readings, projects, and research. Emphasis is on communication skills and competency in the language. Literature and culture are studied and grammar is reviewed. Students are prepared for the SAT II Test.

Spanish 3 and 4 are weighted courses.

Spanish for Fluent Speakers

This course will support our growing number of Spanish speaking students in high school who have achieved fluency (either through the dual language program or as heritage or native speakers) and want to continue their study of Spanish. Students may choose to take this class before or after AP Spanish coursework. The focus of this class will be on practical applications of Spanish within the Albemarle County community, including partnerships for work-based learning and information around interpretation and translation credentialing, as well as building academic vocabulary in Spanish for students, including specific terminology related to future career and college pathways.

Spanish for Fluent Speakers is a weighted course.

Enrichment Opportunities

Consider these opportunities for enrichment, learning support, and expanded career and continuing education. When you consider a course or a program, think about the college and career readiness skills that it offers beyond what seems to be the career pathway. The Partnership for 21st Century Skills has identified Learning and Thinking Skills for College and Career Readiness. As much as students need to learn academic content, they also need to know how to be lifelong learners and how to make effective and innovative use of what they know throughout their lives.

Learning and Thinking Skills are comprised of:

- Critical thinking and problem-solving skills;
- Communication skills;
- Creativity and innovation skills;
- Collaboration skills;
- Information and media literacy skills; and
- Contextual learning skills.

Enrichment Course Descriptions

AVID 9, 10, 11, 12

AVID provides scaffolded support that educators and students need to encourage college and career readiness and success. AVID 9 and 10 are designed with a focus on organization and academic skills to help students transition into high school and to be successful in rigorous college preparatory classes. AVID 11 continues to build on academic skills, but the focus changes to college readiness. Students review career goals and begin to design education plans that involve college exploration, test preparation, and financial aid awareness. AVID 12 begins the transition to post-secondary educational planning. Students focus on taking the SAT/ACT, exploring college, and completing college and financial aid applications.

Prerequisite: Students in AVID 12 must have completed a previous AVID class.

Core +

Tutorial courses provide students with the assistance they need to successfully complete their coursework. Students may receive help in one or several subjects.

Independent Study

Independent Study courses, typically organized as a mentorship with a teacher or outside professional, enable students to conduct investigations related to their field(s) of interest.

Seminar (Freshman, Sophomore, Junior, Senior)

The overarching mission of Seminar in each year of high school is to support students with their successful transition to high school; development as learners, community members, and friends; and progression to post-secondary plans. Seminar content includes understanding of the relationship between social, emotional and academic learning; faculty mentorship and guidance; and professional skill development so that students become caring, confident and competent citizens and workers.

Senior Study Hall

Study Hall courses provide students with the opportunity and time to complete classroom assignments or school projects. Students typically work on their own, without the help of a tutor; however, they are supervised and usually remain in the classroom.

Study Hall

Study Hall courses provide students with the opportunity and time to complete classroom assignments or school projects. Students typically work on their own, without the help of a tutor; however, they are supervised and usually remain in the classroom.

Study Skills

Study Skills courses prepare students for success in high school and/or for postsecondary education. Course topics may vary according to the students involved, but typically include reading improvement skills, such as scanning, note-taking, and outlining; library and research skills; listening and note-taking; vocabulary skills; and test-taking skills. The courses may also include exercises designed to generate organized, logical thinking and writing.

Additional Enrichment Opportunities

To encourage students to enrich their high school educational experience and to increase the rigor of the high school program, the following choices are available:

Advanced Placement (AP)

The Advanced Placement (AP) program, offered by the College Board, enables students to pursue college-level studies while still in high school. AP offers students the opportunity to participate in a rigorous curriculum that exposes students to high academic intensity and quality.

AP Examinations are administered each year in May and represent the culmination of college-level work in a given discipline in a secondary school setting. Rigorously developed by committees of college and AP high school faculty, the AP Exams test students' ability to perform at a college level. Students who perform well may earn college credit and/or advanced standing at thousands of universities worldwide.

