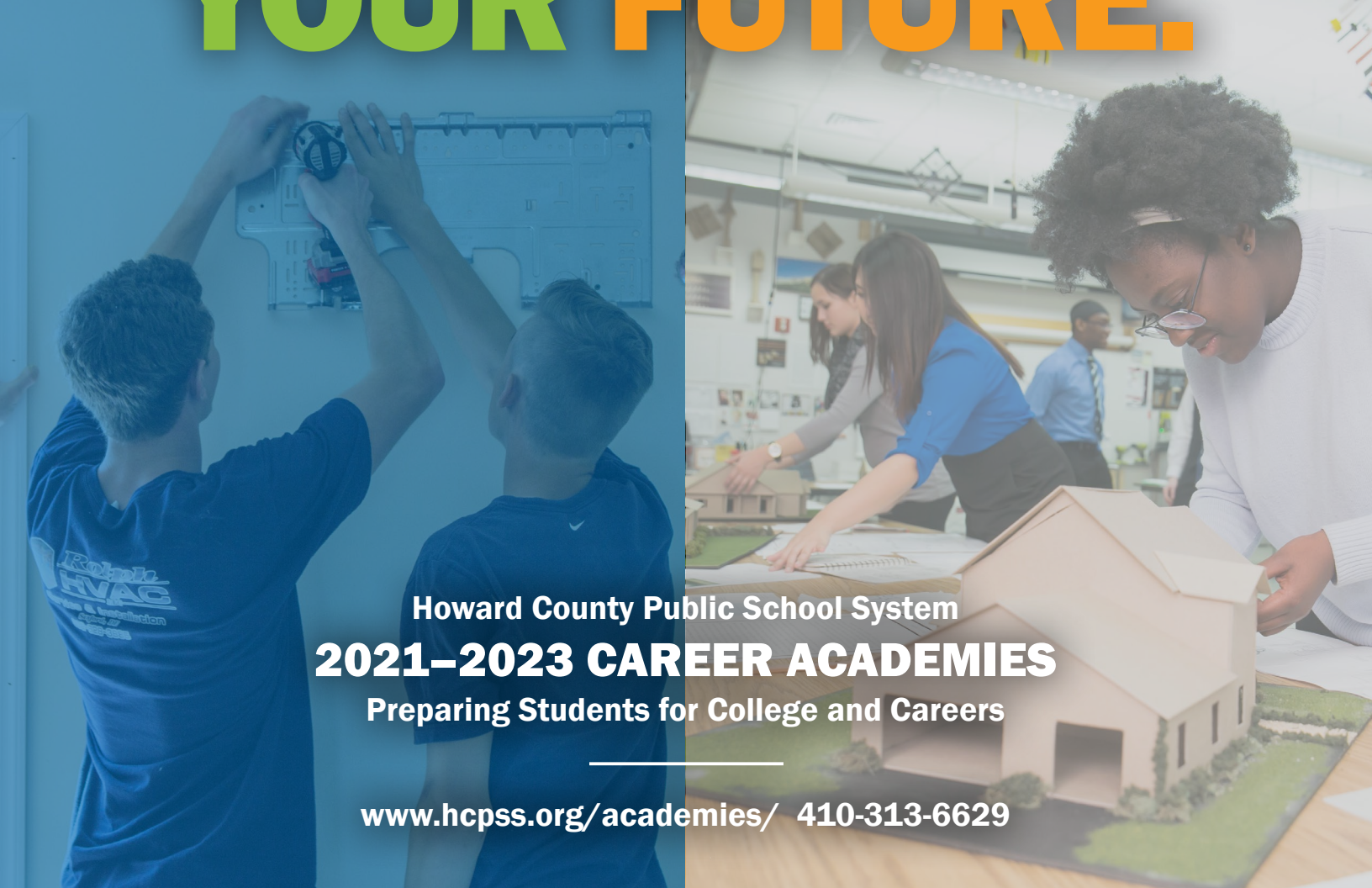




# FOCUS ON YOUR FUTURE.



Howard County Public School System  
**2021–2023 CAREER ACADEMIES**  
Preparing Students for College and Careers

[www.hcpss.org/academies/](http://www.hcpss.org/academies/) 410-313-6629

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## **ACCOUNTING** Grades 10-12

***Do you love numbers? Do you enjoy analyzing facts and figures?*** The Accounting Academy is designed for students interested in expanding their understanding and skills related to accounting and financial management. Students will have the opportunity to study and apply fundamental accounting principles in a variety of business settings. In addition, students will work in a lab setting using current accounting software. Students will connect with professionals in the local accounting community and participate in activities created exclusively for academy members.



