2018–2019

Montgomery County Public Schools

HIGH SCHOOL COURSE BULLETIN

FOR STUDENTS GRADUATING IN 2022

http://coursebulletin.montgomeryschoolsmd.org/

GO GREEN!!

KEEP THIS BULLETIN
through 12th Grade

MONTGOMERY COUNTY PUBLIC SCHOOLS

ROCKVILLE, MARYLAND

VISION

We inspire learning by providing the greatest public education to each and every student.

MISSION

Every student will have the academic, creative problem solving, and social emotional skills to be successful in college and career.

CORE PURPOSE

Prepare all students to thrive in their future.

CORE VALUES

Learning
Relationships
Respect
Excellence
Equity

850 Hungerford Drive
Rockville, Maryland 20850
www.montgomeryschoolsmd.org

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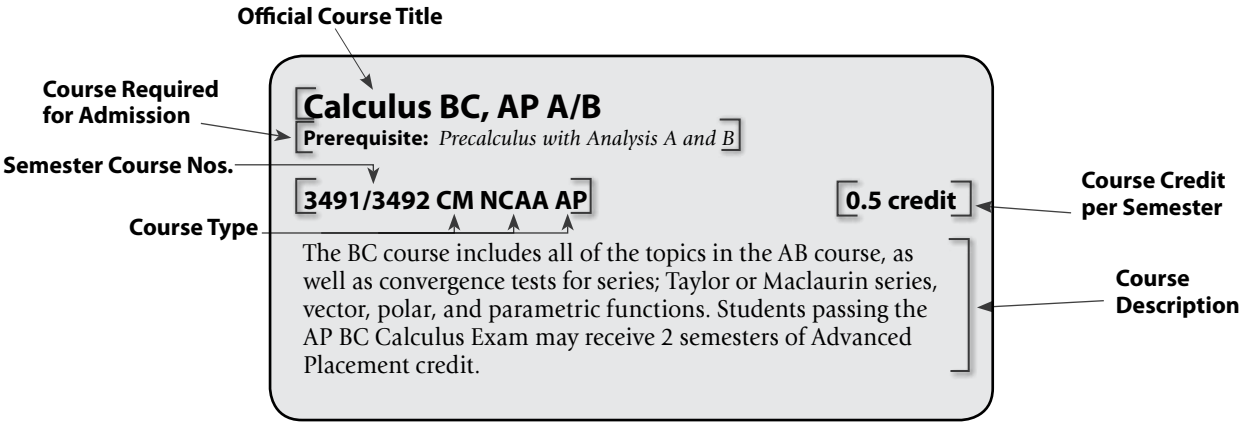
Montgomery County Public Schools
Rockville, Maryland

How to Read a Course Description



Legend of Course Types

AL	Advanced-level
AP	Advanced Placement
AT	Advanced Technology Education
BC	Biology Credit
CM	Certificate of Merit
DP	Double Period
FA	Fine Arts
H	Honors
HSA	Maryland High School Assessment
IB	International Baccalaureate
NCAA	NCAA Initial-Eligibility Clearinghouse Approved Core Course
PC	Physical Science Credit
POS	Program of Study (formerly Career Pathway Program)
SC	Science Credit
TE	Technology Education
TP	Triple Period

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www.montgomeryschoolsmd.org
MARYLAND

Malcolm Baldrige National Quality Award
2010 Award Recipient

January 2018

Montgomery County Public Schools (MCPS) is committed to ensuring that every student graduates from high school prepared for college and career success. Our high schools offer a wide variety of classes and programs designed to prepare you well for the future challenges of college and the workplace. This 2018–2019 High School Course Bulletin presents descriptions of the extensive range of exciting courses and programs offered in MCPS high schools. Please use the information in the bulletin as you take the opportunity to discuss the academic and career paths you want to explore with your parents/guardians, teachers, and counselor. These conversations will guide you as you select courses to plan a learning experience that will challenge and engage you.

In addition, we ask that you reference your Naviance Family Connections "High School Graduation, College and Career Planner" as you are selecting your classes. The planner allows you to determine whether what you are taking satisfies graduation/career technology education requirements so that you are college and career ready. Moreover, the planner and your Family Connections portfolio provides an opportunity for you to explore career interests and educational and professional options. If you have any questions about the High School Graduation, College and Career Planner, please see your school counselor.

Each high school's website, as well as this bulletin, can be accessed at *www.montgomeryschoolsmd.org/schools/*, and can be another helpful resource. The information presented on these sites provides an overview of each school, including detailed descriptions of magnet and signature programs, academies, and career-themed programs of study offered in MCPS.

MCPS is fortunate to have highly competent and dedicated teachers, principals, school counselors and support staff at our high schools. Preparing you for your future as a productive citizen in a global society is a responsibility we take very seriously. We invite you to commit yourself to your studies with the same zeal and enthusiasm.

I urge you to enroll in challenging and rigorous courses in pursuit of your personal goals and extend my best wishes for your success as you prepare for the exciting and rewarding experiences that lie ahead.

Sincerely,

Jack R. Smith, Ph.D.
Superintendent of Schools

850 Hungerford Drive ♦ Rockville, Maryland 20850

Preface

This bulletin includes specific requirements for graduation. Students graduating in 2022 should keep this printed copy of the High School Course Bulletin as the reference for their graduation requirements

The *2018-2019 Montgomery County Public Schools (MCPS) High School Course Bulletin* provides students and parents/guardians with information about high school courses, programs, and career programs of study. This bulletin contains information about graduation requirements, required state assessments, internships, opportunities for dual enrollment in college, and special programs.

Course selection in high school is critical to the realization of career and higher-education goals. Students should talk to their teachers and school counselor about the courses they need to meet their individual goals.

MCPS offers several hundred interesting and rewarding courses that help prepare students for the demands of the postsecondary world of college and careers. The *2018-2019 MCPS High School Course Bulletin* contains brief descriptions of all approved courses offered in MCPS. Each MCPS high school offers a wide selection of these courses. Students and parents/guardians should work together to review the course offerings provided at their school, the graduation requirements, and other information in this bulletin.

Throughout this bulletin, you will find URLs directing you to MCPS websites that contain program information and Montgomery County Board of Education policies or MCPS regulations.

All course bulletin information is available online. To access the online course bulletin, go to *www.montgomeryschoolsmd.org*, click on Parents & Students, then Course Bulletin; or go directly to *http://coursebulletin.montgomeryschoolsmd.org/*.

MARYLAND DIPLOMA REQUIREMENTS

The state of Maryland authorizes one diploma for all high school graduates, based on successful fulfillment of four categories of requirements: enrollment, course credit, Student Service Learning (SSL), and assessments developed or adopted by the Maryland State Department of Education (MSDE), collectively referred to as the Maryland High School Assessments (MHSA). All requirements are summarized in the table below.

College and Career Readiness

In 2013, the Maryland General Assembly passed the *College and Career Readiness and College Completion Act (CCRCCA),* aimed at ensuring that all students are prepared for credit-bearing coursework in college and for living-wage careers. The CCRCCA includes the requirement that all students be assessed for college and career readiness in English and mathematics by the end of Grade 11, using one of several college and career readiness assessments. Students who do not meet the college and career ready standard in English and mathematics by the end of Grade 11 will be required to enroll in a transition course or other instructional opportunity during Grade 12, in preparation for reassessment. After completing the transition course or instructional opportunity, students must be reassessed by the end of Grade 12. School counselors and staff will work closely with students to determine the best assessment to take in Grade 11 as well as transition course options and reassessment during Grade 12, if necessary. More information about college and career readiness for the graduating class of 2022 is available at the website *www.montgomeryschoolsmd.org/info/CCRCCA/.*

Course Credits

Students shall be enrolled in Montgomery County Public Schools (MCPS) and have earned a minimum of 22 credits that include the following (unless a preapproved MCPS alternative is satisfied):

MCPS GRADUATION REQUIREMENTS AT A GLANCE			
ENGLISH	**4 credits**		
FINE ARTS	**1 credit** Selected courses in art, dance, drama/theatre, and music that satisfy the fine arts requirement are designated **FA**		
HEALTH EDUCATION	**0.5 credit**		
MATHEMATICS	**4 credits**, including 1 full-year (A/B) algebra credit and 1 geometry credit required. Students who successfully complete a calculus course may be exempted from this 4-credit requirement.		
PHYSICAL EDUCATION	**1 credit**		
SCIENCE	**3 credits**, including at least 1 biology credit (**BC**) and 1 physical science credit (**PC**). See the Science, Technology and Engineering Department offerings section for more detail.		
SOCIAL STUDIES	**3 credits** must include 1 U.S. History credit; 1 World History credit; and 1 National, State, and Local (NSL) Government credit		
TECHNOLOGY EDUCATION (TE)	**1 credit** designated **TE**. Advanced Technology (**AT**) courses do not satisfy the **TE** course requirement.		
ELECTIVES: The additional credits required for graduation may be fulfilled by one of the following three options	**OPTION 1**	**OPTION 2**	**OPTION 3**
	2 credits in a world language **OR** 2 credits in American Sign Language **AND 2.5 credits** in elective courses	**2 credits** in advanced technology education **(AT) AND 2.5 credits** in elective courses. **TE** courses **do not** count as **AT** course credit.	**4 credits** in a state-approved Career and Technology Education Program of Study **(POS) AND 0.5 credit** in electives courses
STUDENT SERVICE LEARNING (SSL)	75 service-learning hours		
Up-to-date graduation requirements by class may be found at *www.montgomeryschoolsmd.org/curriculum/graduation-requirements.aspx*			

Enrollment

Students must satisfactorily complete four years of school beyond Grade 8. (For exceptions, see Alternatives to Four-Year Enrollment.) Beginning with students entering ninth grade for the first time in the 2014-2015 school year or later, each student shall enroll in a mathematics-based course each year the student attends a Maryland public high school, up to four years. This requirement is not waived for students enrolled in high school mathematics courses in middle school. MCPS courses that satisfy this requirement are published annually in this course bulletin. Students may also fulfill this requirement via dual enrollment, as set forth in section III.C.3 of MCPS Regulation ISB-RA, *High School Graduation Requirements* at *www.montgomeryschoolsmd.org/departments/policy/pdf/isbra.pdf.*

Maryland High School Assessments

Maryland High School Assessments (MHSAs) are those tests developed for or adopted by MSDE that are aligned with and measure a student's skills and knowledge as set forth in the content standards for specified courses. The term "MHSA" encompasses both the High School Assessment (HSA) developed for Maryland, tests developed by the Partnership for Assessment of Readiness for College and Careers (PARCC), as well as other tests that MSDE may develop or adopt in the future. Students take these assessments as they complete the corresponding courses.

MARYLAND HIGH SCHOOL ASSESSMENT (MHSA) REQUIREMENTS[1,2,3,4] For Students Graduating in 2022 HSA, PARCC, and MISA Assessments The MHSA requirements are subject to change by the Maryland State Department of Education (MSDE).	
ALGEBRA 1	Course credit earned in Algebra 1 AND • Take Algebra 1 PARCC prior to 2016–2017, **OR** • Pass Algebra 1 PARCC
MISA Maryland Integrated Science Assessment	3 course credits earned in Science, **AND** • Pass HS-MISA as or after student earns third science credit
ENGLISH 10	Course credit earned in English 10 or ESOL 3 or higher, **AND** • Pass English Language Arts/Literacy (ELA/L) 10 PARCC
GOVERNMENT	Course credit earned in National, State, and Local Government, **AND** • Pass Government HSA

[1] *Substitute Test: Students earning qualifying scores on substitute tests (AP/IB) will meet the MHSA requirement in that content area.*
[2] *Transfer Credit: Students transferring from outside MD public schools may be eligible to meet some MHSA content area requirements with Transfer Credit.*
[3] *Combined test score options are available for the HSAs and for the PARCC assessments.*
[4] *Bridge Plan: The Bridge Plan is an alternative means of meeting the MHSA graduation requirement. With the Bridge Plan, students demonstrate content mastery by completing projects when they have difficulty passing the traditional test.*

For additional information regarding MCPS graduation requirements visit *www.montgomeryschoolsmd.org/curriculum/graduation-requirements.aspx*

Promotion Regulation

MCPS Regulation JEB-RA, *Placement, Promotion, Acceleration, and Retention of Students, (www.montgomeryschoolsmd.org/departments/policy/pdf/jebra.pdf)*, requires that high school students earn 5 credits each year in order to be promoted, including specific required credits in English, mathematics, science, and social studies, as indicated in the chart below.

End of:	Total Credits Needed for Promotion to Next Grade	TOTAL CREDITS IN REQUIRED COURSES				
		Math	English	Science	Social Studies	Other Courses—See Options Required for Graduation
Grade 9	5	1	1	0	0	3
Grade 10	10	2	2	1	1	4
Grade 11	15	3	3	2	2	5

Maryland High School Certificate of Program Completion

This certificate is awarded only to students with disabilities who cannot meet the requirements for a diploma, but who meet the standards set forth in the Code of Maryland Regulations §13A.03.02.09, and MCPS Regulation ISB-RA, *High School Graduation Requirements, found at www.montgomeryschoolsmd.org/departments/policy/pdf/isbra.pdf.* All students will be considered diploma-bound and will be assessed and graded accordingly, unless and until an Individualized Education Program (IEP) team determines that a student will be instructed, assessed, and graded on Alternative Learning Outcomes that are aligned with MCPS Curriculum 2.0, leading to a Certificate of Program Completion. The IEP team must obtain written consent from the parent/guardian of the student with a disability if the IEP proposes to enroll the student in an alternative education program that does not issue or provide credits toward a Maryland high school diploma.

Montgomery County Public Schools Certificate of Merit

In addition to the Maryland high school diploma, students who meet the following requirements may be awarded the MCPS Certificate of Merit, a diploma endorsement:

- **Advanced Courses**—Students must earn at least 12 credits in advanced courses designated by MCPS as applicable to the Certificate of Merit (CM). CM courses contribute to a weighted GPA only when the course is also identified as Advanced Level **(AL)**. All courses to be counted toward the Certificate of Merit must be taken for a letter grade.
- **Mathematics Requirement**—Students must successfully complete and/or receive credit for an MCPS Algebra 2 course.
- **Cumulative Grade Point Average**—Students must obtain at least a 3.0 unweighted cumulative grade point average.

Maryland Seal of Biliteracy

High school graduates who can function in two or more languages are equipped with the knowledge and skills to participate successfully in college, careers, and a diverse 21st century society. The Maryland Seal of Biliteracy is a diploma endorsement authorized by Maryland law that recognizes a student's high level of proficiency in listening, speaking, reading, and writing in one or more languages other than English. To receive a Maryland Seal of Biliteracy, a student must do the following:

- Pass the Maryland High School Assessment in English 10 AND
- Demonstrate intermediate high proficiency in listening, speaking, reading, and writing in a language other than English, as measured by assessments that are aligned to ACTFL (The American Council on the Teaching of Foreign Languages) proficiency guidelines.

For more information about the approved assessments, please visit the website *marylandpublicschools.org/about/Pages/DCAA/World-Languages/Biliteracy/index.aspx*

Courses and Credits

Each MCPS high school provides a comprehensive program of studies that enables all students to earn required graduation credits. All high school courses are one semester long. All courses satisfying graduation requirements must be taken for a letter grade. Upon completion of each semester's work, students earn credit in each course taken—0.5 credit for successful completion of a single-period course, 1 credit for a double-period course, and so on. Year-long courses usually have the same name for the two semesters with the title of the first semester followed by "A" or "1" and the second by "B" or "2." Generally, the first semester of a course is a prerequisite for the second semester.

Technology Education Requirement for Graduation

To satisfy MSDE high school graduation requirements, students are required to take a state-approved technology education course. MCPS technology education courses that meet this requirement are designated **TE**. **AT** courses do not satisfy the requirement for one credit in **TE**. Note that MCPS eLearning offers Foundations of Technology A/B in an online format during the summer. Although several courses such as Introduction to Engineering Design, Principles of Engineering Design, Foundations of Computer Science, and Advanced Placement Computer Science Principles provide credit toward program completion status, these courses cannot count as both a technology education credit and a credit in a Career and Technology Education Program of Study for an individual student.

AT courses satisfying graduation requirements for electives, **Option 2**, must also meet state approval. Courses meeting these requirements are designated **AT**. **TE** courses do not satisfy the requirements for **AT** courses in **Option 2**.

Personal Financial Literacy and Environmental Literacy

In addition to the content standards that provide the framework for what students will learn in their courses, MSDE has also established Personal Financial Literacy and Environmental Literacy standards for all students at elementary, middle, and high school levels. In Montgomery County, these standards are embedded into existing curriculum, thereby extending student learning in meaningful ways. Personal Financial Literacy standards are taught in selected social studies courses primarily, while the Environmental Literacy standards are embedded mostly into science courses.

All of the teaching and learning that addressed the (MSDE) K–12 Maryland Environmental Literacy Standards during the K–8 years is built upon in specific high school science and social studies courses. Students meet the Maryland Environmental Literacy Graduation Requirement when they successfully complete those courses.

Student Service Learning

The Student Service Learning (SSL) program in MCPS promotes a culture of student involvement and student responsibility through civic engagement. Service learning is a graduation requirement in Maryland. MCPS students must complete a minimum of 75 service-learning hours to graduate. They may begin fulfilling this requirement the summer after Grade 5 and continue to accrue SSL hours through high school. Students who earn 260 or more SSL hours receive a **Certificate of Meritorious Service** at the time of graduation. Preparation, action, and reflection are the three phases of service learning that distinguish SSL from traditional volunteering and community service efforts.

Service learning hours are earned through the following:

- **School Courses—**Successful completion of specific courses identified in this course bulletin where the three phases of SSL achieve curricular objectives.
- **School Clubs**—Fully participating and completing the three phases of service learning in activities promoted by school-sponsored clubs and organizations.
- **Community Organizations and Opportunities (must be preapproved for SSL)**—Fully participating in opportunities with community organizations listed on the MCPS SSL website, found at *www.montgomeryschoolsmd.org/departments/ssl/.* MCPS SSL opportunities are identified on the Montgomery County Volunteer Center web page with the SSL icon found at *www.montgomeryserves.org.* Students also may seek approval for other types of service learning by submitting MCPS Form 560-50, *Request for Student Service Learning Preapproval.*

All activities for which SSL hours are desired must occur in a public place, be secular in nature, and be supervised by an adult representative from a nonprofit, tax-exempt organization. Parents/guardians and relatives may not supervise a student directly. One SSL hour is awarded for every one hour of service outside of the instructional day with a maximum of 8 hours in a 24-hour period. MCPS Form 560-51, *Student Service Learning Activity Verification*, is required to document all activities for which SSL hours are desired. More information is available at the MCPS SSL site, *www.montgomeryserves.org*, and on the SSL FAQ pages at *www.montgomeryschoolsmd.org/departments/ssl/faqs/faq.shtm*. For individual SSL questions, contact the SSL coordinator in any middle or high school.

High School Credit for Middle School Students

High school courses completed successfully while in middle school will be included in the GPA calculation at the beginning of Grade 9. Middle school students must meet the same requirements as high school students by earning a final grade of A, B, C, or D each semester. Additional information is in MCPS Regulation IKC-RA, *Grade Point Averages (GPA) and Weighted Grade Point Averages (WGPA)*, found at *www.montgomeryschoolsmd.org/departments/policy/pdf/ikcra.pdf* and MCPS Regulation ISB-RA, *High School Graduation Requirements*, found at *www.montgomeryschoolsmd.org/departments/policy/pdf/isbra.pdf*.

Honors, Advanced-level, Advanced Placement, and International Baccalaureate Courses

Honors **(H)**, Advanced-Level **(AL)**, Advanced Placement **(AP)**, and International Baccalaureate **(IB)** courses provide opportunities for students to pursue rigorous and challenging studies. Students seeking an IB diploma or participating in a certificate program must meet the requirements of the program in addition to the MCPS requirements for graduation. Teachers, counselors, and parents/guardians will work together to support each student's progress in these challenging courses.

- **Honors Courses—**Honors courses provide expectations and opportunities for students to engage in more rigorous and complex content and processes and to develop authentic products that reflect the student's understanding of key concepts. The curriculum in each Honors course includes appropriate adaptations for enriched learning to pursue in-depth studies that require abstract and higher-order thinking skills.
- **Advanced-level Courses**—Advanced-level courses are based on previous achievement in a sequence of study. Advanced-level courses include appropriate adaptations for accelerated and enriched learning to pursue in-depth studies that require abstract and higher-order thinking skills.
- **AP Courses—**MCPS has developed courses that meet College Board guidelines to accompany the AP examinations. A qualifying score on an AP exam may earn the student college credit or advanced standing in the subject in college. All MCPS AP courses meet the requirements of and are approved by the College Board Audit Committee and include concepts and skills that help students prepare for the AP exams.
- **Criteria for Enrollment in Honors, Advanced-level, and AP Courses**—According to Montgomery County Board of Education Policy IOA, *Gifted and Talented Education,* and accompanying MCPS Regulation IOA-RA, *Gifted and Talented Education,* multiple criteria such as mastery of course prerequisites, willingness to complete challenging assignments, previous grades, student interest, and teacher/counselor recommendations will be used to admit high school students to Honors, Advanced-level, AP, or IB classes. All students with the capability, motivation, or potential to accept the challenge of such a program will have an opportunity to do so. See Board Policy IOA and MCPS Regulation IOA-RA at *www.montgomeryschoolsmd.org/departments/policy/pdf/ioa.pdf* and *www.montgomeryschoolsmd.org/departments/policy/pdf/ioara.pdf.*

COURSE-RELATED INFORMATION

Student Withdrawal from a Course

A student-initiated withdrawal may occur when the student and parent/guardian determine that withdrawal will be beneficial to the student. Additional information is in MCPS Regulation JEC-RA, *Student Withdrawals from Classes and School, found at www.montgomeryschoolsmd.org/departments/policy/pdf/jecra.pdf.* An eligible student's withdrawal (one who is 18 years of age or older or is emancipated) must be reviewed by the counselor and may be discussed with the parents/guardians. If the student is not an eligible student, the student's withdrawal request must be approved by the parent/guardian in writing, reviewed by the counselor, and discussed with the student to ensure that the student understands that withdrawing from the course may result in a possible delay in meeting graduation requirements. Then, the counselor's recommendation is forwarded to the principal for approval.

The student must be presented with alternatives to withdrawing from a course. The student may transfer into another course within the same subject area for which the student has had adequate academic preparation. If no such alternative is available, the student may transfer into an appropriate elective course. Administrators/designees have discretion to adjust student schedules if necessary and as appropriate.

- If a student withdraws from a course before the end of the 25th day of the semester, no notation is made on the student's permanent record or report card.
- If a student withdraws after the 25th day of the semester, the date of the withdrawal and the achievement attained at the time of withdrawal will be entered on the report card and permanent record.

Additional information about withdrawal and student eligibility for extracurricular activities is in MCPS Regulation IKC-RA, *Grade Point Averages (GPA) and Weighted Grade Point Averages (WGPA)*, found at *www.montgomeryschoolsmd.org/departments/policy/pdf/ikcra.pdf*, and in MCPS Regulation IQD-RA, *Academic Eligibility for High School Students Who Participate in Extracurricular Activities*, found at *www.montgomeryschoolsmdorg/departments/policy/pdf/iqdra.pdf.*

Other Provisions for Earning Credit

In addition to earning credits during the regular school day and year, students may earn high school credits through summer school, extended-day learning opportunities, work-experience programs, online courses, and college courses. **Advance permission from the principal** or designee is required in all cases involving other provisions for earning credit.

Online courses must be approved by MSDE and MCPS. See the list of online courses approved by MCPS for credit toward graduation at *www.montgomeryschoolsmd.org/departments/onlinelearning.*

It is critical that students and their parents/guardians consult with academic advisors/counselors prior to registering for courses for which they intend to obtain credits to meet high school graduation requirements. More information about other provisions for earning credit are discussed in MCPS Regulation ISB-RA, *High School Graduation Requirements, found at www.montgomeryschoolsmd.org/departments/policy/pdf/isbra.pdf.*

Alternatives to Four-year Enrollment

In recognition of the fact that four-year enrollment in a public high school may not serve the best interests of some students, alternatives are available. Requirements include **advance permission from the principal** or designee; an alternative plan developed, with enough lead time to allow a decision to be made at least one full semester prior to anticipated enrollment in a specific course or program; and a waiver. Approval may be made contingent on the student's acceptance to an approved college, vocational, technical, or other postsecondary school program. Required forms, reasons for which waivers are approved, and additional information about alternatives to four-year enrollment are discussed in MCPS Regulation ISB-RA, *High School Graduation Requirements, found at www.montgomeryschoolsmd.org/departments/policy/pdf/isbra.pdf.*

Attendance

A commitment to school attendance, on the part of both students and parents/guardians, is an essential component of a high-quality learning experience. Parents/guardians and school personnel are expected to do everything possible to ensure each student's regular attendance. Students should attend all scheduled classes and approved educational activities and are responsible for completing all assigned work on time. Students should be enrolled in a full-day program or spend a comparable period of time in an alternative program or activity approved by the student's parent/guardian and principal. See MCPS Regulation JEA-RA, *Student Attendance,* at *www.montgomeryschoolsmd.org/departments/policy/pdf/jeara.pdf.*

GRADING AND REPORTING

The Board is committed to maintaining rigorous performance and achievement standards for all students and to providing a fair process for evaluating and reporting student progress that is understandable to students and their parents/guardians and relevant for instructional purposes. Board Policy IKA, *Grading and Reporting (www.montgomeryschoolsmd.org/departments/policy/pdf/ika.pdf)* and accompanying MCPS Regulation IKA-RA, *Grading and Reporting (www.montgomeryschoolsmd.org/departments/policy/pdf/ikara.pdf)* set forth expectations and guidance. The Office of Curriculum and Instructional Programs publishes procedures at *www.montgomeryschoolsmd.org/info/grading/.*

Procedures for Grading

Grading procedures will be applied consistently within and among schools. Grading practices must include clear and timely communication, alignment with curriculum, accurate reflection of student achievement, and fair representation of student performance. Grading practices must be fair and manageable, and support effective teaching and learning. Grades on report cards reflect academic achievement in relation to course expectations, as outlined in the MCPS curriculum. Extra credit may not be used. Course-specific procedures for grading are defined, used consistently, and explained clearly to students and parents/guardians in writing at the beginning of a semester or school year.

Districtwide Assessments

Required assessments administered districtwide are one component of the body of evidence.

- A districtwide assessment is required to be given at designated times in identified grade levels and identified middle and high school courses.
- In middle and high school courses for which there are districtwide assessments, selected assessments may be calculated as 10 percent of the marking period, as directed by the Office of Curriculum and Instructional Programs (OCIP).

Reporting Student Progress

Teachers will provide students and parents/guardians with information about achievement throughout the marking period. This feedback may take several forms, including the following:

- Report cards
- Interims/progress reports
- Online grade reports Parent Portal
- Parent conferences
- Informal methods of communication
- Teacher feedback

Credit/No Credit Grading Option

- The Credit/No Credit grading option may be used only in courses not specifically required for graduation by MSDE or MCPS.
- Courses taken using the Credit/No Credit option cannot be applied toward a Certificate of Merit.

Grade Point Average (GPA) and Weighted Grade Point Average (WGPA)

Only final course grades and credit reported on high school transcripts are used in determining GPA and WGPA, in accordance with the procedures set forth in MCPS Regulation IKC-RA, *Grade Point Averages and Weighted Grade Point Averages (www.montgomeryschoolsmd.org/departments/policy/pdf/ikcra.pdf).* To determine WGPA, an additional quality point will be added to grades of A, B, and C in all Honors, advanced-level, and AP courses only.

A Marking Period Average (MPA), used in determining academic eligibility, is shown on student report cards. The MPA is not cumulative and is not used to establish the GPA or WGPA.

MCPS does not rank students. See additional information about grading and reporting at *www.montgomeryschoolsmd.org/info/grading/.*

Repeating a Course to Earn a Higher Grade

Any student who completes a high school course may retake the course for a replacement grade. Grades and credits for courses retaken will be treated as follows, for computing the GPA and WGPA: a) a course may be retaken, no matter the final grade; b) the highest of the grades received shall be entered on the student's transcript and shall be used for the purpose of computing GPA/WGPA; c) students may only replace a course with a course of the same or comparable course code, as authorized by the Office of Curriculum and Instructional Programs; or d) if space in a class is limited, students taking a course for the first time have priority for placement in the class over students retaking the course. Upon completion of the course, their official transcript and GPA/WGPA will reflect only the higher mark earned. Further information can be found in MCPS Regulation IKC-RA, *Grade Point Averages (GPA) and Weighted GradePoint Averages (WGPA)*, found at *www.montgomery schoolsmd.org/departments/policy/pdf/ikcra.pdf,* or by contacting the student's counselor or High School Programs in the MCPS Department of Career Readiness and Innovative Programs, 301-279-5632.

School Library Media Program

Information literacy is a major component of college preparedness and workforce readiness and is central to the academic achievement of all students. The school library media program supports student achievement by collaborating with classroom teachers to integrate instruction of information literacy and information technology skills into the content curriculum and to ensure that students and staff are effective users and creators of ideas and information. The program is aligned with and integrated into the improvement plan at each school. The program includes the following:

- Collaboration with classroom teachers and other staff to develop and implement lessons that teach and assess information literacy skills in the context of the curriculum, by incorporating the inquiry process to address an information need and/or a research question
- Equitable and timely access to ideas and information by students and staff members
- A school library media collection selected and evaluated consistent with MCPS Regulation IIB-RA, *Evaluation and Selection of Instructional Materials and Library Books*
- Materials in the collection that support curricular requirements and instruction, engage students in free choice and independent reading, and are diverse in content and format, in response to stakeholder feedback.

Academic Eligibility for Participation in Extracurricular Activities

Students who have a 2.0 average with no more than one failing grade in the previous marking period will be academically eligible to participate or practice during the next marking period in any extracurricular activity requiring academic eligibility. Further information, including additional provisions that apply to withdrawn courses, can be found in MCPS Regulation IQD-RA, *Academic Eligibility for High School Students Who Participate in Extracurricular Activities,* found at *www.montgomeryschoolsmdorg/departments/policy/pdf/iqdra.pdf.*

National Collegiate Athletic Association (NCAA) Eligibility Center

The National Collegiate Athletic Association established the NCAA Eligibility Center to serve as the authorizing group for the final review and approval of core courses for freshmen college students who want to participate in intercollegiate athletics in NCAA Division I-A, I-AA, and II colleges and universities. The NCAA Eligibility Center Approved Core Courses are identified in the course bulletin with the symbol **NCAA**. In all cases, the list of eligible courses available at the NCAA Eligibility Center website represents the final determination of acceptable core courses. To learn more about NCAA Approved Core Courses or about NCAA Freshmen Eligibility Standards, contact the local school resource counselor and visit the NCAA-IEC website at *www.ncaa.org/student-athletes/future/eligibility-center.* Students may download the NCAA student document at *www.ncaapublications.com/product-downloads/CBSA17.pdf*

Taking Courses Not Available at the Student's Home School

Students who wish to take courses not available at their home school must apply through the counseling office at their home school.

MCPS COUNTYWIDE PROGRAMS

Career and Technology Education (CTE) Programs of Study (POS)

Programs of Study **(POS)** are state-approved programs that satisfy the Career Technology Education **(CTE)** graduation option requirements and are designated by **POS** in this bulletin. Each of these programs is designed to help students acquire the specialized knowledge, skills, attitudes, and work habits required for employment and postsecondary education.

Students seeking to enroll in a POS with a work-based learning component may be required by the employer or sponsoring organization to provide appropriate documentation that may include a social security number and/or proof of citizenship/green card. Please review program information and POS requirements carefully for specific work-based learning component guidelines.

Extensive information about MCPS CTE Programs of Study is available online at *www.montgomeryschoolsmd.org/curriculum/careerprograms/* and *www.montgomeryschoolsmd.org/career-readiness/.*

Thomas Edison High School of Technology (TEHST)

Thomas Edison High School of Technology (TEHST) provides all MCPS students with the opportunity to co-enroll in advanced academic, technical, and career programs. The mission of TEHST is to provide students with state-of-the-art technological, academic, and interpersonal skills needed to achieve excellence in their chosen fields of study. The variety of CTE programs offered at TEHST allows students to explore and experience traditional and nontraditional career options and to prepare for college and a wide range of expanding and challenging postsecondary options. Students enroll in TEHST programs through their home school and take courses at both the home school and at TEHST. Bus transportation is provided. All programs offered at TEHST are state-approved and meet the CTE graduation option requirements for students.

Registration packets are available from TEHST, local school counselors, and at *www.montgomeryschoolsmd.org/schools/edison/.*

Foundations Programs

The Montgomery County Student Foundations Office serves as a liaison between the business/professional community and MCPS, by coordinating three separate nonprofit educational foundations that prepare students for a wide range of postsecondary options within the automotive, construction, and information technology and computer science industries.

Programs provide instruction in classroom and laboratory settings with state-of-the-art technology and authentic, real-world experiences for students through rigorous curriculum, career pathway programs, industry-certification opportunities, community business partnerships, entrepreneurial projects, scholarships/awards, SSL hours, and articulation agreements through which students may earn college credit. Additional information is at *www.montgomeryschoolsmd.org/curriculum/foundations/.*

- **Automotive Trades Foundations Programs**—The following high schools offer Automotive Trades Foundation programs: Damascus, Gaithersburg, Seneca Valley, and TEHST. Three student-run car sales per school year are held, selling more than 2,000 renovated vehicles to date. Students donate one renovated vehicle yearly to a deserving Montgomery County organization.
- **Construction Trades Foundations Program—**Construction Trades Foundation programs are located at TEHST. Students design, construct, and market student-built houses. Forty houses have been built and sold thus far in Montgomery County. Students are currently constructing the forty-first student-built home.
- **Information Technology and Computer Science Programs—**Information Technology programs in computer repairs and networking (Network Operations) are located at Clarksburg High School and TEHST. Students in these programs refurbish, market, and sell donated computers to the community and donate a lab each year to a deserving Montgomery County nonprofit organization. Cisco Networking Academies are located in seven high schools: Bethesda-Chevy Chase, Damascus, Gaithersburg, Quince Orchard, Seneca Valley, Springbrook, and Wootton. Students in both programs can earn valuable industry-standard CompTIA certifications and college credits and can obtain internships in the IT field. The Computer Science pathway, which includes a robotics unit, is offered in 24 high schools. Students can take two AP courses in the pathway as well as earn college credits and obtain internships. Six MCPS high schools are affiliated with NAF Academy of Information Technology (AOIT) and offer pathways in computer programing, computer science, networking, and information resource design.

The Visual Art Center (VAC) at Albert Einstein High School

The Visual Art Center (VAC) is a challenging and rigorous portfolio development program with a competitive application process consisting of an interview, portfolio assessment, scholastic achievement record review, and teacher recommendations. Students develop a broader perspective of the fine arts and a greater awareness of opportunities in art careers through studio activities, group critiques, assigned research, lectures, demonstrations, slide presentations, and gallery visits. An important outcome of the program is the assembly of a strong portfolio for AP studio exams, college admissions, and scholarship applications.

Grades 9 and 10 students attend the VAC for a double-period morning session (90 minutes each day). Grades 11 and 12 students can chose to attend the morning or afternoon session for a triple period (135 minutes each day) to pursue the AP studio art curriculum. Students may choose to transfer to Albert Einstein High School full-time once they have been accepted into the program. Students/parents/guardians must provide transportation.

For more information, contact the MCPS Visual Arts Center at 301-962-1027 or go to *www.montgomeryschoolsmd.org/schools/vac/.*

High School Science/Mathematics/Computer Science Magnet Program at Montgomery Blair HS and Poolesville HS

Recognizing that education is an individual experience that depends on the unique talents and interests of each person, the mission of the MCPS High School Science/Mathematics/Computer Science Magnet Program is to provide an environment in which each student's education is maximized by emphasizing the interrelationships among the disciplines, developing a repertoire of problem-solving techniques, and pursuing both independent and collaborative research projects.

To realize this mission, the staff nurtures the special talents of its students, challenging them through a unique, diversified curriculum that fosters individualism, independent thinking, and self-confidence. Students construct their own knowledge base, learn problem-solving strategies that foster a multidisciplinary approach, and develop the ability to think precisely and creatively.

The curriculum is designed to enable each student to build a solid foundation in Grades 9 and 10. Core courses in these first two years include physics, chemistry, Earth science, biology, two years of computer science, two years of mathematics, and an interdisciplinary course—Research and Experimentation for Problem Solving. During their junior and senior years, students have opportunities to go beyond traditional high school offerings with more than 25 special courses and independent research projects, while still meeting MSDE requirements (e.g., enrollment in mathematics).

Program descriptions, brochures, and applications are at *www.montgomeryschoolsmd.org/curriculum/specialprograms/high/magnet-science.aspx.*

The International Baccalaureate (IB) Diploma Programs in MCPS

The IB Diploma program is offered at

- Bethesda-Chevy Chase High School (for students in the B-CC area)
- Albert Einstein High School (for students in the Downcounty Consortium)
- John F. Kennedy High School (for students in the Downcounty Consortium)
- Richard Montgomery High School (for students selected through a competitive countywide application and selection process during their 8th grade year)
- Rockville High School (for students in the Rockville area)
- Seneca Valley High School (for students in the Seneca Valley area)
- Springbrook High School (for students in the Northeast Consortium)
- Watkins Mill High School (for students in the Watkins Mill area)

The IB countywide program at Richard Montgomery High School is designed for highly gifted students in Montgomery County and has an application process that takes place in Grade 8.

The International Baccalaureate (IB) Career Certificate Program in MCPS is offered at

- Watkins Mill High School
- Rockville High School

The IB Career Program is a framework of international education that incorporates the values of the IB into a unique program addressing the needs of students engaged in career-related education. The program leads to higher education, apprenticeships, or employment.

International Baccalaureate/Middle Years Programme

The MYP is designed for students aged 11 to 16. It provides a framework of learning that encourages students to become creative, critical, and reflective thinkers. The MYP emphasizes intellectual challenge, encouraging students to make connections between their studies in traditional subjects and the real world. It fosters the developmental skills for communication, intercultural understanding, and global engagement—essential qualities for young people who are becoming global leaders. Students engage in research and acquire critical-thinking skills through all subject areas, as well as study a second language. MYP is authorized and offered as a whole-school program for Grades 9 and 10 at Bethesda-Chevy Chase High School, Richard Montgomery High School, Springbrook High School, and Watkins Mill High School.

The MCPS IB program website, *www.montgomeryschoolsmd.org/curriculum/specialprograms/high/ib.aspx*, contains links to each school's program and admission process. Each high school offering an IB program has individualized its program, providing unique selections from the IB electives and languages. Local school course listings will indicate those courses available at a given school.

Blair/Poolesville Magnet Courses and IB Courses

Courses are listed at the end of each departmental listing in this bulletin and the Interdisciplinary and Research Courses section.