Based on the amount of work required outside of the classroom, students who want to enroll in more than three Honors and/or AP level classes per semester should carefully consider their academic, personal and extracurricular activities. Students are encouraged to consult with their school counselor. **Note:** Starting with the incoming class of 2022, students will be limited to taking no more than nine AP classes over the course of their high school career.

Visit the CollegeBoard website for more details about AP courses and exams, including exam dates and fees. Financial assistance is available for economically disadvantaged students. See a school counselor for more information.

Arts and Letters Pathway

The Arts and Letters Pathway, offered at Albemarle and Western Albemarle high schools, provides opportunities for Fine Arts students to gain additional recognition, rigorous experiences, and college and career skills. The Pathway enables students to choose among several areas of concentration and, in addition to course study, students participate in internships (or mentorship), job sharing/shadowing, and a capstone project during their high school career. Students are eligible to enter the Pathway in either 9th or 10th grade and should speak with their counselor to learn more about this opportunity.

Albemarle High School Arts and Letters Pathway »

Western Albemarle High School Arts and Letters Pathway »

Dual Enrollment/Dual Credit

Students may choose to get a jump-start on a college degree or certificate by taking college classes while in high school. This can be accomplished through Dual Enrollment or Dual Credit classes, which allow eligible students to earn high school and college credit simultaneously.

Students can save money toward higher education by taking Dual Enrollment classes, which are taught in their high school during the regular school day at no cost. Alternately, a student may choose to enroll in Dual Credit classes, which are taken on the college campus. Students are responsible for any expenses associated with Dual Credit classes.

Students participating in Dual Enrollment or Dual Credit courses follow the college add/drop policy and deadlines. Course offerings vary from year to year. Courses taken in the core areas (English, history/social sciences, mathematics, and science) are weighted as Dual Enrollment/Dual Credit courses.

Students who successfully complete these courses earn college credit from the partnering higher education institution. **Credit transfer to another college or university depends upon the policies of that individual college or university.**

Albemarle County Public Schools offers a variety of Dual Enrollment and Dual Credit opportunities in partnership with Piedmont Virginia Community College. A smaller number of Dual Enrollment opportunities exist in partnership with Reynolds Community College.

Learn more about admission requirements at Piedmont Virginia Community College (PVCC) »

Early College Scholars Degree Program

In partnership with Piedmont Virginia Community College (PVCC), eligible students can earn an associate degree in General Studies while in high school. Monticello High School serves as the Early College Scholars Degree Program "home" due to its close proximity to PVCC; Dual Enrollment college-level courses are offered on both campuses. All students, regardless of their base school, can participate. Eligibility includes GPA, maturity and skills to succeed in college-level courses, and capacity to complete 63 credits for the associate degree. The benefits of Early College include transferability of college credit to a four-year college/university, college tuition savings, and ability to competitively join the workforce immediately upon high school. Students can meet with their school counselors to learn more and/or contact the Monticello High School Counseling Department.

Governor's Senior Year Plus

Governor's Senior Year Plus: Early College Scholars Agreement is intended to allow and to encourage eligible high school seniors to complete requirements for a high school diploma and concurrently earn at least 15 hours of transferable credits toward a college degree. This results in a more productive senior year and reduces the amount of college tuition for families. See your school counselor for more information.

Senior Capstone, Portfolios & Work-Based Learning

Students will complete one or more of the following throughout their high school career: a senior capstone project, portfolio, performance-based assessment, or structured experiment that relates to a work-based learning, service-learning, or community engagement activity. Such capstone project, portfolio, performance-based assessment, or structured experiment shall align with and further develop the knowledge and skills attained through such work-based learning, service-learning, or community engagement activity.