## **AEROSPACE ENGINEERING: PROJECT LEAD THE WAY (PLTW)**

Grades 11-12 **Located at the ARL**

***Are you interested in learning more about planes, spacecraft, satellites and missiles? Do you thrive in a fast-paced environment?*** The Aerospace Academy: Project Lead the Way (PLTW) provides students with the opportunity to apply the engineering design process through coursework and hands-on learning. This program offers students a sequence of courses which when combined with traditional mathematics and science courses, introduces them to the scope, rigor and discipline of aerospace engineering prior to entering college. Students will become proficient with computer modeling software which will enable them to study and apply the engineering design process. Ultimately, students will create, analyze, and communicate real-world product solution models, preparing them for a career with extensive possibilities.



## **AGRICULTURAL SCIENCE** Grades 11-12 **Located at the ARL**

***Do you have a green thumb? Do you like working with plants and animals? Do you enjoy working outside?*** The Agricultural Science Academy offers exciting “hands-on” curriculum. Student experiences will involve the science of agriculture, plants, animals, biotechnology natural resources, and agricultural mechanics. While surveying the opportunities available in agriculture and natural resources, students will learn to solve problems, conduct research, analyze data, work in teams, and take responsibility for their work, actions, and learning. Students will apply their learning to real-world career situations through research projects, extensive portfolios, Supervised Agricultural Experience (SAE) projects or other internship/work-based learning opportunities.



## **ANIMATION AND INTERACTIVE MEDIA** Grades 11-12 **Located at the ARL**

***Have you ever wanted to design your own animations, live action films, or video games? Do you enjoy creating your own characters, stories, and games?*** The Animation and Interactive Media Academy is designed for students who have an interest in digital art. Students also have the opportunity to combine creative abilities with technical skills using industry standard techniques and software. Students work independently and in teams in areas of problem solving, portfolio development, and artistic promotion. The Animation and Interactive Media Academy emphasizes narrative and non-narrative story telling, pitch creation, video production, 3D graphics and their applications in video games, animation, and simulations. **Students prepare for and may earn an industry certification; Adobe Premiere Pro.**



### **APPRENTICESHIP MARYLAND** Grade 12

***Do you want to enter the workforce while still in high school? Do you want to work with a mentor in a specific career field? Do you want to get a jumpstart into an existing registered apprenticeship program?*** Students participating in the Apprenticeship Maryland Academy will earn a salary while learning valuable and marketable industry skills in a STEM related occupation. The program includes a combination of on-the-job training and one year of industry related classroom instruction. Students must be hired by an approved employer that is registered with the Maryland Department of Labor to provide youth apprenticeships. **Students prepare for and may earn industry certifications depending on career area they are pursuing.**



### **ARCHITECTURAL DESIGN** Grades 11-12 **Located at the ARL**

***Have you dreamed of designing buildings, bridges, or other structures? Are you interested in discovering the broad range of career possibilities in the field of architecture?*** Architectural Design Academy students will study all aspects of design while applying their creativity to many projects. This academy will train students to utilize industry standard 2D/3D computer aided design software to create unique architectural concepts. Students will study various architectural styles, green technologies, and sustainable practices and apply them to real-world design projects. Students have the opportunity to participate in an internship during their senior year. **Students prepare for and may earn an industry certification; Autodesk AutoCAD.**



### **AUTOMOTIVE TECHNOLOGY** Grades 11-12 **Located at the ARL**

***Do you like working with your mind and hands to problem solve and to repair automobiles? Do you want to learn the relevant skills and ideas needed to compete in an ever-evolving technical trade?*** Students in the Automotive Technology Academy use state-of-the-art diagnostic equipment and specialized tools while gaining hands-on-experiences in an industry aligned learning facility. This academy teaches many aspects of automotive maintenance and repair in a nationally accredited program. After completing the academy, students will be able to service engines, brakes, steering and suspension components, and have the basic electrical diagnostic skills and strategies needed to succeed in an entry-level position as a technician, or attend post-secondary training. **Students prepare for and may earn industry certifications in Automotive Service Excellence (ASE); Brakes, Steering and Suspension, Electrical Systems, Engine Performance and Maintenance and Light Repair.**