Student Online Learning/eLearning

The MCPS Student eLearning program provides opportunities for students to take selected high school courses outside the traditional classroom setting. The program allows students access to online courses for acceleration, flexibility in scheduling, or to retake previously failed courses. Courses taught by MCPS teachers follow a blended learning model, requiring attendance at scheduled face-to-face meetings, in addition to online instruction. More information about student online learning/elearning is at *www.montgomeryschoolsmd.org/departments/onlinelearning/.*

Online MCPS Courses

MCPS offers three online courses: Comprehensive Health, Foundations of Technology, and Foundations of Computer Science, which follow a blended model of online and face-to-face (f2f) learning. Each course satisfies both MCPS and Maryland state graduation requirements. Registration and cost information for these classes is available online at the Student eLearning website.

Online AP Courses

Approved AP courses, offered by vendors outside of MCPS, are delivered solely online. Courses have an associated fee. Registration information is available online at the Student eLearning website. As with all courses offered by institutions other than MCPS, **advance permission from the principal** or designee is required for courses for which the student seeks high school credit. Additional information regarding eLearning is at *www.montgomeryschoolsmd.org/departments/onlinelearning/.*

Online Pathway to Graduation

The Online Pathway to Graduation (OPTG) is a year-long program that enables current MCPS seniors and former MCPS high school students needing 3 credits or fewer, in addition to their daytime classes, to meet the academic requirements for a Maryland high school diploma. The instruction is delivered online. In addition, a teacher is in a centrally located computer classroom who monitors participant progress and facilitates individual instruction when needed. All diagnostic and unit tests will be proctored at the MCPS Center for Technology Innovation.

Participants progress through the courses, completing assignments and taking assessments to demonstrate mastery of course objectives. As participants successfully complete each course, credit is awarded, thus helping the participant progress toward earning a high school diploma. Also, participants are responsible for completing all Maryland and MCPS graduation requirements, including MHSA and SSL requirements. These courses are free for current MCPS students.

To learn about the Student eLearning program, see your counselor, contact the Student eLearning team or visit the Student eLearning website, *www.montgomeryschoolsmd.org/departments/onlinelearning/.*

MCPS, MONTGOMERY COLLEGE AND THE UNIVERSITY SYSTEM OF MARYLAND PARTNERSHIP PROGRAMS

College Course Opportunities and Dual Enrollment

Students may enroll dually at institutions of higher education for high school and/or college credit while they are enrolled in MCPS; subject to certain requirements. The college course Dual Enrollment option allows students who take and successfully complete qualifying college-level courses to receive advance-level high school credit on their high school transcript. Dual Enrollment allows students to earn college credit, save money on college education, and possibly graduate high school early. Parents who prefer not to have the college credit posted on the high school transcript may speak with their child's counselor to opt out of this opportunity.

- Students may enroll in college courses offered at select high schools, online, or on a college campus.
- Credits for these courses are fully transferable to the providing institution.
- Students must check with the college of their choice to ensure transferability to other institutions of higher education.
- Financial aid is available for all students; however, the amount will vary based on eligibility.
- For addition information regarding college course options and dual enrollment, see your counselor or the Dual Enrollment program assistant at your school.

MC Ensembles Partnership Program

The MC Ensembles Partnership gives talented MCPS high school instrumental music students the opportunity to participate in the MC Symphony Orchestra or MC Wind Ensemble. For additional information, speak with your school's instrumental music teacher or contact Dr. Jay Crowder, Music Department chair, at 240-567-7554, jay.crowder@montgomerycollege.edu.

College Credit Available at Montgomery College for MCPS Students Who Complete Programs of Study

MCPS graduates who successfully complete select programs of study may earn free college credit after receiving grades of A or B in courses articulated with Montgomery College (MC). Earned credits may be used toward an associate's degree at MC. For more information regarding the MC articulated credit for programs of study, contact your school counselor. MC offers financial aid to help pay fees for qualifying students. Call 301-279-5000 at MC for college-related information, including information from the Financial Aid Office and an application packet.

[Students are advised that there are additional options for earning college credit while an MCPS student. More information about early college credit opportunities are at *www.montgomeryschoolsmd.org/curriculum/partnerships/college-credit.aspx.]*

ADDITIONAL LEARNING OPPORTUNITIES

George B. Thomas, Sr. Learning Academies

Twelve MCPS schools host The George B. Thomas, Sr. Learning Academies programs on Saturday mornings (Saturday School) providing enrichment, tutoring, and mentoring for students in Grades 1–12. The George B. Thomas, Sr. Learning Academy, Inc. was established in 1986 by the Mu Nu Chapter of Omega Psi Phi Fraternity, as an outgrowth of the Saturday School Initiative of Blacks United for Excellence in Education. Saturday Schools are open to all students, regardless of their home school. High school sites include Blair, Einstein, Gaithersburg, Kennedy, Magruder, Northwest, Paint Branch, Rockville, Sherwood, Springbrook, Watkins Mill, and Wheaton. For more information about Saturday Schools tutoring and the George B. Thomas, Sr. Learning Academies, contact your local school or visit *www.montgomeryschoolsmd.org/departments/gbtla/.*

Summer School 2018

The Regional Summer School Program provides an alternative for students to receive credit for select courses during the summer. The courses taught follow the same curriculum guidelines as those taught during the regular school year. Brochures for the 2018 Regional Summer School program will be available in all schools by the last week of April 2018. Registration forms, tuition-reduction waiver vouchers, and a copy of the summer school brochure also will be available on the MCPS website.

Summer School Sites and Schedules

Summer School locations and schedules will be advertised as soon as they are available. The sites for the Regional Summer School program are selected to serve the needs of all students.

Also, high schools can develop their own Local School Program (LSP) to serve the needs of their specific population. The LSP operates independently of the Regional Summer School Program.

Questions regarding LSPs should be directed to individual schools. Questions regarding the Regional Summer School Program should be directed to 301-279-3202 or

Regional Summer School Program
Carver Educational Services Center
Rockville, MD 20850
Fax: 301-279-3340

Career Readiness Education Academy (CREA)

CREA is a career readiness program for older English Language Learners (ELLs) in MCPS. Students are referred to CREA if they are unlikely to meet graduation requirements by the time they age out at 21 years old. CREA is an evening program in which students study a career pathway and participate in an ESOL class, math class, and GED preparation class. Students enroll at their home school but do not actually attend classes there. They attend the CREA program at Thomas Edison High School of Technology, Monday–Thursday evenings from 5:30-8:30 p.m. Students in CREA can earn industry certifications in their chosen field of study and receive a wide array of social-emotional support in Spanish.

Students Engaged in Pathways to Achievement (SEPA)

SEPA is a career readiness program for older English language learners in MCPS. Students are referred to SEPA by their home school counselor if they are unlikely to meet graduation requirements by the time they age out at 21 years old. SEPA is a half-day program, based at Thomas Edison High School of Technology. Students in the SEPA program are enrolled in an ESOL, math, and literacy classes for the first three periods in the morning at their home high school. They then receive MCPS transportation to go to TEHST.

Students study a career pathway at TEHST and have the opportunity to earn industry certifications as well as receiving bilingual paraeducator support in their classes. All fees are paid by the SEPA program, including accident insurance. Students receive bilingual counseling support and vital wraparound services.

Computer Science

The overarching aim of computer science programs is to give students an understanding of the design of computers and computational processes and to make them aware of the wide range of computer and informational technologies specialties available. The discipline of computer science draws on both abstract and concrete thinking as well as higher-level problem solving, which makes computer science an essential part of the modern student's education. The study of data and data structures, algorithms, computer architecture (both hardware and software), numerical analysis, artificial intelligence, mobile technologies and language design, structure, and translation and are all part of the comprehensive computer science education offered through the computer science programs.

One of the primary partnerships is with Code.org®, a nonprofit organization committed to the expansion of access to computer science and increasing the participation of women and underrepresented groups. Code.org® reaches students of all backgrounds in ways that inspire them to keep learning. See the Foundations of Computer Science and AP Computer Science Principles course descriptions for more information. The Foundations Program is proud to offer the MSDE Computer Science/ Code.org® Program of Study. Currently, Code.org® curriculum is available in all of the comprehensive high schools as well as the Program of Study. These courses are also recognized by the state of Maryland as Technology Education (Tech Ed) credit, which affords students more opportunities to take computer science as part of their secondary curriculum options while fulfilling the **1 credit in Technology Education required for graduation.**

COMPUTER SCIENCE		
Foundations of Computer Science A/B	2922/2923	CM CDP (AL)
Foundations of Computer Science A/B	2916/2917	CM (AL) TE
AP Computer Science Principles A/B	2924/2925	CM CDP AP (AL)
AP Computer Science Principles A/B	2918/2919	CM AP (AL) TE
Computer Programming 1 A/B	2989/2990	CM (AL)
AP Computer Science Java A/B	2901/2902	CM AP (AL)
Computer Programming 3—Advanced Topics in Computer Science A/B	2965/2966	CM (AL)
Website Development A/B	2991/2992	CM
Web Tools and Digital Media, Advanced A/B	2936/2937	CM (AL)
INTERNATIONAL BACCALAUREATE COMPUTER SCIENCE COURSES		
IB Information Technology in a Global Society A/B	2405/2406	CM IB (AL)
IB Computer Science 1 A/B	2818/2819	(AL)
IB Computer Science 2 A/B	2820/2821	CM (AL)
BLAIR AND POOLESVILLE MAGNET COMPUTER SCIENCE COURSES		
Fundamentals of Computer Science A/B	2951/2952	CM (AL)
Algorithms and Data Structures A/B	2953/2954	CM (AL)
Introduction to Networking	2955	CM (AL)
Analysis of Algorithms	2956	CM (AL)
Computer Graphics	2957	CM (AL)
Software Design	2958	CM (AL)
Computer Modeling and Simulation	2959	CM (AL)
Introduction to Artificial Intelligence with LISP	2985	CM (AL)
Computational Methods	2986	CM NCAA (AL)
Computer-assisted Drafting Software	3558	CM (AL)

COMPUTER SCIENCE

Additional computer science courses may be found in the Programs of Study for Academy of Information Technology and the Network Operations Trades Foundations Program sections.

FOUNDATIONS OF COMPUTER SCIENCE A/B

2922/2923 CM CDP (AL) **0.5 credit**
2916/2917 CM (AL) TE **0.5 credit**

This course is a part of the MSDE-approved 4-credit Program of Studies in Computer Science. The course provides an engaging introduction to computing concepts through a nationally developed curriculum, offered through a unique partnership with Code.org. The course focuses on the conceptual ideas of computing so that students understand why tools and languages are used to solve problems through a study of human computer interaction, problem solving, web design, programming, data analysis, and robotics.

AP COMPUTER SCIENCE PRINCIPLES A/B

2924/2925 CM CDP AP (AL) **0.5 credit**
2918/2919 CM AP (AL) TE **0.5 credit**

This course, offered in partnership with Code.org, advances student understanding of the central ideas of computer science, engaging students in activities that show how computing changes the world. Through a focus on creativity, students explore technology as a means for solving computational problems, examining computer science's relevance to and impact on the world today. Aligned to the new AP test of the same name, this course is part of an MSDE-approved 4-credit Program of Studies in Computer Science.

COMPUTER PROGRAMMING 1 A/B

Corequisite: *Geometry or Honors Geometry*
2989/2990 CM (AL) **0.5 credit**

This course introduces the basic principles of structured programming, within the context of an object-oriented language. Topics covered include fundamentals of the **C++ programming language,** simple and structured data types, control statements, functions, arrays, and classes. Emphasis is placed on developing effective problem-solving techniques through individual and team projects.

AP COMPUTER SCIENCE JAVA A/B

2901/2902 CM AP (AL)
Prerequisite: *Computer Programming 1 A/B or AP Computer Science Principles A/B*

Using the Java language, students explore in-depth work with text files and arrays, abstract data types, recursion, searching and sorting algorithms, and program efficiency. Examination of specified class behaviors, interrelated objects, and object hierarchies are studied. Students may elect to take the A version of the AP Computer Science exam after completing this course.

COMPUTER PROGRAMMING 3—ADVANCED TOPICS IN COMPUTER SCIENCE A/B

Prerequisite: *AP Computer Science Java A/B*
2965/2966 CM (AL) **0.5 credit**

Students will study advanced programming methodology, the features of programming languages, primitive data types, dynamic allocation of memory, data structures, searching, sorting, and numerical algorithms, using the **JAVA** programming language. Students also are introduced to software engineering concepts and team-oriented approaches for solving problems. Students will explore advanced topics such as memory management, network programming, simulation and game development, and multimedia programming.

WEBSITE DEVELOPMENT A/B

Prerequisite: *2991 prerequisite for 2992*

2991/2992 CM **0.5 credit**

Students learn web design from storyboard to finished online web page and develop actual sites from customers' specifications, using XHTML, CSS, and web editors. Skills in streaming media, audio, and simple animation are developed. Project management provides students with skills to lead teams through projects from inception to completion.

WEB TOOLS AND DIGITAL MEDIA, ADVANCED A/B

Prerequisite: *Website Development A/B; 2936 prerequisite for 2937*

2936/2937 CM (AL) **0.5 credit**

This course introduces students to advanced web topics such as webscripting, web server administration, and web-based multimedia tools. Students also study digital media and related topics, including audio, video, graphics, text, and animation tools as well as color and animation concepts.

INTERNATIONAL BACCALAUREATE COMPUTER SCIENCE COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

IB INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY A/B

2405/2406 TE CM IB (AL) **0.5 credit**

This course prepares students to understand the uses of information systems, evaluate the consequences of those technologies on society, discuss ethical considerations that arise from using information technology, and investigate advances in information technology. Students investigate the tools and applications of information technology, and the social significance of and ethical considerations arising from information technology.

IB COMPUTER SCIENCE 1 A/B

2818/2819 (AL) **0.5 credit**

In this first-year course, students develop an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. During the course, students will develop computational solutions. This will involve the ability to identify a problem or unanswered question; design, prototype and test a proposed solution; and liaise with clients to evaluate the success of the proposed solution and make recommendations for future developments.

IB COMPUTER SCIENCE 2 A/B

2820/2821 CM (AL) **0.5 credit**

This course completes the requirements for higher-level IB Computer Science. Students explore abstract data structures, resource management, control. This course includes an additional externally assessed component, based on a pre-seen case study of an organization or scenario. This requires students to research various aspects of the subject, which may include new technical concepts and additional subject content.

BLAIR AND POOLESVILLE MAGNET COMPUTER SCIENCE COURSES

Offered only at: *Poolesville HS, Montgomery Blair HS*

FUNDAMENTALS OF COMPUTER SCIENCE A/B

2951/2952 CM (AL) **0.5 credit**

Students study both the theory and practice of computer use through a wide variety of activities developed to coordinate with their mathematics and science courses. Students design and implement their own original solutions to given problems, following current structured programming concepts in a high-level language. They learn the inner workings of computer systems and design and build circuitry to accomplish a given task.

ALGORITHMS AND DATA STRUCTURES A/B

Prerequisite: *Fundamentals of Computer Science A/B*

2953/2954 CM (AL) **0.5 credit**

Students learn object-oriented programming methodology and the use and implementation of abstract data types using a high-level programming language. Students study object-oriented programming to design and code programming solutions that require files, control structures, methods, functions, classes, and arrays. They study static and dynamic implementation of data structures, stacks, queues, linked lists, and recursion.

INTRODUCTION TO NETWORKING

Prerequisite: *Algorithms and Data Structures; Algebra 2*

2955 CM (AL) **0.5 credit**

This hands-on course introduces students to computer and network systems administration. Issues of ethics, computer and network security, backup methods, and configuration and maintenance of network services also are studied.

ANALYSIS OF ALGORITHMS

Prerequisite: *Algorithms and Data Structures A/B*

2956 CM (AL) **0.5 credit**

Students study the mathematical and empirical analysis of algorithms. Various searching and sorting techniques are examined. Also, benchmarking, the efficiency of algorithms, and comparative studies.

COMPUTER GRAPHICS

Prerequisite: *Analysis of Algorithms or AP Computer Science Java*

2957 CM (AL) **0.5 credit**

This course is an introduction to the use of computers for input, manipulation, and display of graphical information. Students design and code modules to carry out fundamental graphics operations such as transforming, clipping, and zooming two-dimensional objects. Some animation techniques are studied.

SOFTWARE DESIGN

Prerequisite: *Computer Graphics*

2958 CM (AL) **0.5 credit**

A formal approach to current techniques in software design and development provides students with a means to apply the techniques as they work in teams in the organization, management, and development of a large software project from start to finish. Software management, program requirements definition, program design methodology, program correctness, documentation, program testing, and program maintenance are studied.

COMPUTER MODELING AND SIMULATION

Prerequisite: *Analysis of Algorithms or AP Computer Science Java*

2959 CM (AL) **0.5 credit**

The theoretical foundations for modeling and simulating discrete and continuous systems are studied. Students design computer simulations and implement them in a high-level language, using current simulation software tools.

INTRODUCTION TO ARTIFICIAL INTELLIGENCE WITH LISP

Prerequisite: *Analysis of Algorithms or AP Computer Science*

2985 CM (AL) **0.5 credit**

This course provides an introduction to the traditional problems and techniques of artificial intelligence. Students study search strategies, knowledge representation, and an introduction to LISP. Application areas include expert systems, natural language processing, and vision processing.

COMPUTATIONAL METHODS

Prerequisite: *Analysis of Algorithms or AP Computer Science Java and Magnet Analysis 1A*

2986 CM NCAA (AL) **0.5 credit**

Students create programs using numerical algorithms, analyzing each with respect to requirements and limitations.

COMPUTER-ASSISTED DRAFTING SOFTWARE

Prerequisite: *1 credit computer science*

3558 CM (AL) **0.5 credit**

Students learn, compare, and evaluate a variety of computer-assisted drafting software packages and systems.

English Language Arts and Reading

Four credits in English are required for graduation: English 9, English 10, English 11, and English 12. Courses that satisfy these requirements are described below: The goal of the English Language Arts program is to help students develop into literate, thoughtful communicators, capable of controlling language effectively as they negotiate an increasingly complex, information-rich world. Aligned with the ELA Common Core State Standards, all English courses give students opportunities to refine specific skills and strategies in reading, writing, speaking, listening, and viewing to prepare them for the literacy demands of college and careers. Studying a variety of texts that are diverse in terms of cultural perspectives, time periods, and ideas about the human experience, students use evidence and reasoning to write increasingly complex arguments, analyses, and narratives. As they develop more nuanced perspectives, students appreciate literature and media as catalysts for inquiry and reflection, readying them to participate in a civil and democratic society. A Chart of Recommended Course Sequences in English can be found at *http://apps.montgomeryschoolsmd.org/coursebulletin/publications/sequenceenglish.html*.

LANGUAGE ARTS AND READING		
English 9 A/B	1311/1312	NCAA
English 9, Honors A/B	1313/1314	CM NCAA (H)
English 10 A/B	1321/1322	NCAA
English 10, Honors A/B	1323/1324	CM NCAA (H)
English 11 A/B	1331/1332	NCAA
English 11, Honors A/B	1333/1334	CM NCAA (H)
English 12 A/B	1341/1342	NCAA
English 12, Honors A/B	1343/1344	CM NCAA (H)
English Language and Composition, AP, A/B	1015/1016	CM NCAA AP
English Literature and Composition, AP, A/B	1017/1018	CM NCAA AP
African American Literature	1050	
Creative Writing A/B	1130/1135	CM
Culture in Literature	1019	
Graphic Novel Literature	1054	
Myth and Modern Culture A	1064	
Myth and Modern Culture B	1065	
Informative and Argumentative Speaking	1461	CM
Journalism A: Editing, Gathering, and Reporting the News	1150	
Journalism B: Advanced News Writing and Paper Production	1151	
Techniques of Advanced Journalism	1152	CM (AL)
Publications Editing, Layout, and Business Management	1153	CM (AL)
Literature as Film	6906	
Media in Society	2344	CM
Oral Interpretation and Media Study	1462	CM
Television Production 1/2	7860/7862	
College Test Prep	1142	
Developmental Reading	1143	
Academic Reading A/B	1139/1140	
Academic Reading A/B	1160/1161	(DP)
Basic Reading	1145	
College Prep Literacy	1188	
College Prep Literacy II	1189	
College Prep Literacy III	1190	
College Prep Literacy IV	1191	

INTERNATIONAL BACCALAUREATE (IB) ENGLISH COURSES		
IB English Literature 1 A/B	1026/1027	CM IB NCAA (AL)
IB English Literature 2 A/B	1028/1029	CM IB NCAA (AL)
IB English Language and Literature 1 A/B	1070/1071	CM (AL)
IB English Language and Literature 2 A/B	1072/1073	CM (AL)
IB Extended Essay	1030	IB

ENGLISH 9 A/B

1311/1312 NCAA **0.5 credit**
1313/1314 CM NCAA (H) **0.5 credit**

English 9 lays the foundation for the detailed analysis and argumentation that is expected of students throughout high school. In Writing and Language 9A, students explore and develop their voices as writers. Approaching literature as apprentice writers, they examine models such as short stories, essays, and novels to explore the choices writers make and the effects of those choices. They learn to emulate those effects in their own work and practice reflection, revision, and rewriting. In Literature and Language 9B, students hone their critical reading skills by studying texts closely. Through careful reading and analysis, students learn to consider diverse interpretations of experience that arise out of a wide variety of perspectives.

ENGLISH 10 A/B

Prerequisite: *English 9*
1321/1322 NCAA **0.5 credit**
1323/1324 CM NCAA (H) **0.5 credit**

Between Writers and Readers: Giving Voice to Ideas focuses on specific genres to help students understand how authors' perceptions of the world drive them to convey their understanding of the human experience. The course includes four units: Stories of the Individual-Memoir and Coming-of-Age Stories; Stories in the Oral Tradition-Drama and Epic Poetry; Stories in the World-Historical and Political Literature; and Stories of Other Worlds-Science Fiction, Fantasy, and Imaginative Literature. Students compose in different modes for different purposes, with opportunities to practice composing in the genres they study.

ENGLISH 11 A/B

Prerequisite: *English 10*
1331/1332 NCAA **0.5 credit**
1333/1334 CM NCAA (H) **0.5 credit**

Inquiry into the American Experience encourages both teacher and student autonomy in order to provide for the kind of creative, authentic, and deep teaching and learning necessary to prepare all students for college and careers. The word "inquiry" in the course title emphasizes the search to make meaning, and the subject of that inquiry is the multitude of different ways that individuals experience life in this country. Teachers develop units based on broad themes and open-ended questions, engaging students with complex texts, ideas, and writing assignments. Throughout the course, teachers also encourage students to choose texts from diverse perspectives and time periods, research issues that interest them, and present their ideas in a variety of analytical and creative formats.

ENGLISH 12 A/B

Prerequisite: *English 11*
1341/1342 NCAA **0.5 credit**
1343/1344 CM NCAA (H) **0.5 credit**

Inquiry into the Global Experience encourages students to consider multiple and complex points of view on universal themes and global issues. Students pursue questions that interest them and read a variety of texts that are diverse in terms of cultural experience, time period, and world view, including texts from non-Eurocentric perspectives. The word "inquiry" in the course title emphasizes the search to make meaning and to grapple with the big ideas and challenging issues of our increasingly global society. In preparation for college and careers, students continue to develop skills for using language to understand a world that is changing rapidly in terms of how information is produced and shared.

ENGLISH LANGUAGE AND COMPOSITION, AP, A/B

Prerequisite: *English 10*

1015/1016 CM NCAA AP **0.5 credit**

This course is designed for motivated students with a command of standard English and a lively interest in the power and versatility of language. Students read complex prose written in a variety of periods, disciplines, and rhetorical contexts and write for a range of purposes to express ideas with clarity and precision. Students are strongly encouraged to take the AP examination at the end of the course.

ENGLISH LITERATURE AND COMPOSITION, AP, A/B

Prerequisite: *English 11*

1017/1018 CM NCAA AP **0.5 credit**

This course is designed for motivated students with a command of standard English and an interest in reading challenging literature, both classical and contemporary and representative of dominant literary genres and themes. Students apply methods of literary analysis and write for a variety of purposes to increase their precision in expression. Students are strongly encouraged to take the AP examination at the end of the course.

AFRICAN AMERICAN LITERATURE

1050 **0.5 credit**

In this course, students will learn to critically analyze texts within the African American literary tradition, written from the later part of the eighteenth century to the present. These texts will be approached as manifestations of the struggle of African-Americans to create identity and to articulate their concerns for justice and equality. Students will examine closely the literary character of these texts, while seeking to place these works within the context of the socio-cultural milieu in which they were generated.

CREATIVE WRITING A/B

Prerequisite: *English 9*

1130/1135 CM **0.5 credit**

This course is designed for students interested in creative and advanced expository writing. Students receive guided instruction in creative writing, with special emphasis on poetry, drama, fiction, and expository writing. Regular guidance and instruction take place mainly in small, common-interest groups, supplemented by frequent teacher-student conferences and critiques.

CULTURE IN LITERATURE

1019 **0.5 credit**

In this one-semester course, students examine texts whose authors represent cultural and ethnic groups from around the world. Through their reading of essays, poems, short stories, novels, and films, students develop a greater awareness of cultural dynamics and a deeper understanding of how cultural perspectives are reflected in literature.

GRAPHIC NOVEL LITERATURE

1054 **0.5 credit**

This course is designed to introduce students to graphic novels as literary texts suitable for critical analysis. Students will encounter graphic novels of literary merit representing multiple genres such as memoir, fiction, historical narrative, and autobiography. Reading and discussion of texts will focus on both the content of the literature (the story) and the craft (the use of formal conventions in both writing and art). Students will use their knowledge of these formal conventions to engage in class discussions and respond to the text in informal and formal written critical analyses.

MYTH AND MODERN CULTURE A

1064 **0.5 Credit**

This first semester of Myth and Modern Culture focuses on the myths of the Ancient World: Mesopotamia, Egypt, and Greece and Rome. Students examine creation and fertility myths, pantheons, heroes, the afterlife beliefs and the similarities that exist in these cultures. By comparing the differences among the three ancient cultures' myths, students see how a culture's environment and social norms impact the mythological stories. Using epic poems, short stories, films, and historical documents as texts, students analyze the purpose of mythological stories and the impact of mythology on art, literature, and culture. All students have the opportunity to incorporate art, film, research, and analytical and creative writing into assignments and lessons.

MYTH AND MODERN CULTURE B

1065 **0.5 credit**

The second semester of Myth and Modern Culture focuses on Celtic, Norse, Meso-American, and Native American mythology. Building on what they learned the previous semester, students examine how myths are shaped as different cultures and belief systems combine, such as the Celts and Christianity in Ireland. Students discuss how the myths of Europe in particular influence our modern culture, most notably the traditions that have been passed to the United States, including Halloween, Saint Patrick's Day, and Groundhog Day. Students continue to use epic poems, short stories, films, historical documents, and art as texts. All students have the opportunity to incorporate art, film, research, and analytical and creative writing into assignments and lessons.

INFORMATIVE AND ARGUMENTATIVE SPEAKING

Prerequisite: *English 10*

1461 CM **0.5 credit**

Students interested in competitive debate and effective speaking will enjoy this course. Students develop their skills in speechwriting, argumentation, and extemporaneous and impromptu speaking. Students experience all phases of speech planning, preparation, delivery, and analysis and become familiar with the protocols of competitive forensics and debate.

JOURNALISM A: EDITING, GATHERING, AND REPORTING THE NEWS

1150 **0.5 credit**

This basic journalism course is recommended for all students interested in working on school publications and is required for those seeking editorial positions. Students develop skills in gathering and reporting news, editing, copyreading, and headlining. Students also consider issues such as the responsibilities of the press, libel and slander laws, problems of censorship, and the role of the news media in shaping public opinion.

JOURNALISM B: ADVANCED NEWS WRITING AND PAPER PRODUCTION

Prerequisite: *Journalism A*

1151 **0.5 credit**

Students develop their skills in straight news writing and learn to write sports stories, feature stories, and interpretive pieces. Students research and write a wide sampling of features focusing on newspaper or magazine writing. Students study the principles of newspaper layout and makeup and are encouraged to contribute stories and apply layout principles to the school newspaper production process.

TECHNIQUES OF ADVANCED JOURNALISM

Prerequisite: *Journalism A and B*

1152 CM (AL) **0.5 credit**

This course emphasizes the interpretive and investigative nature of media. Students examine the similarities and differences of newspaper, news magazine, television, and radio; analyze the unique manner in which each explains and interprets current events; and consider the relative importance of each. Students learn research techniques essential to in-depth reporting and write investigative and interpretative stories.

PUBLICATIONS EDITING, LAYOUT, AND BUSINESS MANAGEMENT

Prerequisite: *Journalism A*

1153 CM (AL) **0.5 credit**

Students learn the techniques and knowledge needed to produce and manage school newspapers, yearbooks, and literary magazines. This course is highly recommended for students serving on the editorial staff of these publications. The course provides instruction in all aspects and phases of publications planning, including editing, layout, advertising, and budget.

LITERATURE AS FILM
6906 **0.5 credit**

Many movies originally started out as novels, plays, or short stories. This course examines the original texts and choices made by writers and directors in the adaptation process. Students gain the skills necessary to critically read and analyze texts and films to evaluate the works of professionals and peers. Opportunity exists to produce original essays, storyboards, critiques, and short films. Genres covered include drama, mystery and film noir, western, comedy, gangster, and horror/thriller.

MEDIA IN SOCIETY
2344 CM **0.5 credit**

Media in Society focuses on the systematic analysis of information received through various mass media to help students develop independent judgments about media content. Students investigate The Culture of Media in an Image-Based Society; Media, Law, and Ethics; and Media and the Political Process. To complete a research project, students study a current media issue in depth and extend their knowledge of research techniques.

ORAL INTERPRETATION AND MEDIA STUDY
Prerequisite: *English 10*
1462 CM **0.5 credit**

This course offers opportunities for students interested in forensics, effective speaking, and oral interpretation. Student activities include interpreting literature, analyzing texts for oral interpretation, communicating experiences through writing, studying characteristics of radio and television, and exploring career implications of speech in the media.

TELEVISION PRODUCTION 1/2
7860/7862 **0.5 credit**

This course introduces the fundamentals of television. Activities are centered on classroom work. The course offers a combination of theory and practical experiences. Activities in TV2 include the exploration of major issues affecting television broadcasting, programming, and scheduling. Advanced writing and production techniques for a variety of formats are covered. *This course does not apply to the fine arts graduation requirement.*

COLLEGE TEST PREP
1142 **0.5 credit**

This one-semester course is designed to improve student achievement on the ACCUPLACER, ACT, and the SAT. Students review English and math skills related to the test formats and develop test-taking skills.

DEVELOPMENTAL READING
1143 **0.5 credit**

Students who wish to increase their reading efficiency will find this course helpful. Students learn to recognize and evaluate the unique features of a variety of reading materials to increase their comprehension and reading efficiency. Students acquire strategies for expanding their vocabulary and have opportunities to read for personal and academic enrichment. This course may be repeated once for credit.

ACADEMIC READING A/B
1139/1140 **0.5 credit**
1160/1161 (DP) **1.0 credit**

Using the READ 180 materials developed by Scholastic Education, this reading intervention program builds literacy skills for selected students. This course may be repeated unlimited times for elective credit.

BASIC READING
1145 **0.5 credit**

Using a variety of materials, students receive instruction in reading strategies and study techniques for use in their content classes. Students who qualify for this course may take it more than once for credit.

COLLEGE PREP LITERACY
1188/1189/1190/1191 **0.5 credit**

Students study strategies essential to literacy and learn when and how to use these strategies in their content classes, promoting success on exams and college-level studies. Students concerned about their reading skills for college-level work are encouraged to take College Prep Literacy courses upon recommendation of the principal or designee.

INTERNATIONAL BACCALAUREATE (IB) ENGLISH COURSES
Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

IB ENGLISH LITERATURE 1 A/B
1026/1027 CM IB NCAA (AL) **0.5 credit**

In this first year of the course, students explore selected works of literature to appreciate the artistry of literature and to develop an ability to reflect critically on their reading. Works are studied in their literary and cultural contexts, through close study of individual texts and passages, and by considering a range of critical approaches. One of two papers for the external assessment is written, and oral assessments are completed for a portion of the IB score. All work is designed to prepare students for both the oral and written portions of the IB exams.

IB ENGLISH LITERATURE 2 A/B
Prerequisite: *IB English 1*
1028/1029 CM IB NCAA (AL) **0.5 credit**

This course completes the requirements for the higher-level IB English exam. The study of works in translation introduces students, through literature, to other cultural perspectives. The response to the study of literature is through oral and written communication, thus enabling students to develop and refine their command of language. Skills for essay responses to detailed questions and oral analysis of selected literature are polished. External assessment of a literary commentary on a previously unseen passage is completed.

IB ENGLISH LANGUAGE AND LITERATURE 1 A/B
1070/1071 CM (AL) **0.5 credit**

This first year of the course aims to develop students' textual analysis skills and the understanding that texts, both literary and nonliterary, can be seen as autonomous yet simultaneously related to culturally determined reading practices. The course helps students develop an understanding of how language, culture, and context determine the ways in which meaning is constructed in texts. It also focuses on how to think critically about the different interactions between text, audience, and purpose.

IB ENGLISH LANGUAGE AND LITERATURE 2 A/B
1072/1073 CM (AL) **0.5 credit**

This course completes the requirements for the higher-level IB English Language and Literature exam. The aim of the course is the development of an understanding of "critical literacy" in students. Students produce a critical response evaluating aspects of text, context, and meaning, and demonstrate an ability to write a balanced, comparative analysis.

IB EXTENDED ESSAY
1030 IB **0.0 credit**

This course supports IB students who are beginning the extended essay process. The course begins by teaching general research techniques, with more emphasis placed on independent work as students refine their topics, conduct research, and create a first draft of extended essays.

English for Speakers of Other Languages (ESOL)

The English for Speakers of Other Languages (ESOL) program provides high-quality English language instruction that assists students with acquiring the basic interpersonal communication skills and essential academic language proficiency to function successfully in a regular classroom. The program enrolls linguistically and culturally diverse students who require intensive instruction in English as a new language. Students are placed in an appropriate level, 1 through 5, of ESOL instruction, based on their academic English language proficiency. ESOL classes provide instruction in the acquisition of academic English, with specific emphasis on the listening, speaking, reading, and writing skills needed for success in a rigorous academic environment. Students explore an understanding of the human experience from a multicultural perspective as they develop reading and writing skills across content areas. They are exposed to developmentally appropriate texts representing the genres of narration, poetry, drama, and exposition, and they are taught to analyze text from a historical and cultural perspective. Students develop competency in understanding spoken English, using grammatically correct English to express social and academic needs, and organizing and clearly expressing their ideas in written English. Valuing and promoting the home language and culture of ESOL students fosters the understanding that literacy in one's native language is essential to the transfer of skills across languages. All educators in the schools collaborate to provide an effective education for ESOL students.

The METS program (Multidisciplinary Education Training, and Support) is designed for students who have had interrupted formal education.

The SEPA (Students Engaged in Pathways to Achievement) and CREA (Career Readiness Education Academy) programs are career-based instructional programs for Spanish-speaking high school ESOL students who have experienced interrupted or limited formal education. To be eligible for the SEPA program, students must be at least 18 years of age by the end of the school year.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL)		
ESOL Level 1 A/B—English Credit	1201/1211	
ESOL Level 1 Elective 1 A/B	1217/1218	
ESOL Level 2 A/B—English Credit	1202/1212	
ESOL Level 2 Elective 2 A/B	1219/1220	
ESOL Lab A/B	1206/1216	
ESOL Level 3 A/B—English Credit	1203/1213	
ESOL Level 4 A/B—English Credit	1204/1214	NCAA*
ESOL Level 5 A/B—English Credit	1205/1215	NCAA*
ESOL Advanced Communication	1224	
ESOL Multimedia Arts Literacy A/B	1226/1227	
Academic Language Class A/B	1241/1242	
Academic Acceleration for English Language Learners—English Credit	1268/1269	
TOEFL Prep	1225	
Language of Mathematics A/B	1243/1244	
METS ESOL Level 1 A/B	1253/1254	
US Culture: Past and Present A/B	1246/1247	

**Advanced ESOL courses, levels 4 and 5, may be acceptable as NCAA core courses, but must be reviewed on a case-by-case basis. Students who wish to have advanced ESOL courses considered when determining their initial eligibility must contact the institution they will be attending in order to begin the approval process.*

ESOL LEVEL 1 A/B

Corequisite: *ESOL Level 1 Elective A/B*

1201/1211 **0.5 credit**

This course is designed to teach English as a new language to ESOL students at the *Entering* English proficiency level. Reading, writing, listening, and speaking are integrated into thematic, academic units with writing across the curriculum. A general introduction to American culture is provided. This course meets for a DP every day. *This course is offered for English credit.*

ESOL LEVEL 1 ELECTIVE A/B

Corequisite: *ESOL Level 1 A/B*

1217/1218 **0.5 credit**

This course companion for ESOL Level 1 A/B is designed to continue teaching *Entering* level ESOL students. Students continue developing listening, speaking, reading and writing skills to facilitate acquisition of English as a new language for social and academic purposes.

ESOL LEVEL 2 A/B

Corequisite: *ESOL Level 2 Elective A/B*

1202/1212 **0.5 credit**

This course is designed to teach English as a new language to ESOL students at the *Entering* English language proficiency level. Newly acquired oral and written academic vocabulary is incorporated into more complex structures. Students explore themes and concepts across content areas in both literary and expository texts. This course meets for a DP every day. *This course is offered for English credit.*

ESOL LEVEL 2 ELECTIVE A/B

Corequisite: *ESOL Level 2 A/B*

1219/1220 **0.5 credit**

This companion course for ESOL Level 2 A/B is designed to continue teaching *Entering* level ESOL students. Students continue the development of social and academic language.