Work-based learning (WBL) is a school-coordinated, coherent sequence of on-the-job experiences that relate to students' career goals and/or interests, are based on instructional preparation, and are performed in partnership with local businesses, industries, or other organizations in the community. WBL enables students to apply classroom instruction in a real-world business or service-oriented work environment.

Virtual Learning

The Virtual Learning program provides opportunities for students in Grades 9-12 to complete coursework in a virtual setting. Albemarle County Public Schools (ACPS) offers virtual courses led by ACPS teachers that are aligned to the same standards and at the same level of rigor as traditional classroom offerings.

For a complete listing of virtual courses offered through ACPS and guidelines for taking virtual courses with Virtual Virginia and other institutions, visit our Virtual Learning web page or contact your school counselor.

Virtual Virginia

As a program of the Virginia Department of Education, Virtual Virginia (VVA) at this time offers online Advanced Placement (AP), world language, core academic, and elective courses to students throughout the Commonwealth.

The Virtual Virginia program is available to students in Grades 9-12 who are pursuing courses that are **not** offered at their high school.

For a complete listing of virtual courses offered through ACPS and guidelines for taking virtual courses with Virtual Virginia and other institutions, visit our Virtual Learning web page or contact your school counselor.

Work-Based Learning

Work-Based Learning (WBL) is a method of instruction that integrates an applied professional experience within a Career and Technical Education (CTE) course. Students investigate careers and gain insight into their strengths, interests and values through a range of WBL experience options, from short-term job shadowing to longer duration experiences such as internships, apprenticeships, service learning, and more. WBL brings relevancy to academics and helps students gain direction for future educational and career choices. WBL experiences are developed in partnership with local industry and community organizations in alignment with VDOE standards; students can also source WBL experiences. More information is available through each school's Career Center and Career Specialist.

General Information

Advanced Placement Exams & Limits

ADVANCED PLACEMENT EXAMS

Advanced Placement (AP) Exams are administered each year in May and represent the culmination of college-level work in a given discipline in a secondary school setting. Rigorously developed by committees of college and AP high school faculty, the AP Exams test students' ability to perform at a college level. Students who perform well can receive course credit and/or advanced standing at thousands of universities worldwide. For more information about AP Exams, including preparation, dates and fees, visit the College Board's AP Central site.

AP LIMITS

Freshmen are no longer able to take AP classes. As they progress through high school, students will be limited to no more than nine (9) AP classes total between their sophomore and senior years.

Appeals Process

Loss of credit may be appealed to the School Attendance Committee. The principal makes decisions regarding loss of credit. Any decision to deny credit or promotion may be appealed to the Superintendent or designee for final disposition.

Athletic Eligibility

VIRGINIA HIGH SCHOOL LEAGUE

To be eligible for participation on athletic teams, the Virginia High School League (VHSL) requires that students be enrolled in five (5) credits (in progress) and have passed five (5) classes (earned credits for 5 classes) the previous semester. Repeating a course for which a passing grade was received does not count toward the required five courses for athletic eligibility. First semester 9th graders are eligible on the basis of their promotion from the 8th grade the previous semester. See Athletic Handbook for details.

- Any course in which a student receives a full credit during one semester may be doubled and counted as such for eligibility purposes.
- Any course taken every day or every other day (for an extended block; e.g., an A-B block) for the entire year counts as a stand alone course for one credit.
- Any semester course taken for partial credit counts as one course.
- 3 credit courses at CATEC count as three classes for VHSL Eligibility.
- In the case of hybrid schedules one must count the courses based upon what is outlined above. Here are some scenarios:
  - **Straight 4 x 4 (four courses taken each semester–each for one credit):** These are double and, as such, a student must past a minimum of three each semester to be eligible.
  - **4x4 plus year-long courses or semester courses:** Student is taking three 4 x 4 courses and three year-long or semester courses. If the student only passes two of the 4 x 4 courses (equivalent of four courses), the student must pass at least one year-long course to attain the required “pass five” standard. If a student only passes one of the 4 x 4 courses (equivalent of two courses), the student must pass all three of the year-long courses to attain five courses passed for credit.