### **BIOTECHNOLOGY** Grades 11-12 **Located at the ARL**

***Would you like to work with living organisms to enhance crops, fuels and medical treatments or create a tool to help humans? Would you like to clone organisms and cells?*** The Biotechnology Academy prepares students for careers in medicine, marine science, forensic science, agricultural science and pharmacology, among others. Students use modern laboratory equipment to purify and analyze DNA, RNA, and proteins. Students investigate issues such as disease diagnosis, medication production, identification of environmental contaminants and forensic evidence analysis. Students conduct original research, often working with scientists in local medical, research or industrial labs. **Students prepare for and may earn an industry certification; Biotechnician Assistant Credentialing Exam (BACE).**

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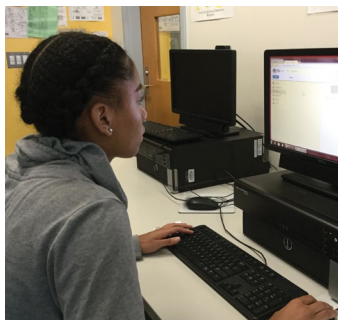
## **BUSINESS MANAGEMENT** Grades 10-12

***Do you want to explore successful practices within the business industry? Are you interested in becoming a leader in domestic and international commerce?*** In the Business Management Academy students will learn effective decision-making techniques in financial management, business communication, problem solving, teamwork, and networking skills. Human resource topics such as diversity in the workplace, ethics, employer/employee rights, discrimination, accountability, time management, and setting priorities will be covered. Students will work on portfolio development opportunities and are encouraged to participate in the national Career Technical Student Organization (CTSO) organization, FBLA.



## **CAREER RESEARCH AND DEVELOPMENT** Grades 10-12

***Are you interested in learning about a wide variety of careers? Are you ready to work right now?*** Career Research and Development Academy students learn skills focused on effective career planning, career decision-making, goal setting, financial literacy and college readiness. The program consists of two in-school courses, a portfolio development project, and site-based work experience. Career Research and Development empowers students to create a vision of their future through quality coursework, progressive career development, and appropriate work opportunities. The ultimate objective of the program is to help students develop skills to live successful and independent lives as young adults.



## **COMPUTER PROGRAMMING** Grades 10-12

***Do you want to learn more about coding? Do you enjoy activities that require problem solving, planning and collaborating?*** Computer Programming Academy students will expand their understanding of computer science and computer programming concepts. Students learn the fundamental principles and technology of object-oriented programming and work in a computer lab to gain hands-on programming experience on both individual and team programming projects. Students have the opportunity to make connections with the local professional computer science community and participate in local, national and international programming events. The academy course sequence includes one AP Computer Science course.



## **CONSTRUCTION** Grades 11-12 **Located at the ARL**

***Do you like to design and build? Do you enjoy working on hands-on projects from start to finish?*** Construction Academy students will prepare for careers in the carpentry trade. Students use project management skills to learn about design and construction of various types of buildings and use those skills to build a scale model house and other creative projects. Students will also learn about career opportunities, apprenticeships and continuing education requirements to enter construction trade careers. **Students prepare for and may earn industry certifications; National Center for Construction Education & Research (NCCER) in Core and Carpentry I.**



## **CULINARY SCIENCE** Grades 10-12

***Are you creative in the kitchen? Do you enjoy working as part of a team?*** The Culinary Science Academy prepares students for a career in the restaurant industry while giving the foundation to earn a college degree in a culinary or hospitality industry. Academy students will receive a broad introduction to this dynamic industry through hands-on instruction using ProStart, an industry-directed curriculum. Students will have opportunities to participate in industry-sponsored events and competitions and will receive individual mentoring from restaurant and hospitality professionals. **Students prepare for and may earn industry certification; Prostart from the National Restaurant Association Education Foundation**



## **CYBERSECURITY NETWORKING** Grades 11-12 **Located at the ARL**

***Would you like to solve cyber crimes such as identity theft? Would you like to learn how computer networks are created? Are you curious about how computers work inside?*** The Cybersecurity Networking Academy consists of two pathways – Computer Networking and Cyber Operations. Both pathways prepare students for entry positions of further study in the cybersecurity arena. The Cisco and Cyber Essentials courses cover computer hardware, software, operating systems, fundamental and advanced networking, and cybersecurity-related threats and mitigation techniques. Students gain in-depth knowledge and practical application experience and demonstrate their ability to analyze cyber threats by using networking devices, simulation tools, software, and by participating in competitions. **Students prepare for and may earn industry certifications in Cyber Ops Pathway: ITF+, A+, Net+, Sec+ or Computer Networking Pathway: Net+, CCNA.**



## **ENGINEERING: PROJECT LEAD THE WAY (PLTW)** Grades 9-12

***Do you possess a strong analytical aptitude? Are you mathematically inclined? Would you like to make a difference in the world?*** The Engineering: Project Lead the Way (PLTW) Academy program is a national program in which students are introduced to the scope, rigor and disciplines of engineering through specialized coursework combined with traditional mathematics and science courses. The academy focuses on principles of engineering, digital electronics, computer-integrated manufacturing and a capstone course in which students design and build solutions to authentic engineering problems. Students will learn the many aspects of engineering.