ESOL LAB A/B

1206/1216 **0.5 credit**

This course is recommended for ESOL students to further develop the language skills taught in the ESOL 1201 and 1202 courses. Students focus on all four language skills, with an emphasis on the development of academic language and literacy skills. Students develop the reading and writing skills that are prerequisite for accessing content across the curriculum. *This course may be repeated for elective credit.*

ESOL LEVEL 3 A/B

1203/1213 **0.5 credit**

This course is designed to teach English as a new language to ESOL students at the *Developing* English language proficiency level. Students review the structures taught at levels 1 and 2, with an emphasis on developing fluency and more sustained, complex oral and written communication. Students continue to expand their vocabulary and acquire greater precision in the use of grammatical forms. Students hone their academic literacy skills for comprehension and effective writing by reading and responding to literary and expository text. *This course is offered for English credit.*

ESOL LEVEL 4 A/B

1204/1214 **0.5 credit**

This course is designed to teach English as a new language to ESOL students at the *Expanding* English language proficiency level. Instruction focuses on the development of linguistic complexity in speaking and writing and advanced listening comprehension. Through expanded reading, students study elements of literary style and analyze various literary and expository texts to improve reading comprehension and interpretation skills. *This course is offered for English credit.*

ESOL LEVEL 5 A/B

1205/1215 **0.5 credit**

This course is designed to teach English as a new language to ESOL students at the *Bridging* English language proficiency level. Students increase their language development and cultural knowledge as they refine strategies for critical analysis by studying texts from a variety of genres and time periods. In their essays, research papers, and discourse, students demonstrate their command of English by analyzing, evaluating, justifying, and drawing conclusions about literature and expository text. *This course is offered for English credit.*

ESOL ADVANCED COMMUNICATION

1224 **0.5 credit**

This course is available to students in ESOL Levels 3, 4, and 5, advancing their skills in oral and written communication through extended practice. Students work on clarity, pronunciation, and intonation in oral presentations and develop fluency and accuracy through narrative and expository writing. Assignments include oral presentations and multi-paragraph essays. *This course is offered for elective credit.*

ESOL MULTIMEDIA ARTS LITERACY A/B

Corequisite: *ESOL Level 4 A/B or Level 5 A/B*

1226/1227 **0.5 credit**

This course provides upper-level ESOL students with specialized visual and literacy instruction. Projects emphasize the development of essay writing coordinated with multimedia products, and practice in visual and written interpretation focusing on skills in critical thinking, reading, writing, listening, and viewing. *This course is offered for elective credit.*

ACADEMIC LANGUAGE CLASS A/B

1241/1242 **0.5 credit**

English language learners develop declarative and procedural knowledge needed in academic content classes. Students focus on language, literacy, critical thinking skills, vocabulary, and language structures essential to learning the content of topics in mathematics, science, and social studies. *This course is offered for elective credit.*

ACADEMIC ACCELERATION FOR ENGLISH LANGUAGE LEARNERS A/B

1268/1269 **0.5 credit**

This course is designed to teach English to advanced ESOL students who have not exited the ESOL program. Students deepen their ability to process and produce the academic language of College and Career Readiness Standards. They demonstrate their knowledge of language, the conventions of standard English, and vocabulary usage as they interpret facts, make claims and evaluate evidence, make arguments, and engage in discourse around complex texts about various topics and contexts. They listen, speak, read and write using multimedia and texts sets that include literary and expository texts

TOEFL PREP

Corequisite: *ESOL Level 4, ESOL Level 5, recently exited ESOL students*

1225 **0.5 credit**

This course prepares students for the Test of English as a Foreign Language (TOEFL). TOEFL is an assessment of an English language learner's English proficiency and may be used to qualify for college admission. Students gain practice and proficiency in oral and academic English, learn a variety of strategies for improving reading and writing skills, become accustomed to the test format, and develop test-taking skills. *This course is offered for elective credit.*

MULTIDISCIPLINARY EDUCATION TRAINING AND SUPPORT (METS)

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, Montgomery Blair HS, Thomas Edison HS of Technology, Gaithersburg HS, Richard Montgomery HS, Northwood HS, Quince Orchard HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS, Wheaton HS*

LANGUAGE OF MATHEMATICS A/B

1243/1244 **0.5 credit**

This course provides an introduction to math and language concepts for ESOL METS students. English language learners will be able to acquire basic mathematical competencies through developing key English mathematical vocabulary, critical thinking, mathematical procedures, and real-world applications of math. This course is offered for elective credit.

METS ESOL LEVEL 1 A/B

1253/1254 **0.5 credit**

This course is designed for newly arrived ESOL 1 students who have been enrolled in the METS program at the Tier 1 level in reading and are not yet prepared for placement in the regular ESOL 1 course due to interrupted formal education. The course serves as a transition to enable students to participate successfully in the regular ESOL curriculum program. This course is restricted to METS students only.

U.S. CULTURE: PAST AND PRESENT A/B

1246/1247 **0.5 credit**

This course is designed to introduce students in the METS program to background knowledge and language related to U.S. culture and history as well as develop related skills such as reading content-based social studies text, maps, and graphics. Students explore themes related to the origins of American diversity and identities, cultural traditions, principles of democracy, and the historical development of American society, while building related vocabulary and English language skills that will help prepare them to take the U.S. History course.

STUDENTS ENGAGED IN PATHWAYS TO ACHIEVEMENT (SEPA)

SEPA is a career readiness program for older ELLs in MCPS. Students are referred to SEPA by their home school counselor if they are unlikely to meet graduation requirements by the time they age out at 21 years old. SEPA is a half-day program based at Thomas Edison High School of Technology (TEHST). Students in the SEPA program are enrolled in an ESOL, math, and literacy class for the first three periods in the morning at their home high school. Then they are provided with MCPS transportation to go to TEHST. Students study a career pathway at TEHST and have the opportunity to earn industry certifications and receive bilingual paraeducator support in their classes. All fees are paid by the SEPA program, including accident insurance. Students also receive bilingual counseling support and vital wraparound services.

These courses are open only to ESOL Students enrolled in the SEPA program. Admission to these courses must be determined by the SEPA instructional specialist. These courses are offered only at Thomas Edison High School of Technology.

SEPA		
SEPA Culinary Arts Topics TP	8097	
SEPA Construction Topics TP	8098	
SEPA Automotive Topics TP	8099	

CAREER READINESS EDUCATION ACADEMY (CREA)

CREA is a career readiness program for older English Language Learners (ELLs) in MCPS. Students are referred to CREA if they are unlikely to meet graduation requirements by the time they age out at 21 years old. CREA is an evening program in which students study a career pathway and participate in an ESOL class, math class, and a GED preparation class. Students enroll at their home school but do not actually attend classes there. They attend the CREA program at Thomas Edison High School of Technology, Monday-Thursday evenings from 5:30-8:30 p.m. Students in CREA have the opportunity to earn industry certifications in their chosen field of study and receive a wide array of social-emotional support in Spanish.

These courses are open only to ESOL students enrolled in the CREA program, and admission must be determined by the CREA instructional specialist. The courses are offered only at Thomas Edison High School of Technology.

CREA		
CREA ESOL 1 and 2	1250	
CREA ESOL 2 and 3	2102	
CREA Math 1 and 2	3104	
CREA Math 3 and 4	3534	
CREA Automotive Topics DP	5545	
CREA Child Development	4885	
CREA Foundations of Construction DP	5684	
CREA Hospitality and Tourism DP	5393	
CREA Restaurant Management DP	5392	

Fine Arts

One credit in Fine Arts is required for graduation: Courses that satisfy the fine arts requirement are marked **FA**.

The purpose of the fine arts curriculum is to open the minds of students to new worlds and cultures and enable them to creatively express themselves and value the multiple perspectives of others. Students are actively involved learners in the arts. Through their experiences in the arts, they become creative and critical problem solvers, independent and divergent thinkers, self-motivated workers, and innovators.

Students are led in an exploration of self, others, and the world in relation to the art forms. The fine arts—dance, music, theatre, and visual arts—provide each generation with knowledge of other cultures, past and present, and are among humanity's greatest aesthetic and intellectual achievements. The curricula in arts courses are guided by four artistic processes identified in the new MCPS Frameworks: creating, performing/presenting, responding, and connecting.

DANCE

Students in dance classes do the following:

- Utilize their own perceptual skills through choreography, performing, and response to dance.
- Demonstrate an understanding of dance; its relationship to other significant components of human history and experience; and ways that it provides for individual, cultural, and creative expression.
- Demonstrate their ability to create dance by improvising, organizing ideas, choreographing, and performing.
- Demonstrate the ability to identify, analyze, and apply criteria to make aesthetic judgments by interpreting and expressing their own ideas.

MUSIC

Students in music classes do the following:

- Develop performance skills, including the use of voice, instruments, and other sound-producing media.
- Create musical ideas through composing, arranging, and improvising.
- Describe music through reading and writing music notation; listening to music; and employing their understanding of music verbally, visually, and through movement.

THEATRE

Students in Theatre classes do the following:

- Recognize and describe the development of a variety of dramatic forms over time and the aesthetic qualities they reflect.
- Demonstrate an understanding of the history, traditions, conventions, dramatic texts and other literature of the theatre, and how diverse theories and theatre forms satisfy cultural needs—past and present.
- Explore the creative process through theatrical activities and to apply theatrical knowledge, principles, and practices to collaborative theatre presentations.
- Identify, analyze, and apply criteria for individual and group contributions to the collaborative theatre process, dramatic texts and other literature of the theatre, and theatrical performances and productions.

VISUAL ARTS

Students in visual arts classes do the following:

- Demonstrate the ability to perceive, interpret, and respond to ideas, experiences, and the environment through visual art.
- Demonstrate an understanding of visual arts as a basic aspect of history and human experience.
- Demonstrate the ability to organize knowledge and ideas for expression in the production of art.
- Demonstrate the ability to identify, analyze, and apply criteria to make visual aesthetic judgments.

DANCE		
Dance as Fine Art A/B	6017/6018	FA
Academy Dance A/B	6060/6061	FA CM (AL)
Dance 2 A/B	6062/6063	FA CM (AL)
Dance 3 A/B	6064/6065	FA CM (AL)
Modern Dance A/B	6066/6067	FA CM (AL)
Tap Dance 1 A/B	6070/6071	FA CM (AL)
Tap Dance 2 A/B	6072/6073	FA CM (AL)
Tap Dance 3 A/B	6074/6075	FA CM (AL)
Hip Hop Dance A/B	6076/6077	FA CM (AL)
Dance Company A/B	6078/6079	FA CM (AL)
Jazz Dance 1 A/B	6080/6081	FA CM (AL)
Jazz Dance 2 A/B	6082/6083	FA CM (AL)
Jazz Dance 3 A/B	6084/6085	FA CM (AL)
Ballet 1 A/B	6086/6087	FA CM (AL)
Ballet 2 A/B	6088/6089	FA CM (AL)
Choreography 1 A/B	6090/6091	FA CM (AL)
GENERAL MUSIC		
Piano 1 A/B	6520/6521	FA
Piano 2 A/B	6535/6536	FA
Music Theory and Composition A/B	6545/6546	FA
Music Theory and Composition, AP	6547/6548	CM FA AP
Music Perspectives A/B	6565/6566	FA
Guitar 1 A/B	6585/6586	FA
Guitar 2 A/B	6591/6592	FA
Music Technology A/B	6605/6607	FA
CHORAL MUSIC		
Chorus 1 A/B	6711/6712	FA
Chorus 2 A/B	6721/6722	FA CM (AL)
Chorus 3 A/B	6731/6732	FA CM (AL)
Choir, Chamber A/B	6741/6742	FA CM (AL)
Choir, Show A/B	6745/6746	FA
INSTRUMENTAL MUSIC		
Band, Beginning A/B	6811/6885	FA
Band, Advanced A/B	6831/6832	FA
Band, Concert A/B	6821/6822	FA
Band, Symphonic A/B	6826/6827	FA CM (AL)
Jazz Ensemble A/B	6871/6872	FA CM (AL)
Orchestra, Beginning A/B	6841/6855	FA
Orchestra, Advanced A/B	6861/6862	FA
Orchestra, Concert A/B	6851/6852	FA
Orchestra, Symphonic A/B	6866/6867	FA CM (AL)
THEATRE		
Theatre 1 A/B	6926/6927	FA
Theatre 2 A/B	6928/6929	FA CM (AL)
Acting, Advanced	6912	FA CM (AL)
Stage Design	6913	FA CM (AL)
Play Directing	6914	FA CM (AL)
Production & Performance A/B	6993/6994	FA
Musical Theatre A/B	6904/6905	FA CM (AL)

VISUAL ARTS		
Advanced Studio A/B	6313/6314	FA CM (AL)
Art History, AP A/B	6456/6457	FA CM AP
Art and Culture A/B	6454/6455	FA
Art History A/B	6451/6452	FA
Studio Art 1 A/B	6105/6106	FA CM (AL)
Studio Art 2 A/B	6205/6206	FA CM (AL)
Studio Art 3 A/B	6305/6306	FA CM (AL)
Ceramics/Sculpture 1 A/B	6381/6391	FA
Ceramics/Sculpture 2 A/B	6383/6393	FA CM (AL)
Ceramics/Sculpture 3 A/B	6385/6386	FA CM (AL)
Commercial Art A/B	6401/6411	FA
Commercial Art 2 A/B	6403/6413	FA CM (AL)
Digital Art 1 A/B	6496/6497	FA
Digital Art 2 A/B	6498/6499	FA CM (AL)
Drawing and Design A/B	6355/6356	FA
Foundations of Art, Pre-Studio A/B	6055/6056	FA
Painting A/B	6365/6366	FA CM (AL)
Photography 1 A/B	6345/6346	FA
Photography 2 A/B	6347/6348	FA CM (AL)
Digital Photography A/B	6343/6344	FA CM AP
Studio Art Drawing, AP	6482	FA CM AP
Studio Art Drawing, AP	6484	FA CM AP (DP)
Studio Art 2-D, AP	6486	FA CM AP
Studio Art 2-D, AP	6487	FA CM AP (DP)
Studio Art 3-D, AP	6488	FA CM AP
Studio Art 3-D, AP	6489	FA CM AP (DP)
Visual Art Center 1 A/B	6492/6493	FA CM (AL) (DP)
Visual Arts Center 2 A/B	6460/6461	FA CM (AL) (DP)
AP Visual Art Center 3 A/B	6464/6465	FA CM (AL) (DP)
AP Visual Art Center 4 A/B	6468/6469	FA CM (AL) (DP)
AP Visual Art Center 4 A/B	6470/6471	FA CM (AL) (TP)
INTERNATIONAL BACCALAUREATE (IB) FINE ARTS COURSES		
IB Visual Arts 1 A/B	6102/6103	FA CM IB (AL)
IB Visual Arts 2 A/B	6107/6108	FA CM IB (AL)
IB Advanced Music A/B	6567/6568	FA CM IB (AL)
IB Theatre 1 A/B	8071/8072	FA CM IB (AL)
IB Theatre 2 A/B	8073/8074	FA CM IB (AL)
IB Film Studies 1 A/B	7202/7203	FA CM IB (AL)
IB Film Studies 2 A/B	7204/7205	FA CM IB (AL)

DANCE

All Dance courses may be repeated for elective credit.

DANCE AS FINE ART A/B

Prerequisite: *6017 is prerequisite to 6018*

6017/6018 FA **0.5 credit**

This introductory dance course emphasizes developing technique and exploring dance as a fine art. Students learn basic technical skills needed for several dance disciplines, and the history of dance in many cultures. The elements of dance are built upon and explored with greater depth in Dance B, with applications directed at movement problem solving, original choreography, and increased improvisational skills. This course may be repeated for elective credit.

ACADEMY DANCE A/B

Prerequisite: *Audition and 6060 are prerequisite for 6061*

6060/6061 FA CM (AL) **0.5 credit**

This is a class for students who want to take Dance as Physical Education (PE) for PE credit but have some previous dance training and want to be in the Academy of Musical Theatre and Dance.

DANCE 2 A/B

Prerequisite: *Dance as Fine Art A/B and 6062 are prerequisite to 6063*

6062/6063 FA CM (AL) **0.5 credit**

Students study a variety of genres to continue the development of technical and dance skills. Students have the opportunity to study technique, history, criticism, and choreography, and to further their kinesthetic knowledge and achievement. *This course can be repeated for credit.*

DANCE 3 A/B

Prerequisite: *Dance 2 A/B and 6064 are prerequisite to 6065*

6064/6065 FA CM (AL) **0.5 credit**

Students will study a variety of genres to continue the development of technical and dance skills in this third-year course. Students have the opportunity to study technique, history, criticism, and choreography, and to further their kinesthetic knowledge and achievement. *This course can be repeated for credit.*

MODERN DANCE A/B

Prerequisite: *1 credit of dance and 6066 are prerequisite to 6067*

6066/6067 FA CM (AL) **0.5 credit**

This class is designed to teach the fundamentals of modern dance and self-expression through movement. The emphasis is on the freedom of movement and the use of the body's natural weight and flow. Classes are designed to work on dance improvisation and composition. Partnering and group work will be integrated as well as the elements of dance, including time, space, force, and energy. Students will explore the history of modern dance along with the pioneers, culture, aesthetics, criticism, and performance. Modern is a cross between Ballet, Lyrical, Contemporary, and Creative Movement. *This course may be repeated for credit.*

TAP DANCE 1 A/B

Prerequisite: *Dance as Fine Art A/B and 6070 are prerequisite to 6071*

6070/6071 FA CM (AL) **0.5 credit**

This is an introductory course with emphasis on the development of rhythm and technique. Tap vocabulary is stressed as basic steps are mastered, including toe heels, flap heels, shuffles, ball changes, buffalo, Maxi Ford, waltz clog, and Irish dances. Students demonstrate, through movement, the knowledge and application of the basic elements of tap, such as time, force, energy, dynamics, and space. Aesthetic, historical, performance, improvisation, and dance criticism elements are explored to understand the nature of tap dance. *This course can be repeated for credit.*

TAP DANCE 2 A/B

Prerequisite: *Tap Dance 1 A/B and 6072 are prerequisite to 6073*

6072/6073 FA CM (AL) **0.5 credit**

Students continue to refine skills and concepts introduced in Tap Dance 1. Students progress to choreographic principles and more difficult rhythms and syncopation. Pickups, wings, and all time steps are introduced at this level as well as one-footed skills and turns. The elements of dance are studied in greater depth with applications directed at solving movement problems. Basic movement skills and techniques are refined to achieve greater technical artistic competency. This dance form is studied to understand its stylistic, cultural, and historical significance. *This course may be repeated for credit.*

TAP DANCE 3 A/B

Prerequisite: *Tap Dance 2 A/B and 6074 are prerequisite to 6075*

6074/6075 FA CM (AL) **0.5 credit**

Students in this advanced level course continue the progression of choreographic principles and more difficult rhythms and syncopation. Pickups, wings, and all time steps are mastered at this level as well as one-footed skills and turns. The elements of dance will be studied in greater depth with applications directed at solving movement problems. Skills and techniques are refined to achieve greater technical and artistic competency. This dance form is studied more deeply to understand its stylistic, cultural, and historical significance. *This course may be repeated for credit.*

HIP HOP DANCE A/B
Prerequisite: *Dance as Fine Art A/B*
6076/6077 FA CM (AL) **0.5 credit**
This course may be repeated for credit.

DANCE COMPANY A/B
Prerequisite: *Audition and 6078 are prerequisite to 6079*
6078/6079 FA CM (AL) **0.5 credit**
This select group of dancers focus on the demands of performance. Students refine their technique skills in the highly demanding studio setting. The ensemble has a very active performing schedule and offers leadership opportunities for student choreographers. Public performances during and after school may be required to meet course objectives. *This course may be repeated for credit.*

JAZZ DANCE 1 A/B
Prerequisite: *Dance as Fine Art A/B and 6080 are prerequisite to 6081*
6080/6081 FA CM (AL) **0.5 credit**
This is an introductory course in jazz as well as a refresher for the dancer who has had time off, with the emphasis on development of technique, self-expression, and creativity. Students explore dance concepts through aesthetic, historical, cultural, performance, and criticism. Students learn the basic elements of dance such as space, time, energy, and force. *This course may be repeated for credit.*

JAZZ DANCE 2 A/B
Prerequisite: *Jazz Dance 1 A/B and 6082 are prerequisite to 6083*
6082/6083 FA CM (AL) **0.5 credit**
Students learn the fundamentals with more difficult dance skills. While studying dance technique more closely, the students gain a greater understanding of the mechanics of the body and how it can be used as a tool for expression. Basic choreographic ideas are introduced along with improvisation and creation of organic movement. Direction, tempo, rhythms, and level changes are explored and the course includes more advanced leaps, turns, and falls. *This course may be repeated for credit.*

JAZZ DANCE 3 A/B
Prerequisite: *Jazz Dance 2 A/B and 6084 are prerequisite to 6085*
6084/6085 FA CM (AL) **0.5 credit**
This course is for the most serious and competitive dancers. Students continue to refine jazz skills and learn technically difficult combinations, concepts, and steps. Students explore choreography to create organic movement and they express ideas through improvisation and creative movement. Dance history, culture, aesthetics, criticism, performance, and dance for fitness are instructed on with more depth. *This course may be repeated for credit.*

BALLET 1 A/B
Prerequisite: *Dance as Fine Art A/B and 6086 are prerequisite to 6087*
6086/6087 FA CM (AL) **0.5 credit**
This course explores technique, body alignment, control, strength, and flexibility of the dancer. Students explore dance as an art from through self-expression, choreography, improvisation, historical/cultural experiences, aesthetics, and criticism. *This course may be repeated for credit.*

BALLET 2 A/B
Prerequisite: *Ballet 1 A/B and 6088 are prerequisite to 6089*
6088/6089 FA CM (AL) **0.5 credit**
This course is for the serious ballet dancer to improve dance technique, body alignment, control, strength, and flexibility. Students work on adagio, petit allegro, ballet barre, across the floor, and center floor combinations. Choreography and an independent study are developed for personal growth, as students continue to explore dance as an art form through self-expression, choreography, improvisation, historical/cultural experiences, aesthetics, and criticism in more depth. *This course may be repeated for credit.*

CHOREOGRAPHY 1 A/B
Prerequisite: *2 credits of dance and 6090 is a prerequisite of 6091*
6090/6091 FA CM (AL) **0.5 credit**
This advanced class is for technically proficient dancers who have some experience with choreography. Students create "organic" and purposeful movement that demonstrates a story, theme, or piece of artwork. Choreography techniques, vocabulary, and themes are studied. Students complete written assignments and self-reflections, work on technical production, and develop a portfolio. Performances are required and students will have the opportunity to showcase their choreographic works for concerts and other opportunities. *This course may be repeated for credit.*

GENERAL MUSIC
Public performances during and after school hours may be required to meet course objectives.

PIANO 1 A/B
6520/6521 FA **0.5 credit**
Students will create, perform, and respond to piano music in a variety of styles/genres. Students will learn and develop beginning piano skills and techniques, music literacy, chord chart reading, and basic music theory concepts. Cultural, historical, personal, and social context are studied as they relate to piano repertoire. Students will develop effective practice habits so they will be able to progress independently. This course is open to all students, regardless of music background. ***This course satisfies the fine arts graduation requirement and may be taken up to 3 times for credit.***

PIANO 2 A/B
Prerequisite: *Piano 1 A/B*
6535/6536 FA **0.5 credit**
Students will learn to create, perform and respond to piano music in a variety of styles/genres. Students will continue to develop beginning piano skills learned in HS Piano 1, and move onto intermediate piano skills and techniques, including expanded study of music literacy, chord chart reading and music theory concepts. Cultural, historical, personal, and social context are studied as they relate to piano repertoire. Students will use effective practice habits to be able to progress independently. ***This course satisfies the fine arts graduation requirement and may be taken up to three times for credit.***

MUSIC THEORY AND COMPOSITION A/B
6545/6546 FA **0.5 credit**
Students study the elements of music, with emphasis on music terminology, notation, and major and minor keys. They practice melodic, rhythmic, and harmonic dictation; keyboard harmony and sight-singing; and learn how to compose music in different styles for various combinations of voices and instruments.

MUSIC THEORY AND COMPOSITION, AP
Prerequisite: *Music Theory B or permission of instructor*
6547/6548 CM FA AP **0.5 credit**
Students with strong interest and preparation in music study to meet the requirements of the College Board for AP in Music Theory. Practice in sight-singing, dictation, composition, and improvisation is complemented by listening and score analysis. In the second semester, students read, write, and analyze music of increasing complexity. They study in detail the techniques used to compose music, including electronic media.

MUSIC PERSPECTIVES A/B
6565/6566 FA **0.5 credit**
Students analyze and discuss jazz, folk, popular, and classical music representing a variety of eras and cultures. Through listening, performing, and composing, students learn about music notation, form, and style. They examine the art of performance from the perspective of the audience, the performer, and the critic. Attendance at live performances is encouraged.

GUITAR 1 A/B

6585/6586 FA **0.5 credit**

Students will learn to create, perform, and respond to guitar music in a variety of styles/genres. Students will learn and develop beginning guitar skills, including selected major, minor, seventh, and power chords; major, minor, and pentatonic scales; basic strumming, picking, and fingerpicking; and tuning technique. Cultural, historical, personal, and social context are studied as they relate to guitar repertoire. Students develop effective practice habits so they will be able to progress independently. This course is open to all students, regardless of music background. ***This course satisfies the fine arts graduation requirement and may be taken up to three times for credit.***

GUITAR 2 A/B

Prerequisite: *Guitar 1 A/B*

6591/6592 FA **0.5 credit**

Expanding on beginning skills learned in HS Guitar 1, students will learn to create, perform and respond to guitar music in a variety of styles/genres. Students will learn and develop guitar skills, including selected major, minor, seventh, and power chords; major, minor, and pentatonic scales; strumming, picking, and fingerpicking; and tuning technique. Cultural, historical, personal, and social context are studied as they relate to guitar repertoire. Students will develop effective practice habits to be able to progress independently. ***This course satisfies the fine arts graduation requirement and may be taken up to three times for credit.***

MUSIC TECHNOLOGY A/B

6605/6607 FA **0.5 credit**

Students learn the techniques of electronic sound production and manipulation, and apply them to create their own compositions. They use specialized electronic equipment and computer software to synthesize, modify, and record sounds. Students analyze and evaluate examples of electronic music as well as multiarts works featuring electronic music sources. Students explore career options in electronic music.

CHORAL MUSIC

Chorus is offered during the school day to all students who want to sing and develop individual and ensemble vocal skills. Students will create, perform, and respond to music in a variety of styles/genres while studying the cultural, historical, personal, and social context through analysis of choral literature. Ensemble members will learn and develop the fundamentals of proper vocal technique and choral singing. Students will be equipped with skills that foster musicality and musicianship, inspiring development into lifelong musicians.

Chorus is an ensemble-structured, performance-based class. Concerts are the culmination of many hours of hard work and serve as performance assessments in which students demonstrate mastery of the knowledge and skills outlined in the content standards. Applying this learning in a public concert is a vital component of choral singing and is authentic to the broader world of music performance. Therefore, participation in all concerts is strongly encouraged.

CHORUS 1 A/B

6711/6712 FA **0.5 credit**

Students will create, perform, and respond to music in a variety of styles/genres. Students will develop the fundamentals of proper vocal technique and choral singing in relation to posture, breath control, tone, intonation, diction, blending, singing in harmony, music literacy, and sight-singing in multiple keys and parts. **Students will sing primarily state-level 3-4 music.** There will likely be a minimum of two school concerts as well as the opportunity to participate in other festivals/performances, and students are expected to participate in all performances. This level may be represented in multiple formats, such as Concert Choir, Treble/Baritone Choir. This course is open to all students, regardless of music background. ***This course satisfies the fine arts graduation requirement and can be taken up to three times for credit.***

CHORUS 2 A/B

Prerequisite: *Chorus 1B or audition*

6721/6722 CM FA (AL) **0.5 credit**

Students will create, perform, and respond to music in a variety of styles/genres. Students will continue to develop proper vocal technique and choral singing in relation to posture, breath control, tone, intonation, diction, blending, singing in harmony, music literacy, and sight-singing in multiple keys and parts. **Students will sing primarily state-level 4-5 music.** There will likely be a minimum of two school concerts as well as the opportunity to participate in other festivals/performances, and students are expected to participate in all performances. This level may be represented in multiple formats, such as Concert Choir, Advanced Treble/Baritone/Mixed Choir, Gospel Choir, Jazz/Contemporary Vocal Choir. An audition and/or a prerequisite of HS Chorus 1 may be required to participate. ***This course satisfies the fine arts graduation requirement and may be taken up to three times for credit.***

CHORUS 3 A/B

Prerequisite: *Chorus 2B or audition*

6731/6732 CM FA (AL) **0.5 credit**

Students will create, perform, and respond to music in a variety of styles/genres. Students will refine proper vocal technique and choral singing in relation to posture, breath control, tone, intonation, diction, blending, singing in harmony, music literacy, and sight-singing in multiple keys and parts. **Students will primarily sing state level 5-6 music.** This ensemble has an active performance schedule, which may include multiple concerts, school performances, and festivals, and students are expected to participate in all performances. This level may be represented in multiple formats, such as Advanced Treble/Baritone/Mixed Choir, Gospel Choir, Jazz/Contemporary Vocal Choir. An audition and/or a prerequisite of HS Chorus 1 and/or 2 may be required to participate. ***This course satisfies the fine arts graduation requirement and may be taken up to four times for credit.***

CHOIR, CHAMBER A/B

6741/6742 CM FA (AL) **0.5 credit**

Students will create, perform, and respond to music in a variety of styles/genres. Students will refine proper vocal technique and choral singing in relation to posture, breath control, tone, intonation, diction, blending, singing in harmony, music literacy, and sight-singing in multiple keys and parts. Students will sing primarily state-level 5-6 music, often without accompaniment. This choir is a highly demanding ensemble, generally between 16-24 students, requiring an advanced level of vocal independence. This ensemble has a very active performance schedule, which may include multiple concerts, school performances, and festivals and students are expected to participate in all performances. An audition and/or a prerequisite of HS Chorus 1, 2, and/or 3 may be required to participate. ***This course satisfies the fine arts graduation requirement and may be taken up to four times for credit.***

CHOIR, SHOW A/B

Prerequisite: *Audition*

6745/6746 FA **0.5 credit**

Students will create, perform, and respond to music in a variety of styles/genres. Students will refine proper vocal technique and choral singing in relation to posture, breath control, tone, intonation, diction, blending, singing in harmony, music literacy, and sight-singing in multiple keys and parts. Students will sing primarily state-level 5-6 music, often without accompaniment. This choir is a highly demanding ensemble, generally between 16-24 students, requiring an advanced level of vocal independence. This ensemble has a very active performance schedule, which may include multiple concerts, school performances, and festivals, and students are expected to participate in all performances. An audition and/or a prerequisite of HS Chorus 1, 2, and/or 3 may be required to participate. ***This course satisfies the fine arts graduation requirement and may be taken up to four times for credit.***

INSTRUMENTAL MUSIC

BAND, BEGINNING A/B

6811/6885 FA **0.5 credit**

Beginning Band is for students with no instrumental music experience. Areas such as elements of musical form, terms and symbols, tone production, and the importance of practice habits are presented. The development of skills necessary to perform Grades I and II music and prepare students for a high school band course is stressed. Public performances outside of the school day may be required to meet course objectives.

BAND, ADVANCED A/B

Prerequisite: *Beginning Band B*

6831/6832 FA **0.5 credit**

Advanced Band students develop skills that will enable them to perform music at the Grade II to III levels of difficulty. Students learn the cultural influences from the historical periods reflected in the musical works being discussed. The study of music theory includes major scales, diatonic and chromatic intervals, and melodic dictation. Public performances during and after school may be required to meet course objectives. *This course may be repeated once for credit.*

BAND, CONCERT A/B

Prerequisite: *Advanced Band or by audition, and the need to balance instrumentation, as determined by the director*

6821/6822 FA CM **0.5 credit**

Students will develop and refine the skills that will enable them to perform music at the Grade III level of difficulty. Basic transposition, melodic dictation, and triad development are included. Written projects may include music history, performance critiques, and musical composition. Public performances outside of the school day may be required to meet course objectives. A second year of Advanced Band may be substituted for the first year of Concert Band. *This course may be repeated once for credit.*

BAND, SYMPHONIC A/B

Prerequisite: *Concert Band or by audition, and the need to balance instrumentation, as determined by the director*

6826/6827 CM FA (AL) **0.5 credit**

Students develop skills that will enable them to perform music at the Grade IV to VI levels of difficulty. The emphasis will be on the study of literature composed originally for the band/orchestra during the 20th and 21st centuries. Additional experiences may include marching band, pep band, improvisation, and chamber and solo performance. Public performances during and after school may be required to meet course objectives. *This course may be repeated for credit.*

JAZZ ENSEMBLE A/B

Prerequisite: *Concert Band or Concert Orchestra or audition, and the need to balance instrumentation*

6871/6872 CM FA (AL) **0.5 credit**

Students develop a high level of skill in the performance of jazz, blues, jazz-rock, soul, and other styles of music. They extend their skills and study of jazz interpretation and improvisation, jazz harmony and theory, and the historical influences on jazz as it developed into an American art form. Public performances during and after school may be required to meet course objectives. *This course may be repeated for credit.*

ORCHESTRA, BEGINNING A/B

6841/6855 FA **0.5 credit**

Students with no instrumental music experience may elect to take this course to develop basic instrumental skills through a variety of musical materials. The historical significance of the music is discussed. The elements of musical form, terms and symbols, tone production, instrument care, and the importance of practice habits are presented. The development of technical skills necessary to perform Grade I music is stressed. *Public performances outside of the school day may be required to meet course objectives.*

ORCHESTRA, ADVANCED A/B

Prerequisite: *Beginning Orchestra B*

6861/6862 FA **0.5 credit**

Students develop skills that will enable them to perform music at the Grade II to III levels of difficulty. Students learn the cultural influences from the historical periods reflected in the musical works being discussed. The study of music theory includes major scales, diatonic and chromatic intervals, and melodic dictation. Public performances during and after school may be required to meet course objectives. *This course may be repeated once for credit.*

ORCHESTRA, CONCERT A/B

Prerequisite: *Advanced Orchestra or by audition, and the need to balance instrumentation, as determined by the director*

6851/6852 FA **0.5 credit**

Students develop and refine the skills that will enable them to perform music at the Grade III level of difficulty. Transposition, melodic dictation, and performance of triads are included. Music history, performance critiques, and musical composition projects may be used. Public performances outside of the school day may be required to meet course objectives. A second year of Advanced Orchestra may be substituted for the first year of Concert Orchestra. *This course may be repeated once for credit.*

ORCHESTRA, SYMPHONIC A/B

Prerequisite: *Concert Orchestra or by audition, and the need to balance instrumentation as determined by the director*

6866/6867 CM FA (AL) **0.5 credit**

Students develop skills that will enable them to perform music at the Grade IV to VI levels of difficulty. They focus on the study of literature composed originally for the orchestra during the 20th and 21st centuries. Additional experiences may include full symphony orchestra, chamber and solo performance, and musical Theatre orchestra. Public performances during and after school hours may be required to meet course objectives. *This course may be repeated for credit.*

THEATRE

THEATRE 1 A/B

6926/6927 FA **0.5 credit**

Students gain an understanding of the entire process through which human behavior is translated into a written drama, produced as a play, and presented to an audience. The study of theatre aesthetics, history, and criticism is balanced with workshop training in acting and basic Theatre production skills. *This course is the prerequisite for all other high school Theatre courses.*

THEATRE 2 A/B

Prerequisite: *Theatre 1*

6928/6929 CM FA (AL) **0.5 credit**

Knowledge and skills learned in Theatre 1 are applied to production and performance. Students study script analysis, character development, performance skills and processes, and beginning technical production skills. Studying the aesthetics and history of the Theatre, reading plays, and attending plays provide a balanced framework for application of Theatre criticism. Writing and thinking skills are reinforced through journaling. Careers in acting and technical Theatre are discussed. *This course may be repeated for credit.*

ACTING, ADVANCED

Prerequisite: *Theatre 1 and 2*

6912 CM FA (AL) **0.5 credit**

This course provides complex development of acting skills and theories begun in Theatre 2. Carefully structured methods of role/character development are introduced. The vocal and physical techniques of period and stylized acting are studied. Group experiences such as Children's and Readers' Theatre are provided. *This course may be repeated for credit.*

STAGE DESIGN
Prerequisite: *Theatre 1 and 2*
6913 CM FA (AL) **0.5 credit**
Students study stage production and the design and mounting of stage presentations, with emphasis on problems of technical production. Students use advanced skills in both the design and construction aspects of technical theatre sets, costumes, lighting, sound, and properties. Students compare design/production approaches of various designers/directors and practice technical skills related to performance. *This course may be repeated for credit.*

PLAY DIRECTING
Prerequisite: *Theatre 1 and 2*
6914 CM FA (AL) **0.5 credit**
Students focus on the skills required in Theatre directing. Study centers on the director as interpretative and creative artist, selecting and casting the play, coordinating design functions, blocking the play, developing characterization, and rehearsing the play and developing an ensemble effect in performance. Through the study of various theories, students direct both traditional and experimental theatre forms as culminating productions. *This course may be repeated for credit.*

PRODUCTION & PERFORMANCE A/B
6993/6994 FA **0.5 credit**
Students develop the practical and artistic considerations of producing script-based projects for theatre, film, radio, and television. Script writing, script analysis, auditioning, casting, rehearsing, and staging are explored. Students work as directors, writers, actors, and crew members, and use collaboration and problem-solving skills for production projects.

MUSICAL THEATRE A/B
Prerequisite: *Theatre 1 and 2*
6904/6905 FA CM (AL) **0.5 credit**
Students study the history of the genre and develop performance techniques for designing musicals. This will include how designers, directors, choreographers, and composers collaborate to make musical theatre work. *This course may be repeated for credit.*

VISUAL ARTS

ADVANCED STUDIO A/B
Prerequisite: *All credits specific to the art form, a minimum of 1 credit is required*
6313/6314 CM FA (AL) **0.5 credit**
This course provides continued, rigorous, and advanced study in a specific art form; outcomes are based on previous coursework. Students participate in individualized critiques of their own work, and show evidence of a completed special project. *May be repeated for credit.*

ART HISTORY, AP A/B
6456/6457 CM FA AP **0.5 credit**
Through studying the evolution of Western and non-European art in contemporary society by examining the major forms of visual expression in world cultures, students prepare for the AP Art History exam. Students analyze architecture, sculpture, painting, and the decorative arts within a historical and cultural context, from ancient art to the present.

ART AND CULTURE A/B
6454/6455 FA **0.5 credit**
Students study the visual designs found in our environment, focusing on cultural influences and social significance. They analyze and discuss architecture, crafts, decorative arts, environmental designs, communication arts, design in commerce and industry, and fine art. Studio projects and textbook assignments are given. The role of art in society and the contributions of minority artists are among the topics studied.

ART HISTORY A/B
Prerequisite: *6451 is prerequisite to 6452*
6451/6452 FA **0.5 credit**
Students conduct a chronological overview of the major periods of world art, developing a timeline associating major periods of art with significant historical events, crafts, and architectural achievements of various cultures. Students compare major works of art in terms of a central theme or image and discuss the role of the artist in society and the effects of political and technological influences.

STUDIO ART 1 A/B
Prerequisite: *Drawing and Design A/B OR Foundations of Art A/B or 0.5 credit in Foundations of Art and 0.5 credit in another art elective*
6105/6106 CM FA (AL) **0.5 credit**
Students continue their study of art, applying their knowledge of media, tools, techniques, the elements of art, and principles of design to original artwork. Many art forms are studied, including drawing, painting, printmaking, and sculpture. Students study art from other cultures, regions, and time periods, and how both historical and contemporary artworks are used to inspire original work. Career information is provided.

STUDIO ART 2 A/B
Prerequisite: *Studio Art 1 A/B*
6205/6206 CM FA (AL) **0.5 credit**
Students continue building a portfolio of artwork and an art journal. Personal style emerges through the selection of media, subject matter, and art forms used to solve visual problems. Reading assignments, group critiques, and visuals are used to help students develop an aesthetic vocabulary and an appreciation for art as an expression of human experience.

STUDIO ART 3 A/B
Prerequisite: *Studio Art 2 A/B*
6305/6306 CM FA (AL) **0.5 credit**
Students focus on a medium and art form of their choice, using both assigned and self-selected subject matter. They participate in group critiques and present their work in a portfolio and in a one-person show. They participate in group discussions in which they analyze significant works of art and periods of art history. Museum field trips and talks with visiting artists may be arranged.