Visit the VHLS Eligibility site »

NCAA – ACADEMIC ELIGIBILITY REQUIREMENTS

If you want to play National Collegiate Athletic Association (NCAA) sports at an NCAA Division I or II school, you need to register with the NCAA Eligibility Center. The Eligibility Center works with you and your high school to certify your initial eligibility.

For more information about registering with the NCAA, view their Registration Checklist.

Certificate of Program Completion

In accordance with the requirements of the Standards of Quality, students who complete coursework defined by the local school board but have not earned the required verified credits for diplomas are awarded Certificates of Program Completion.

Core Courses: Levels

ACPS offers the following levels of core courses: Advanced, Advanced Placement (AP), Dual Enrollment (DE), Honors, and International Baccalaureate (IB). Individual high schools may decide to combine some course levels to increase opportunities for students to participate in higher course levels.

- **Advanced** level classes are designed to engage students in curriculum designed to stimulate and encourage academic growth and performance.
- **AP/DE/Honors/IB** level classes are designed for students who seek additional academic rigor, depth and complexity. These classes frequently use abstract and critical thinking approaches through inquiry-based projects to extend and deepen understanding of the content. We consider these courses to be of similar rigor and represent the highest options offered.

The goal of Albemarle County Public Schools is to ensure opportunity and access to high-level curriculum and instruction for all students.

Diploma Seals

Students meeting specific requirements for graduation and demonstrating exemplary performance may receive diploma seals for recognition. The Virginia Department of Education (VDOE) makes available multiple Graduation (Diploma) Seals of Achievement. For more information about each seal, including specific requirements, visit the Board of Education's Diploma Seals of Achievement web page.

Early High School Program Completion

A student planning to satisfy all graduation requirements established by the Commonwealth of Virginia and Albemarle County Public Schools prior to his or her cohort's graduation date may petition the school principal for early graduation. The student must write a plan in collaboration with school counseling staff and his or her parent or guardian including courses and other requirements to be fulfilled. The plan must also outline the student's reason for requesting early graduation. Reasons may range from hardships to plans for early college attendance. A request for early graduation will be approved at the discretion of the school principal. Students wishing to graduate in a time period of less than four years must be able to show that they can meet their graduation requirements. In addition, students must show that they have a sustainable post graduation plan. Students whose plans are approved will be remain enrolled at the school through their graduation date unless special circumstances are determined by the principal.

EARLY GRADUATION REQUEST FORM

Grade Point Average, Academic Achievement Program & Weighted Grades

GRADE POINT AVERAGE (GPA)

GPA is determined by dividing the total grade points received by the total number of credits attempted.

ACADEMIC ACHIEVEMENT PROGRAM

The school division's academic achievement program recognizes all graduating seniors who earn an unweighted 3.0 grade point average (GPA) or better during their high school career. The primary objective of this program is to recognize

students both for their consistently high performance throughout their four years of high school and for the contributions so many of them make to our high school communities.

We have three levels of academic honor recognitions. The following designations are affixed to the student's diploma:

- **Cum Laude, Graduating With Praise** for students whose unweighted GPA is from 3.0 to 3.4
- **Magna Cum Laude, Graduating With Great Praise** for students whose unweighted GPA is from 3.5 to 3.7
- **Summa Cum Laude, Graduating With Highest Praise** for students whose unweighted GPA is 3.8 or higher

WEIGHTED GRADES

As part of the school profile, each high school will report class size. Class rank will only be reported for special circumstances: military academies, honors programs, and scholarship opportunities.

All courses with Advanced Placement (AP), Dual Enrollment (PVCC or JMU), Honors, and International Baccalaureate (IB) designations are weighted using the scale below. Additionally, **beginning with students entering 9th grade in the 2022-23 school year**, students will earn a weighted credit for the third and fourth Career & Technical Education (CTE) courses they take within a CTE Career Cluster as well as many level 3 and level 4 elective courses. Weighted electives are identified within their course descriptions. You can also view a printable list of weighted courses.