## **FINANCE** Grades 11-12 **Located at the ARL**

***Do you see yourself as an innovative entrepreneur? Would you like to work in a financial career that helps people and businesses manage their money and invest in the stock market?*** Academy of Finance students delve into the business world through intellectual exploration, hands-on experiences, and activities with local business professionals. Students will participate in an internship experience in a finance field of interest that helps them develop a business network in the local area. These opportunities help students to decide on their particular financial career path, whether it is economics, accounting, financial planning, or other areas of business.

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## **GRAPHIC DESIGN** Grades 11-12 **Located at the ARL**

***Are you motivated by strong graphic design? Do you enjoy designing your own logos, digital posters, brochures, and graphics?*** The Graphic Design Academy is designed for students who have an interest in digital art. Students have the opportunity to combine creative abilities with technical skills using industry standard techniques and software. Students work independently and in teams in areas of problem solving, portfolio development, and artistic promotion. Graphic Design Academy emphasizes publication design, advertising, web design, motion graphics and commercial printing processes. Concepts in illustration, digital imaging and videography are also covered. **Students prepare for and may earn industry certification PrintEd from the Printing and Graphics Association Mid-Atlantic**



## **HEALTH PROFESSIONS** Grades 11-12 **Located at the ARL**

***Would you like to work in a career field that could have a positive influence on someone's life? Do you like working in dynamic, fast-paced environments?*** The Academy of Health Professions offers students the opportunity to learn about the world of medicine, engage in clinical experiences, and interact with professionals in the medical community. Students will explore various career opportunities through hands-on training in basic medical skills, medical equipment use, and patient contact and communication. Areas of study include professional behaviors of health care workers, ethical and legal considerations of health care providers, human body structure and function, human development and basic needs. Students will learn about specialized health fields to help them choose from four pathways—Clinical Research in Allied Health, Physical Rehabilitation, Certified Nursing Assistant (CNA), and Emergency Medical Technician (EMT)—each with its own clinical skills training, internship experiences, and certifications. **Students prepare for and may earn industry certifications: Certified Nursing Assistant (CNA) or Emergency Medical Technician (EMT)-NREF, or Pharm Tech(Pass Assured). Additionally students may earn First Aid, CPR, HIPAA and Blood and Airborne Pathogens.**



## **HEATING, VENTILATING, AIR CONDITIONING (HVAC)** Grades 11-12 **Located at the ARL**

***Are you interested in how the systems in your home work? Are you mechanically minded? Do you like working with cool tools? Do you like to troubleshoot and solve problems?*** The HVAC Academy provides students with an orientation to the HVAC trade and industrial maintenance pathways. The Academy covers the basic principles of heating, ventilation, and air conditioning; and industrial maintenance as well as career opportunities, training, and apprenticeship programs. Topics include trade mathematics and how to solve problems, basic safety practices, heating fundamentals, basic principles of heat transfer, refrigeration, soldering and brazing, and piping practices. **Students prepare for and may earn industry certifications; National Center for Construction Education & Research (NCCER) Core and HVAC I.**



## **JUNIOR RESERVE OFFICE TRAINING CORPS (JROTC)** Grades 9-12

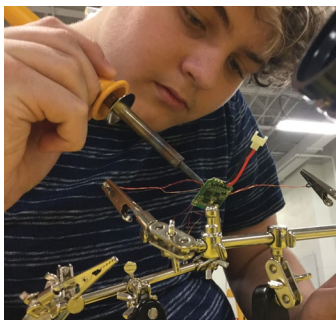
**Located at Atholton, Howard and Oakland Mills High Schools**

**Do you want to develop essential skills like time management, responsibility and goal setting? Do you enjoy learning in an environment that is structured and encourages teamwork?** The Junior Reserve Officer Training Corps (JROTC) provides a citizenship, character, and leadership development program for high school students. It is a cooperative effort between Howard County Public School System, the U.S. Army (at Atholton High School and Howard High School), and the U.S. Air Force (at Oakland Mills High School). JROTC instruction prepares students in grades 9-12 for leadership roles while making them aware of their rights, responsibilities, and privileges as American citizens through rigorous instruction and hands-on activities. Course work includes military history and customs, and students are required to wear a uniform. The program supports students interested in pursuing a military career; however, students who participate in a JROTC program are not required to join the military.