CERAMICS/SCULPTURE 1 A/B
Prerequisite: *6381 is prerequisite to 6391*
6381/6391 FA **0.5 credit**
Students learn basic hand-building techniques and glazing processes. Included are the composition and general characteristics of clay bodies, safe studio practices, craftsmanship, and surveys of significant styles in pottery and ceramic sculpture. An introduction to the wheel may be presented. Ceramics 1B focuses on sculptural processes using a variety of materials and techniques. Writing and thinking skills are reinforced through journal writing.

CERAMICS/SCULPTURE 2 A/B
Prerequisite: *Ceramics/Sculpture 1 A/B*
6383/6393 CM FA (AL) **0.5 credit**
Students create original artwork inspired by natural and historically significant ceramic forms. Students study the formulation and firing characteristics of basic glazes, additional techniques for throwing on the pottery wheel, kiln theory, craftsmanship and safe studio practices. Students apply decoration techniques such as using overglazes, underglazes, and patina methods and learn to stack and monitor the kiln.

CERAMICS/SCULPTURE 3 A/B
Prerequisite: *Ceramics/Sculpture 2 A/B*
6385/6386 CM FA (AL) **0.5 credit**
Students study the works of contemporary potters and sculptors in terms of form, finish, and conceptual statement. Students create a series of forms that reflect a common source or theme. They combine hand-made and wheel-thrown clay forms to create pottery or sculpture that reflects personal meaning. Writing and thinking skills are reinforced through journaling. Group critiques are conducted. Health hazards are reviewed.

COMMERCIAL ART A/B

Prerequisite: *0.5 credit in Foundations of Art, or 0.5 credit in Design*

6401/6411 FA **0.5 credit**

Students design and produce advertising and promotional art using a variety of tools and graphic design processes. Students investigate historically significant designs and the use of photography, digital art, and TV/video productions in contemporary commercial artwork. Related health and safety hazards are discussed.

COMMERCIAL ART 2 A/B

Prerequisite: *Commercial Art A/B*

6403/6413 CM FA (AL) **0.5 credit**

Students in their second year of commercial art continue to develop their knowledge and skills in graphic design and commercial artwork.

DIGITAL ART 1 A/B

6496/6497 FA **0.5 credit**

Students use the computer as a tool to create portraits, illustrations, commercial/advertising art, and animations. Students discuss ethical and safety issues in the use of computers as an instructional tool. They study a variety of techniques, processes, and applications. Guest speakers and experts in the field of digital art introduce and describe careers. Students work to develop criteria for judgment of digital artwork. Students produce a portfolio of digital art.

DIGITAL ART 2 A/B

Prerequisite: *Digital Art 1 A/B*

6498/6499 FA CM (AL) **0.5 credit**

Students continue to create original artwork using the computer as the tool. Visual and technical literacy is developed through critical and creative thinking in order to solve artistic problems. *This course can be repeated for credit.*

DRAWING AND DESIGN A/B

Prerequisite: *6355 is prerequisite to 6356*

6355/6356 FA **0.5 credit**

Students explore a variety of drawing media such as pencil, charcoal, marker, ink, and pastel, to develop observational and rendering skills. Creative problem solving is emphasized as students explore the relationships between the elements of art and the principles of design in original compositions. Artwork from history and contemporary artists and art-making practices in multiple cultures are examined and analyzed.

FOUNDATIONS OF ART, PRE-STUDIO A/B

Prerequisite: *6055 is prerequisite for 6056*

6055/6056 FA **0.5 credit**

Students create artworks that convey personal meaning using a variety of production processes, including drawing, painting, crafts, commercial art, printmaking, and sculpture. Historically significant examples of each art form, representing a variety of cultures, are investigated and represented in the creative-production process. Students develop a context for understanding art as an aspect of human experience.

PAINTING A/B

Prerequisites: *Foundations of Art A and B, or 0.5 credit of Foundations of Art and 0.5 credit in any other art elective*

6365/6366 CM FA (AL) **0.5 credit**

Students continue their study of composition, the structure of form, and the relationships of color, and apply these concepts to personal artworks. A variety of wet media and surfaces will be explored. Historical and contemporary painting styles are investigated; health hazards are studied. In the second semester, students may elect to concentrate on a preferred painting medium such as watercolor, tempera, or acrylic. Writing and thinking skills are reinforced through journaling.

PHOTOGRAPHY 1 A/B

Prerequisite: *6345 is prerequisite for 6346*

6345/6346 FA **0.5 credit**

Students develop skills in using an SLR camera, processing film, and printing black-and-white photographs. The elements of art and design principles are studied and applied to photographic compositions. Contemporary photographic technology is demonstrated and used where available. Safe darkroom practices are learned, and opportunities to exhibit work are presented. Writing and thinking skills are reinforced through journaling.

PHOTOGRAPHY 2 A/B

Prerequisite: *Photography 1 A/B*

6347/6348 CM FA (AL) **0.5 credit**

Students create a portfolio of photographic work using various production techniques, including advanced camera and darkroom practices and digital technology. Students continue studying the history of photography and apply historical or stylistic qualities to their work. Composition and aesthetic criteria are stressed. Writing and thinking skills are reinforced through journaling. Students participate in critiques, and mat and display their work for exhibit.

DIGITAL PHOTOGRAPHY A/B

6343/6344 FA **0.5 credit**

This course provides students with a basic understanding of digital photography as an art form. A digital camera and computer software replace the traditional darkroom and is used to capture and manipulate photographic images and to increase the student's understanding of both traditional and contemporary photographic techniques. Photographic composition and the expression of meaning in personal artworks are stressed. The students will create portfolios of their digital photographs that emulate both traditional and contemporary photographic processes and media.

STUDIO ART DRAWING, AP

Prerequisites: *Foundations of Art or Drawing and Design and Studio Art 1 A/B*

6482 CM FA AP **0.5 credit**

6484 CM FA AP (DP) **1.0 credit**

This individualized program focuses on art projects that demonstrate the competencies expected of AP art applicants, as identified by the College Board. Students assemble portfolios to meet the submission requirements for the AP exam. Writing and thinking skills are reinforced through journaling. *This course may be repeated once for credit.*

STUDIO ART 2-D, AP

Prerequisites: *Foundations of Art A/B or Drawing and Design A/B, and Studio Art 1 A/B*

6486 CM FA AP **0.5 credit**

6487 CM FA AP (DP) **1.0 credit**

This individualized program focuses on art projects that demonstrate the competencies expected of AP art applicants, as identified by the College Board. Students assemble portfolios to meet the submission requirements for the AP exam. *This course may be repeated once for credit.*

STUDIO ART 3-D, AP

Prerequisite: *Ceramics/Sculpture 2 A/B*

6488 CM FA AP **0.5 credit**

6489 CM FA AP (DP) **1.0 credit**

This individualized program focuses on art projects that demonstrate the competencies expected of AP art applicants, as identified by the College Board. Students assemble portfolios to meet the submission requirements for the AP exam. *This course may be repeated once for credit.*

VISUAL ART CENTER

Students concentrate on a variety of art forms, including drawing, painting, and printmaking. Students are assigned readings in art history, and assemble a portfolio of work suitable for college or career. These courses are offered at the Visual Art Center at Einstein High School. Students living beyond the Einstein attendance area must provide their own transportation. Students who take levels 3 and 4 courses may take the AP 2-D Design, 3D Design, or Drawing Portfolio exams. ***These advanced-level courses may be repeated for credit.***

VISUAL ART CENTER 1

6492/6493 FA CM (AL) (DP) **1.0 credit**

VISUAL ART CENTER 2

6460/6461 FA CM (AL) (DP) **1.0 credit**

AP VISUAL ART CENTER 3

6464/6465 FA CM (AL) (DP) **1.0 credit**

AP VISUAL ART CENTER 4

6468/6469 FA CM (AL) (DP) **1.0 credit**
6470/6471 FA CM (AL) (TP) **1.5 credits**

INTERNATIONAL BACCALAUREATE (IB) FINE ARTS COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

IB VISUAL ARTS 1 A/B

Prerequisite: *6102 is prerequisite to 6103*
6102/6103 CM FA IB (AL) **0.5 credit**

Students develop their aesthetic, imaginative, and creative faculties. Emphasis is on visual awareness, multicultural expression, and historical references. An expressive verbal and visual journal, demonstrating the interrelationship between the student's personal research and studio work, is required by the standard-level IB Art and Design assessment.

IB VISUAL ARTS 2 A/B

Prerequisite: *IB Visual Arts 1*
6107/6108 CM FA IB (AL) **0.5 credit**

Students continue to develop their aesthetic, imaginative, and creative faculties. Emphasis is on visual awareness and multicultural expressions as reflected in studio work. Students complete studio work and refine verbal and visual journals begun in IB Art and Design 1 to fulfill the requirements for the higher-level IB Visual Arts assessment.

IB ADVANCED MUSIC A/B

Prerequisite: *Music Theory or permission of instructor*
6567/6568 CM FA IB (AL) **0.5 credit**

Students learn to recognize the music of various eras and cultures through a detailed study of representative works. The study of musical scores extends students' knowledge of music fundamentals and theory and comprehension of how the changes in composition styles create the music of different times and places. Students may prepare for the standard-level or the higher-level IB examination.

IB THEATRE 1 A/B

Prerequisite: *8071 is prerequisite to 8072*
8071/8072 CM FA IB (AL) **0.5 credit**

IB Theatre explores a range of creative works in a global context and emphasizes practical production by the student. Assessments include a practical play analysis, a reflective and analytical portfolio of their theatrical work, and research that applies theoretical and historical concepts to a contemporary production. Students are prepared for the standard-level IB examination. Writing and thinking skills are reinforced through journaling.

IB THEATRE 2 A/B

Prerequisite: *IB Theatre 1 A/B*
8073/8074 FA CM IB (AL) **0.5 credit**

IB Theatre is the second of the two-year sequence that prepares students for the higher-level IB theatre examination. Topics covered include performance skills, world theatre studies, practical play analysis, and theatre production. Each student is also required to complete an individual project.

IB FILM STUDIES 1 A/B

7202/7203 FA CM IB (AL) **0.5 credit**

This film course aims to develop students' skills so that they become adept in both interpreting and making film texts. Students explore film history, theory, and socioeconomic background and develop critical abilities, enabling them to appreciate the multiplicity of cultural and historical perspectives in film. To develop an international understanding of film, students study film text, theories, and ideas from multiple and varied perspectives.

IB FILM STUDIES 2 A/B

7204/7205 FA CM IB (AL) **0.5 credit**

Students continue studying film as described in IB Film Studies 1. This second film course enables students to develop their creative skills, theoretical understanding, and textual analysis more fully.

Health Education

One-half credit in Grade 10 Comprehensive Health Education (7835 or 7841). Health education provides students with the knowledge and skills necessary to help them make healthful decisions-both now and in the future. Through the implementation of an effective, comprehensive health education instructional program, students will develop the life skills to enhance their potential for academic success and healthier, happier, and more productive lives. Knowledge of accurate health information is essential. Practicing health-related skills in real-life situations and developing healthful behaviors are the ultimate goals of the program.

HEALTH EDUCATION COURSES

HEALTH EDUCATION COURSES		
Comprehensive Health Education—Grade 10	7835	
Comprehensive Health Education—Grade 10, Honors	7841	(H)
Family Life and Human Development	7833	
Human Behavior	7834	
First Aid	7842	

COMPREHENSIVE HEALTH EDUCATION—GRADE 10

Prerequisite: *Grade 10 or above*

7835 **0.5 credit**

7841 (H) **0.5 credit**

Students learn factual health information in the following content areas: mental and emotional health; alcohol, tobacco, and other drugs; personal and consumer health; family life and human sexuality; safety and injury prevention; nutrition and fitness; and disease prevention and control. Students develop lifelong health skills such as analyzing influences; accessing information, interpersonal communication skills, decision making, goal setting, and self-management; and advocacy for personal, consumer, and family health throughout the course.

FAMILY LIFE AND HUMAN DEVELOPMENT

Prerequisite: *Comprehensive Health Education*

7833 **0.5 credit**

Students develop a greater understanding of how family relationships and human sexuality impact individual health and society. Topics include interpersonal relationships, economics of family life, responsibilities of marriage and parenting, pregnancy prevention, pregnancy and childbirth, and sexually transmitted infections. *Due to the nature of this course, parental permission is required for students under 18. This course does not meet the Health Education graduation requirement.*

HUMAN BEHAVIOR

Prerequisite: *Comprehensive Health Education*

7834 **0.5 credit**

Students explore human behavior through four major concepts—human needs, perception, self-image and coping, and behavior/decision making. What influences the decisions we make, how we make decisions, how those decisions affect us and others, group dynamics, and communications skills are the focus of this course. *This course does not satisfy the Health Education graduation requirement.*

FIRST AID

Prerequisite: *Comprehensive Health Education*

7842 **0.5 credit**

Students learn to recognize emergencies and make appropriate decisions for first-aid care. They acquire American Red Cross certification. Students learn first-aid skills the citizen responder needs in order to act as the first link in the Emergency Medical Services (EMS) system. Emphasis is placed on the prevention of injuries and illness and personal safety and health. *This course does not meet the Health Education graduation requirement.*

Physical Education

One credit in Physical Education is required for graduation: Courses that satisfy these requirements are described below.

The goal of the high school **physical education** program is to prepare students to become responsible citizens who are both physically and health literate. Students develop and apply their knowledge and skills in general, concentrated, and specialty physical education courses. Students receive instruction in fitness and skill performance through movement-based tasks and the implementation of personalized fitness and physical activity plans. Students demonstrate and model responsible personal and social behavior to promote a sense of community and a safe, healthy environment for all. Students acquire the knowledge and skills necessary to transfer their learning outside of the school setting in order to maintain a healthy, active lifestyle.

PHYSICAL EDUCATION COURSES

PHYSICAL EDUCATION COURSES	
Foundations of Personal Fitness and Sport	7720/7721
Concentrated Physical Education Courses	7733, 7735, 7736, 7737, 7738
Specialty Physical Education Courses	7740, 7742, 7743, 7744, 7745, 7746, 7747, 7748, 7750, 7751, 7752, 7753, 7754
Leadership Opportunities in Physical Education	7700

FOUNDATIONS OF PERSONAL FITNESS AND SPORT

7720/7721 **0.5 credit**

Drawing on knowledge from their elementary and middle school physical education experience, students will deepen their understanding of fitness components and principles. Students will examine and evaluate influences that affect their personal fitness choices. Students will be guided through short- and long-term fitness goals and the selection of physical fitness activities to prepare them for career. The course includes opportunities for a variety of personal developmental activities, including those most prevalent in students' current and future communities. *This course is the foundation for the Concentrated Specialty Physical Education courses.*

CONCENTRATED PHYSICAL EDUCATION

These semester-long courses include instruction in two or three activity units. Each course offers opportunities for student growth in health-enhancing fitness activities, movement skills and concepts, and personal and social responsibility as they relate to the CPE course that is selected. As an extension of *Foundations of Personal Fitness and Sport,* students will apply the knowledge of components and principles of health- and skill-related fitness when creating a personal fitness plan directly related to the CPE activity selected. Ninth graders are less likely to be in this course.

CPE courses are all one semester, 0.5 credit courses, as listed in the course table below. Check with your school for which classes are available.

CPE—Field Sports	7733
CPE—Individual/Dual Sports	7735
CPE—Lifetime Sports	7736
CPE—Net Sports	7737
CPE—Team Sports	7738

LEADERSHIP OPPORTUNITIES IN PHYSICAL EDUCATION

7700 **0.5 credit**

This semester course is designed to develop leadership skills within the physical education setting, for individuals interested in pursuing careers in education or physical therapy. Throughout the course, participants will have the opportunity to assist students who have various physical and learning disabilities to develop their sport/movement skills and fitness. Participants will explore and analyze a variety of disabilities and develop sport and recreation goals or fitness plans for their peers with a disability.

SPECIALTY PHYSICAL EDUCATION

These semester-long courses offer in-depth instruction in the selected activity. Students will have opportunities to apply movement skills to advanced tactics and concepts of the chosen activity. Students will be given leadership roles as an opportunity for growth in personal and social responsibility. As an extension of *Foundations of Personal Fitness and Sport,* students will apply their knowledge of components and principles of health- and skill-related fitness when creating a personal fitness plan. Students will deepen their understanding of personal fitness plans and goal setting as they apply directly to the SPE activity selected. *Ninth graders are less likely to be in this course.*

SPE courses are all one semester, 0.5 credit courses, as listed in the course table below. Check with your school for which classes are available.

SPE—Athletic Guidance and Training	7740
SPE—Basketball	7742
SPE—Dance	7743
SPE—Floor/Street Hockey	7744
SPE—Fitness	7745
SPE—Flag Football	7746
SPE—Lacrosse	7747
SPE—Soccer	7748
SPE—Ultimate	7750
SPE—Volleyball	7751
SPE—Weight/Strength Training & Conditioning	7752
SPE—Wrestling and Conditioning	7753
SPE—Yoga/Stretching	7754

Interdisciplinary and Research Courses

INTERNATIONAL BACCALAUREATE (IB) COURSES		
IB Personal and Professional Skills A/B/C	4891/4892	CM CDP (AL)
IB Personal and Professional Skills A/B/C	4893	(AL)
Theory of Knowledge 1/2	2007/2008	CM IB NCAA (AL)
IB Theory of Knowledge 1/Extended Essay A/B	2011/2012	CM IB NCAA (AL)
ADVANCED PLACEMENT (AP) CAPSTONE PROGRAM COURSES		
AP Seminar A/B	7801/7802	CM (AL)
AP Research A/B	7803/7804	CM (AL)
BLAIR AND POOLESVILLE MAGNET COURSES		
Research and Experimentation for Problem Solving 1 A/B	2970/2971	CM (AL)
Research and Experimentation for Problem Solving 2 A/B	2972/2973	CM (AL)
Research Design	2974	CM (AL)
Research and Experimentation: Engineering for Problem Solving	2975	CM (AL)
Research Project A/B	2981/2982	CM (AL)
Guided Research A/B	2977/2978	CM (AL

INTERNATIONAL BACCALAUREATE (IB) COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

IB PERSONAL AND PROFESSIONAL SKILLS A/B/C

4891/4892 CM CDP (AL) **0.5 credit**
4893 (AL) **0.5 credit**

The personal and professional skills course aims to develop responsibility, practical problem-solving, good intellectual habits, ethical understandings, perseverance, resilience, an appreciation of identity and perspective, and an understanding of the complexity of the modern world. Emphasis is on developing the skills needed to successfully navigate higher education, the workplace, and society.

THEORY OF KNOWLEDGE 1/2

2007/2008 CM IB NCAA (AL) **0.5 credit**
2011/2012 CM IB NCAA (AL) **0.5 credit**

Theory of Knowledge introduces students to the sources, varieties, and systems of knowledge. Major topics include the roles of language and thought in knowledge, the requirements of logical reasoning for knowledge, and the systems of knowledge applied by mathematicians and natural and human scientists. In the second semester students investigate the system of knowledge applied by historians, and then turn to value judgments and knowledge, focusing on moral, political, and aesthetic judgments. The final topic investigates the differences among belief, opinion, faith, knowledge, and truth.

ADVANCED PLACEMENT (AP) COURSES

Offered only at: *Blake HS, Clarksburg HS, Damascus HS, Poolesville HS*

AP SEMINAR A/B

7801/7802 CM AL) **0.5 credit**

This is a foundational course that engages students in cross-curricular conversations that explore the complexities of academic and real-world topics and issues by analyzing divergent perspectives. Students learn to synthesize information from multiple sources, develop their own perspectives in written essays, and design and deliver oral and visual presentations. The course aims to equip students to craft and communicate evidence-based arguments.

AP RESEARCH A/B

7803/7804 CM (AL) **0.5 credit**

AP Research allows students to explore deeply an academic topic, problem, or issue of individual interest. Students design, plan, and conduct a year-long research-based investigation to address a research question. Students further their skills acquired in the AP Seminar course by understanding research methodology; employing ethical research practices; and accessing, analyzing, and synthesizing information. The course culminates in an academic paper of 4000–5000 words and a presentation with an oral defense.

BLAIR AND POOLESVILLE MAGNET COURSES

Offered only at: *Montgomery Blair HS, Poolesville HS*

RESEARCH AND EXPERIMENTATION FOR PROBLEM SOLVING 1 A/B

Corequisite: *Advanced Science 1, Physics/Advanced Science 2, Chemistry*
2970/2971 CM (AL) **0.2 credit**

This is an engineering, laboratory-based course in which students study, research, and apply concepts studied in their magnet science, mathematics, and computer science classes to solve real-world problems. Topics in Grade 9 include, but are not limited to, indirect measurement techniques and devices, data analysis, computer-aided drawing, materials science, research, and scientific instrumentation.

RESEARCH AND EXPERIMENTATION FOR PROBLEM SOLVING 2 A/B

Prerequisite: *Research and Experimentation for Problem Solving 1 A, B*
Corequisite: *Advanced Science 3, Earth/Space Sciences*
2972/2973 CM (AL) **0.2 credit**

This Grade 10 R & E course is linked instructionally to the magnet Earth and Space Science course. Topics include, but are not limited to, engineering design and construction, robotics, remote sensing, data collection with scientific instruments, and data analysis. Teamwork and research skills are emphasized.

RESEARCH DESIGN

Prerequisite: *Research and Experimentation for Problem Solving 2*
2974 CM (AL) **0.5 credit**

Students explore various research methods used in science and technology to bridge the gap between classroom laboratory exercises and real-world research project design and implementation. Through a series of interdisciplinary mini-projects, students gain hands-on experience in developmental, historical, and analytical research. Students discuss ethics in research and analyze oral presentations and research papers as well as the qualities that make an effective team.

RESEARCH AND EXPERIMENTATION: ENGINEERING FOR PROBLEM SOLVING

Prerequisite: *Research Design or teacher recommendations*
2975 CM (AL) **0.5 credit**

Students select thematic studies and structured projects that are related to the various fields of engineering.

RESEARCH PROJECT A/B

Prerequisite: *Research Design*
2981/2982 CM (AL) **0.5 credit**

Students conduct research projects based on an approved proposal. Students work either independently or on a team, with the guidance of their faculty advisor or mentor and the project coordinator. Students may elect to work outside of the school facility. Requirements include the completion of a journal, project display, oral presentation, and final paper. Students begin their projects in the spring of their junior year and continue into the fall of their senior year.

GUIDED RESEARCH A/B

Prerequisite: *Recommendation and permission*
2977/2978 CM (AL) **0.5 credit**

This individualized course addresses the research interests of students who have advance knowledge in a particular subject area. Students arrange with a sponsoring teacher to conduct in-depth work in an area of interest. Typically, work involves equipment or materials that go beyond what is available in the classroom. The advisor and student set individual goals and expectations.

Mathematics

In the 21st century, a deep understanding of mathematics, and the ability to apply that understanding, is more important than it has ever been. In Montgomery County Public Schools (MCPS), and across the country, mathematics instruction is changing to make sure we provide our students with the skills and knowledge they need for success in college and the workplace. Students in the MCPS Mathematics program develop a deep understanding of mathematics by building a strong foundation of number sense at the elementary level before moving to more advanced content. MCPS believes that the course options available to students will prepare them for success in college and careers. Students who are successful in the grade-level content will be able to reach Algebra 1 by Grade 8 and an Advanced Placement course, such as AP Calculus, in high school. New minimum qualifications for admission to University System of Maryland colleges and universities include completion of Algebra 2 or a significant mathematics course with advanced content during senior year. The College and Career Readiness Act of 2013 established the statutory language found in Maryland Education Code Annotated 7-205.1. This statute established that "Beginning with students entering the 9th grade class of school year 2014—2015, each student shall enroll in a mathematics course in each year of high school that the student attends, up to a maximum of 4 years of attendance, unless in the 5th or 6th year a mathematics course is needed to meet a graduation requirement."

Four credits in mathematics, including 1 credit in algebra and 1 credit in geometry, are required for graduation. MSDE further specifies that students must earn credits in mathematics courses, including one with instruction in algebra aligned with the MHSA for algebra or one or more credits in subsequent mathematics courses for which Algebra I is a prerequisite; and one with instruction in geometry aligned with the content standards for geometry. Therefore, students taking advanced high school mathematics courses may satisfy the requirement for courses with algebra or geometry content. However, they must still enroll in a mathematics-based course for each year they attend high school, up to a maximum of four years of attendance, unless in the fifth or sixth year a mathematics course is needed to meet a graduation requirement. This is required by MSDE, as well as by many colleges and universities to which MCPS students may want to apply. Students are advised to consult with their academic advisors/counselors to ensure they meet all mathematics graduation requirements, and to examine carefully any additional admission requirements that may be in effect at a prospective postsecondary school of interest.

MATHEMATICS COURSES		
Algebra 1 A/B	3111/3112	NCAA
Related Mathematics A/B	3231/3232	
Geometry A/B	3201/3202	NCAA
Geometry, Honors A/B	3203/3204	CM NCAA (H)
2 YR Algebra 2 A/B	3315/3316	CM NCAA*
2 YR Algebra 2 C/D	3317/3318	CM NCAA*
Algebra 2 A/B	3301/3302	CM NCAA
Algebra 2, Honors A/B	3310/3311	CM NCAA (AL)
Statistics and Mathematical Modeling A/B	3322/3323	CM NCAA
Quantitative Literacy A/B	3121/3122	NCAA
Precalculus A/B	3489/3490	CM NCAA
Precalculus, Honors A/B	3350/3351	CM NCAA (AL)
Calculus with Applications A/B	3356/3357	CM NCAA (AL)
Calculus AB, AP, A/B	3452/3453	CM NCAA AP
Calculus BC, AP, A/B	3491/3492	CM NCAA AP
Statistics, AP, A/B	3320/3321	CM NCAA AP
Multivariable Calculus and Differential Equations A/B	3048/3049	CM NCAA (AL)
Mathematical Approach to Problem Solving A/B	3113/3114	
College Test Prep	1142	

*NCAA counts one year of 2 YR Algebra 2 as 0.5 credits.

INTERNATIONAL BACCALAUREATE (IB) MATHEMATICS COURSES		
MCPSPIB Geometry A/B	3208/3209	CM PREIB NCAA (AL)
IB Analysis and Applications of Functions A/B	3306/3307	CM PREIB NCAA (AL)
IB Math Studies A/B	3410/3418	CM IB NCAA (AL)
IB Precalculus A/B	3420/3424	CM IB NCAA (AL)
IB Mathematics SL A/B	3454/3455	CM (AL)
IB HL Mathematics A/B	3496/3497	CM IB NCAA (AL)
BLAIR AND POOLESVILLE MAGNET MATHEMATICS COURSES		
Magnet Geometry A/B	3038/3039	CM NCAA (AL)
Magnet Precalculus A,B	3045/3046	CM NCAA (AL)
Magnet Precalculus C	3047	CM NCAA (AL)
Magnet Functions A/B	3041/3042	CM NCAA (AL)
Magnet Analysis 1 A/B	3043/3044	CM NCAA (AL)
Applied Statistics	3050	CM NCAA AP (AL)
Discrete Mathematics	3423	CM NCAA (AL)
Linear Algebra	3426	CM NCAA (AL)
Complex Analysis	3428	CM NCAA (AL)

MATHEMATICS COURSES

ALGEBRA 1 A/B

3111/3112 NCAA **0.5 credit**

Algebra 1 is designed to analyze and model real-world phenomena. Exploration of linear, exponential, and quadratic functions forms the foundation of the course. Key characteristics and representations of functions—graphic, numeric, symbolic, and verbal—are analyzed and compared. Students develop fluency in solving equations and inequalities. One- and two-variable data sets are interpreted using mathematical models.

RELATED MATHEMATICS A/B

Corequisite: *Algebra 1 A/B*

3231/3232 **0.5 credit**

Related Mathematics is taken in conjunction with Algebra 1. It reinforces the essential pre-algebra and algebra concepts and procedures necessary to function in authentic problem-solving situations. Students focus on concepts and applications related to success in Algebra 1 and use technology in the problem-solving process.

GEOMETRY A/B

Prerequisite: *Algebra 1 A/B*

3201/3202 NCAA **0.5 credit**

3203/3204 CM NCAA (H) **0.5 credit**

Geometry formalizes and extends students' geometric experiences from the elementary and middle school grades. Students explore more complex geometric situations and deepen their understanding of geometric relationships, progressing toward formal mathematical arguments. Instruction at this level will focus on the understanding and application of congruence as a basis for developing formal proofs; the relationships among similarity, trigonometry, and triangles; relationships between two- and three-dimensional objects and their measurements; exploration of geometric descriptions and equations for conic sections; and application of geometric concepts in modeling situations.

2 YR ALGEBRA 2 A/B

Prerequisite: *Algebra 1 A/B and Geometry A/B*

3315/3316 NCAA* **0.5 credit**

3317/3318 NCAA* **0.5 credit**

Students in Two-year Algebra 2 study the same content with the same rigor as for the one-year Algebra 2 course, with more time allocated for concept development, procedural fluency, and student support. Students build on their Algebra 1 knowledge of linear, quadratic, and exponential functions and extend their understanding to include polynomial, rational, radical, exponential, and logarithmic functions. Students synthesize and generalize what they have learned about a variety of function families and explore the effect of transformations on the graphs of diverse functions. Students use mathematical models to solve real-world problems and use the coordinate plane to apply trigonometry in modeling periodic phenomena. In addition, students study topics in probability and statistics.

ALGEBRA 2 A/B

Prerequisites: *Algebra 1 A/B and Geometry A/B*

3301/3302 CM NCAA **0.5 credit**

3310/3311 CM NCAA (AL) **0.5 credit**

In Algebra 2, students build on their Algebra 1 knowledge of linear, quadratic, and exponential functions and extend their repertoire to include polynomial, rational, radical, exponential, and logarithmic functions. Students continue to use mathematical models to solve real-world problems. They use the coordinate plane to apply trigonometry in modeling periodic phenomena. Students synthesize and generalize what they have learned about a variety of function families and explore the effect of transformations on the graphs of diverse functions. Students also study topics in probability and statistics.

STATISTICS AND MATHEMATICAL MODELING A/B

Prerequisite: *Algebra 2*

3322/3323 CM NCAA **0.5 credit**

Statistics and Mathematical Modeling (SAMM) semester A topics include data analysis, probability, simulations, inferential statistics, normal and binomial distributions, techniques of sampling, confidence intervals, and hypotheses testing. Semester B topics are chosen from cryptography and coding, game and graph theory, architecture, trigonometry, fairness and apportionment, careers, investment and finance, and college placement test review.

QUANTITATIVE LITERACY A/B

Prerequisite: *Algebra 2 or Bridge to Algebra 2*

3121/3122 NCAA **0.5 credit**

Quantitative Literacy is designed to enhance students' abilities in mathematical decision making and financial literacy. Emphasis is on the mathematical aspects of savings and investments, loans and credit, budgeting, chance, decision making, and starting a business.

PRECALCULUS A/B

Prerequisite: *Algebra 2*

3489/3490 CM NCAA **0.5 credit**

3350/3351 CM NCAA (AL) **0.5 credit**

Precalculus completes the formal study of the elementary functions begun in Algebra 1 and Algebra 2. Students focus on the use of technology, modeling, and problem solving. Functions studied include polynomial, exponential, logarithmic, rational, radical, piece-wise, and trigonometric and circular functions and their inverses. Students also study parametric equations, vectors, and infinite sequences and series.

CALCULUS WITH APPLICATIONS A/B

Prerequisite: *Precalculus*

3356/3357 CM NCAA (AL) **0.5 credit**

Calculus with Applications topics include limits, continuity, and derivatives of functions, the definite integral, and their real-world applications. Students find and apply derivatives numerically, graphically, and symbolically. Students will analyze previously studied functions using calculus concepts. The relationship between the derivative and the definite integral is developed. Students will model real-world situations involving rates of change using difference or differential equations.

CALCULUS AB, AP, A/B

Prerequisite: *Precalculus*

3452/3453 CM NCAA AP **0.5 credit**

Calculus AB topics are those traditionally offered in the first year of calculus in college, and are designed for students who wish to obtain a semester of AP in college. Topics include limits, continuity, derivatives, and integrals of algebraic and transcendental functions and their applications, and elementary differential equations.

CALCULUS BC, AP, A/B

Prerequisite: *Precalculus, Honors*

3491/3492 CM NCAA AP **0.5 credit**

Calculus BC includes all of the topics in Calculus AB, as well as convergence tests for series, Taylor or Maclaurin series, vector, polar, and parametric functions. Students in BC Calculus may receive two semesters of AP in mathematics.

STATISTICS, AP, A/B

Prerequisite: *Algebra 2*

3320/3321 CM NCAA AP **0.5 credit**

AP Statistics students engage in the exploratory analysis of data, using graphical and numerical techniques. Data sets are collected using statistical design methods. Students produce appropriate models using probability, simulation, and statistical inference. Models are used to draw conclusions from data and analyzed by inferential methods to determine whether the data support or discredit the model. This course is equivalent to a non-calculus-based introductory college statistics course.

MULTIVARIABLE CALCULUS AND DIFFERENTIAL EQUATIONS A/B

Prerequisite: *AP Calculus BC or Magnet Analysis 1B*

3048/3049 CM NCAA (AL) **0.5 credit**

The first semester covers three-dimensional analytic geometry and vectors; the calculus of functions of more than one variable, including partial derivatives, vector-valued functions, multiple integrals, volumes, surface area, and the classical theorems of Green, Stokes, and Gauss. The second semester introduces the basic concepts of ordinary differential equations.

MATHEMATICAL APPROACH TO PROBLEM SOLVING A/B

3113/3114 **0.5 credit**

Mathematical Approach to Problem Solving (MAPS) is designed for students who need additional instruction prior to taking Algebra 1. It is primarily for students who have had an interrupted education (e.g., coming to MCPS from out of state or country). Calculators and computers are used in problem-solving situations and in the development of number, algebra, geometry, measurement, probability, and statistics concepts and skills.

COLLEGE TEST PREP

1142 **0.5 credit**

This one-semester course is designed to improve student achievement on the ACCUPLACER, ACT, and the SAT. Students review English and math skills related to the test formats and develop test-taking skills.

INTERNATIONAL BACCALAUREATE (IB) MATHEMATICS COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

MCPSPIB GEOMETRY A/B

Prerequisite: *Algebra 1*

3208/3209 CM PREIB NCAA (AL) **0.5 credit**

MCPSPIB geometry expands the traditional units of geometry to include the commonalities of sets, probability, and algebraic systems. Logical reasoning developed through inductive and deductive proofs is extended to writing. These foundations are extended in future course work and discussed in IB Theory of Knowledge.

IB ANALYSIS AND APPLICATIONS OF FUNCTIONS A/B

Prerequisite: *MCPSPIB Geometry*

3306/3307 CM PREIB NCAA (AL) **0.5 credit**

Each family of functions (polynomial, rational, exponential, and trigonometric) is analyzed for characteristic traits, transformations, and inverses. Students examine the relevance of the features of graphs to real-world models. Matrices, vectors, probability, and statistics also are studied as tools to use in a variety of situations.

IB MATH STUDIES A/B

Prerequisite: *IB Analysis and Applications of Functions or Algebra 2*

3410/3418 CM IB NCAA (AL) **0.5 credit**

This course builds on the concepts of IB Analysis and Application of Functions and MCPSPIB Geometry, in preparation for the standard-level IB Mathematical Studies examination. Students examine functions (transformation and applications), linear programming, probability, statistics, trigonometry, sequences and series, and solid geometry.

IB PRECALCULUS A/B

Prerequisite: *IB Analysis and Applications of Functions or Honors Algebra 2*

3420/3424 CM IB NCAA (AL) **0.5 credit**

This course builds on the work and modeling in Analysis and Applications. Further emphasis is given to probability, circular functions, two- and three-dimensional vectors, conics, and complex numbers. The concept of limit, derivative, and power series is introduced. Students may complete the internal assessment and sit for the standard-level IB Mathematical Studies examination.

IB MATHEMATICS SL A/B

3454/3455 CM (AL) **0.5 credit**

This course focuses on introducing important mathematical concepts through the development of mathematical techniques. Students are prepared for the SL IB Mathematics examination.

IB HL MATHEMATICS A/B

3496/3497 CM IB NCAA (AL) **0.5 credit**

This course is for students who have completed AP Calculus BC. It prepares students for the HL IB Mathematics examination. Topics covered include additional calculus, sets, relations, groups, discrete mathematics, series and differential equations, and statistics and probability theory.

BLAIR AND POOLESVILLE MAGNET MATHEMATICS COURSES

Offered only at: *Montgomery Blair HS, Poolesville HS*

MAGNET GEOMETRY A/B

Prerequisite: *Algebra 1*

3038/3039 CM NCAA (AL) **0.5 credit**

Students study logic, methods of proof (direct/indirect, coordinate) in both two-column and essay forms, constructions, loci, and transformational geometry. All objectives of the MCPS Honors Geometry curriculum are taught. Nontraditional topics studied include affine geometry, conics, circuit diagrams, writing a two-bit adder on a circuit board, and an introduction to circular functions.

MAGNET PRECALCULUS A/B

Prerequisite: *Magnet or Honors Geometry*

3045/3046 CM NCAA (AL) **0.5 credit**

The properties of the real numbers and of functions and the solution of equations in one variable are introduced. The discussion of functions includes all forms of algebraic, exponential, logarithmic, and circular functions. The study of each function includes a precise definition, a consideration of graphs and applications, an analysis of distinguishing features, and an identification of related tangents and slope.

MAGNET PRECALCULUS C

Prerequisite: *Magnet Precalculus A and B*

3047 CM NCAA (AL) **0.5 credit**

The definition, properties, and application of matrices are studied. The discussion of functions includes all forms of algebraic, exponential, logarithmic, and circular functions. The study of each function includes a precise definition, a consideration of graphs and applications, an analysis of distinguishing features, and an identification of related tangents and slope.

MAGNET FUNCTIONS A/B

Prerequisite: *Magnet or Honors Geometry*

3041/3042 CM NCAA (AL) **0.5 credit**

Functions begun in Algebra 1 are continued and expanded to include all forms of algebraic, exponential, logarithmic, and circular functions. The study of each includes a precise definition, a consideration of graphs and applications, an analysis of distinguishing and interesting features, and an identification of related tangents and slopes. Students study trigonometry, approached from circular functions, conics, limits, and derivatives.

MAGNET ANALYSIS 1 A/B

Prerequisite: *Magnet Precalculus C or Magnet Functions.*

3043/3044 CM NCAA (AL) **0.5 credit**

The delta-epsilon definition of the limit of a function is examined and applied to develop the ideas of differentiation and integration. All the nonvector objectives of the MCPS AP calculus curriculum are studied. Students study infinite series, differential equations, and the analysis of the polar plane. Students apply this knowledge to solve problems in the sciences and economics. Students take the AP Calculus BC exam after completing this course.

APPLIED STATISTICS

Prerequisite: *Magnet Analysis 1 or AP Calculus BC*

3050 CM NCAA AP (AL) **0.5 credit**

Students learn sufficient statistical background to design, collect, and analyze data for surveys and research projects. All the objectives of the MCPS AP Statistics curriculum are studied. Students study simple probability theory, counting techniques, and a variety of probability distributions. These distributions justify tests of significance of parametric and nonparametric statistics.