Grade	Unweighted GPA	Weighted GPA
A	4	5
B	3	4
C	2	3
D	1	2
F	0	1

Grading Policy & Scale

GRADING POLICY

ACPS is committed to a balanced and equitable assessment system. Balanced assessment systems provide accurate and timely information about student learning and achievement. The crux of a balanced assessment system is equitable grading practices. Healthy grading practices encourage and support learning by helping students and teachers see that their continued efforts will result in success.

Resources:

- Grading Handbook for Families and Students
- School Board Policy IKBA, *Grading Policy*

GRADING SCALE

Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	50-59

Graduation Requirements

Most Virginia students graduate with either an Advanced Studies Diploma or a Standard Diploma. Other diploma options are available for eligible students with disabilities and adult learners. Use the links below to access information about diploma options and requirements:

- Advanced Studies Diploma
- Standard Diploma
- Applied Studies Diploma

- Other Diplomas & Certificates

Individualized Student Alternative Education Program (ISAEP)

An ISAEP provides students at-risk of dropping out of school an educational experience that can prepare them for continued learning, successful employment, and responsible citizenship. A referral to ISAEP may be made by the student's base school when a student demonstrates substantial need for an alternative program. The ISAEP recognizes that standard educational schedules and methods are not successful for all students. An ISAEP offers the opportunity of successful closure to one's high school experience and opens the possibility for continuing education.

In order to be considered for an ISAEP, students must:

- Currently be enrolled in an Albemarle County high school;
- Be at least 16 and one year (6 or more credits) behind their entering class in credits earned;
- Achieve minimum entry test scores (a minimum of 410) on each of the five sections of the General Educational Development (GED) Practice Test and a minimum score of 7.5 on the Tests of Adult Basic Education (TABE) Reading Test;
- Complete a visit to the program;
- Meet with their parent/guardian, school counselor, and ISAEP Coordinator prior to enrollment in ISAEP; and
- Complete a career-aptitude assessment.

Each ISAEP has the following components:

- Academic preparation for the GED exam;
- Career guidance and exploration (demonstrate proficiency in Virginia's Workplace Readiness Skills);
- Occupational experience and/or training; and
- Econ PPF Credit.

The program is located on the campus of Community Lab School (formerly Murray High School). Students who pursue an ISAEP follow a class and career/technical schedule based on their individual situation. See your school counselor for more information.

International Transcript Evaluations

Transcripts for international students in grades 9-12 transferring to U.S. schools for the first time require evaluation to determine units of credit that may count toward graduation. When provided, an international transcript evaluation must be completed and standard units of credits are awarded as part of the registration process with the International & English Learners (EL) Program. International transcripts must be official to confer credit. If needed, the ESOL Office will obtain translation of these documents in accordance with federal law.

Makeup Work

Students who have been absent or are suspended are responsible for any work missed. See student handbook for details.

Out-of-School Suspension

After the third calendar day of absences resulting from out-of-school suspension, days of subsequent suspension count against the limit of absences for earning credit. The Attendance Committee gives special attention to these absences and may withhold a final decision on loss of credit until the end of the semester or the current school year, as appropriate. During this time, the student's behavior is monitored to assess progress.

Registration & Add/Drop Procedures

Course selection for the upcoming year is an opportunity for each student to think carefully about interests, achievement, and educational and career goals. Give very serious consideration to this registration process.

After students make their selections for the following year, teachers will indicate their recommendations in PowerSchool and connect with families that have chosen a different course than what the teacher recommends.

School counselors will meet with students individually to review course selections and graduation requirements and to make sure students are on track with post-secondary goals.

All requests for schedule changes must be made by the last Friday in March (of the previous school year). It may not be possible to accommodate requests for changes.

Credits cannot be earned for courses entered after ten (10) school days have passed for year-long classes, and five (5) school days have passed for semester classes.