## **MARKETING** Grades 10-12

**Can you communicate clearly and concisely both verbally and in writing? Are you able to recognize problems and devise an appropriate plan of action?** Marketing Academy students have the opportunity to focus their studies on the fundamental principles of marketing. Students will develop comprehensive marketing plans by analyzing customer needs and the market environment. Students will explore product development and pricing strategies, advertising and promotion planning, product distribution, and strategies for conducting market research. Students will have the opportunity to investigate and analyze current marketing trends and campaigns, including e-marketing. Students will also benefit from connections with marketing professionals in the local community, and participation in marketing events designed specifically for Marketing Academy students.



## **SYSTEMS AND PROJECT ENGINEERING** Grades 11-12 **Located at the ARL**

**Did you ever wonder who designed the Segway? Are you curious who created the robotic arms used in the space station?** Systems and Project Engineering Academy students work in teams to develop creative and innovative ideas, solving many hands-on, authentic engineering problems. Prototypes of the ideas are designed and fabricated and then tested and modified in quick iterative cycles. Students will become proficient with design thinking, computer modeling software, basic welding and machining, and interdisciplinary teamwork preparing them for continued study in a variety of engineering careers. **Students prepare for and may earn an industry certification; Certified SOLIDWORKS Associate (CSWA).**



## **TEACHER ACADEMY OF MARYLAND** Grades 10-12

**Are you one of those creative and passionate people who will change children's lives? Are you excited at the idea of instilling a love of learning?** The Teacher Academy of Maryland is designed for students who want to explore a career as an elementary, middle or high school teacher. Students in the academy have the opportunity to conduct formal observations, develop and deliver lesson plans in a K-12 setting, and participate in special events and activities. Academy coursework focuses on development, learning theory, positive and effective classroom management and discipline, curriculum delivery models, and the creation of developmentally-appropriate curriculum and learning environments. **Students prepare for and may earn an industry certification; Parapro.**

# WHAT IS A CAREER ACADEMY?

A Career Academy offers high school students with similar interests a unique opportunity to prepare for college and entry-level employment in a career area. Each Career Academy offers a recommended sequence of courses, internship, capstone project, or research project related to students' career goals, and the opportunity to earn college credit and/or industry certification while in high school. Career Academies offer access to advisory boards comprised of local business and community leaders who often provide work experience to students in their fields of interest. Ultimately, Career Academies strive to create a positive employment outlook for each student exploring a career area.

# HOW TO ENROLL IN A CAREER ACADEMY

To become a member of an academy, students will meet with their school counselor to discuss which academy best matches their college and career goals. Students can enroll during the high school course registration period. When completing the registration form for the upcoming school year, students will indicate the name of the Career Academy on the portion of the form that asks for their intended program choice. School counselors help students create a four-year plan so that they can successfully complete all requirements for the Career Academy.

# BENEFITS OF ENROLLING IN A CAREER ACADEMY

Academy participants are part of a small group of students with similar interests completing courses together. Students enrolled in a Career Academy have a clear pathway for graduation and a head start in college and their career. Each academy meets the program's graduation requirement while allowing students opportunities to take other courses, including AP/GT classes, World Languages, and electives. Career Academy students also benefit from the ability to participate in after-school activities including sports, music and student clubs.

Academy students participate in activities and events open only to students enrolled in academy programs. An academy mentor is available to answer career questions and help students as they progress through their academy program. In addition to their high school diploma, students who complete all academy requirements earn a certificate of completion. Every academy offers the opportunity to earn an industry certification and/or college credits.

# WHERE ARE THE CAREER ACADEMIES LOCATED?

As you read through the academy information, you will notice that some academies are located in each local high school, while others are located at the Applications and Research Lab (ARL). Students who participate in an academy located at the ARL will complete all academic coursework at their local high school and all academy coursework at the ARL. Bus transportation is provided daily to and from the ARL.

# STUDENT ORGANIZATIONS

Career Academy classes are challenging and engaging, but the fun and learning doesn't end in the classroom. Career Academy students can boost their skills and expand their expertise through a wide range of activities and organizations. School-based chapters of national student organizations, including Educators Rising, the Future Business Leaders of America (FBLA), FFA, and Skills USA, let Career Academy students develop leadership and teamwork skills through enrichment activities and service projects. In the classroom, after school and in the community, Academy students are engaged, energized and exemplary.

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