DISCRETE MATHEMATICS

Prerequisite: *Magnet Precalculus or Functions and Analysis of Algorithms or AP Computer Science*

3423 CM NCAA (AL) **0.5 credit**

Students learn the mathematical tools, language, and thought processes used in computer science. The analysis of finite collections of objects provides a solid foundation in set and graph theory. Students study combinations, countability, and number theory to establish the framework for analysis of data structures. Matrices and matrix algebra are studied to describe and manipulate graphs.

LINEAR ALGEBRA

Prerequisite: *Magnet Analysis 1*

3426 CM NCAA (AL) **0.5 credit**

Students learn the theory and practice of matrices and determinants and their use in solving linear equations. They study the structure and properties of linear transformations, vector spaces, and linear programming as they apply to such fields as biology, chemistry, differential equations, economics, psychology, and weather forecasting.

COMPLEX ANALYSIS

Prerequisite: *Multivariable Calculus and Differential Equations A/B*

3428 CM NCAA (AL) **0.5 credit**

Students are introduced to the theory of functions of complex variables, an essential part of the mathematical background of engineers, physicists, mathematicians, and other scientists. They review complex numbers and study complex functions and the calculus of complex functions, including derivatives and integrals. Other topics studied include series, residues, and conformal mappings.

Science, Technology, and Engineering

Three credits in science are required for graduation, including at least 1 biology credit (BC) and 1 physical science credit (PC), all of which provide laboratory experiences as an integral component and are aligned with required state assessments. Students are encouraged to take additional credits from the earth, life, environmental, or physical sciences, including a wide range of Advanced Placement (AP), International Baccalaureate (IB), and advanced elective options in the upper grades.

With the transition to new Maryland State Science Standards aligned with the Next Generation Science Standards (NGSS), the core science course pathway is provided below.

GRADE 9	Biology A and B
GRADE 10	Chemistry A and B
GRADE 11 or 12	Physics A and B

Other NGSS-aligned sequences, including options for AP and IB, also are available.

The goal of the science program is for all students to achieve full scientific literacy through standards-aligned, problem/project-based instruction that develops students as critical thinkers, ultimately preparing students to thrive in college and careers. Science instruction is founded on the belief that through the use of intellect, and with the aid of instrumentation that extends the senses, students can discover and question the patterns found in all of nature. Patterns related to phenomena are directly applicable and essential to solving global and regional challenges and support innovative thinking. The standards for science extend inquiry, develop cognitive skills, and engage students in practices to deepen their knowledge of core ideas and cross-cutting concepts. Students will apply content knowledge through scientific and engineering practices to solve nonroutine problems. The required sciences courses include state requirements for environmental literacy.

Courses aligned to the NGSS develop appropriate skills for the Maryland Integrated Science Assessment (MISA). Future decisions about MISA graduation requirements are pending by the Maryland State Department of Education. As a result, several non-NGSS-aligned courses will no longer be available.

Alternatives to Dissection

Dissection is one of many instructional methods that may be used in laboratory science courses. Students/parents/guardians may request alternatives to dissection from the teacher. Alternatives may include such materials as videos, computer programs, films, models, transparencies, charts, diagrams, and textbook overlays.

SCIENCE, TECHNOLOGY, AND ENGINEERING COURSES		
Biology A/B (BC)	3631/3632	NCAA
Biology, Honors A/B (BC)	3621/3622	CM NCAA (H)
Biology, AP A/B (BC)	3641/3642	CM NCAA AP
Biology, AP A/B (DP) (BC)	3651/3652	CM NCAA AP (DP)
Chemistry A/B (PC)	3721/3722	CM NCAA
Chemistry, Honors A/B (PC)	3711/3712	CM NCAA (H)
Chemistry, AP A/B (PC)	3741/3742	CM NCAA AP
Chemistry, AP A/B (DP) (PC)	3751/3752	CM NCAA AP (DP)
Physics A/B (PC)	3831/3832	CM NCAA
Physics A/B, Honors (PC)	3821/3822	CM NCAA (H)
Physics 1, AP A/B (PC)	3891/3892	CM AP (AL)
Anatomy and Physiology A/B (BC)	3761/3762	CM NCAA (AL)
Applied Science A/B (SC)	3611/3612	NCAA
Astronomy A/B (PC)	3856/3857	NCAA
Biological Anthropology/Archaeology (SC)	3656	NCAA
Biotechnology A/B (SC)	3636/3637	CM NCAA
Environmental Chemistry A/B (PC)	3766/3767	CM NCAA
Environmental Science A/B (SC)	3661/3662	NCAA
Environmental Science, Honors A/B (SC)	3676/3677	CM NCAA (H)
Environmental Science, Honors A/B (DP) (SC)	3674/3675	CM NCAA (AL) (DP)
Environmental Science, AP A/B (SC)	3659/3660	CM NCAA AP
Forensic Science A/B (SC)	3864/3865	NCAA (AL)
Geoscience Explorations: Earth Systems and Hazards (PC)	3576/3577	NCAA
Geoscience Explorations: Resources & Paleontology (PC)	3578/3579	NCAA
Horticultural Science A/B (SC)	3671/3672	
Internship, Science A/B (SC)	3511/3512	CM
Internship, Science A/B (DP) (SC)	3521/3522	CM (DP)
Molecular Biology A/B (BC)	3657/3658	CM NCAA (AL)
Molecular Biology A/B (DP) (BC)	3653/3654	CM NCAA (AL) (DP)
Nutrition Science A/B (PC)	3560/3561	
Nutrition Science, Honors A/B (PC)	3562/3563	CM (H)
Physical Science A/B (PC)	3941/3942	NCAA
Physics 2, AP A/B (PC)	3893/3894	CM AP (AL)
Physics C (MEM), AP A/B (PC)	3835/3836	CM NCAA AP (AL)
Physics C (Mech), AP A/B (PC)	3829/3830	CM NCAA AP (AL)
Physics C (Elec Mag), AP A/B (PC)	3827/3828	CM NCAA AP (AL)
Wildlife Biology (SC)	3655	NCAA
Foundations of Technology A/B	5161/5162	TE
Advanced Design Applications A/B	2808/2809	AT CM (AL)
Advanced Technological Applications A/B	2810/2811	AT CM (AL)
INTERNATIONAL BACCALAUREATE (IB) SCIENCE COURSES		
MCPSPIB Biology A/B	3634/3635	CM PREIB NCAA (AL)
IB Biology A/B DP	3606/3607	CM IB NCAA (AL) (DP)
MCPSPIB Chemistry A/B	3744/3745	CM PREIB NCAA (AL)
IB Chemistry 1 A/B	3746/3747	CM IB NCAA (AL)
IB Environmental Systems A/B	3757/3758	CM IB NCAA (AL)
IB Physics 1 A/B	3844/3845	CM IB NCAA (AL)
IB Physics 2 A/B	3846/3847	CM IB NCAA (AL)
IB Design Technology A/B	3574/3575	CM (AL)
IB Sports, Health, and Exercise Science A/B	3686/3687	CM (AL)
BLAIR AND POOLESVILLE MAGNET SCIENCE COURSES		
Advanced Science 1, Physics	3531	CM NCAA (AL)
Advanced Science 2, Chemistry	3532	CM NCAA (AL)
Advanced Science 3, Earth Space Systems A/B	3537/3538	CM NCAA (AL)
Advanced Science 3, Earth/Space Sciences	3541	CM NCAA (AL)
Advanced Science 4, Biology A/B	3539/3540	CM NCAA (AL)
Advanced Science 4, Biology	3542	CM NCAA (AL) (DP)
Optics	3543	CM NCAA (AL)
Thermodynamics	3544	CM NCAA (AL)
Analytical Chemistry	3545	CM NCAA (AL)
Origins of Science	3557	CM NCAA (AL)
Materials Science	3546	CM NCAA (AL)
Advanced Topics in Earth Science A/B	3547/3548	CM NCAA (AL)
Quantum Physics	3556	CM NCAA (AL)
Marine Biology	3553	CM NCAA (AL)
Introductory Genetic Analysis	3554	CM NCAA (AL) (DP)
Cellular Physiology	3551	CM NCAA (AL)
Introductory Physical Chemistry	3614	CM NCAA (AL)

SCIENCE, TECHNOLOGY, AND ENGINEERING COURSES

BIOLOGY A/B (BC)

3631/3632 NCAA **0.5 credit**
3621/3622 CM NCAA (H) **0.5 credit**

This *NGSS-aligned* course emphasizes the patterns, processes, and relationships of living organisms. Students will use observations, experiments, hypotheses, tests, models, theory, and technology to explore how life works. Core ideas include structures and processes in organisms, ecology, heredity, and evolution. There will be multiple opportunities for students to apply these ideas in developing solutions to authentic problem-based scenarios while also exploring career opportunities.

BIOLOGY, AP A/B (BC)

Prerequisite: *Biology A/B*
Corequisite: *Chemistry A/B*
3641/3642 CM NCAA AP **0.5 credit**
3651/3652 CM NCAA AP (DP) **1.0 credit**

Biology AP is for highly motivated students with interest in biology. The course emphasizes laboratory investigations and builds on the concepts covered in Biology. Students prepare to take the AP Biology examination at the end of the course. Topics in Biology AP include chemistry of life, cytology, cellular energetics, genetics, diversity of life, evolution, ecology, and behavior. Dissections may occur in this course. See Alternatives to Dissection at the end of the Science section. *This course is NGSS aligned.*

CHEMISTRY A/B (PC)

Prerequisite: *Algebra 1*
Corequisite: *Geometry A/B*
3721/3722 CM NCAA **0.5 credit**
3711/3712 CM NCAA (H) **0.5 credit**

This *NGSS-aligned* course emphasizes the study of matter through inquiry. Through the use of laboratory investigations, students will explore their world at the atomic level. Using data, evidence, and scientific modelling, students achieve a deeper understanding of changes in matter. Topics of study include structures and properties of matter, weather and climate, chemical reactions, conservation of mass/energy, and relationships between Earth and human activity.

CHEMISTRY, AP A/B (PC)

Prerequisite: *Chemistry A/B and Algebra 2 A/B*
3741/3742 CM NCAA AP **0.5 credit**
3751/3752 CM NCAA AP (DP) **1.0 credit**

AP Chemistry is for highly motivated students with interests in science, technology, and engineering. This course promotes enduring, conceptual understandings through inquiry-based learning, scientific reasoning, and engaging in science practices. Students are prepared to take the AP Chemistry examination at the end of the course. Topics of study include properties and changes of matter, reaction kinetics, thermodynamics, and intermolecular interactions. *This course is NGSS aligned.*

PHYSICS A/B (PC)

Corequisite: *Geometry A/B*
3831/3832 CM NCAA **0.5 credit**
3821/3822 CM NCAA (H) **0.5 credit**

This NGSS-aligned course investigates physical laws and theories, relationships of physical phenomena, and the interrelationships of physics to other fields of human endeavor. Topics include traditional physics subjects (Newtonian mechanics: dynamics, momentum, energy; electricity and magnetism; waves) along with related subjects in earth science (plate tectonics; earthquake activity) and astronomy (solar evolution).

PHYSICS 1, AP A/B (PC)

Prerequisite: *Geometry*
Corequisite: *Algebra 2*
3891/3892 CM AP (AL) **0.5 credit**

This NGSS-aligned course is for highly motivated students with an interest in the physical sciences and builds on concepts covered in Physics, with greater detail in content and laboratory investigations. Students explore Newtonian mechanics, including rotational dynamics and angular momentum; work, energy, and power; and mechanical waves and sound. Electric circuits will be introduced.

ANATOMY AND PHYSIOLOGY A/B (BC)

Prerequisite: *Biology A/B*
Corequisite: *Chemistry A/B*
3761/3762 CM NCAA (AL) **0.5 credit**

This course is a study of the major systems of the human body. Career opportunities in medical-related fields are examined. The course is intended for advanced-level students. Anatomy and Physiology A topics include cells, tissues, and systems (skeletal, muscular, integumentary, and nervous). Anatomy and Physiology B topics include digestive, respiratory, circulatory, excretory, endocrine, and reproductive systems.

APPLIED SCIENCE A/B (SC)

Corequisite: *Biology A/B*
3611/3612 NCAA **0.5 credit**

This course provides students with an opportunity to investigate practical applications of the concepts and processes of life science and physical science. Basic topics are transportation, mechanical appliances, electricity, health practices, household products, the exploration of a science topic of personal interest, and science-related careers. Applied Science A covers physical science topics and Applied Science B covers life science topics. Either semester may precede the other. *This course is NOT NGSS aligned.*

ASTRONOMY A/B (PC)

Corequisite: *Chemistry A/B*
3856/3857 NCAA **0.5 credit**

Astronomy offers an in-depth look into the cosmos, integrating the disciplines of biology, chemistry, earth science, and physics. Students learn about the Universe through experiences in the laboratory and sites beyond the classroom such as NASA and the Air and Space Museum. Course content constantly evolves with new discoveries. Students may enroll in either semester and in any order.

BIOLOGICAL ANTHROPOLOGY/ARCHAEOLOGY (SC)

Prerequisite: *Biology A/B*
3656 NCAA **0.5 credit**

Using critical thinking skills, students explore the scientific approaches to surveying and understanding biological differences in past and present human populations. Topics include the study of bone, anatomy, and archaeological techniques used by modern scientists to uncover the past. This course includes career explorations, field trip opportunities, and hands-on laboratory investigations.

BIOTECHNOLOGY A/B (SC)

Prerequisite: *Biology A/B*
3636/3637 CM NCAA **0.5 credit**

Biotechnology provides students with the ability to apply the concepts of biochemistry, genetics, and molecular biology in research activities. This intensive, hands-on laboratory program utilizes the latest in laboratory equipment and computer technology to investigate the intricacies of molecular and microbiology, organic chemistry, and DNA science.

ENVIRONMENTAL CHEMISTRY A/B (PC)

Corequisite: *Chemistry A/B*
3766/3767 CM NCAA **0.5 credit**

This course focuses on real-life questions in cross-curricular areas of chemistry. The units cover water contamination, materials, petroleum, atmosphere, and biochemistry. Almost all traditional chemistry county indicators and some biology indicators are addressed. Content is investigated in a spiraling pattern in which concepts and skills are introduced as needed and deepened as the year continues. This hands-on course encourages students to ask questions about the world and solve them.

ENVIRONMENTAL SCIENCE A/B (SC)

Prerequisite: *Biology A/B*
3661/3662 NCAA **0.5 credit**
3676/3677 CM NCAA (H) **0.5 credit**
3674/3675 CM NCAA (AL) (DP) **1.0 credit**

This course explores ecological interactions through the systematic study of global realms-atmosphere, hydrosphere, lithosphere, and biosphere. Environmental Science A is an overview of ecosystems, energy flow, geology, chemical cycles, population studies, community dynamics, and pollution. Environmental Science B includes topics in land and water use, energy, food and natural resources, and populations. *This course is not NGSS aligned.*

ENVIRONMENTAL SCIENCE, AP A/B (SC)

Prerequisite: *Biology A/B*
Corequisite: *Chemistry A/B recommended*
3659/3660 CM NCAA AP **0.5 credit**

AP Environmental Science is for highly motivated students with interest in interdisciplinary science. It builds on concepts covered in Environmental Science, with greater detail in content and laboratory investigations. Students are prepared to take the AP Environmental Science examination. Topics include the interrelationships of the natural world and environmental problems, issues, and solutions. *This course is NGSS aligned.*

FORENSIC SCIENCE A/B (SC)

Prerequisite: *Biology A/B and Chemistry A/B or Physics A/B*
3864/3865 NCAA (AL) **0.5 credit**

Students study forensic science and modern criminal investigation analysis. The course includes selected topics in structure and function of the human body, toxicology, drug and alcohol abuse, serology, terrorist and disaster response and emergency medical procedures, ballistics, DNA analysis, fingerprint interpretation, and explosive incident and arson investigation. *NCAA does not recognize forensic science as advanced level.*

GEOSCIENCE EXPLORATIONS: EARTH SYSTEMS AND HAZARDS (PC)

3576/3577 NCAA **0.5 credit**

This course investigates Earth systems and hazards in the context of human activity. Students will work collaboratively to develop solutions to scientific problems. The honors option provides opportunities for extended lab investigations, citizen science, research, and literature review.

GEOSCIENCE EXPLORATIONS: RESOURCES & PALEONTOLOGY (PC)

3578/3579 NCAA **0.5 credit**
Corequisite: *Biology A/B*

This course investigates Earth systems and resources in the context of Earth's place in the universe. Students will work collaboratively to develop solutions to scientific problems. The honors option provides opportunities for extended lab investigations, citizen science, research, and literature review.

HORTICULTURAL SCIENCE A/B (SC)

Corequisite: *Biology A/B*
3671/3672 **0.5 credit**

Horticultural Science is designed for students interested in mastering fundamental techniques in the care and culture of plants in the home, business, and community. Topics include plant anatomy and physiology; growth conditions; plant propagation; control of disease, weeds, and pests; greenhouse management; plant identification; soils; lawns; and landscaping. Either semester can precede the other. *Horticultural Science does not count toward NCAA eligibility.*

INTERNSHIP, SCIENCE A/B (SC)

3511/3512 CM **0.5 credit**
3521/3522 CM (DP) **1.0 credit**

Science internships provide laboratory or science field research experience out of school. Students are placed, according to their interest and the availability of space, in private or government research agencies such as the National Institutes of Health and the National Institute of Standards and Technology or the Walt Whitman Psychology Laboratory. The description and requirements for participation in the internship program are in the Administrative Handbook on Student Internships.

MOLECULAR BIOLOGY A/B (BC)

Prerequisite: *Biology A/B*
Corequisite: *Chemistry A/B*
3657/3658 CM NCAA (AL) **0.5 credit**
3653/3654 CM NCAA (AL) (DP) **1.0 credit**

These courses stress the concepts, theories, and techniques of molecular biology, classical genetics, modern genetics, DNA technology, and bioethics. Laboratory investigations parallel those in a scientific research laboratory. These advanced-level courses prepare students for an internship at a scientific research facility.

NUTRITION SCIENCE A/B (PC)

Prerequisite: *Biology A/B*
3560/3561 **0.5 credit**
3562/3563 CM (H) **0.5 credit**

Nutrition Science A and B apply scientific laboratory skills and food preparation laboratory skills to study topics in nutritional requirements and assessments. Students examine food consumption patterns, diet planning, and digestion, and investigate the current trends and scientific research that are evolving about this science. *Nutrition Science does not count toward NCAA eligibility.*

PHYSICAL SCIENCE A/B (PC)

Corequisite: *Biology A/B*
3941/3942 NCAA **0.5 credit**

This course focuses on practical and functional applications of chemistry and physics. Semester A includes topics of atomic structure, chemical formulas and equations, classification of chemical substances, radioactivity, and organic chemistry. Semester B includes vector analysis, force and motion, work, energy, power, heat, waves and sound, light and optics, and electricity and magnetism. Either semester can precede the other. *This course is NOT NGSS aligned.*

PHYSICS 2, AP A/B (PC)

Prerequisite: *Physics 1, AP A/B*
Corequisite: *Pre-Calculus*
3893/3894 CM AP (AL) **0.5 credit**

This NGSS-aligned course is for highly motivated students with an interest in the physical sciences and builds on concepts covered in Physics with greater detail in content and laboratory investigations. Students explore fluid mechanics, thermodynamics, electricity and magnetism, optics, and atomic and nuclear physics.

PHYSICS C (MEM), AP A/B (PC)

Prerequisite: *Physics A/B and Precalculus A/B*
3835/3836 CM AP (AL) NCAA **0.5 credit**

This course is for highly motivated students with interest in the physical sciences. Students use calculus in problem solving and in derivations as they study Newtonian mechanics, electricity and magnetism. Students are prepared to take the AP Physics C—Mechanics and the AP Physics C—Electricity and Magnetism examinations.

PHYSICS C (MECH), AP A/B PC

Prerequisite: *Physics A/B and Precalculus A/B*
3829/3830 CM NCAA AP (AL) **0.5 credit**

This course is for highly motivated students with interest in the physical sciences. Students use calculus in problem solving and in derivations as they study Newtonian mechanics, electricity and magnetism. Students are prepared to take the AP Physics C—Mechanics and the AP Physics C—Electricity and Magnetism examinations. *This course is NGSS-aligned.*

PHYSICS C (ELEC MAG), AP A/B PC

Prerequisite: *Physics A/B and Precalculus A/B*
3827/3828 CM NCAA AP (AL) **0.5 credit**

This course is for highly motivated students with interest in the physical sciences. Students use calculus in problem solving and in derivations as they study electricity and magnetism. Topics include electrostatics, current electricity, magnetism, and electrodynamics. Students are prepared to take the AP Physics C—Electricity and Magnetism examination. *This course is NGSS-aligned.*

WILDLIFE BIOLOGY (SC)

Prerequisite: *Biology A/B*
3655 NCAA **0.5 credit**

This introductory course for students interested in wildlife management or zoology includes field study techniques and information about careers in areas of animal science. Topics include statistical tests, wildlife management habitat usage, foraging preference, behaviors, and body morphology to identify organisms. Soil chemical properties and water quality are used to determine the viability of vertebrates and aquatic macroinvertebrates.

FOUNDATIONS OF TECHNOLOGY A/B

5161/5162 TE **0.5 credit**

Students will explore and develop a deep understanding of the characteristics and scope of technology and the influence on history, along with the relationships and connections between technology and other fields of study. Students will develop an understanding of the attributes of design and develop skills by using the design process to solve technological problems. Students will develop a positive attitude about safety and skills through research, problem solving, testing, and working collaboratively.

ADVANCED DESIGN APPLICATIONS A/B

Prerequisite: *Completion of Basic Tech Ed Credit*

2808/2809 AT CM (AL) **0.5 credit**

Students will gain a deeper understanding of four human-designed world areas: Manufacturing Technologies, Energy and Power Technologies, Construction Technologies, and Transportation Technologies. Students engage in individual and group activities creating ideas; developing innovations; and designing, fabricating, and engineering practical solutions to a variety of technological problems related to the four human-designed areas.

ADVANCED TECHNOLOGICAL APPLICATIONS A/B

Prerequisite: *Completion of Basic Tech Ed Credit*

2810/2811 AT CM (AL) **0.5 credit**

This standards-based, technological design course provides students the opportunity to build on their existing technological literacy through a deeper understanding of Information and Communication Technologies, Medical Technologies, Agriculture and Related Biotechnologies, and Entertainment and Recreation Technologies. Students work individually and in groups to create ideas, develop innovations, design solutions, fabricate models, and engineer practical design results in a variety of technological problems.

INTERNATIONAL BACCALAUREATE (IB) SCIENCE COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

MCPSPIB BIOLOGY A/B

3634/3635 CM PREIB NCAA (AL) **0.5 credit**

Living organisms, ranging from molecular levels to the biosphere, are studied. Topics include scientific method, cytology, genetics, evolution, taxonomy, microbiology, botany, ecology, and anatomy and physiology, including the study of the human body and behavior.

IB BIOLOGY A/B DP

Prerequisites: *Honors or MCPSPIB Biology and Honors or MCPSPIB Chemistry*

3606/3607 CM IB NCAA (AL) (DP) **1.0 credit**

IB Biology offers extensive laboratory experiences and emphasizes critical analysis of scientific information, evaluation of biological knowledge with respect to those problems facing mankind at present, and synthesis of biological information from different areas of the field. Some topics include biochemistry, cytology, molecular genetics, and heredity and variation. Students prepare for the higher-level IB Biology examination.

MCPSPIB CHEMISTRY A/B

Prerequisite: *One year of biology*

3744/3745 CM PREIB NCAA (AL) **0.5 credit**

The materials of our environment, their properties, and the way in which they react with each other are studied. Through a synthesis of laboratory work and descriptive and theoretical chemistry, the student gains factual knowledge drawn from the whole field of chemistry. Topics include properties of matter, atomic theory, chemical bonds and reaction kinetics, periodicity and radioactivity, organic chemistry, and thermodynamics.

IB CHEMISTRY 1 A/B

Prerequisite: *MCPSPIB or Honors Chemistry*

3746/3747 CM IB NCAA (AL) **0.5 credit**

IB Chemistry 1 is a study of the materials of our environment, their properties, and the ways in which they react with each other. Topics of study include stoichiometry, atomic theory, periodicity, bonding, states of matter, energetics, kinetics, equilibrium, acids and bases, oxidation and reduction, organic chemistry, and optional additional studies. This course prepares students for the IB standard-level examination.

IB PHYSICS 1 A/B

3844/3845 CM IB NCAA (AL) **0.5 credit**

Students investigate physical laws and theories, relationships of physical phenomena, and interrelationships of physics and other fields of human endeavor. Some topics include vector mathematics, kinematics, dynamics, energy, thermodynamics, electricity and magnetism, and nuclear structure and energy. Additional focus is placed on the social and historical perspective in which physical ideas have developed throughout the world.

IB ENVIRONMENTAL SYSTEMS A/B

3757/3758 CM IB NCAA (AL) **0.5 credit**

Students learn the scientific principles, concepts, and methodologies required to understand the environment, evaluate the relative risks associated with environmental problems, and examine alternative solutions for resolving and/or preventing them. Laboratory and field investigations complement the classroom portion of the program. This course prepares students for the IB standard-level environmental systems and AP environmental science examinations.

IB PHYSICS 2 A/B

Prerequisite: *Precalculus and IB Physics 1*

3846/3847 CM IB NCAA (AL) **0.5 credit**

IB Physics 2 is the second year of a two-year sequence designed to prepare students for the IB Physics examination-higher or standard level. Topics include mechanics, molecular behavior, wave behavior, electricity and magnetism, atomic and nuclear physics, astrophysics, thermodynamics, time-varying currents, electronic systems, solid state physics, geometrical optics, particle physics, and special relativity.

IB DESIGN TECHNOLOGY A/B

3574/3575 CM (AL) **0.5 credit**

Design Technology aims to develop internationally minded people whose enhanced understanding of design and the technological world can facilitate our shared guardianship of the planet and create a better world. The course focuses on analysis, design development, synthesis, and evaluation. This course helps students achieve a high level of design literacy by enabling them to develop critical thinking and design skills, which they can apply in a practical context.

IB SPORTS, HEALTH, AND EXERCISE SCIENCE A/B

3686/3687 CM (AL) **0.5 credit**

Sports, exercise, and health science (SHES) is an experimental science that combines academic study with the acquisition of practical and investigative skills. This course goes beyond the traditional science subjects to offer a deeper understanding of the issues related to sports, exercise, and health in the 21st century. Apart from being worthy of study in its own right, SEHS is a good preparation for courses in higher or further education related to sports fitness and health, and serves as useful preparation for employment in sports and leisure industries.

BLAIR AND POOLESVILLE MAGNET SCIENCE COURSES

Offered only at: *Montgomery Blair HS, Poolesville HS*

ADVANCED SCIENCE 1: PHYSICS

Prerequisite: *Algebra 1*

3531 CM NCAA (AL) **1.0 credit**

Students study the same topics and instructional objectives as in the MCPS Honors Physics A and B curriculum. Nonlinear systems are emphasized and are solved by numerical rather than analytical methods. Computer science and mathematics are integrated with the use of vectors, spreadsheets, interfaces, and simulators.

ADVANCED SCIENCE 2: CHEMISTRY

Prerequisite: *Advanced Science 1, Physics*

3532 CM NCAA (AL) **1.0 credit**

Students study the same topics and instructional objectives as in the MCPS Honors Chemistry A and B curriculum. Additional emphasis is placed on interdisciplinary topics, the production and conservation of energy, computer and mathematical concepts that are related to modeling, and student research.

ADVANCED SCIENCE 3: EARTH SPACE SYSTEMS A/B

3537/3538 CM NCAA (AL) **0.5 credit**

3541 CM NCAA (AL) **1.0 credit**

Students are presented with challenges related to the earth and space sciences that require independent research, group collaboration, and oral presentation of possible solutions to these problems. Students work in groups and collaborate in creating unique and innovative solutions to technical challenges regarding planetary exploration and colonization, oceanographic and atmospheric data collection, as well as data/laboratory based environmental assessment and monitoring. These cross disciplinary tasks require students to apply coding skills from their computer science class, design and engineering principles from their engineering class, and content knowledge from their Biology and Earth Science classes.

ADVANCED SCIENCE 4: BIOLOGY A/B

3539/3540 CM NCAA (AL) **0.5 credit**

3542 CM NCAA (AL) (DP) **1.0 credit**

Advanced Biology is an inquiry-based class specifically designed to further understand the complexity of the living world through the three dimensional model adhering to the new Next Generation Science Standards. Students are presented with real world biological challenges which require independent research, group collaboration, and oral presentation of possible solutions to these problems. The class is one of the prerequisites for the Research and Design Courses, a cornerstone of the Science, Computer Science and Mathematics Magnet Program. Students learn to apply their critical thinking skills to biological phenomena such as the relationship between structure and function in organisms, their interactions with the environment, recapitulation theory, bio mimicry to create sustainable technology, and homeostatic processes. Students work in groups and collaborate in creating unique and innovative solutions that require data collection as well as statistical analysis. The cross-curricular nature of the tasks require students to apply coding skills from their computer science class, design and engineering principles from their engineering class and content knowledge from their Biology and Earth Science classes.

OPTICS

Prerequisite: *Advanced Science 1 or Honors or AP Physics and AP Calculus BC or Analysis 1A*

3543 CM NCAA (AL) **0.5 credit**

Students examine geometrical optics, physical (wave) optics, and instrumentation applications. Knowledge of basic calculus topics is necessary for understanding mathematical derivations.

THERMODYNAMICS

Prerequisite: *Advanced Science 1 or Honors or AP Physics*

3544 CM NCAA (AL) **0.5 credit**

Students are introduced to the macroscopic level, with topics of heat flow, physical properties as a function of temperature changes, specific heat, calorimetry, latent heats of fusion and vaporization, and heat transport. The microscopic topics of Joule equivalent, the laws of thermodynamics, and kinetic molecular theory also are studied. Students study examples from current research in a variety of disciplines.

ANALYTICAL CHEMISTRY

Prerequisite: *Advanced Science 2 or AP Chemistry*

3545 CM NCAA (AL) **0.5 credit**

Students learn qualitative and quantitative methods of chemical analysis. Sampling techniques, analytical statistics, units of measurement, and errors in chemical analysis are studied. Students learn traditional techniques in wet chemistry in addition to analytical instrumentation, including, but not limited to, gas chromatography, infrared spectroscopy, atomic absorption spectrophotometry, and nuclear resonance spectroscopy.

ORIGINS OF SCIENCE

3557 CM NCAA (AL) **0.5 credit**

Students interested in science, history, and the arts read and analyze important primary sources in the history of philosophy and science. Students replicate original experiments. Major scientific discoveries are presented in the context of contemporary politics, philosophy, and art and of preceding and succeeding scientific developments.

MATERIALS SCIENCE

Prerequisite: *Advanced Science 2 or AP Chemistry*

3546 CM NCAA (AL) **0.5 credit**

Students study and investigate the properties of materials, including, but not limited to, ceramics and glass, natural and synthetic materials, and metals. Projects vary in depth and scope, ranging from the study of toxic materials to the production of synthetic shoes.

ADVANCED TOPICS IN EARTH SCIENCE A/B

Prerequisites: *Honors Biology and Chemistry*

3547/3548 CM NCAA (AL) **0.5 credit**

Students study the historical development of plate tectonic theory, its application to current research in physical and structural geology, and physical and geological oceanography. Basic astronomy is integrated with current topics, such as black holes, quasars, stellar evolution, and cosmic strings. Historical and mathematical foundations are combined with observations across the spectrum. Data analysis is emphasized.

QUANTUM PHYSICS

Prerequisite: *Advanced Science 1 or Honors or AP Physics*

3556 CM NCAA (AL) **0.5 credit**

Modern physical sciences are examined in light of recent discoveries regarding the limits of experience, the atom, and the universe. The course includes a critical analysis of the scientific process, which led to the renunciation of classical physics and the introduction of ideas so foreign to everyday experience as to cause a reassessment of the meaning of physical reality.

MARINE BIOLOGY

Prerequisites: *Honors Biology and Honors Chemistry*

3553 CM NCAA (AL) **0.5 credit**

Students study basic marine ecological principles and develop an understanding of both the complexity and delicate balance of ocean ecosystems. Relevant science, technology, and societal issues are integrated into the curriculum. Laboratory exercises, field trips, classroom presentations, and literature research are integral parts of the course.

INTRODUCTORY GENETIC ANALYSIS

Prerequisites: *Honors Biology and Honors Chemistry*

3554 CM NCAA (AL) (DP) **1.0 credit**

Students learn Mendelian, molecular, and medical genetics. The historical aspects as well as our current understanding of the laws governing inheritance are investigated. Students are exposed to hands-on laboratory exercises, problem-solving sessions, Internet activities, student-led seminars, field trips, and other class activities that complement lectures and discussions.

CELLULAR PHYSIOLOGY

Prerequisite: *Honors Biology and Honors Chemistry*

3551 CM NCAA (AL) **0.5 credit**

Students study the major topics in molecular and cellular biology, including the cell cycle, cellular macromolecules, the structure and function of cellular organelles, cell communication, cellular energy flow, immunology, and special cell functions. The course includes laboratory investigations in which students use advanced methods of biotechnology to analyze cell structures and explore cellular processes.

INTRODUCTORY PHYSICAL CHEMISTRY

Prerequisite: *Advanced Science 2 or AP Chemistry*

3614 CM NCAA (AL) **0.5 credit**

Students study topics related to chemical thermodynamics, quantum chemistry, chemical kinetics, chemical equilibrium, and chemical reactions. They learn practical applications through examination of various heat engines and different models of atoms, polyatomic molecules, and atomic bonding. Organic chemistry topics are introduced through the use of instrumentation

Social Studies

Three credits in social studies are required for graduation, including 1 U.S. History credit, 1 National, State, and local Government credit, and 1 World History credit. Courses that satisfy those requirements are listed below.

U.S. History	• United States History A and B • AP United States History A and B
National, State, and Local Government	• National, State, and Local Government A and B • AP United States Government and Politics with NSL A and B
World History	• Modern World History A and B • AP World History • IB History 1 A and B and IB History 2 A and B

The required social studies courses include state requirements for environmental literacy and financial literacy instruction.

The goal of social studies is to help create literate and well-informed citizens who actively participate in a democratic society. Students learn how to become effective citizens through

- active engagement in the learning processes and skills of the social sciences and history;
- development of a useful knowledge base in culture, economics, geography, history, and politics;
- learning the fundamental structures of human systems of interaction and how these systems have developed over time;
- application of concepts and knowledge of the past to problem-solving real-world issues of the present;
- application and evaluation of the role of an effective citizen, including putting citizen participation theory into practice;
- effective use of multiple sources of investigation for research and learning, including technology, primary and secondary source materials, the arts, film, and oral history; and
- development and communication of social studies concepts and knowledge using a variety of formats, with a special emphasis on analytic and argumentative writing.

Additional information regarding the MCPS Social Studies program can be found at *www.montgomeryschoolsmd.org/curriculum/socialstudies*.

SOCIAL STUDIES COURSES		
History, United States A/B	2110/2112	NCAA
History, United States Honors A/B	2111/2113	CM NCAA (H)
History, United States, AP A/B	2114/2124	CM NCAA AP
Government—National, State, and Local (NSL) A/B	2107/2108	NCAA (7 SSL)
Government—National, State, and Local (NSL) Honors A/B	2127/2128	CM NCAA (H) (7 SSL)
Government, United States and Politics with NSL, AP A/B	2104/2105	CM NCAA AP (7 SSL)
Government, United States Government and Politics, AP	2131	CM NCAA AP
History, Modern World A/B	2221/2222	CM NCAA
History, Modern World Honors A/B	2223/2224	CM NCAA (H)
History, World, AP A/B	2240/2241	CM NCAA AP
Comparative Religions	2320	CM NCAA
Cultural Anthropology A/B	2309/2329	CM NCAA
Economics	2303	CM NCAA
Economics, Macroeconomics, AP	2315	CM NCAA AP
Economics, Microeconomics, AP	2316	CM NCAA AP
Global Issues in the 21st Century A/B	2347/2348	CM NCAA
Government, Comparative Government and Politics A/B, AP	2132/2145	CM NCAA AP
History, Africa South of the Sahara	2206	CM NCAA
History, African American	2103	CM NCAA
History, Ancient and Medieval	2210	CM NCAA
History, Ancient Mediterranean Civilizations	2208	CM NCAA
History, Eastern Asia	2218	CM NCAA
History, European	2212	CM NCAA
History, European A/B	2214/2215	CM NCAA
History, European, AP A/B	2216/2217	CM NCAA AP
History, Latin American	2204	CM NCAA
History, Medieval European	2209	CM NCAA
History, Russian	2205	CM NCAA
History, The Middle East	2226	CM NCAA
World Military History A/B	2219	CM
Human Geography, AP A/B	2332/2333	CM NCAA AP
Humanities A/B	2318/2319	CM NCAA
International Human Rights 1	2141	CM NCAA
International Human Rights 2	2142	
Law I	2312	CM NCAA
Law 2	2343	CM NCAA
Model United Nations A/B	2228/2229	CM
Philosophy	2311	CM NCAA
Psychology 1/2	2304/2313	CM NCAA
Psychology, AP A/B	2330/2331	CM NCAA AP
Seminar in Peace Studies	2225	CM NCAA (AL)
Sociology 1/2	2305/2314	CM NCAA
Student Leadership A/B	2339/2340	
Women's Studies A	2248	
INTERNATIONAL BACCALAUREATE (IB) SOCIAL STUDIES COURSES		
MCPSPIB Government A/B	2133/2134	CM PREIB NCAA (AL) (7 SSL)
IB Economics A/B	2234/2235	CM IB NCAA (AL)
IB Geography A	2351/2352	CM IB (AL)
IB Global Politics A/B	2013/2014	CM IB (AL)
IB History 1 A/B	2230/2231	CM IB NCAA (AL)
IB History 2 A/B	2403/2404	CM IB NCAA (AL)
IB Psychology A/B	2232/2233	CM IB NCAA (AL)
IB World Religions A/B	2246/2247	CM IB (AL)
IB Business Management A/B	4139/4140	CM CDP IB (H)
IB Philosophy A/B	2237/2238	CM (AL)
IB Social and Cultural Anthropology A/B	2242/2243	CM (AL)

SOCIAL STUDIES COURSES

HISTORY, UNITED STATES A/B

2110/2112 NCAA **0.5 credit**
2111/2113 CM NCAA (H) **0.5 credit**

This course is a continuation of eighth grade U.S. history. Students learn key concepts and events through reading, writing, document analysis, and historical thinking. In the first semester, students learn the effects of migration, immigration, and industrialization; the impact of United States involvement in world affairs through World War I; and major developments of the 1920s and 1930s. In the second semester, students learn the impact of World War II; the origins and effects of the Cold War; cultural changes in post-war America including the expansion of civil rights; and foreign and domestic policies between 1968 and 1991. *This course is required for graduation.*

HISTORY, UNITED STATES, AP A/B

2114/2124 CM NCAA AP **0.5 credit**

This course is for students desiring a freshman college-level course in United States history. The course is a survey of this nation's history, from 1607 to the present, using a college-level text and requiring college-level writing and discussion. *AP U.S. History A/B satisfies the graduation requirement of a year in U.S. History.*

GOVERNMENT—NATIONAL, STATE, AND LOCAL (NSL) A/B

2107/2108 NCAA (7 SSL) **0.5 credit**
2127/2128 CM NCAA (H) (7 SSL) **0.5 credit**

Students will utilize inquiry and literacy skills to develop a deep understanding of the foundation and structures of the U.S. government, evaluate the importance of citizen participation, and analyze the impact of principles, laws, people, and organizations on domestic, foreign, and economic policies that affect our daily lives. Throughout the course, students study contemporary public policy issues while deepening their ability to analyze and evaluate sources and respond to document based questions. *This course satisfies the NSL Government graduation requirement. SSL hours: first semester, 7; second semester, 8*

GOVERNMENT, UNITED STATES GOVERNMENT AND POLITICS WITH NSL, AP A/B

2104/2105 CM NCAA AP (7 SSL) **0.5 credit**

This course is a year-long survey of American government. The course combines the content and skill development of AP U.S. Government and Politics and National, State, and Local Government. *AP United States Government and Politics with NSL may be used to satisfy the graduation requirement for National, State and Local Government A and B. SSL hours: first semester, 7; second semester, 8*

GOVERNMENT, UNITED STATES GOVERNMENT AND POLITICS, AP

2131 CM NCAA AP **0.5 credit**

This college-level course is a survey of the structure and function of American government and politics that begins with an analysis of the U.S. Constitution, the foundation of the American political system. Students study the three branches of government, administrative agencies that support each branch, the role of political behavior in the democratic process, and the workings of political parties and interest groups.