Other considerations:

- Due to budget and staffing guidelines, course selections are finalized by the end of the preceding school year.
- Selected courses may be offered during zero period, which meets before school. Students who register for these courses must provide their own transportation.
- A course is offered only if enough student requests support that course.
- Electives: alternate choices are made, as the school reserves the right to assign students the alternate choice if necessary or if scheduling conflicts occur.
- Corrections to student schedules must take place on or before the 5th day of the semester for semester-long courses and on or before the 10th day for year-long courses, to a prevent penalty or notation on the student's transcript.
- Added Classes: Classes may only be added under extenuating circumstances and must take place on or before the 5th day of the semester for semester-long courses and on or before the 10th day for year-long courses.
- Dropped Classes: Classes dropped after the 5th day of the semester for semester-long courses and after the 10th day for year-long courses but before the 2nd week after the 1st interim period will have a "W" (withdraw) noted on the transcript. The "W" is not factored into the GPA. Permission of the Principal is required.
- Under extenuating circumstances, exceptions may be considered by the Principal for a class to be dropped after the above dates. A withdrawn failure (WF) is recorded on the student's transcript. The withdrawn failure (WF) is included in the GPA calculation.
- An appeal of this policy may be considered by the Principal for the student to receive a Withdrawn (W) on their transcript and not have the course included in the GPA calculation.
- Dual Enrollment/college courses follow the college's add/drop procedures.

Regulations Governing the Secondary School Transcript

On March 29, 2007, the Virginia Board of Education adopted amended regulations governing the Secondary School Transcript. These revisions were made in order to strengthen the transcript regulations and to bring them into conformity with amended or new state and federal laws as well as the needs of higher education. The secondary school transcript regulations became effective for students taking secondary courses for credit beginning in the 2008-09 school year.

When parents request a transcript from the high school, the student's "test record" is required by law to be on it *unless* the parent has requested in writing that the information be excluded. "Test record" includes at least the highest score earned, if available, on college performance-related standardized tests, such as the SAT and ACT, and excludes Standards of Learning (SOL) test scores. **Note:** Parents/guardians who would like this information excluded from their child's high school transcript should contact their child's school counselor for the appropriate form.

Full-day absences will be noted on the transcript yearly.

Repeating a Course

All courses taken and grades earned are recorded on the transcript, including courses retaken. However, only the highest grade is calculated in the GPA.

Sequential Electives

Beginning with students entering ninth grade in the 2018-19 school year, students qualifying for an Advanced Studies Diploma must successfully complete two sequential electives for two full credits chosen from a concentration of courses that provide a foundation for further education, training or preparation for employment. Certain courses satisfy the requirement for Fine Arts or Career and Technical Education and for sequential electives. All students qualifying for a Standard Diploma must meet the same requirement.

Student Absences, Excuses & Dismissals

School attendance is critical to academic achievement and preparing students for the world of work and personal success. Each parent or guardian having charge of a child within the compulsory attendance age is responsible for the child's regular and punctual attendance at school as required under provisions of state law. Please refer to School Board Policy JED, *Student Absences/Excuses/Dismissals*, for specifics.

Chronic Absences: The middle school principal and the high school principal have the discretion to deny high school credit toward graduation for a course to a student who misses more than ten (10) single class periods during the school year. Any decision to deny credit may be appealed to the principal or principal's designee for restoration under conditions determined by the principal.

Early Dismissals (leaving school early): If a class is missed due to early dismissal, it is considered an absence. As noted previously, absences are recorded by individual classes not by school day. Three early dismissals equals an absence in the applicable class(es).

Student Course Load

All students through grade 12 shall maintain a full-day schedule of classes unless:

- A waiver is granted by the Superintendent/Designee;
- A recommendation of the principal and acceptance by a college or university has qualified a student to be released during school hours to take college or university courses. Tuition and transportation for these courses are the responsibility of the student; or
- Students are taking college courses for dual credit according to the Virginia accreditation standards.

Translation of Pass/Fail Grades

Students receiving a "Pass" in a course designated as pass/fail are credited with completion of the course, but the grade from such a course is not included in the calculation of the GPA. Students receiving a "Fail" in a pass/fail course receive a grade point of 0, which is included in calculations of the GPA.

Verified Credits

A **standard credit** is awarded for a course in which the student successfully completes the objectives of the course and the equivalent of 140 clock hours of instruction.

A **verified credit** is awarded for a course in which the student earns a standard unit of credit *and* achieves a passing score on a corresponding end-of-course SOL test or a substitute assessment approved by the Board of Education.

For responses to commonly asked questions about verified credits, visit the Board of Education's Graduation FAQ.

For specifics about verified credit requirements for transfer students, visit the Board of Education's Information for Transfer Students web page.

Ask your school counselor for more information about verified and locally verified credits.

Early Graduation Request

Name of Student: _____

Students wishing to graduate in a time period of less than four years must be able to show that they can meet their graduation requirements. In addition, students must show that they have a sustainable post-graduation plan. Students who are considered "early graduates" will be enrolled in an internship or work-study course until their cohort graduates. They also are eligible to participate in graduation.

Credits Earned:		**Credits in Progress:**		**Credits Needed:**	
English	_____	English	_____	English	_____
History	_____	History	_____	History	_____
Math	_____	Math	_____	Math	_____
Science	_____	Science	_____	Science	_____
World Lang.	_____	World Lang.	_____	World Lang.	_____
Health/PE	_____	Health/PE	_____	Health/PE	_____
Electives	_____	Electives	_____	Electives	_____
Freshman Seminar	_____	Personal Finance	_____	Personal Finance	_____
Personal Finance	_____				

Fine Arts or Career and Technical Education Credit: _____
Sequential Electives (if applicable): _____
Advanced Placement or Honors or Industry Certification: _____

SOL Credits Earned:

Algebra I	_____	World Hist. I	_____	Earth Science	_____	Reading	_____
Geometry	_____	World Hist. II	_____	Biology	_____	Writing	_____
Algebra II	_____	U.S. History	_____	Chemistry	_____	World Geography	_____

Diploma Type: Advanced _____ Standard _____

Post High School Plan:

College _____
Military _____
Employment _____
Other _____

Comments: (Feel free to attach a letter explaining your student's situation.)

Student Signature: _____ Date: _____

Parent Signature: _____ Date: _____

Counselor Signature: _____ Date: _____

FINAL PRINCIPAL APPROVAL: _____ Date: _____

Weighted Courses

ALBEMARLE COUNTY PUBLIC SCHOOLS

All courses with the following designations are weighted:

- **Advanced Placement (AP)**
- **Dual Enrollment (PVCC or JMU)**
- **Honors**
- **International Baccalaureate (IB)**

Beginning with students entering 9th grade in the 2022-23 school year, students also will earn a weighted credit for:

- The third and fourth Career & Technical Education (CTE) courses they take within a CTE Career Cluster.
- Many level 3 and level 4 electives.

This page lists our weighted electives. The next page lists our CTE courses by Career Cluster. Please visit the High School Program of Studies for course descriptions.

ENGLISH

Peer Tutoring 3

HEALTH & PE

Weight Training 3, 4

HISTORY & SOCIAL SCIENCE

Humanities 3
Leadership 3, 4

WORLD LANGUAGES

French 3, 4
German 3, 4
Latin 3, 4
Spanish 3, 4
Spanish for Fluent Speakers

FINE AND PERFORMING ARTS

Performing Arts: Instrumental Music

Concert Band 3, 4
Concert Orchestra 3, 4
Guitar 3, 4
Jazz Band 3, 4
Marching Band 3, 4
Percussion Ensemble 3, 4
Piano/Keyboard 3, 4
String Ensemble 3, 4
Symphonic Band 3, 4
Wind Ensemble 3, 4