HISTORY, MODERN WORLD A/B

2221/2222 CM NCAA **0.5 credit**
2223/2224 CM NCAA (H) **0.5 credit**

Throughout the course students examine past world history and draw connections to similar concepts and forces at work today. Students build an understanding of the complexity of our global relationships. Concept-based instruction, a comparative case study approach, and historical thinking skills are used to frame world history from the 15th century to today. *This course is required for graduation.*

HISTORY, WORLD, AP A/B

2240/2241 CM NCAA AP **0.5 credit**

This college-level course helps students develop greater understanding of world history and human societies. This understanding is advanced through a combination of selective factual knowledge and appropriate analytical skills. The chronological time frame is from 8000 BCE to the present. *AP World History A/B satisfies the graduation requirement of a year in Modern World History.*

COMPARATIVE RELIGIONS

2320 CM NCAA **0.5 credit**

This course provides a survey of the basic elements and historical development of world religions. Students study primitive religions, the sociology of religion, and comparisons of the religions of India, China, and the Near East, Buddhism, Christianity, Confucianism, Hinduism, Islam, Judaism, Taoism, and Zoroastrianism.

CULTURAL ANTHROPOLOGY A/B

2309/2329 CM NCAA **0.5 credit**

Students learn the methods archaeologists use to uncover finds, determine age, classify artifacts, and trace the origins of social interaction. Physical anthropology is introduced and archaeological case studies are used. The place of human life in the animal world, human fossil forms, and racial theories are studied. Students study cultural pre-history and compare New World pre-history with Old World pre-history.

ECONOMICS

2303 CM NCAA **0.5 credit**

This introductory course emphasizes choices and decisions people and nations make about the use of resources. Students study basic economic concepts-both national and international monetary and fiscal policies and the application of economic principles to everyday life. Detailed discussion is devoted to the roles played by banks, credit, principal, rent, wages, and consumer buying.

ECONOMICS, MACROECONOMICS, AP

2315 CM NCAA AP **0.5 credit**

This course is for students interested in college-level work in economics. Study begins with fundamental economic concepts, such as scarcity, opportunity costs, production possibilities, specialization, comparative advantage, demand, supply, and price determination. Major topics include measurement of economic performance, national income and price determination, and international economics and growth.

ECONOMICS, MICROECONOMICS, AP

2316 CM NCAA AP **0.5 credit**

This course is for advanced students interested in college-level work in economics and/or gaining advanced standing in college. The course begins with a study of fundamental economic concepts, such as scarcity, opportunity costs, production possibilities, specialization, and comparative advantage. Major topics include the nature of functions of product markets; factor markets; and efficiency, equity, and the role of government.

GLOBAL ISSUES IN THE 21ST CENTURY A/B

2347/2348 CM NCAA **0.5 credit**

Students use media resources that relate to intercultural and international topics to learn about the diversity, complexity, and interdependence of the world community. This provides the necessary background to analyze the political, economic, social, and cultural aspects of current world problems and issues in relation to the policies of the American government. The course helps students make connections to our global society.

GOVERNMENT, COMPARATIVE GOVERNMENT AND POLITICS A/B, AP

2132/2145 CM NCAA AP **0.5 credit**

This college-level course is both a survey of the various forms of government found throughout the world and an in-depth study of specific governments and approaches to politics. Students compare the structure of governmental institutions in different countries and learn how each structure affects society in general and individuals in particular. The concept of political change and the different methods to effect such change are a focus in the course.

HISTORY, AFRICA SOUTH OF THE SAHARA

2206 CM NCAA **0.5 credit**

This course surveys African history by examining the forces and events that have and are shaping the cultures of Africa south of the Sahara. Topics include traditional culture, European impact, nationalism and revolution, and contemporary situations.

HISTORY, AFRICAN AMERICAN

2103 CM NCAA **0.5 credit**

This course is a survey of the individuals, forces, and events that make up the experiences of African Americans in the United States. By exploring those forces, and by highlighting those individuals who helped shape the development of America, students learn that the "Black Experience" can serve as the testing ground for American democratic ideas. Emphasis is placed on the impact of major events in our history on African Americans.

HISTORY, ANCIENT AND MEDIEVAL

2210 CM NCAA **0.5 credit**

This is a survey course that begins with the civilizations of the ancient Near East and continues through the Reformation in Europe. Students focus on the geographic, political, social, economic, and cultural factors that have shaped the development of ideas and institutions from Mesopotamia to the present day.

HISTORY, ANCIENT MEDITERRANEAN CIVILIZATIONS
2208 CM NCAA **0.5 credit**

This course is a survey of the evolution of society from the Fertile Crescent through Greek and Roman civilizations. Students examine the rise of civilizations in the Near East and their legacies. Greek civilization is studied from its historical roots through Alexander's empire, emphasizing forces of change and aspects that provide a basis for Western thought. The course concludes with a study of the Roman Era.

HISTORY, EASTERN ASIA
2218 CM NCAA **0.5 credit**

This course provides an overview of Chinese, Korean, and Japanese history. It stresses the cultural and intellectual highlights of each of these countries, broadening the student's understanding of Asia. Topics include traditional culture, the impact of European contact, and contemporary situations.

HISTORY, EUROPEAN
2212 CM NCAA **0.5 credit**

This course is an abbreviated survey of Europe, from 1600 to the present. Topics of study include the rise of the modern nation state, the scientific and industrial revolutions, the age of exploration and nationalism, imperialism, and world war.

HISTORY, EUROPEAN A/B
2214/2215 CM NCAA **0.5 credit**

Throughout this course, the concepts of causation, continuity and change, and social interdependence are used to examine focus areas, which include development of major institutions, revolutionary movements, and nationalism in the period from the 16th century to 1815. Semester B focus areas include the development of major institutions, revolutionary movements and nationalism, the Industrial Revolution, ideologies, world wars, and intellectual and cultural history from 1815 to contemporary times.

HISTORY, EUROPEAN, AP A/B
2216/2217 CM NCAA AP **0.5 credit**

This college-level course is a survey in European history from the 15th century to the present. A college-level text is used, and students engage in college-level writing and discussion. This course prepares students for the AP European History examination.

HISTORY, LATIN AMERICAN
2204 CM NCAA **0.5 credit**

This course provides an overview of the cultural background and historical development of the nations of Latin America, their role in the world today, and their future. Problems of population distribution, cultural and economic influences and ownership, and political and social change are studied.

HISTORY, MEDIEVAL EUROPEAN
2209 CM NCAA **0.5 credit**

European history, from the fall of Rome through the crises that characterized the late Middle Ages, is surveyed. Topics include the rise of Christianity and Islam and the conflict between those religious forces, the characteristics of medieval European society, and crises such as the Black Plague that ended this period.

HISTORY, RUSSIAN
2205 CM NCAA **0.5 credit**

This course is a survey of Russia before, during, and since the Bolshevik Revolution. Topics covered include the origins of the Russian people, the formative years of the Russian nation, the growth of the Russian autocracy and its failure to accommodate change, the 1917 revolutions,the consolidation of power in the Soviet Union, the role of the Soviet Union in and after World War II, and Russia in the post-cold-war era.

HISTORY, THE MIDDLE EAST
2226 CM NCAA **0.5 credit**

This course provides an overview of the Middle East and its history. It stresses the role of the Middle East as the cradle of early civilizations, the crossroads of many empires, and the birthplace of three major world religions. Special emphasis is given to the influence of the Middle East on world civilizations, the historical importance of the Middle East over the centuries, and the background needed to understand present conditions in the area.

WORLD MILITARY HISTORY A/B
Offered only at: *Watkins Mill HS*
2219 **0.5 credit**

Students study the history of cultures from various regions and time periods and the political, economic, and social impact of warfare on those cultures. Participants study how the warrior class within these cultures reflected essential attributes of each culture. They learn how wars impacted these cultures, both positively and negatively, throughout their history. Students learn how war can influence multiple cultures and impact the balance of power worldwide.

HUMAN GEOGRAPHY, AP A/B
2332/2333 CM NCAA AP **0.5 credit**

This college-level course introduces students to the systematic study of patterns and processes that have shaped human understanding, use, and alteration of Earth's surface. Students employ spatial concepts and landscape analysis to analyze human social organization and its environmental consequences. They also learn about the methods and tools geographers use in their science and practice.

HUMANITIES A/B
2318/2319 CM NCAA **0.5 credit**

Units studied include Classical Age, Medieval Europe, Renaissance and Baroque, Neoclassic Age and Enlightenment, Romantic Era, and Modern Era. Students study the ideas and ideals of western civilization and eastern civilization, and how perceptions of human nature and the place of humans in the universe change over time. Works from the performing arts, fine arts, literature, philosophy, and historiography are used.

INTERNATIONAL HUMAN RIGHTS 1
2141 CM NCAA **0.5 credit**

This course addresses the history of the human rights ideal, from ancient times to the 21st century. Students will examine the existing human rights and humanitarian law instruments and the mechanisms for their enforcement. Using current case studies, students will investigate key issues in civil and political rights including freedom of expression, forced disappearances, terrorism, and genocide.

INTERNATIONAL HUMAN RIGHTS 2
2142 **0.5 credit**

Students continue their study and investigation of contemporary and emerging human rights issues, including a special focus on human rights challenges in the United States. Students will also examine the United States' foreign policy objectives and actions in response to human rights issues and concerns. Students examine how individuals and societies recover and seek justice after experiencing periods of war or gross violations of human rights. The course culminates with a look at careers in the field of human rights.

LAW 1
2312 CM NCAA **0.5 credit**

This course is designed to help students understand the processes by which American society seeks justice and order through law, and ways in which people can participate in those processes. Students examine history and philosophy of law, how the law works and can be made to work in actual situations, and major substantive areas of law such as torts, property, criminal, and juvenile law.

LAW 2
2343 CM NCAA **0.5 credit**

Law 2 provides a comprehensive overview of the history, philosophy, and organization of our legal system, with special emphasis on the interpretive role of the courts. The units include constitutional law, law and the American family, and consumer law. Students apply legal precedents to real and hypothetical situations. Opportunities are provided to observe the legal process in action, explore law-related careers, and participate in mock trials.

MODEL UNITED NATIONS A/B
2228/2229 CM **0.5 credit**

This course prepares students for participation in regional and national Model UN competitions.

PHILOSOPHY

2311 CM NCAA **0.5 credit**

This course acquaints students with the discipline and history of philosophy. Major philosophers and their works are studied, with focus on such issues as the nature of the universe, the basic moral and intellectual superstructure of society, good and evil, free will and determinism, and the relationship of a person to other individuals and to the state. Current trends in philosophy are studied as well.

PSYCHOLOGY 1/2

Prerequisite: *2304 prerequisite for 2313*

2304/2313 CM NCAA **0.5 credit**

Students are introduced to the scientific study of behavior and mental processes. While learning how to apply psychological principles to daily life, students investigate the role of scientific inquiry into the major domains of psychology, including Methods of Research, Biopsychology, Cognitive Processes, Lifespan Development, and Sociocultural Dimensions of Behavior.

PSYCHOLOGY, AP A/B

2330/2331 CM NCAA AP **0.5 credit**

Students scientifically study behavior and investigate the psychological domains-methods of research, biopsychology, cognitive processes, lifespan development, and sociocultural dimensions of behavior, thinking and language, states of consciousness, individual differences, personality and assessment, and psychological disorders and their treatment. This college-level course prepares students for the AP exam.

SEMINAR IN PEACE STUDIES

2225 CM NCAA (AL) **0.5 credit**

This course focuses on the study of nonviolent force, as practiced by current and past peacemakers. Students examine the philosophy of nonviolent force, primary and secondary sources, and print and nonprint sources to analyze the impact of the work of persons devoted to nonviolent change. Conflict-resolution skills and techniques involve students in the practical applications of ideas learned in class.

SOCIOLOGY 1/2

Prerequisite: *2305 prerequisite for 2315*

2305/2314 CM NCAA **0.5 credit**

Sociology 1 is concerned with human groups and factors that unite or divide them, including culture, values, social groups, social stratification, population, the family, socialization, propaganda, and social institutions. Focus is on the impact of change on mores, norms, and customs. Emphasis is placed on the application of the basic concepts of social change to American institutions, particularly education and the family. Research papers focus on community or on-site research.

STUDENT LEADERSHIP A/B

2339/2340 **0.5 credit**

In this course, students are given many classroom and laboratory experiences in leadership training. Students build skills in communications, negotiations, organizational development, and activity design and execution. Students systematically study the student government organization, its internal workings, and its relationship to the school, school system, and school community.

WOMEN'S STUDIES A

2248 **0.5 CREDIT**

Students examine how the political, economic, and social status of women has changed over time in the United States and the world. Students will analyze how the experiences of women today often differ in a variety of cultural and socioeconomic contexts. Students will examine how women have made advances in key areas of life, including employment, education, health, media images, and family roles. Examples of women in the U.S. and world will be used to analyze how women have made significant contributions in addressing issues of national and global concern.

INTERNATIONAL BACCALAUREATE (IB) SOCIAL STUDIES COURSES

Offered only at: *Bethesda-Chevy Chase HS, Albert Einstein HS, John F. Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

MCPSPIB GOVERNMENT A/B

2133/2134 CM PREIB NCAA (AL) (7 SSL) **0.5 credit**

This required course traces the history of our form of government from the ancient world to the creation of the American Constitution. Units focus on the purpose of government; the structure and operations of the U.S. Government; rights and responsibilities of U.S. citizens; a comparison of parliamentary, socialistic, and constitutional governments; and international problems between various forms of government. *SSL hours: first semester, 7; second semester, 8*

IB ECONOMICS A/B

2234/2235 CM IB NCAA (AL) **0.5 credit**

IB Economics A focuses on macroeconomics, the branch of economics that views the economy as a whole. Semester B focuses on microeconomics, which investigates decision making of individual consumers and producers. Students focus on product and resource markets, with particular emphasis on the international economy and the role of the government. International economics topics are emphasized in both semesters.

IB GEOGRAPHY A/B

2351/2352 CM IB AL **0.5 credit**

In this course, students examine key global issues, such as poverty, sustainability, and climate change. They study examples and detailed case studies at a variety of levels, from local to regional, national, and international. Students seek to develop international understanding and foster a concern for global issues as well as to raise their awareness of their own responsibility, at the local level.

IB GLOBAL POLITICS A/B

2013/2014 CM IB AL **0.5 credit**

Students explore fundamental political concepts such as power, equality, sustainability, and peace, in a range of contexts. Students develop an understanding of the local, national, international, and global dimensions of political activity and processes, as well as explore political issues affecting their own lives. The course helps students to understand abstract political concepts by grounding them in real-world examples and case studies. It also invites comparison between these examples and case studies to ensure a wider and transnational perspective.

IB HISTORY 1 A/B

2230/2231 CM IB NCAA (AL) **0.5 credit**

This course, the first year of a required two-year sequence, surveys European and world history from the Renaissance (1450) through the Age of Enlightenment (1750) up to 1900. Emphasis is on the rise of the European nation states; the scientific, economic, industrial, and political revolutions; colonialism; the new imperialism and its impact on Asia and Africa; nationalistic movements in Europe; and the long-term causes of World War I. *Earning 2 credits in IB History 1 and 2 (2230/2231 and 2403/2403) satisfies the graduation requirement of a year of Modern World History.*

IB HISTORY 2 A/B

Prerequisite: *IB History 1*

2403/2404 CM IB NCAA (AL) **0.5 credit**

This detailed study of 20th century history completes the requirement for the higher-level IB History examination. The first semester focuses on the causes, practices, and effects of war; the rise of single-party states; and the work of international organizations and minorities in the modern state. Second-semester topics include nationalistic political movements, decolonization, social change, the artist and society, and religion and politics. *Earning two credits in IB History 1 and 2 (2230/2231 and 2403/2403) satisfies the graduation requirement of a year of Modern World History.*

IB PSYCHOLOGY A/B

2232/2233 CM IB NCAA (AL) **0.5 credit**

This course focuses on the nature of human beings, appreciation of psychology, and methods of psychological inquiry. Students study human behavior through four psychological perspectives: behavioral, cognitive, humanistic/phenomenological, and psychodynamic. Students also study research design, methods, statistics, and ethical issues in psychological research and application and undertake one internally assessed research study.

IB WORLD RELIGIONS A/B

2246/2247 CM IB AL **0.5 credit**

The IB World Religions course is a systematic, analytical yet empathetic study of the variety of beliefs and practices encountered in nine main religions of the world. The course seeks to promote an awareness of religious issues in the contemporary world by having students study of a diverse range of religions. This course seeks to promote respect for the diversity of religious beliefs, both locally and globally, with the aim of enhancing international and interreligious understanding. Students examine contemporary national and international issues regarding religion and the impact these may have on ethical and legal issues.

IB BUSINESS MANAGEMENT A/B

4139/4140 CM CDP IB (H) **0.5 credit**

This course explores the role of businesses, as distinct from other organizations and actors in a society, to produce and sell goods and services that meet human needs and wants by organizing resources. Profit-making, risk-taking, and operating in a competitive environment characterize most business organizations. Business management is the study of decision-making within an organization, whereas economics is the study of scarcity and resource allocations, both on micro and macro levels. Business management examines the use of information technology in business contexts, whereas information technology in a global society (ITGS) critically examines its impact on other fields, such as health and government.

IB PHILOSOPHY A/B

2237/2238 CM (AL) **0.5 credit**

This course provides an opportunity for students to engage with some of the world's most interesting and influential thinkers. It also develops highly transferable skills such as the ability to formulate arguments clearly, to make reasoned judgments, and to evaluate highly complex and multifaceted issues. The emphasis of this philosophy course is on "doing philosophy," that is, actively engaging students in philosophical activity. The course is focused on stimulating students' intellectual curiosity and encouraging them to examine both their own perspectives and those of others.

IB SOCIAL AND CULTURAL ANTHROPOLOGY A/B

2242/2243 CM (AL) **0.5 credit**

Social and cultural anthropology is the comparative study of culture and human societies. Anthropologists seek an understanding of humankind in all its diversity. This understanding is reached through the study of societies and cultures and the exploration of the general principles of social and cultural life. Social and cultural anthropology places special emphasis on comparative perspectives that challenge cultural assumptions.

World Languages

Two credits in a world language or 2 credits in American Sign Language may be used to complete Option 1 of elective credits required for graduation. If students select a world language to fulfill the Maryland diploma requirements, it is recommended that the two world language credits be in the same language.

The goal of the world languages program is to prepare students to be linguistically and culturally competent in languages other than English. The ability to communicate in a culturally appropriate manner with speakers of other languages is the key to success in the increasingly diverse global community of the 21st century. As students develop proficiency in world languages and an understanding of the underlying values and beliefs of other cultures, they gain the skills that are essential to meaningful communication. World languages courses must be taken in sequential order. The prerequisite for all courses, except 1A, is successful completion of the preceding course.

Maryland Seal of Biliteracy

High school graduates who can function in two or more languages are equipped with the knowledge and skills to participate successfully in college, careers, and a diverse 21st century society. The Maryland Seal of Biliteracy is a diploma endorsement, authorized by Maryland law that recognizes a student's high level of proficiency in listening, speaking, reading, and writing in one or more languages other than English. To receive a Maryland Seal of Biliteracy, a student must do the following:

- Pass the Maryland High School Assessment in English 10; AND
- Demonstrate Intermediate High proficiency in listening, speaking, reading, and writing in a language other than English, as measured by assessments that are aligned to ACTFL (The American Council on the Teaching of Foreign Languages) proficiency guidelines.

For more information about the approved assessments, please visit the website *http://marylandpublicschools.org/about/Pages/DCAA/World-Languages/Biliteracy/index.aspx*

WORLD LANGUAGES LEVEL 1

Students begin to learn to communicate orally and in writing in a culturally appropriate manner about topics related to daily life. They interpret basic information when listening and reading. Vocabulary and basic grammatical structures are taught within the context of these familiar topics. Culture is embedded throughout the course.

Arabic 1 A/B	1589/1590	NCAA
Chinese 1 A/B	1871/1872	NCAA
French 1 A/B	1611/1621	NCAA
German 1 A/B	1961/1971	NCAA
Italian 1 A/B	1981/1982	NCAA
Japanese 1 A/B	1831/1832	NCAA
Russian 1 A/B	1851/1852	NCAA
Spanish 1 A/B	1711/1721	NCAA

WORLD LANGUAGES LEVEL 2

Students expand their ability to communicate orally and in writing in a culturally appropriate manner about topics related to daily life. They interpret information when listening and reading. Vocabulary and grammatical structures are taught within the context of these topics. Culture is embedded throughout the course.

Prerequisite: *Level 1 of the language*

Arabic 2 A/B	1591/1592	NCAA
Chinese 2 A/B	1873/1874	NCAA
French 2 A/B	1612/1622	NCAA
German 2 A/B	1962/1972	NCAA
Italian 2 A/B	1983/1984	NCAA
Japanese 2 A/B	1833/1834	NCAA
Russian 2 A/B	1853/1854	NCAA
Spanish 2 A/B	1712/1722	NCAA

WORLD LANGUAGES LEVEL 3

Students continue to expand their ability to communicate orally and in writing in a culturally appropriate manner about a variety of familiar topics. They interpret detailed information when listening and reading. Vocabulary and more complex grammatical structures are taught within the context of these topics. Culture is embedded throughout the course.

Prerequisite: *Level 2 of the language*

Arabic 3 A/B	1899/1900	CM NCAA (AL)
Chinese 3 A/B	1875/1876	CM NCAA
Chinese 3, Honors A/B	1925/1926	CM NCAA (H)
French 3 A/B	1613/1623	CM NCAA
French 3, Honors A/B	1633/1643	CM NCAA (H)
German 3 A/B	1963/1973	CM NCAA
German 3, Honors A/B	1977/1979	CM NCAA (H)
Italian 3 A/B	1985/1986	CM NCAA
Italian 3, Honors A/B	1989/1990	CM NCAA (H)
Japanese 3 A/B	1835/1836	CM NCAA
Japanese 3, Honors A/B	1839/1840	CM NCAA (H)
Russian 3 A/B	1855/1856	CM NCAA
Russian 3, Honors A/B	1846/1847	CM NCAA (H)
Spanish 3 A/B	1713/1723	CM NCAA
Spanish 3, Honors A/B	1733/1743	CM NCAA (H)

WORLD LANGUAGES LEVEL 4

Students communicate orally and in writing with increased proficiency in a culturally appropriate manner about a range of topics. They interpret detailed and extended information when listening and reading. Vocabulary and complex linguistic structures are taught within the context of these topics. Culture is embedded throughout the course.

Prerequisite: *Level 3 of the language*

Chinese 4 A/B	1877/1878	CM NCAA
Chinese 4, Honors A/B	1927/1928	CM NCAA (H)
French 4 A/B	1614/1624	CM NCAA
French 4, Honors A/B	1634/1644	CM NCAA (H)
German 4 A/B	1964/1974	CM NCAA
German 4, Honors A/B	1978/1980	CM NCAA (H)
Italian 4 A/B	1987/1988	CM NCAA
Italian 4, Honors A/B	1991/1992	CM NCAA (H)
Japanese 4 A/B	1837/1838	CM NCAA
Japanese 4, Honors A/B	1841/1842	CM NCAA (H)
Russian 4 A/B	1857/1858	CM NCAA
Russian 4, Honors A/B	1848/1849	CM NCAA (H)
Spanish 4 A/B	1714/1724	CM NCAA
Spanish 4, Honors A/B	1734/1744	CM NCAA (H)

WORLD LANGUAGES LEVEL 5

Students continue to increase their proficiency in communicating orally and in writing in a culturally appropriate manner about a broad range of topics. They interpret complex information when listening and reading. Vocabulary and a variety of complex linguistic structures are taught within the context of these topics. Culture is embedded throughout the course.

Prerequisite: *Level 4 of the language*

Chinese 5 A/B	1879/1880	CM NCAA (AL)
French 5 A/B	1615/1625	CM NCAA (AL)
German 5 A/B	1965/1975	CM NCAA (AL)
Italian 5 A/B	1794/1795	CM NCAA (AL)
Japanese 5 A/B	1843/1844	CM NCAA (AL)
Russian 5 A/B	1859/1860	CM NCAA (AL)
Spanish 5 A/B	1715/1725	CM NCAA (AL)

WORLD LANGUAGES LEVEL 6

Students communicate at a high level of proficiency orally and in writing in a culturally appropriate manner about a broad range of topics. They interpret complex information when listening and reading. Vocabulary and a variety of complex linguistic structures are taught within the context of these topics. Culture is embedded throughout the course.

Prerequisite: *Level 5 of the language*

Chinese 6 A/B	1881/1882	CM NCAA (AL)
French 6 A/B	1616/1626	CM NCAA (AL)
German 6 A/B	1966/1976	CM NCAA (AL)
Japanese 6 A/B	1829/1830	CM NCAA (AL)
Russian 6 A/B	1861/1862	CM NCAA (AL)
Spanish 6 A/B	1716/1726	CM NCAA (AL)

AP WORLD LANGUAGES

These courses are for world languages students interested in college-level work. The courses link language and culture while developing students' proficiency in speaking, listening, reading, and writing. Students read, discuss, and react to a variety of texts orally and in writing in preparation for the AP examination.

Chinese Language and Culture, AP A/B	1929/1930	CM NCAA AP
French Language and Culture, AP A/B	1635/1636	CM NCAA AP
Italian Language and Culture, AP A/B	1945/1946	CM NCAA AP (AL)
Japanese Language and Culture, AP A/B	1539/1540	CM NCAA AP
Spanish Language, AP A/B	1759/1760	CM NCAA AP
Spanish Literature, AP A/B	1761/1762	CM NCAA AP

SPANISH FOR SPANISH SPEAKERS

Spanish for Spanish Speakers provides language instruction for students with proficiency in Spanish, either because it is their first language or because it is spoken extensively in the home. Each course integrates history, culture, language, and connections related to the Spanish-speaking world.

Spanish for Spanish Speakers 3 is an advanced-level course designed to prepare students for the AP Spanish Language or AP Spanish Literature exam.

Spanish for Spanish Speakers 1 A/B	1777/1778	NCAA
Spanish for Spanish Speakers 2 A/B	1779/1780	NCAA
Spanish for Spanish Speakers 3 A/B	1781/1782	CM NCAA (AL)

LATIN

As students progress through the sequence of Latin courses, they build a foundation of Latin vocabulary and grammar. They study aspects of Roman life and history and the works of major authors such as Cicero, Pliny, Horace, Ovid, Tibullus, or Plautus. In preparation for the AP Vergil exam, students translate the Aeneid from Latin into English, analyzing Vergil's style as well as studying the cultural, social, and political context of the literature.

Latin 1 A/B	1811/1821	NCAA
Latin 2 A/B	1812/1822	NCAA
Latin 3 A/B	1813/1823	CM NCAA
Latin 3, Honors A/B	1815/1825	CM NCAA (H)
Latin 4 A/B	1814/1824	CM NCAA
Latin 4, Honors A/B	1816/1826	CM NCAA (H)
AP Latin, AP A/B	1819/1820	CM NCAA AP

AMERICAN SIGN LANGUAGE

Students use American Sign Language to communicate about daily life with basic vocabulary and simple grammatical structures. They explore the cultural and linguistic heritage of the Deaf community and its influence.

American Sign Language 1 A/B	1596/1597	NCAA
American Sign Language 2 A/B	1593/1594	NCAA
American Sign Language 3 A/B	1640/1641	CM AL

INTERNATIONAL BACCALAUREATE WORLD LANGUAGES COURSES		
IB Arabic 3 A/B	1797/1798	CM IB NCAA (AL)
IB Arabic 4 A/B	1799/1800	CM IB NCAA (AL)
MCPSPIB Chinese 2 A/B	1647/1648	CM PREIB NCAA (AL)
MCPSPIB Chinese 3 A/B	1649/1650	CM PREIB NCAA (AL)
IB Chinese 3 A/B	1884/1885	CM IB NCAA (AL)
IB Chinese 4 A/B	1651/1652	CM IB NCAA (AL)
IB Chinese 5 A/B	1653/1654	CM IB NCAA (AL)
IB Chinese 6 A/B	1655/1656	CM IB NCAA (AL)
IB Chinese 7 A/B	1657/1661	CM IB NCAA (AL)
MCPSPIB French 2 A/B	1609/1610	CM PREIB NCAA (AL)
MCPSPIB French 3 A/B	1617/1618	CM PREIB NCAA (AL)
IB French 4 A/B	1619/1620	CM IB NCAA (AL)
IB French 5 A/B	1627/1628	CM IB NCAA (AL)
IB French 6 A/B	1629/1630	CM IB NCAA (AL)
IB French 7 A/B	1658/1662	CM IB NCAA (AL)
IB Italian 4 A	1888/1889	CM IB NCAA (AL)
IB Italian 5 A/B	1788/1789	CM IB NCAA (AL)
IB Italian 6 A/B	1790/1791	CM IB NCAA (AL)
IB Japanese 3 A	1909/1910	CM IB NCAA (AL)
IB Japanese 4 A	1939/1940	CM IB NCAA (AL)
IB Russian 3 A/B	1863/1864	CM IB NCAA (AL)
IB Russian 4 A/B	1865/1866	CM IB NCAA (AL)
MCPSPIB Spanish 2 A/B	1749/1750	CM PREIB NCAA (AL)
MCPSPIB Spanish 3 A/B	1717/1718	CM PREIB NCAA (AL)
IB Spanish 4 A/B	1751/1752	CM IB NCAA (AL)
IB Spanish 5 A/B	1753/1754	CM IB NCAA (AL)
IB Spanish 6 A/B	1755/1756	CM IB NCAA (AL)
IB Spanish 7 A/B	1660/1664	CM IB NCAA (AL)

INTERNATIONAL BACCALAUREATE WORLD LANGUAGES COURSES

Offered only at: *Bethesda-Chevy Chase HS, Einstein HS, Kennedy HS, Richard Montgomery HS, Rockville HS, Seneca Valley HS, Springbrook HS, Watkins Mill HS*

Level 2
Students receive intensive training in the basic foundations of the language to develop proficiency in both oral and written expression at the appropriate level. Students master the MCPS Level 2 modern foreign language curriculum and study the literature, culture, and civilization of countries where the target language is spoken.

Level 3
Students develop higher-level language skills and vocabulary needed for increased proficiency in oral and written expression, listening, and reading comprehension. Students master the MCPS Level 3 modern foreign language curriculum; are introduced to literary analysis; and study the literature, culture, history, and current events in countries where the target language is spoken.

Level 4
IB Level 4 foreign language courses comprise the first year of a two-year sequence to prepare students for the standard-level IB foreign language exam. Students strengthen their knowledge and fluency in oral and written language and broaden their understanding of culture and civilization. Composition objectives for specific writing assignments are correlated with the literature, culture, and civilization topics.

Level 5
Students complete their preparation for the standard-level IB foreign language and the Advanced Placement language exams. Emphasis is placed on reading comprehension, interpretation, analysis, and oral proficiency. Students analyze a wide variety of spoken and written materials and life and civilization in pertinent countries.

Level 6
IB Level 6 foreign language courses emphasize the composition of well-constructed extended essays and oral proficiency at the near-native level. Instruction emphasizes critical analysis of the structural and stylistic characteristics of works, increased oral and written proficiency, and continued in-depth study of the life and civilization of pertinent countries. Students are prepared for the higher-level IB exam.

Level 7
Students continue to develop their reading and writing skills in preparation for the IB higher-level language examination.

Programs of Study and Career Based Electives

Career Experiences, Career Internships, and JROTC

CAREER EDUCATION EXPERIENCES		
Internship, Student A/B	7813/7816	
Internship, Student A/B DP	7818/7819	(DP)
Internship, Student A/B TP	7822/7823	(TP)
Applied Educational Leadership A/B	8102/8103	
Applied Educational Leadership A/B SSL	8104/8105	
JUNIOR RESERVE OFFICERS TRAINING CORP COURSES (JROTC)		
Naval Science 1 A/B	7911/7912	5 SSL
Naval Science 2 A/B	7914/7915	5 SSL
Naval Science 3 A/B	7917/7918	5 SSL
Naval Science 4 A/B	7919/7920	5 SSL
Army JROTC 1 A/B	7941/7942	5 SSL
Army JROTC 2 A/B	7944/7945	5 SSL
Army JROTC 3 A/B	7947/7948	5 SSL
Army JROTC 4 A/B	7950/7951	5 SSL

Internship Requirements

Documentation
Students may be required by the sponsoring organization to provide appropriate documentation. This may include a social security number and/or proof of citizenship.

Hours required per semester

Single-period	0.5 credit	75 hours
Double-period	1.0 credit	150 hours
Triple-period	1.5 credits	225 hours

CAREER EDUCATION EXPERIENCES

INTERNSHIP, STUDENT A/B

7813/7816 **0.5 credit**
7818/7819 (DP) **1.0 credit**
7822/7823 (TP) **1.5 credits**

This paid or unpaid internship complements the student's school program and is pursued under the supervision of school staff. Weekly in-school seminars explore career and workplace issues. Students will learn about society directly and explore various career options. Internships are executed AT VARIOUS WORKSITE LOCATIONS; they are coordinated AND APPROVED at the student's home school. Hours required per semester for the internship experience are single period, 75 hours; double period, 150 hours; and triple period, 225 hours. Students may be required by the sponsoring organization to provide appropriate documentation that may include a social security number and/or proof of citizenship.

APPLIED EDUCATIONAL LEADERSHIP A/B

8102/8103
8104/8105 SSL

This course is designed for students in Grades 11 or 12 who have satisfactorily achieved the goals and objectives in entry-level courses of English, World Languages, Math, Science, and Social Studies. In this course, students build and apply skills in communication, organization, collaboration, and leadership, through service and work-based experiences, while supporting peers and school-based staff. In addition to other required assignments, students will keep a daily log/journal, write weekly reflections, and submit and present a final report at the end of the semester. Students earn .5 elective course credit or student service learning hours.

JUNIOR RESERVE OFFICERS TRAINING CORP COURSES (JROTC)

Note: *JROTC does NOT satisfy the POS option for graduation.*
Naval Science Offered only at: *Gaithersburg HS, John F. Kennedy HS, Paint Branch HS, Seneca Valley HS*
Army JROTC Offered only at: *Col. Zadok Magruder HS*

NAVAL SCIENCE 1 A/B

7911/7912 5 SSL **0.5 credit**

Students will experience a military environment and study leadership/discipline, the role of students and adults as citizens, the foundation/organization of the Navy and the U.S. Defense Department, the mission of naval ships and aircraft, and Navy terminology. The program includes classroom instruction, physical fitness, military drill and dress, military customs, and leadership training and opportunities.

NAVAL SCIENCE 2 A/B

Prerequisite: *Naval Science 1 A/B*
7914/7915 5 SSL **0.5 credit**

Students have the opportunity to gain increased responsibility in leadership positions. They will study naval history, military geography, oceanography, meteorology, weather, astronomy, and physical science.

NAVAL SCIENCE 3 A/B

Prerequisite: *Naval Science 2 A/B*
7917/7918 5 SSL **0.5 credit**

Students gain additional leadership experiences while holding the cadet officer position. They study naval leadership and discipline, naval service as a way of life, shipboard organization, navigation, naval weapon systems, military justice, international law, and the role of the sea in U.S. diplomacy and strategy.

NAVAL SCIENCE 4 A/B

Prerequisite: *Naval Science 3 A/B*
7919/7920 5 SSL **0.5 credit**

Senior cadets study naval leadership training and evaluation, and the practical application of leadership duties and responsibilities. They will act as class instructors for selected subjects, such as military drill, leadership lab, seamanship, and flag drills.

ARMY JROTC 1 A/B

7941/7942 5 SSL **0.5 credit**

Students study the history, organization, and functions of the Army, along with leadership development, oral and written communications, maps and navigation, drills, and ceremonies.

ARMY JROTC 2 A/B

Prerequisite: *Army JROTC 1 A/B*
7944/7945 5 SSL **0.5 credit**

Topics include first aid and hygiene, American military history, drug and alcohol abuse, the importance of civilian and military career planning, goal-setting, and time management.

ARMY JROTC 3 A/B

Prerequisite: *Army JROTC 2 A/B*
7947/7948 5 SSL **0.5 credit**

Students use leadership principles to resolve situations and supervise subordinates. They examine ethical problems caused by technology as well as current and future technological advances in medicine and communication.

ARMY JROTC 4 A/B

Prerequisite: *Army JROTC 3 A/B*
7950/7951 5 SSL **0.5 credit**

Students learn the practical application of leadership duties and responsibilities. Cadets will perform their assigned command or staff duties, and act as a class instructor or assistant class instructor for selected subjects.

CAREER AND TECHNOLOGY EDUCATION PROGRAMS OF STUDY (POS)

Career and Technology (CTE) Programs of Study (POS) are design to prepare high school students for the 21st century global economy and its rapidly changing workforce needs. All CTE programs are aligned to academic and technical skill standards to ensure students are adequately prepared for college and careers. Many POS provide opportunities for students to earn industry certifications, college credit, and work-based learning experience through internships. Montgomery County high schools offer an extensive array of Programs of Study (POS) for students. These state-approved programs satisfy the career development graduation requirement and are designed to help students acquire the specialized knowledge, skills, attitudes, and work habits required for postsecondary education and employment. Schools that offer specific POSs are included in the POS section. Schools not listed may offer a course, but not the total requirements necessary to satisfy the graduation requirement.