Performing Arts: Theatre

Debate 3
Musical Theatre Ensemble 3, 4
Technical Theater 3, 4
Theatre Arts 3, 4

Performing Arts: Vocal Music

Advanced Concert Choir 3, 4
Advanced Women's Ensemble 3, 4
Concert Choir 3, 4
Men's Ensemble 3, 4
Show Choir 3, 4
Vocal Jazz 3, 4
Women's Ensemble 3, 4

Visual Arts: Art

Art 3, 4
Ceramics 3, 4
Digital Arts 3, 4
Graphic Arts Design 3
Multimedia Crafts 3, 4
Photography 3, 4

Visual Arts: Publishing and More

Creative Writing 3, 4
Film and Video Production 3, 4
Film Study/Filmmaking 3, 4
Journalism 3, 4
Yearbook 3, 4

HIGH SCHOOL PROGRAM OF STUDIES:
k12albemarle.org/hsprogramofstudies

CTE Courses

Agriculture, Food & Natural Resources

- Environmental Management 1, 2
- Forestry Management 1, 2
- Foundations of Environmental Science
- Horticulture 1, 2

Architecture & Construction

- Architectural Drawing & Design
- Design 1, 2
- Drawing & Design 2
- Engineering 1, 2
- Engineering Drawing & Design
- PVCC CAD 151 Engineering Drawing Fundamentals
- Technical Drawing & Design
- CATEC Building Trades I, II
- CATEC Construction Technology
- CATEC Electricity I, II

Arts, A/V Technology & Communications

- Media and Web Design 1, 2
- PVCC ITD 110/210 Web Page Design I/II
- Video & Media Tech 1, 2, 3

Business Management & Administration

- Business Management
- Digital and Social Media Marketing
- Entrepreneurship 1, 2
- Leadership & Design Thinking
- Marketing 1, 2
- PVCC BUS 100/200 Business and Mgmt
- PVCC BUS 116/165 Entrepreneurship and Small Business
- Sports & Entertainment Marketing 1, 2

Career Exploration

- Army JROTC 1, 2, 3, 4
- Design Your Future Capstone
- Education for Employment 1, 2, 3, 4

Education & Training

- Intro to Family and Human Services
- PVCC EDU 200 Teaching as a Profession 1
- Teaching as a Profession 2

Finance

- AP Microeconomics - VA Personal Finance
- Economics/Personal Finance
- Personal Finance
- Personal Living and Finances
- PVCC FIN 107 Personal Finance

Health Science

- Biomedicine 2
- Biotechnology Foundations in Health & Medical Sciences
- Emergency Medical Technician 1, 2, 3
- Health & Medical Sciences 1, 2
- Medical Laboratory Technology 1
- Nutrition & Wellness
- PVCC HLT 141 Medical Terminology
- Sports Medicine/Physiology 1, 2
- CATEC Emergency Medical Technician I, II
- CATEC Nurse Assistant I, II
- CATEC Veterinary Science I, II

Hospitality & Tourism

- Culinary Arts Specialization
- Hospitality and Tourism 1, 2
- Introduction to Culinary Arts
- Travel, Tourism and Destinations 1, 2
- CATEC Professional Culinary Arts I, II

Information Technology

- AP Computer Science A
- AP Computer Science Principles
- Computer Science 1, 2
- Cybersecurity 1, 2, 3
- Game Design and Development 1, 2
- Geospatial Technology 1, 2
- Global Logistics 1, 2
- Information Technology Fundamentals
- JMU GEOG 161 Geospatial Tools and Techniques
- PVCC ITE 120 Principles of Info Systems
- Robotics & Automation 1, 2

Science, Technology, Engineering & Math

- Engineering Analysis and Applications 1, 2
- Engineering Concepts and Processes 3
- IB Design Technology I, II
- Principles of Technology 1, 2
- PVCC EGR 121/122 Foundations of Engineering and Design