Four credits in a state-approved program of study (POS) may be used to complete Option 3 of elective credits required for graduation.

COLLEGE/CAREER RESEARCH AND DEVELOPMENT POS *(4 credits required)*		
College/Career Research and Development A/B	8092/8093	
Career Seminar A/B	8065/8066	
Site-Based Work Experience A/B DP	5441/5442	(DP)

COLLEGE/CAREER RESEARCH AND DEVELOPMENT POS *(4 credits required)*

College/Career Research and Development is a two-year program of study that prepares students with academic, technical, and workplace skills necessary to pursue future education and employment in a career field of their interest upon graduation from high school.

COLLEGE/CAREER RESEARCH AND DEVELOPMENT A/B

8092/8093 **0.5 credit**

Students research current career information for successful career planning and management. Students develop self-awareness, career awareness, financial literacy, communication and indispensable work-related knowledge and skill sets. A variety of career and interest assessments, as well as portfolio development, demonstrating workplace and academic readiness, prepare students for college and careers.

CAREER SEMINAR A/B

Prerequisite: *College/Career Research and Development A/B (8092/8093)*
Corequisite: *Site-based Work Experience A/B(5441/5442)*
8065/8066 **0.5 credit**

Students learn how to effectively manage career and educational choices through incorporating employment, education, and training goals. They build financial literacy skills and the Maryland's Skills for Success competencies. Students complete a career portfolio that demonstrates proficiencies in workplace readiness, personal financial management, personal growth and development, and employment experiences.

SITE-BASED WORK EXPERIENCE A/B DP

Prerequisite: *College/Career Research and Development A/B (8092/8093)*
Corequisite: *Concurrent enrollment in College/Career Seminar class is required. Students must successfully complete the seminar class to receive site-based credit.*
5441/5442 (DP) **1.0 credit**

Students participate in a site-based experience in conjunction with the career seminar class. Students work directly with industry professionals in a career of interest, while refining career goals and postsecondary plans. Student work sites must be approved and supervised by the teacher. Site-based learning must take place during school hours to allow for required work-site supervision by the teacher. To earn credit for DP, students are required to have a minimum of 135 hours of work experience per semester.

Career and Technology Education Programs of Study in Arts and Media

BROADCAST MEDIA POS *(4 credits required)*		
Radio Production A/B	5169/5170	
Electronic Audio Field Production A/B	5171/5172	
Radio Station Management/Operations A/B	5166/5167	CM
Video Production A/B	5173/5174	
Electronic Video Field Production A/B	5175/5176	
Media Management and Production A/B	5177/5178	CM
Guided Research—Arts, Humanities, Media, and Communications A/B	5310/5311	
PRINT TECHNOLOGIES AND DIGITAL GRAPHICS POS *(4 credits required)*		
Graphic Design & Digital Media TP A/B	5118/5119	15 SSL TP
Advanced Graphic Design & Applications TP A/B	5121/5122	(AL) 15 SSL TP
Internship, Arts, Humanities, Media and Communications	5717	
MULTIMEDIA AND INTERACTIVE TECHNOLOGIES POS *(4 credits required)*		
Introduction to Interactive Media A/B	5195/5196	
Website Development A/B	2991/2992	CM
Game Development A/B	2804/2805	
Advanced Game Development A/B	2816/2817	CDP (AL)
Web Tools and Digital Media, Advanced A/B	2936/2937	CM (AL)
Guided Research—Arts, Humanities, Media, and Communications A/B	5310/5311	
Internship, Arts, Humanities, Media and Communications	5717	

BROADCAST MEDIA POS *(4 credits required)*

Students in the Broadcast Media program learn about career options in a field that is constantly evolving. In the television and radio studio, analog, tape-based recording technology is being replaced by digital, computer-based recording. International multimedia conglomerates have transformed the industry from a small number of local broadcasting outlets to a wide variety of audiences via hundreds of cable and satellite stations. The explosion of new programming and technology options has opened myriad career opportunities for students to pursue. These courses are career education electives.

Offered only at: *Bethesda-Chevy Chase HS, James Hubert Blake HS, Gaithersburg HS, John F. Kennedy HS, Col. Zadok Magruder HS, Northwood HS, Paint Branch HS, Rockville HS, Seneca Valley HS, Sherwood HS*

RADIO PRODUCTION A/B

5169/5170 **0.5 credit**

This course introduces students to the fundamentals of radio. Students learn production fundamentals, how radio developed, and radio technology through studio hands-on experience. Students create their own productions using a school's radio equipment. Field trips and guest lecturers provide initial career information. This course provides a strong emphasis on recording and editing audio sources using digital editors. Course fees may apply.

ELECTRONIC AUDIO FIELD PRODUCTION A/B

Prerequisite: *Radio Production A & B*
5171/5172 **0.5 credit**

This course builds on Radio Production A and B. Students will have the opportunity to improve radio skills while working on a daily live radio show. This course provides a strong emphasis on the audio aspects of radio communication. Programs produced for the school as well as for transmission over the Internet are part of the responsibilities for this class. In addition, advanced writing and production techniques for presentations in news radio broadcasting and entertainment programming will be covered.

RADIO STATION MANAGEMENT/OPERATIONS A/B

Prerequisite: *Radio Production A/B, Electronic Audio Field Production A/B*
5166/5167 CM **0.5 credit**

Students enrolled in this management/operations course will serve as station staff members for the school's radio station. In addition to producing a daily live show within the school, the staff will be responsible for producing one half-hour program each month for webcasting on the school's site. The course is to be primarily studio-based, with EAFP products utilized in the productions.

VIDEO PRODUCTION A/B

5173/5174 **0.5 credit**

This course introduces students to the fundamentals of television. Students learn production fundamentals, how television developed, and television technology through studio hands-on experience. Students create their own productions using a school's video equipment. Field trips and guest lecturers provide initial career information. Course fees may apply.

ELECTRONIC VIDEO FIELD PRODUCTION A/B

Prerequisite: *Video Production A/B*
5175/5176 **0.5 credit**

This course introduces students to the fundamentals of television. Students learn production fundamentals, how television developed, and television technology through studio hands-on experience. Students create their own productions using a school's video equipment. Field trips and guest lecturers provide initial career information. Course fees may apply.

MEDIA MANAGEMENT AND PRODUCTION A/B

Prerequisite: *Video Production A/B, Electronic Video Field Production (EVFP) A/B*
5177/5178 CM **0.5 credit**

Students enrolled in the Media Management and Production course will serve as station staff members for a school's television station. In addition to producing a daily live show within the school, the staff will be responsible for producing one half-hour program each month for air on cable television outside the school. Potential channels for airing include MCPS-TV or Montgomery Community Television. The course is to be primarily studio-based, with EVFP products utilized in the productions.

GUIDED RESEARCH—ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS A/B

Prerequisite: *All required coursework in Arts, Humanities, Media, and Communications program of study*
5310/5311 **0.5 credit**

This course provides an opportunity for students to complete a structured research project to advance their knowledge and skills related to an Arts, Humanities, Media, and Communications career area.

PRINT TECHNOLOGIES AND DIGITAL GRAPHICS POS *(4 credits required)*

Students learn a variety of graphic design, imaging, and print-related skills to provide a foundation for all aspects of the graphic communications industry. Students use the latest in digital imagery, design, and production with computer technology, including advanced photo editing, presentation software, illustration and drawing software, digital video hardware and editing software, and multimedia and web design. Layout, design, and composition activities as well as offset lithographic production and binding techniques, are included in the program. Students learn processes such as 35 mm continuous tone photography and screen printing of cards, posters, and T-shirts.

Offered only at: *Thomas Edison HS of Technology, however individual courses are offered as electives at other schools.*

GRAPHIC DESIGN & DIGITAL MEDIA TP A/B

5118/5119 15 SSL TP **1.5 credits**

In this introductory-level course, students establish a foundation in the history and current industry standards of printing and graphic design, and learn about careers and college studies in the arts, media, and communications industries. Through real-world projects using basic and intermediate techniques of Adobe software, students apply teamwork skills, layout and design techniques, and binding techniques. As a part of the PrintED certified program, students can earn PrintED certification with the successful completion of two years of coursework. Industry certification and articulated college credits may be earned. For more information, please visit *www.gaerf.org*.

ADVANCED GRAPHIC DESIGN & APPLICATIONS TP A/B

Prerequisite: *Graphic Design & Digital Media TP A/B*
5121/5122 (AL) 15 SSL TP **1.5 credits**

In this advanced-level course, students expand on skills and knowledge acquired in the first course. Students develop a portfolio containing graphic design projects for clients in the community and project simulations. Students learn advanced processes such as digital photography and screen printing. This course provides the capstone experience for students pursuing PrintED certification and the necessary credentials for the workplace and postsecondary institutions.

INTERNSHIP, ARTS, HUMANITIES, MEDIA AND COMMUNICATIONS

5717 **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities and relevant workplace experiences.

MULTIMEDIA AND INTERACTIVE TECHNOLOGIES *(4 credits required)*

Offered only at: *Bethesda-Chevy Chase HS, James Hubert Blake HS, Quince Orchard HS*

INTRODUCTION TO INTERACTIVE MEDIA A/B

Corequisite: *Recommended: Foundations of Art A/B*
5195/5196 **0.5 credit**

This engaging course provides an overview of career options and requirements related to the field. Students use storytelling and storyboard development, apply principles of design and use of multimedia technology in project development, and collaborate and problem solve in the course of project development. They develop portfolios that demonstrate corporate/business communications and technical writing, media literacy skills, and an understanding of ethics and security.

WEBSITE DEVELOPMENT A/B

Prerequisite: *2991 prerequisite for 2992*
2991/2992 CM **0.5 credit**

Students learn web design from storyboard to finished online web page and develop actual sites from customers' specifications, using XHTML, CSS, and web editors. Skills in streaming media, audio, and simple animation are developed. Project management provides students with skills to lead teams through projects from inception to completion.

GAME DEVELOPMENT A/B

Prerequisite: *Introduction to Interactive Media A/B*
2804/2805 **0.5 credit**

This is an introductory course for developing simulations and games. Students are introduced to multimedia technologies including: animation, video editing, digital publishing, graphics and sound through application to real world products. Students work collaboratively as designers and media developers to meet the needs of end users in the creation of simulations and games that inform, educate, and entertain.

ADVANCED GAME DEVELOPMENT A/B

2816/2817 CDP (AL) **0.5 credit**

In this advanced course, students are introduced to C# programming and game development with Microsoft XNA Game Studio. In the first semester, students learn core C# skills by programming within console applications. In the second semester, core SNA game development concepts are introduced and applied through experimentation with physics concepts. Students will learn to work collaboratively designing and developing applications creating simulations and games designed to inform, educate, and entertain. Prior programming experience is not necessary to take this course.

WEB TOOLS AND DIGITAL MEDIA, ADVANCED A/B

Prerequisite: *Website Development A/B; 2936 prerequisite for 2937*

2936/2937 CM (AL) **0.5 credit**

This course introduces students to advanced web topics such as webscripting, web server administration, and web-based multimedia tools. Students also study digital media and related topics, including audio, video, graphics, text, and animation tools as well as color and animation concepts.

GUIDED RESEARCH—ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS A/B

Prerequisite: *All required coursework in Arts, Humanities, Media, and Communications program of study*

5310/5311 **0.5 credit**

This course provides an opportunity for students to complete a structured research project to advance their knowledge and skills related to an Arts, Humanities, Media, and Communications career area.

INTERNSHIP, ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS

5717 **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities and relevant workplace experiences.

Career and Technology Education Program of Study in Social Studies

JUSTICE, LAW, AND SOCIETY POS *(4 credits required)*		
Justice, Law, and Society, Introduction A/B	5148/5149	
Law and the Administration of Justice A/B	5146/5147	CDP
Contemporary Issues in Justice, Law, and Society A/B	5144/5145	CM (AL)
Contemporary Issues in Justice, Law, and Society DP	5134	CM (AL) (DP)
Internship—Law, Government, Public Safety and Administration	5142	CM
Guided Research—Law, Government, Public Safety, and Administration A/B	5308/5309	CM

JUSTICE, LAW AND SOCIETY POS *(4 credits required)*

The Justice, Law, and Society program prepares students for further education and careers in law enforcement, legal services, and government and public administration. Students develop critical-thinking skills by solving real-world problems and analyzing public policy related to law, law enforcement, and government. Students use information technology to access, analyze, and evaluate legal research and produce legal documents. Students develop oral and written communication skills for use in presenting legal research and legal documents. Students demonstrate knowledge of the American legal system, including the study of diverse areas of law, causes of crime, and the role of law enforcement, through case studies, interviews with industry representatives, and community service projects. These courses are career education electives.

Offered only at: *Montgomery Blair HS, Northwood HS, Rockville HS, Springbrook HS*

JUSTICE, LAW, AND SOCIETY, INTRODUCTION A/B

5148/5149 **0.5 credit**

Students will deepen their knowledge and understanding of the judicial branch at the national, state, and local levels of government to establish a foundation of understanding of the American legal system; explore careers in criminology; forensic sciences and investigation skills; and police work at local, state, and federal levels; explore a crime from beginning to end through the eyes of the public professional responsible for law enforcement; and examine the same set of facts from a civil perspective.

LAW AND THE ADMINISTRATION OF JUSTICE A/B

Prerequisites: *Introduction to Justice, Law, and Society A or Law I and Introduction to Justice, Law, and Society B*

5146/5147 CDP **0.5 credit**

This yearlong course will focus on law within our society, informing citizens of their rights, and the ability to support a position based on facts. The course begins with an in-depth focus on the Bill of Rights and continues with the consideration of due process, equal protection, and human rights. In the second semester, students will apply their knowledge through mock trail and moot court opportunities. All students will learn and demonstrate critical-thinking and legal-research skills.

CONTEMPORARY ISSUES IN JUSTICE, LAW, AND SOCIETY A/B

Prerequisite: *Law and the Administration of Justice*

5144/5145 CM (AL) **0.5 credit**

5134 CM (AL) (DP) **1.0 credit**

This course provides opportunities for students to explore contemporary issues in the field of law. Students examine topics that have become a significant interest within fields related to Justice, Law, and Society, such as forensic testing, public safety, environmental law, ethics, and homeland security.

INTERNSHIP—LAW, GOVERNMENT, PUBLIC SAFETY, AND ADMINISTRATION

Prerequisite: *At least 2 credits in a related program of study*

5142 CM **0.5 credit**

Students apply knowledge and skill sets acquired in their career pathway programs to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities and relevant workplace experiences.

GUIDED RESEARCH—LAW, GOVERNMENT, PUBLIC SAFETY, AND ADMINISTRATION A/B

Prerequisite: *At least 2 credits in a related program of study*

5308/5309 CM **0.5 credit**

This course provides an opportunity for Law, Government, Public Safety, and Administration students to complete a structured research project to advance their knowledge and skills related to a Law, Government, Public Safety, and Administration career area.

CAREER BASED ELECTIVES

CAREER BASED ELECTIVES		
Law Enforcement and Leadership A/B	5163/5164	CM(AL)

LAW ENFORCEMENT AND LEADERSHIP A/B

5163/5164 CM(AL) (TP) **1.5 Credit**

Law Enforcement and Community Leadership A/B is a triple period course focused on introducing students to the guiding principles of public safety and law enforcement. The course will provide students with many hands on experiences through the use of simulations, structured debates, and inquiry projects. In collaboration with the Montgomery County Police Department, experts from a variety of related criminal justice and law enforcement careers will provide students with real-life applications of course content. Leadership principles also will be incorporated into the course as an essential component of law enforcement and public safety related careers.

Offered only at: *Thomas Edison High School of Technology*

Career and Technology Education Programs of Study in Science

BIOTECHNOLOGY POS *(4 credits required)*		
Biotechnology, Molecular A/B DP (SC)	3867/3868	CM (AL) (DP)
Biotechnology, Special Topics A/B	3871/3872	CM (AL)
Guided Research in Biosciences A/B	3875/3876	CM (AL)
Internship, Biosciences (SC)	3869	CM (AL)
BIOMEDICAL SCIENCES PROJECT LEAD THE WAY (PLTW) POS *(4 credits required)*		
Principles of Biomedical Science A/B	3881/3882	
Human Body Systems A/B	3681/3682	CM (AL)
Medical Interventions A/B	5375/5376	CM (AL)
Biomedical Innovation A/B	3885/3886	(AL)
ACADEMY OF HEALTH PROFESSIONS POS *(4 credits required)*		
Foundations of Medicine and Health Science A/B	4044/4045	
Structures and Functions of the Human Body A/B	4042/4043	CM (AL)
Fundamentals of Pharmacy A/B	3684/3685	CM (AL)
Physical Rehabilitation Science A/B	3887/3888	CM (AL)
Medical Science with Clinical Applications A/B DP	3889/3890	CDP (AL) (DP)
Guided Research in Biosciences A/B	3875/3876	CM (AL)
Internship, Biosciences (SC)	3869	CM (AL)
Internship, Medical Careers	5415	
Certified Clinical Medical Assistant	5447	CM
CERTIFIED PROFESSIONAL HORTICULTURIST (CPH) POS *(4 credits required)*		
Foundations of Horticulture A/B	5535/5536	
Plant Production A/B	5523/5524	(AL)
Landscape Design and Management A/B	5656/5657	(AL)
Internship, Horticulture	5710	
Guided Research—Environmental, Agricultural, and Natural Resources A/B	5304/5305	

BIOTECHNOLOGY POS *(4 credits required)*

Biotechnology is the application of concepts from biochemistry, genetics, and molecular biology. Biotechnology students develop and refine their laboratory and research skills as they improve their scientific investigative techniques. Biotechnology provides an intensive hands-on laboratory program for students utilizing the latest lab equipment and computer technology to investigate the intricacies of protein/DNA science. Laboratory experiences include plant and animal tissue culture, microbiology, polymerase chain reaction techniques, biochemical environmental evaluation, and the latest techniques of recombinant DNA technology. Only courses marked **SC** carry science credit.

Offered only at: *Northwest HS*

BIOTECHNOLOGY, MOLECULAR A/B DP (SC)

Prerequisite: *Biology A/B or Chemistry A/B*
Corequisite: *Chemistry A/B or Biology A/B with Biotechnology*
3867/3868 CM (AL) (DP) **1.0 credit**

This course provides an overview of biotechnology. Students develop problem-solving skills through hands-on laboratory investigations that require them to integrate equipment use and laboratory techniques with background information in microbiology and molecular biology. Infused throughout the curriculum are activities that provide students with an opportunity to practice the application of scientific inquiry, investigation, and bioethics.

BIOTECHNOLOGY, SPECIAL TOPICS A/B

Prerequisite: *Molecular Biotechnology DP A/B, Biology A/B or Chemistry A/B*
3871/3872 CM (AL) **0.5 credit**

This course provides an opportunity for students to engage in advanced studies of biotechnology. Students explore the application of biotechnology to the biological fields of agriculture, environmental science, forensics, and medicine.

GUIDED RESEARCH IN BIOSCIENCES A/B

Prerequisite: *Molecular Biotechnology A/B or Foundations of Medicine and Health Science A/B and Structures and Functions of the Human Body A/B*
3875/3876 CM (AL) **0.5 credit**

Students have the option of completing an industry-mentored project. Students will develop and implement a research project and poster. As they work on this project, they will be mentored by a researcher from the bioscience industry, an academic institution, or a federal laboratory.

INTERNSHIP, BIOSCIENCES (SC)

Prerequisite: *Molecular Biotechnology A/B or Foundations of Medicine and Health Science A/B and Anatomy and Physiology for Health Professions A/B*
3869 CM (AL) **0.5 credit**

This course provides an internship opportunity within the bioscience and healthcare community. Students network and engage in projects with industry professionals to learn the skills necessary for success in a related field. A culminating project will be required to complete the internship.

BIOMEDICAL SCIENCES PROJECT LEAD THE WAY (PLTW) POS *(4 credits required)*

The Project Lead the Way Biomedical Sciences program prepares students to take advantage of the tremendous career opportunities available in health and science. The hands-on, project- and problem-based national curriculum engages students, allows them to explore the wide variety of healthcare and science career options, and equips them with the knowledge and skills necessary to succeed in any post-secondary biomedical sciences or pre-professional program. Students gain a broad foundation in science, mathematics, language arts, and social studies. The curriculum incorporates engineering principles such as design process, feedback loops, and fluid dynamics. Students will gain an awareness of the social, legal, and ethical issues surrounding technological advances related to the biomedical sciences. Only courses marked **SC** carry science credit.

Offered only at: *Gaithersburg HS, Wheaton HS*

PRINCIPLES OF BIOMEDICAL SCIENCE A/B

3881/3882 **0.5 credit**

This course provides an introduction to the biomedical sciences through hands-on projects and problems. Student work involves the study of human medicine, research processes, and an introduction to bio-informatics. Key biological concepts embedded in the curriculum include homeostasis, metabolism, inheritance of traits, feedback systems, and defense against disease. Engineering principles such as the design process, fluid dynamics, and the relationship of structure to function are included.

HUMAN BODY SYSTEMS A/B

Prerequisite: *3881/3882 Principles of Biomedical Science A/B*
3681/3682 CM (AL) **0.5 credit**

This course engages students in the study of basic human physiology, especially in relationship to human health. Students will use a variety of monitors to examine body systems (respiratory, circulatory, nervous) at rest and under stress, and observe the interactions between various body systems. Students will use LabView software to design and build systems to monitor body functions. This course is for students who completed the first biomedical course, and is only offered at PLTW Inc.-approved schools.

MEDICAL INTERVENTIONS A/B

Prerequisites: *3881/3882 Principles of Biomedical Sciences A/B and 3681/3682 Human Body Systems A/B*
5375/5376 CM (AL) **0.5 credit**

This is the third course of the Biomedical Sciences Career program of study. The course explores the design and development of various medical interventions, including vascular stents, cochlear implants, and prosthetic limbs. In addition, students review the history of organ transplants and gene therapy, and stay updated on cutting-edge developments via scientific literature. Using 3D imaging, data acquisition software, and current scientific research students will design a product for medical intervention

BIOMEDICAL INNOVATION A/B

3885/3886 (AL) **0.5 credit**

In this capstone course, students apply their knowledge and skills to answer questions and solve problems related to the biomedical sciences. Students will design innovative solutions for health challenges of the 21st century.

ACADEMY OF HEALTH PROFESSIONS POS

(4 credits required)

The Academy of Health Professions utilizes project and problem-based learning, clinical experiences, and classroom and lab instruction to teach students about the field of health care. Students are introduced to basic health-care knowledge and skills through two foundation courses: Foundation of Medicine and Health Science and Structures and Functions of the Human Body. Opportunities for students to apply foundational course knowledge to real-life health-care situations are offered through specialized course options such as Fundamentals of Pharmacy, Physical Rehabilitation Science, and Medical Science with Clinical Applications. Students will have the opportunity to earn state and/or nationally recognized certifications and/or college credit through articulation agreements with local colleges. Students may choose from several options for program completion. These may include enrollment in a postsecondary institution, internship, or a guided research course. Students are strongly encouraged to complete four years of science. At a minimum, students should take biology and chemistry while enrolled in the program.

Offered only at: *Clarksburg HS, Thomas A. Edison HS of Technology, John F. Kennedy HS, Paint Branch HS, Seneca Valley HS, Sherwood HS, Watkins Mill HS*

FOUNDATIONS OF MEDICINE AND HEALTH SCIENCE A/B

4044/4045 **0.5 credit**

This course is designed to provide students with an overview of the therapeutic, diagnostic, environmental, and information systems of the health-care industry. The course includes medical terminology, medical ethics and documentation, health-care delivery systems and agencies, and an introduction to human body systems. Related mathematical concepts are embedded in the curriculum where appropriate.

STRUCTURES AND FUNCTIONS OF THE HUMAN BODY A/B

Prerequisites: *Foundations of Medicine and Health Science A/B*

4042/4043 CM (AL) **0.5 credit**

Students study the structure and functions of the human body by investigating the body's responses to the external environment, maintenance of homeostasis, electrical interactions, transport systems, and energy processes. Students will conduct laboratory investigations and fieldwork, use scientific methods during investigations to solve problems, and make informed decisions. *Upon completion of this course, students will be eligible to take a medical terminology exam for college credit.*

FUNDAMENTALS OF PHARMACY A/B

Prerequisites: *4044/4045 Foundations of Medicine and Health Science A/B, 4042/4043 Structures and Functions of the Human Body A/B*

Corequisite: *Must be co-enrolled in appropriate math and science courses.*

3684/3685 CM (AL) **0.5 credit**

This course focuses on exposing students to the many career options in pharmacy and pharmaceutical science. Students experience relevant activities that engage them in a rigorous curriculum that integrates academic and technical standards.

PHYSICAL REHABILITATION SCIENCE A/B

Prerequisite: *4044/4045 and 4042/4043*

3887/3888 CM (AL) **0.5 credit**

This course is for students who have completed Foundations of Medicine and Health Science A/B and Structures and Functions of the Human Body A/B. Students are introduced to the world of rehabilitation and therapeutic services. The majority of this course is spent in a lab-based classroom setting for hands-on, relevant training and uses a curriculum developed in partnership with Montgomery College and the National Rehabilitation Hospital Center.

MEDICAL SCIENCE WITH CLINICAL APPLICATIONS A/B DP

Prerequisite: *Grade of B or better in Biology A/B*

Corequisite: *Chemistry A/B*

3889/3890 CDP (AL) (DP) **1.0 credit**

This course enables students to explore careers in the health care industry and gain skills related to patient care practiced in hospitals and long-term-care facilities. Students receive cardiopulmonary resuscitation (CPR) training and may be eligible for certification as a certified nursing assistant.

GUIDED RESEARCH IN BIOSCIENCES A/B

Prerequisites: *Molecular Biotechnology A/B or Foundations of Medicine and Health Science A/B and Structures and Functions of the Human Body A/B*

3875/3876 CM (AL) **0.5 credit**

Students have the option of completing an industry-mentored project. Students will develop and implement a research project and poster. As they work on this project, they will be mentored by a researcher from the bioscience industry, an academic institution, or a federal laboratory.

INTERNSHIP, BIOSCIENCES (SC)

Prerequisite: *Molecular Biotechnology A/B or Foundations of Medicine and Health Science A/B and Anatomy and Physiology for Health Professions A/B*

3869 CM (AL) **0.5 credit**

This course provides an internship opportunity within the bioscience and health-care community. Students network and engage in projects with industry professionals to learn the skills necessary for success in a related field. A culminating project will be required to complete the internship.

INTERNSHIP, MEDICAL CAREERS

Prerequisite: *Grade of B or better in Medical Science with Clinical Applications A/B and CNA*

Corequisite: *Approved upper-level science course*

5415 **0.5 credit**

Students who have successfully completed the program in Grade 11 may elect an internship in Grade 12 for one, two, or three periods, under the supervision of the program teacher. The objectives of the internship are those of the general student internship. Learning activities, however, are specifically related to students' medical career goals. Students must provide their own transportation. Lab fee may be required. Students may enroll in course for more than one period.

CERTIFIED CLINICAL MEDICAL ASSISTANT

5447 CM **0.5 credit**

Prerequisite: *4044/4045 Foundations of Medicine and Health Science A/B, 4042/4043 Structures and Functions of the Human Body A/B*

This course enables students to gain specialized skillset related to facilitating the high demands of a healthcare facility. Students learn to administer medications, assist with minor procedures, obtain laboratory specimens, perform electrocardiograms, provide patient education, and much more. Students have the opportunity to earn and receive credentials as a certified clinical medical assistant.

CERTIFIED PROFESSIONAL HORTICULTURIST (CPH) POS *(4 credits required)*

The Certified Professional Horticulturist (CPH) certification is used by the Maryland "Green Industry." Students complete a sequence of courses, which include Foundations of Horticulture, Plant Production, and Landscape Design and Management. Students have the opportunity to earn the student-level CPH certification by taking and passing the industry exam.

Offered only at: *Clarksburg HS, Damascus HS, Sherwood HS*

FOUNDATIONS OF HORTICULTURE A/B

5535/5536 **0.5 credit**

This course provides students with basic knowledge and skills necessary to pursue careers in the horticultural industry. Students are introduced to the concepts of plant growth and development, plant nomenclature, use of plants in landscape settings, invasive plant species, and principles and components of Integrated Pest Management in controlling insects, diseases, and weeds. In addition, students become aware of career opportunities within the green industry and the economic value of horticultural crops, products, and related services.

PLANT PRODUCTION A/B

Prerequisite: *Foundations of Horticulture A/B*

5523/5524 (AL) **0.5 credit**

Students incorporate market research and product development to successfully plan, produce, and sell greenhouse and nursery crops. They monitor and maintain proper growing conditions, use Integrated Pest Management (IPM) strategies, and develop business plans.

LANDSCAPE DESIGN AND MANAGEMENT A/B

Prerequisite: *Foundations of Horticulture A/B, Plant Production A/B*

5656/5657 (AL) **0.5 credit**

Students conduct extensive analyses of sites, using design tools and methods to prepare and implement landscape designs. Students apply various techniques to install and maintain hardscapes, softscapes, and lawns. Students learn and use sound horticultural and business practices required for entry employment.

INTERNSHIP, HORTICULTURE

Prerequisite: *All course work in the Horticulture Program of Study (POS)*

5710 **0.5 credit**

Students who complete this course are prepared to continue their education at a two- or four-year college or seek employment upon graduation.

GUIDED RESEARCH—ENVIRONMENTAL, AGRICULTURAL, AND NATURAL RESOURCES A/B

Prerequisite: *All required courses in Environmental, Agricultural, and Natural Resources program of study*

5304/5305 **0.5 credit**

This course provides an opportunity for environmental students to complete a structured research project to advance their knowledge and skills related to an environmental, agricultural, and natural resources career area.

Career and Technology Education Programs of Study in Engineering

ADVANCED ENGINEERING TECHNOLOGY PLTW POS *(5 credits required)*		
Principles of Engineering A/B	5150/5151	TE (AL)
Introduction to Engineering Design A/B	5152/5153	TE CM
Civil Engineering and Architecture A/B	4255/4256	CM (AL)
Computer Integrated Manufacturing A/B	5154/5155	CM (AL)
Digital Electronics A/B	5156/5157	CM (AL)
Engineering Design and Development A/B	5158/5159	CM (AL)
Aerospace Engineering A/B	5721/5722	CM (AL)
Internship, Engineering Technology	5709	
Biotechnical Engineering A/B	3644/3645	CM CDP (AL)

ADVANCED ENGINEERING TECHNOLOGY PLTW POS *(5 credits required)*

Project Lead the Way (PLTW) is a national program that forms partnerships with public schools to increase the quantity and quality of engineers and engineering technologists graduating from our educational system.

Offered only at: *Clarksburg HS, Col. Zadok Magruder HS, Paint Branch HS, Poolesville HS, Quince Orchard HS, Rockville HS, Seneca Valley HS, Sherwood HS, Watkins Mill HS, Wheaton HS, Thomas S. Wootton HS*

PRINCIPLES OF ENGINEERING A/B

Prerequisites: *Algebra 1 and Introduction to Engineering Design B*

Corequisite: *Algebra 2*

5150/5151 TE (AL) **0.5 credit**

This is a broad-based survey course to help students understand engineering and engineering technology and identify career possibilities. This course provides an overview of engineering and engineering technology. Students develop problem-solving skills by tackling real-world engineering problems. Through theory and practical hands-on experiences, students address the emerging social and political consequences of technological change.

INTRODUCTION TO ENGINEERING DESIGN A/B

Prerequisite: *Algebra 1*

Corequisite: *College prep math course*

5152/5153 TE CM **0.5 credit**

This introductory course develops students' problem-solving skills, with emphasis on visualization and communication skills, using a computer and a 3-D solid modeling software. This course emphasizes the development of a design using computer software to produce, analyze, and evaluate models of projects and solutions. Students will study the design concepts of form and function and then use state-of-the-art technology to translate conceptual design into reproducible products.

CIVIL ENGINEERING AND ARCHITECTURE A/B

4255/4256 CM (AL) **0.5 credit**

This course provides an overview of the fields of civil engineering and architecture, emphasizing the interrelationship and interdependence of both fields. Students use state-of-the-art software to solve real-world problems and communicate solutions. Students learn about the roles of civil engineers and architects, project planning, site planning, building and engineering design, and project documentation and presentation.

This course is only for students in the Project Lead The Way (PLTW) advanced engineering career pathway. Students must have completed IED and POE and must be taking Algebra 1 or a higher college prep math course concurrently.

COMPUTER INTEGRATED MANUFACTURING A/B

Prerequisites: *Principles of Engineering and Introduction to Engineering Design*

Corequisite: *College prep math course*

5154/5155 CM (AL) **0.5 credit**

This course teaches the fundamentals of computerized manufacturing technology. It builds on the solid-modeling skills developed in the Introduction to Engineering Design course. Students use 3-D computer software to solve design problems. They assess their solutions through mass propriety analysis (the relationship of design, function, and materials), modify their designs, and use prototyping equipment to produce 3-D models.

DIGITAL ELECTRONICS A/B

Prerequisite: *Principles of Engineering and Introduction to Engineering*

Corequisite: *College prep math course*

5156/5157 CM (AL) **0.5 credit**

This course introduces students to applied digital logic, a key element of careers in engineering and engineering technology. Students explore the smart circuits found in watches, calculators, video games, and computers. Students use industry-standard computer software to test and analyze digital circuitry. They design circuits to solve problems and use appropriate components to build their designs. Students use mathematics and science in solving real-world engineering problems.

ENGINEERING DESIGN AND DEVELOPMENT A/B

Prerequisite: *All courses in the PLTW sequence of courses leading up to this capstone course*

Corequisite: *College prep math course*

5158/5159 CM (AL) **0.5 credit**

This is the capstone course for the Project Lead The Way (PLTW) advanced engineering program. At the end of the course, teams present their research papers and defend their projects to a panel of engineers, business leaders, and engineering college educators for a professional review and feedback. This course equips students with the independent study skills that they will need in postsecondary education and careers in engineering and engineering technology.

AEROSPACE ENGINEERING A/B

Prerequisites: *IED, POE, and enrollment in the PLTW advanced engineering program of study*

Corequisite: *College prep math course*

5721/5722 CM (AL) **0.5 credit**

The fields of aeronautics and aerospace engineering are the focus of this engaging course that includes topics of study, such as aerospace information systems, astronautics, rocketry, propulsion, the biology and physics of space science, principles of aeronautics, structures and materials, and systems engineering. Students continue using the national Project Lead The Way (PLTW) model to develop solutions to aerospace problems through the application of engineering, mathematics, and science-related knowledge.

INTERNSHIP, ENGINEERING TECHNOLOGY

Prerequisite: *All course work in the engineering program of study*

5709 **0.5 credit**

Students who complete the Program of Study in engineering are prepared to continue their engineering education at a two- or four-year college or seek employment upon graduation.

BIOTECHNICAL ENGINEERING A/B

3644/3645 CM CDP (AL) **0.5 credit**

Biotechnical Engineering courses enable students to develop and expand their knowledge and skills in biology, physics, technology, and mathematics. Course content may vary widely, drawing upon diverse fields such as biomedical engineering, biomolecular genetics, bioprocess engineering, agricultural biology, or environmental engineering. Students may engage in problems related to biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interfaces, bioprocesses, forensics, and bioethics.

CAREER BASED ELECTIVES

CAREER BASED ELECTIVES		
Principles of Aviation and Aerospace	5693	
Exploring Aviation and Aerospace	5692	
Fire and Rescue 1 A/B	5686/5687	CM (AL)

PRINCIPLES OF AVIATION AND AEROSPACE

5693 **0.5 credit**

The Grade 9 course will provide the foundation for advanced exploration in the areas of flying, aerospace engineering, and unmanned aircraft systems. Students will learn about the engineering process, problem solving, and the innovations and technological developments that have made today's aviation and aerospace industries possible. Students will look at the problem-solving processes and innovative leaps to space exploration from the unimaginable to the common in a single generation. Students also will gain an historical perspective starting from the earliest flying machines to the wide variety of modern aircraft and the integral role they play in making today's world work.

Offered only at: *Col. Zadok Magruder High School.*

EXPLORING AVIATION AND AEROSPACE

Prerequisite: *5693 Principles of Aviation and Aerospace*

5692 **0.5 credit**

This core aerospace and aviation course provides the foundation for the specialized courses within the program of study. It is designed to give students a clear understanding of career opportunities in aviation and aerospace and the critical issues affecting the aviation system. Students also will begin to drill down into the various sectors of aviation and the parts that make up the aviation and aerospace ecosystem. They will discover how advances in aviation created a need for regulation, and will learn about the promulgation of civil aviation oversight. Students will explore modern day innovations and will develop their own innovative ideas to address real-world challenges facing the aviation industry. They will be exposed to a variety of career options in aviation and aerospace and take an in-depth look at the opportunities available. For schools offering multiple pathways, this course will allow students to begin to define their individual interests.

Offered only at: *Col. Zadok Magruder High School.*

FIRE AND RESCUE 1 A/B

5686/5687 CM(AL) **1.5 credit**

Fire and Rescue 1 A/B is a triple-period yearlong course focused on preparing students for careers in fire, emergency medical services, and other health-related fields with the opportunities to earn both national and state certifications. This course will engage students through hands-on experiences, field trips, guest speakers, and real-world exploration. Throughout this course students are challenged to push beyond their limits to be college and career ready. In collaboration with the Montgomery County Public Safety Training Academy, students will gain the necessary skills and knowledge to safely and effectively perform basic firefighting operations as part of a firefighting team and respond to hazardous materials incidents. The formal training will be provided by the Maryland Fire and Rescue Institute of the University of Maryland and will take place at the Montgomery County Public Safety Training Academy, a partial day program. This program will be offered based on availability of funding.

Career and Technology Education Programs of Study in Education

EARLY CHILD DEVELOPMENT POS *(4 credits required)*		
Child and Adolescent Development 1 A/B	4847/4848	5 SSL
Child and Adolescent Development 1 A/B DP	4851/4852	10 SSL (DP)
Child and Adolescent Development 2 A/B	4880/4881	CM (AL) 5 SSL
Child and Adolescent Development 2 A/B DP	4853/4854	CM 10 SSL (DP)
Child and Adolescent Development 3 A/B	4882/4883	CM (AL)
Child and Adolescent Development 3 A/B DP	4868/4869	CM (DP)
Advanced-level Education, Training, and Child Studies Internship	4884	CM (AL) 5 SSL
Guided Research—Education, Training, and Child Studies A/B	5300/5301	

EARLY CHILD DEVELOPMENT POS *(4 credits required)*

Students in the Early Child Development program work with children in a variety of settings and study child development from birth through adolescent stages. Knowledge of physical, intellectual, language, and social and emotional development is applied through planning sessions, teaching, observing, and studying 3- and 4-year-olds in the child development laboratory. Students develop competence in creative teaching techniques.

Offered only at: *Bethesda-Chevy Chase HS, Montgomery Blair HS, James Hubert Blake HS, Clarksburg HS, Damascus HS, Gaithersburg HS, Col. Zadok Magruder HS, Northwest HS, Northwood HS, Walter Johnson HS, Paint Branch HS, Quince Orchard HS, Rockville HS, Seneca Valley HS, Sherwood HS, Springbrook HS, Watkins Mill HS, Wheaton HS, Walt Whitman HS, Thomas S. Wootton HS*

CHILD AND ADOLESCENT DEVELOPMENT 1 A/B

Prerequisite: *4847 prerequisite for 4848; 4851 prerequisite for 4852*

4847/4848 5 SSL **0.5 credit**

4851/4852 10 SSL DP **1.0 credit**

In this introductory course, students become part of an education team that has direct interaction with 4-year-olds in a lab school setting. Students interested in education, pediatric medicine, physical therapy, family law, psychology, and sociology enroll in this course in preparation for college and career experiences. After a rigorous training period, students become part of a team of teachers responsible for the day-to-day workings of a lab school.

CHILD AND ADOLESCENT DEVELOPMENT 2 A/B

Prerequisite: *Child and Adolescent Development 1 A/B; 4853 prerequisite for 4854; 4880 prerequisite for 4801*

4880/4881 CM (AL) 5 SSL **0.5 credit**

4853/4854 CM 10 SSL DP **1.0 credit**

Students will learn to be reflective practitioners using research-based methods of teaching and working with children. Students will analyze data, interpret and apply educational theories, use technology as a teaching tool, and apply developmentally appropriate teaching practices in classroom and field experiences. They will demonstrate leadership skills in communication, critical thinking, and problem solving. As they assume increased responsibilities for program management, students will develop and implement age-appropriate learning experiences for preschoolers. Upon completion of 4880/4881 and all certification requirements, students will be eligible to apply for the 90 + 9 Clock Hours Certification.

CHILD AND ADOLESCENT DEVELOPMENT 3 A/B

Prerequisite: *Child and Adolescent Development 2 A/B; 4868 is prerequisite to 4869; 4882 is prerequisite to 4883*

4882/4883 CM (AL) **0.5 credit**
4868/4869 CM (DP) **1.0 credit**

Students enhance their development of higher-level teaching and observation skills through independent study, research, advocacy projects, and field experiences. Students analyze current research-based instructional practices and classroom management strategies. They complete extensive research on careers in education and other child-related fields of study, in preparation for education internships. Students identify career goals and continue to develop a professional portfolio.

ADVANCED-LEVEL EDUCATION, TRAINING, AND CHILD STUDIES INTERNSHIP

Prerequisite: *At least 2 credits in the Early Child Development POS*

4884 CM (AL) 5 SSL **0.5 credit**

Students apply knowledge and skill sets to a comprehensive field-based experience. Collaborating with mentor teachers and other professionals in educational settings, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences. They analyze the impact that leadership theories; professional ethics; current trends; and parent, community, and government organizations have on contemporary education and the child care industry. Students explore postsecondary education and career options and prepare for the interview process. Students complete a professional portfolio that is aligned with the Interstate New Teacher Assessment and Support Consortium and the MCPS Teacher Performance Standards.

GUIDED RESEARCH—EDUCATION, TRAINING, AND CHILD STUDIES A/B

5300/5301 **0.5 credit**

This course provides an opportunity for Education, Training, and Child Studies students to complete a structured research project to advance their knowledge and skills in career areas related to this cluster.

Career and Technology Education Programs of Study in Entrepreneurship and Business

ACCOUNTING POS *(4 credits required)*

The Accounting program provides students with a comprehensive study of rigorous pathways in accounting or business management. The program provides students with accounting principles and their application to a wide range of business situations, while helping them to develop a strong foundation in business operations. Students learn how to organize, finance, establish, operate, and manage a small business. Students are prepared for the College-level Examination Program, Financial Accounting exam.

Offered only at: *Montgomery Blair HS, James Hubert Blake HS, Albert Einstein HS, Gaithersburg HS, Col. Zadok Magruder HS, Northwest HS, Quince Orchard HS, Seneca Valley HS, Sherwood HS, Springbrook HS, Watkins Mill HS*

ACCOUNTING POS *(4 credits required)*		
Entrepreneurship and Business Management 1 A/B	5450/5451	CM CDP
Accounting A/B	4111/4112	CDP
Accounting, Advanced A/B, Honors	4113/4114	CM CDP (H)
Internship, Business Management and Finance	5471	CDP

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT 1 A/B

Prerequisite: *Software Applications by Design A/B; 5450 prerequisite for 5451*

5450/5451 CM CDP **0.5 credit**

Whether students' dreams involve working at a fast-moving entrepreneurial organization or running an existing company, in this foundational course they learn the skills they need to understand business principles. Student entrepreneurs work in teams to investigate topics such as business opportunities, feasibility studies, development of a business plan, financing alternatives, marketing, and legal forms of organization.

ACCOUNTING A/B

Prerequisite: *4111 prerequisite for 4112*

4111/4112 CDP **0.5 credit**

Want to become a stockbroker, a financial analyst, or run your own business? Using microcomputers for electronic spreadsheets and accounting simulations, students will be able to set up accounts;, prepare qualitative reports; and learn about auditing principles, budgets, and final reports. Emphasis is placed on student interest and how accounting is conducted in our society. Students may receive credit for this course at Montgomery College.

ACCOUNTING, ADVANCED A/B, HONORS

Prerequisite: *Accounting A/B; 4113 prerequisite for 4114*

4113/4114 CM CDP (H) **0.5 credit**

Certified public accountant (CPA), financial analyst, stockbroker, and e-commerce developer—these are just a few of the careers that require an accounting background. This course provides students with a more comprehensive study of accounting principles and the application of these principles to a wide range of business situations. Extended use of microcomputers is an essential component of this course. Students may receive credit for this course at Montgomery College.

INTERNSHIP, BUSINESS MANAGEMENT AND FINANCE

Prerequisite: *At least 2 credits in a Entrepreneurship and Business POS*

5471 CDP **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

BUSINESS ADMINISTRATION POS *(4 credits required)*

Offered only at: *James Hubert Blake HS, Winston Churchill HS, Albert Einstein HS, John F. Kennedy HS, Col. Zadok Magruder HS, Northwood HS, Paint Branch HS, Quince Orchard HS, Springbrook HS, Watkins Mill HS, Walt Whitman HS*

BUSINESS ADMINISTRATION POS *(4 credits required)*		
Software Applications by Design A/B	2903/2904	CDP
Software Applications by Design, Advanced A/B	2905/2906	CM CDP
Entrepreneurship and Business Management 1 A/B	5450/5451	CM CDP
Entrepreneurship and Business Management 2	4135	CM CDP
Personal Finance	4158	CM CDP
Economics and Business Law A/B	4131/4132	CM CDP
International Business	4136	CM CDP
Business Administration Guided Research A/B	4046/4047	CDP
Internship, Business Management and Finance	5471	CDP

SOFTWARE APPLICATIONS BY DESIGN A/B

2903/2904 CDP **0.5 credit**

This course helps prepare students to take the Microsoft Office Specialist (MOS) certification core-level examinations for Microsoft Word, Excel, Access, and PowerPoint. Students will design and complete word processing, desktop publishing, spreadsheet, database, and multimedia projects that reinforce the MOS standards taught throughout this course.

SOFTWARE APPLICATIONS BY DESIGN, ADVANCED A/B

Prerequisite: *Software Applications by Design A/B 2903/2904*

2905/2906 CM CDP **0.5 credit**

Building on knowledge and skills learned in Software Applications by Design, students will use project-based learning to apply advanced skills in Microsoft Word and Excel along with the development of digital portfolios. Students may elect to take the Microsoft Office Specialist certification expert-level examination for Word and Excel at the conclusion of this course.

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT 1 A/B

Prerequisite: *5450 is the prerequisite for 5451*

5450/5451 CM CDP **0.5 credit**

Whether students' dreams involve working at a fast-moving entrepreneurial organization or running an existing company, in this foundational course they learn the skills they need to understand business principles. Student entrepreneurs work in teams to investigate topics such as business opportunities, feasibility studies, development of a business plan, financing alternatives, marketing, and legal forms of organization.

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT 2

Prerequisites: *Entrepreneurship and Business Management A/B*

4135 CM CDP **0.5 credit**

Students who have experienced entrepreneurial thinking and entrepreneurship concepts in the Entrepreneurship and Business Management 1 course extend their business acumen in this course. They learn more about organizing, financing, establishing, operating, and managing their own small businesses. Small business owners and managers will be invited to share authentic experiences with the students. Students complete a comprehensive business plan by the end of this course.

PERSONAL FINANCE

4158 CM CDP **0.5 credit**

This course is designed to help students identify and learn personal strategies for managing financial resources. Investment simulations are used to focus on the importance of managing funds and investing wisely. Topics include consumerism, personal finance, credit, and investment planning.

ECONOMICS AND BUSINESS LAW A/B

4131/4132 CM CDP **0.5 credit**

For those students contemplating becoming a lawyer or paralegal in the business community, this course introduces topics involving supply and demand theory, inflation, unemployment, fiscal and monetary policy, government regulations, and international trade. Students investigate how economics concepts impact decision making in the world of business. Students focus on evaluating both sides of an issue and making decisions based on facts.

INTERNATIONAL BUSINESS

4136 CM CDP **0.5 credit**

This course is designed for students who want to understand how business is conducted in other countries and who want to develop global business perspectives as well as sensitivities toward diverse cultures and customs. International marketing strategies, economic concepts, history, the role of geography in trade, monetary systems, trade agreements, and future trends will be some of the topics that students investigate.

BUSINESS ADMINISTRATION GUIDED RESEARCH A/B

4046/4047 CDP **0.5 credit**

This course provides an opportunity for business students to complete a structured research project related to a business-career area.

INTERNSHIP, BUSINESS MANAGEMENT AND FINANCE

Prerequisite: *At least 2 credits in a Entrepreneurship and Business POS*

5471 CDP **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

MARKETING POS *(4 credits required)*

The Marketing program focuses on a creative, dynamic, and competitive field that requires a skilled professional understanding of consumer behavior and economic trends. Students learn the basics of economics and the total marketing process—from producer to consumer. Business organizations, marketing services, and the managerial responsibilities of marketing executives are studied. Students are prepared for the College-Level Examination Program, Principles of Marketing exam.

Offered only at: *Montgomery Blair HS, James Hubert Blake HS, Gaithersburg HS, John F. Kennedy HS, Col. Zadok Magruder HS, Northwest HS, Northwood HS, Sherwood HS, Springbrook HS, Watkins Mill HS, Thomas S. Wootton HS*

MARKETING POS *(4 credits required)*		
Marketing A/B	5431/5432	
Advanced Marketing A/B	5433/5434	
Entrepreneurship and Business Management 1 A/B	5450/5451	CM CDP
Internship, Business Management and Finance	5471	CDP

MARKETING A/B

Prerequisite: *Marketing A is a prerequisite for Marketing B*

5431/5432 **0.5 credit**

Students learn economics and the role of marketing in today's global economy. This course includes a study of human relations, business organizations, market services, competition, and market research.

ADVANCED MARKETING A/B

Prerequisite: *Marketing A/B; 5433 prerequisite for 5434*

5433/5434 **0.5 credit**

Students explore the managerial responsibilities of marketing executives and analyze common management-technique problems. Students investigate how marketing concepts affect decision making in the world of business.

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT 1 A/B

Prerequisite: *Software Applications by Design A/B; 5450 prerequisite for 5451*

5450/5451 CM CDP **0.5 credit**

Whether students' dreams involve working at a fast-moving entrepreneurial organization or running an existing company, in this foundational course they learn the skills they need to understand business principles. Student entrepreneurs work in teams to investigate topics such as business opportunities, feasibility studies, development of a business plan, financing alternatives, marketing, and legal forms of organization.

INTERNSHIP, BUSINESS MANAGEMENT AND FINANCE

Prerequisite: *At least 2 credits in a Entrepreneurship and Business POS*

5471 CDP **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

Career and Technology Education Programs of Study in Consumer Services, Hospitality and Tourism

COSMETOLOGY POS *(9 credits required)*

Cosmetology, the science of personal beauty care, is a three-year program that requires 1,500 hours of instruction and allows the student entrance to the Maryland State Board Examination for an operator's license. Students receive practical instruction in hair care, hair coloring, hair shaping, hair styling, and chemical hair relaxing. Related theory instruction emphasizes hygiene and sanitation, professional ethics, salon management, chemistry, bacteriology, and anatomy and physiology. Students will be required to take the Maryland State Board of Cosmetologists Examination at the end of the program. Course fees may apply.

Offered only at: *Gaithersburg HS, Thomas Edison HS of Technology*

COSMETOLOGY POS *(9 credits required)*		
Cosmetology 1 A/B TP	5583/5647	15 SSL TP
Cosmetology 2 A/B TP	5645/5646	15 SSL TP
Cosmetology 3 A/B TP	5587/5648	15 SSL TP

COSMETOLOGY 1 A/B (TP)

5583/5647 15 SSL TP **1.5 credits**

Upon completion of Cosmetology 1, students will be able to practice sanitation and sterilization procedures; give shampoos and various types of rinses; treat a variety of hair and scalp conditions; identify and describe skin and hair disorders; demonstrate professional ethics, good grooming, and poise; and have knowledge of a wide range of career options.

COSMETOLOGY 2 A/B (TP)

Prerequisite: *Cosmetology 1 A/B*

5645/5646 15 SSL TP **1.5 credits**

Upon completion of this course, students will be able to administer skin tests prior to applying tints and toners to patrons; identify and describe anatomical and physiological systems; use electrical frequency equipment for facials and scalp treatments; give a complete permanent wave; give a chemical hair relaxing treatment; and apply tints and highlighting.

COSMETOLOGY 3 A/B (TP)

Prerequisites: *Cosmetology 1 A/B and 2 A/B*

5587/5648 15 SSL TP **1.5 credits**

Upon completion of Cosmetology 3, students will be able to do marcel waving and various sets and comb-outs, give a variety of facials, use chemical relaxers, and acquire and apply knowledge of theory to practicing cosmetology and managing a salon.

HOSPITALITY MANAGEMENT POS *(4 credits required)*

The Hospitality Management program offers students opportunities to pursue interests and gain proficiency in all aspects of the food industry, preparing them for a variety of career options. The need for dietary consultants, food scientists, nutritionists, chefs, food service managers, and educators continues to expand. Nutrition, food safety, and sanitation are emphasized as students practice all aspects of meal planning and preparation. ProStart outcomes have been infused into the curriculum, providing students with authentic work-based skills. Students have opportunities to take the ServSafe and ProStart™ examinations for certification. Course fees may apply.

Offered only at: *Albert Einstein HS, Gaithersburg HS, Col. Zadok Magruder HS, Rockville HS, Sherwood HS, Springbrook HS, Watkins Mill HS*

HOSPITALITY MANAGEMENT POS *(4 credits required)*		
International Cultures and Cuisines A/B	4630/4640	5 SSL
Culinary Essentials A/B	4825/4826	
Internship, Human and Consumer Services, Hospitality and Tourism	4816	

INTERNATIONAL CULTURES AND CUISINES A/B

Prerequisite: *4630 prerequisite for 4640*

4630/4640 5 SSL **0.5 credit**

International Cultures and Cuisines examines the emphasis on food as it relates to the culture of other countries or cultural groups in the United States. Workforce trends, career paths, and postsecondary requirements are examined.

CULINARY ESSENTIALS A/B

Prerequisite: *4630 and 4640 prerequisite for 4825, and 4825 prerequisite for 4826*

4825/4826 **0.5 credit**

Students refine their culinary and food-service skills in a laboratory setting and build important skills for postsecondary education and careers. Attention is given to all aspects of careers in the hospitality industry.

INTERNSHIP, HUMAN AND CONSUMER SERVICES, HOSPITALITY AND TOURISM

Prerequisite: *At least 2 credits in a Human and Consumer Services, Hospitality and Tourism POS*

4816 **0.5 credit**

Students apply knowledge and skill sets acquired in their programs of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

ACADEMY OF HOSPITALITY AND TOURISM (AOHT) POS *(4 credits required)*

The National Academy of Hospitality and Tourism, a member of the National Academy Foundation, addresses the needs of the hospitality industry by providing high school students with the education required for a successful career. The Academy provides a curriculum that provides an in-depth look at all aspects of hospitality and tourism, including coursework in business, geography, hospitality, and economics.

Offered only at: *Thomas Edison HS of Technology*

ACADEMY OF HOSPITALITY AND TOURISM (AOHT) POS *(4 credits required)*		
Hospitality and Tourism A/B	5398/5399	5 SSL
Economics for AOHT	5400	5 SSL
Hospitality for AOHT	5401	5 SSL
Systems for AOHT	5402	5 SSL
Travel Geography for AOHT A/B	5403/5407	5 SSL
Internship, NAF	5720	CM (AL)
Guided Research—NAF A/B	2938/2939	CM (AL)
Guided Research for Human and Consumer Services, Hospitality and Tourism A/B	5394/5395	

HOSPITALITY AND TOURISM A/B

Prerequisite: *Semester A required before B*

5398/5399 5 SSL **0.5 credit**

This course introduces students to various components of this industry. Students are given an overview of aspects of business and marketing, opportunities to practice consumer service principles, and exposure to the various careers available in hospitality and tourism.

ECONOMICS FOR AOHT

5400 5 SSL **0.5 credit**

This economics principles and practices course parallels the concepts taught in a general high school economics course. Academy of Hospitality and Tourism students take this course in lieu of the economics course offered at their school. Throughout the course, examples of economics principles are drawn from the world of hospitality and tourism in order to integrate rigorous academic learning and practical business applications.

HOSPITALITY FOR AOHT

5401 5 SSL **0.5 credit**

This course examines the various components of hospitality, including marketing and sales, lodging management, front desk operations, food and beverage, and culinary services. Students explore various career options in hospitality and tourism.

SYSTEMS FOR AOHT

5402 5 SSL **0.5 credit**

This course provides an overview of the systems and technology that provide infrastructure for the hospitality and tourism industry, including reservations, transportation, and online systems. Students will learn how to apply these technology principles to multiple aspects of the industry.

TRAVEL GEOGRAPHY FOR AOHT A/B

5403/5407 5 SSL **0.5 credit**

This course focuses on helping students develop broad geographic knowledge and skills. Students learn how to use the tools of the geographer as they examine travel geography in relation to the hospitality and tourism industry.

INTERNSHIP, NAF

Prerequisite: *At least 2 credits in a National Academy Foundation POS*

5720 CM (AL) **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences. This is a required course for National Academy Foundation students.

GUIDED RESEARCH—NAF A/B

Prerequisite: *At least 2 credits in a related program of study*

2938/2939 CM (AL) **0.5 credit**

This course provides an opportunity for National Academy students to apply the knowledge and skill sets from their programs of study to complete a structured research project or authentic internship. Students may collaborate with professionals and mentors in the related career field and participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

GUIDED RESEARCH FOR HUMAN AND CONSUMER SERVICES, HOSPITALITY AND TOURISM A/B

5394/5395 **0.5 credit**

This course provides an opportunity for Human and Consumer Services, Hospitality and Tourism students to complete a structured research project to advance their knowledge and skills in career areas related to this cluster.

PROFESSIONAL RESTAURANT MANAGEMENT POS *(4 credits required)*

The Professional Restaurant Management program provides students with the opportunity to explore the many career opportunities available in the food service industry. Students develop skills for employment based on industry standards. Students learn safety and sanitation principles, professional food-handling techniques, and quantity preparation through the use of commercial equipment and systems technology. Nutrition, menu planning, food cost control, and workplace skills are emphasized throughout the program. The American Culinary Federation (ACF) has certified this program and ACF outcomes have been infused into the curriculum, providing industry-based experiences. Students have opportunities to take the ServSafe exam and the National Occupational Competency Testing Institute examinations for certification. Course fees may apply.

Offered only at: *Damascus HS, Thomas Edison HS of Technology, Paint Branch HS*

PROFESSIONAL RESTAURANT MANAGEMENT POS *(4 credits required)*		
Professional Restaurant Management DP 1 A/B	4823/4824	10 SSL DP
Professional Restaurant Management 1 A/B TP	4834/4835	15 SSL TP
Professional Restaurant Management DP 2 A/B	4841/4842	10 SSL DP
Professional Restaurant Management 2 A/B TP	4837/4838	15 SSL TP
Internship, Human and Consumer Services, Hospitality and Tourism	4816	
Guided Research for Human and Consumer Services, Hospitality and Tourism A/B	5394/5395	

PROFESSIONAL RESTAURANT MANAGEMENT 1 A/B

Prerequisite: *4821 before 4822; 4823 before 4824*

4823/4824 10 SSL DP **1.0 credit**

4834/4835 15 SSL TP **1.5 credits**

Level I of Restaurant Management is designed to enable students to survey careers in the food-service industry as well as learn the basics of commercial food preparation through the operation of a restaurant and in-house catering.

PROFESSIONAL RESTAURANT MANAGEMENT 2 A/B

Prerequisite: *Professional Restaurant Management 1 A/B; 4831 prerequisite for 4832; 4841 prerequisite for 4842*

4841/4842 10 SSL DP **1.0 credit**

4837/4838 15 SSL TP **1.5 credits**

Level II Restaurant Management is designed to expand managerial knowledge and skills necessary for careers in the food-service industry. Students gain additional experience through a variety of food service projects.

INTERNSHIP, HUMAN AND CONSUMER SERVICES, HOSPITALITY AND TOURISM

Prerequisite: *At least 2 credits in a Human and Consumer Services, Hospitality and Tourism POS*

4816 **0.5 credit**

Students apply knowledge and skill sets acquired in their programs of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

GUIDED RESEARCH FOR HUMAN AND CONSUMER SERVICES, HOSPITALITY AND TOURISM A/B

5394/5395 **0.5 credit**

This course provides an opportunity for Human and Consumer Services, Hospitality and Tourism students to complete a structured research project to advance their knowledge and skills in career areas related to this cluster.

CAREER BASED ELECTIVES

CAREER BASED ELECTIVES		
Food Trends and Technology A/B	4204/4205	CM
Child and Adolescent Development A/B (without Preschool lab)	4872/4873	
Professional Restaurant Management 1 A/B	4821/2822	5 SSL
Professional Restaurant Management 2 A/B	4831/4832	5 SSL

FOOD TRENDS AND TECHNOLOGY A/B

Prerequisite: *Food Trends and Technology A required before B*

4204/4205 CM **0.5 credit**

Food Trends and Technology examines the interrelationship of food, technology, science, and nutrition. A scientific approach to laboratory experiences allows students to prepare and evaluate specific foods and their properties. Units emphasize all aspects of food preparation, from production through consumption. Students research the role technology plays in food processing and study culinary techniques of the past, present, and future.

CHILD AND ADOLESCENT DEVELOPMENT A/B (WITHOUT PRESCHOOL LAB)

4872/4873 **0.5 credit**

This course focuses on human development from birth through adolescence. Emphasis is placed on theories of physical, cognitive, and psychosocial development; environmental factors; the role of caregivers and the family; health and safety concerns; and contemporary issues. Students interested in education, pediatric medicine, physical therapy, family law, psychology, and sociology enroll in this course in preparation for college and career experiences.

PROFESSIONAL RESTAURANT MANAGEMENT 1 A/B

Prerequisite: *4821 before 4822; 4823 before 4824*

4821/4822 5 SSL **0.5 credit**

Level I of Restaurant Management is designed to enable students to survey careers in the food industry as well as learn the basics of commercial food preparation through the operation of a restaurant and in-house catering.

PROFESSIONAL RESTAURANT MANAGEMENT 2 A/B

Prerequisite: *Professional Restaurant Management 1 A/B; 4831 prerequisite for 4832; 4841 prerequisite for 4842*

4831/4832 5 SSL **0.5 credit**

Level II Restaurant Management is designed to expand managerial knowledge and skills necessary for careers in the food service industry. Students gain additional experience through a variety of food-service projects.

Career and Technology Education Program of Study in Finance

NATIONAL ACADEMY OF FINANCE *(4 credits required)*		
Accounting A/B	4111/4112	CDP
Entrepreneurship and Business Management 1 A/B	5450/5451	CM CDP
Financial Planning	4103	CM CDP (AL)
Banking and Credit	4104	CM CDP
Economics and the World of Finance	4106	CM CDP
International Finance	4107	CM CDP (AL)
Securities and Insurance	4138	CM CDP (AL)
Internship, NAF	5720	CM (AL)
Guided Research—NAF A/B	2938/2939	CM (AL)
Introduction to Financial Services	4137	CDP

NATIONAL ACADEMY OF FINANCE *(4 credits required)*

The National Academy of Finance is a member of the NAF, *a national network of education, business, and community leaders who work together to ensure high school students are college, career, and future ready.* In this program, students receive intensive coursework in economics and business principles. For more information, visit *www.naf.org*.

Offered only at: *Albert Einstein HS, Gaithersburg HS, Col. Zadok Magruder HS, Northwest HS, Paint Branch HS, Watkins Mill HS*

ACCOUNTING A/B

Prerequisite: *4111 prerequisite for 4112*

4111/4112 CDP **0.5 credit**

Want to become a stockbroker, a financial analyst, or run your own business? Using microcomputers for electronic spreadsheets and accounting simulations, students will be able to set up accounts; prepare qualitative reports; and learn about auditing principles, budgets, and final reports. Emphasis is placed on student interest and how accounting is conducted in our society. Students may receive credit for this course at Montgomery College.

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT 1 A/B

Prerequisite: *Software Applications by Design A/B; 5450 prerequisite for 5451*

5450/5451 CM CDP **0.5 credit**

Whether students' dreams involve working at a fast-moving entrepreneurial organization or running an existing company, in this foundational course they learn the skills they need to understand business principles. Student entrepreneurs work in teams to investigate topics such as business opportunities, feasibility studies, development of a business plan, financing alternatives, marketing, and legal forms of organization.

FINANCIAL PLANNING

4103 CM CDP (AL) **0.5 credit**

This course introduces students to the financial planning process and the components of a comprehensive financial plan. Students learn how to prepare a financial plan that includes saving, investing, borrowing, risk management (insurance), retirement, and estate planning.

BANKING AND CREDIT

Corequisite: *Accounting A*

4104 CM CDP **0.5 credit**

Banking and Credit includes a survey of the principles and practices of banking and credit in the United States. Students learn about the major functions of banks and other depository institutions, in-house operations and procedures, central banking through the Federal Reserve System, and modern trends in the banking industry. The credit component provides an overview of credit functions and operations, including credit evaluation, loan creation, and debt collection.

ECONOMICS AND THE WORLD OF FINANCE

Corequisite: *Accounting A*

4106 CM CDP **0.5 credit**

Economics and the World of Finance includes macro- and microeconomics and teaches students how our market economy functions in a global setting. It provides students with a survey of economic concepts. A unit on capital markets acquaints the students with the role that various markets and securities play in the U.S. economy.

INTERNATIONAL FINANCE

Corequisite: *Accounting A*

4107 CM CDP (AL) **0.5 credit**

This course provides students with opportunities to explore major components of the international financial system. It includes the study of foreign trade, the international monetary system, foreign exchange rates, foreign exchange markets, international financial markets, international banking, and the multinational corporation.

SECURITIES AND INSURANCE

Prerequisite: *Accounting A/B*

4138 CM CDP (AL) **0.5 credit**

Through a study of the structure of brokerage firms, the trading process, credit and margin practices, automated processes, government regulations, and licensing procedures, students gain an understanding of how a securities firm services its customers and plays an important role in our economy. This course also introduces students to various elements of the insurance industry, including insurance needs and products for businesses and individuals.

INTERNSHIP, NAF

Prerequisite: *At least 2 credits in a National Academy Foundation POS*

5720 CM (AL) **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences. This is a required course for National Academy Foundation students.

GUIDED RESEARCH—NAF A/B

Prerequisite: *At least 2 credits in a related program of study*

2938/2939 CM (AL) **0.5 credit**

This course provides an opportunity for National Academy students to apply the knowledge and skill sets from their programs of study to complete a structured research project or authentic internship. Students may collaborate with professionals and mentors in the related career field and participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

INTRODUCTION TO FINANCIAL SERVICES

4137 CDP **0.5 credit**

Introduction to Financial Services introduces students to the various sectors of the financial services industry. The objective of this course is to help students learn about both the nature of the careers found in a particular sector and the scope of the work that comprises businesses such as insurance, real estate, public finance, accounting, and the securities industry.

Foundations Programs of Study

Four credits in a state-approved POS may be used to complete Option 3 of elective credits required for graduation.

The Montgomery County Student Foundations Office serves as a liaison between the business/professional community and MCPS, by coordinating three separate nonprofit educational foundations that prepare students for a wide range of post-secondary options within the automotive, construction, and information technology industries.

Programs provide instruction in classroom and laboratory settings with state-of-the-art technology, along with authentic, real-world experiences for students through rigorous curriculum, career pathway programs, industry certification opportunities, community business partnerships, entrepreneurial projects, scholarships/awards, SSL hours, and articulation agreements through which students may earn college credit. Additional information is at *www.montgomeryschoolsmd.org/curriculum/foundations/.*

Automotive Trades Foundation Programs are located at Damascus, Edison, Gaithersburg, and Seneca Valley high schools. Three student-run car sales per school year are held, selling more than 2,000 renovated vehicles to date. Students also donate one renovated vehicle yearly to a deserving Montgomery County organization.

Construction Trades Foundations Programs are located at Thomas Edison High School of Technology. Students design, construct, and market student-built houses; 40 houses have been built and sold thus far in Montgomery County. Students are working on the 41st house.

Information Technology Programs in computer repairs and networking (Network Operations) are located at Clarksburg and Thomas Edison high schools. Students in these programs refurbish, market, and sell donated computers to the community and donate a lab yearly to a deserving Montgomery County nonprofit organization. Cisco Networking Academies are located in seven MCPS high schools: Bethesda-Chevy Chase, Damascus, Gaithersburg, Quince Orchard, Seneca Valley, Springbrook, and Wootton. Students in both programs can earn valuable industry-standard CompTIA and Cisco certifications and college credits; and they can obtain internships in the IT field. More than 13 high schools have recently piloted Code.org courses and a new Computer Science pathway that includes robotics units. Students can take 2 AP credits in the pathway as well as college credits and internships. Six of our high schools are affiliated with the National Academy Foundation (NAF) Academy of Information Technology (AOIT) and offer pathways in computer programming, computer science, networking, and information resource design.

Career and Technology Education Construction Trades Foundation Programs

The Construction and Development Cluster offers two career pathways. A design pathway with the Principles of Architecture and CAD Technology program and a construction pathway that includes five construction craft programs. The design and construction of a student house project is part of the students' experience. The curricula for all of the programs have postsecondary articulation agreements. These programs also are supported by the Montgomery County Students Construction Trades Foundations, Inc. This nonprofit foundation is a cooperative venture of the school system and volunteers from local businesses and professionals within the construction industry.

In partnership with Montgomery College, the Montgomery County Students Construction Trades Foundation, Inc. provides an opportunity for students to enroll in two Construction Management classes CGMT 100 Construction Methods and Materials, and CGMT110, Construction Plan Reading. Both classes are taught at Montgomery College, with students receiving dual-enrollment credit. Enrollment is limited and subject to meeting Montgomery College entrance requirements. Contact the Foundations Office at 301-740-2050 for application information.

CONSTRUCTION TRADES FOUNDATION PROGRAMS		
Foundations of Building and Construction Technology	5561/5562	TP
Advanced Construction Management 1 A/B TP CM (AL)	5680/5681	TP

Offered only at: *Thomas Edison HS of Technology*

FOUNDATIONS OF BUILDING AND CONSTRUCTION TECHNOLOGY

5561/5562 (TP) **1.5 credits**

This course is designed for students new to the construction industry. Students experience hand-on activities related to carpentry; electricity; heating, ventilation, and air conditioning (HVAC); masonry; and plumbing in one semester. Standards covered in the core curriculum include basic safety; introduction to construction math; introduction to hand tools; introduction to power tools; introduction to construction drawings; basic rigging; basic communication skills; basic employability skills; and introduction to materials handling.

ADVANCED CONSTRUCTION MANAGEMENT 1 A/B

5680/5681 (TP) **1.5 credits**

This course covers the characteristics, specifications, properties, terminology, and use of construction materials. The course emphasizes principles and methods for the selection and application or installation of materials and building components. Students learn about construction documents, with emphasis on interpreting contract drawings. Topics include terminology, symbols, and conventions used in both commercial and residential drawings and methods and procedures for reading basic architectural and structural drawings. *This class qualifies for advanced-level credit.*

CARPENTRY POS *(4 credits required)*

The Carpentry program provides students with opportunities to learn about the home-building industry. Participants in this program master a variety of construction skills. Students apply their knowledge and skills by participating in the student-built house project. Students who complete this program are eligible to receive credit at Montgomery College in the Construction Technology program, as well as industry-recognized credentials through the National Center for Construction Education and Research.

Offered only at: *Thomas Edison HS of Technology*

CARPENTRY—POS *(4 credits required)*		
Carpentry 1 A/B	5100/5101	15 SSL TP
Carpentry 2 A/B	5639/5640	15 SSL TP
Internship, Carpentry	5705	

CARPENTRY 1 A/B

5100/5101 15 SSL TP **1.5 credits**

Standards covered include orientation to the trade; building materials, fasteners, and adhesives; hand and power tools; reading plans and elevations; floor systems; wall and ceiling framing; roof framing; introduction to concrete, reinforcing materials, and forms; windows and exterior doors; and basic stair layout.

CARPENTRY 2 A/B

Prerequisite: *Carpentry 1 A/B*

5639/5640 15 SSL TP **1.5 credits**

Standards covered include commercial drawings; roofing applications; thermal and moisture protection; exterior finishing; cold-formed steel framing; drywall installation; drywall finishing; doors and door hardware; suspended ceilings; windows, doors, floors, and ceiling trim; cabinet installation; and cabinet fabrication.

INTERNSHIP, CARPENTRY

Prerequisite: *Carpentry 1 A/B*

5705 **0.5 credit**

This course provides an internship opportunity related to construction and carpentry. *May be repeated for credit.*

CONSTRUCTION ELECTRICITY POS *(4 credits required)*

The Construction Electricity program provides students with opportunities to learn about the residential and commercial building industry. Participants master a variety of electrical skills and develop workplace competencies through authentic experiences. Students apply their knowledge and skills to the student-built house project. Students who complete this program are eligible to receive credit at Montgomery College in the Construction Technology program, as well as industry- recognized credentials through the National Center for Construction Education and Research.

CONSTRUCTION ELECTRICITY—POS *(4 credits required)*		
Electricity (Construction) 1 A/B	5109/5110	15 SSL TP
Electricity (Construction) 2 A/B	5595/5596	AT 15 SSL TP
Internship, Electricity (Construction)	5708	

Offered only at: *Thomas Edison HS of Technology*

ELECTRICITY (CONSTRUCTION) 1 A/B TP

5109/5110 15 SSL TP **1.5 credits**

Standards covered include orientation to the electrical trade; electrical safety; introduction to electrical circuits; electrical theory; introduction to the National Electrical Code; device boxes; hand bending; raceways and fittings; conductors and cables; basic electrical construction drawings; residential electrical services; and electrical test equipment.

ELECTRICITY (CONSTRUCTION) 2 A/B TP

Prerequisite: *Electricity (Construction) 1 A/B*

5595/5596 15 SSL TP **1.5 credits**

Standards covered include alternating current; motors: theory and application; electric lighting; conduit bending; pull and junction boxes; conductor installations; cable tray; conductor terminations and splices; grounding and bonding; circuit breakers and fuses; and control systems and fundamental concepts.

INTERNSHIP, ELECTRICITY (CONSTRUCTION)

Prerequisite: *Electricity (Construction) 1 A/B*

5708 **0.5 credit**

This course provides an internship opportunity related to construction and electricity. *May be repeated for credit.*

PRINCIPLES OF ARCHITECTURE AND CAD TECHNOLOGY POS *(4 credits required)*

The Principles of Architecture and Computer-Assisted Drafting (CAD) Technology is a two-year program that provides an opportunity for students to complete a design pathway. Designing and engineering of physical structures from original concept to complete architectural and engineering plans that include using AutoCAD software are the major elements of the program. Upon graduation, students will be capable of furthering their education in a number of careers in the construction industry that are related to developing, designing, constructing, and maintaining the built environment. Students who complete this program are eligible to receive credit at Montgomery College in the Architectural Technology program.

PRINCIPLES OF ARCHITECTURE AND CAD TECHNOLOGY—POS *(4 credits required)*		
Architectural Drafting Techniques	5103	TP
Computer-Assisted Drafting (CAD) Technology: Architectural Applications	5104	TP
Residential Design Studio	5106	CM 15 SSL TP
Advanced CAD Applications	5107	CM TP
Internship, Principles of Architecture and CAD Technology	5707	

Offered only at: *Thomas Edison HS of Technology*

ARCHITECTURAL DRAFTING TECHNIQUES TP

5103 (TP) **1.5 credits**

This course is an introduction to the techniques and applications to architectural drafting. It is organized around a series of exercises, drawings, and readings that include general drafting techniques; introduction to residential architecture; sketching and free-hand drawings; view development; geometric construction; pictorial drawing; light construction principles; floor plan development; elevation development; foundation development; and perspective development.

COMPUTER-ASSISTED DRAFTING (CAD) TECHNOLOGY: ARCHITECTURAL APPLICATIONS TP

Prerequisite: *Architectural Drafting Techniques*

5104 (TP) **1.5 credits**

This course is an introduction to Computer-Assisted Drafting (CAD) Technology as it applies to architectural drawings. The major focus is on mastering AutoCAD commands and drawing techniques needed in the field of architecture/design/construction. Topics include drawing shapes and constructions, editing operations that increase productivity, dimensioning and using text, creating symbols, and plotting. Students create a series of drawings with the final assignment being a set of plans.

RESIDENTIAL DESIGN STUDIO TP

Prerequisite: *Computer-Assisted Drafting (CAD) Technology: Architectural Applications*

5106 CM 15 SSL TP **1.5 credits**

During this course, the Montgomery County Students Construction Trades Foundation, Inc. sponsors a house design competition for the Young American House Program. Students design a single family house that meets established design standards. Students' plans are reviewed periodically by an architectural committee. The primary student outcome is the development of a set of working drawings that meet permitting standards of the Montgomery County Department of Permitting Services.

ADVANCED CAD APPLICATIONS TP

Prerequisite: *Residential Design Studio*

5107 CM (TP) **1.5 credits**

This course provides further utilization of the knowledge and skills taught in Computer-Assisted Drafting (CAD) Technology: Architectural Applications. Students learn to use an advanced system of third-party software designed specifically for architectural and engineering offices. They also learn to develop attributes and other specialized systems necessary to interface their drafting work with other professionally related programs and to customize program menus.

INTERNSHIP, PRINCIPLES OF ARCHITECTURE AND CAD TECHNOLOGY

Prerequisite: *Computer-Assisted Drafting (CAD) Technology: Architectural Applications*

Corequisite: *Architectural Drafting Techniques*

5707 **0.5 credit**

Students will have an opportunity to work in an office related to architecture, design, and/or construction. *This course may be repeated for credit.*

HEATING AND AIR CONDITIONING POS
(4 credits required)

The Heating and Air Conditioning program prepares students for the challenges and demands of an exciting and technical career. Students learn a variety of basic and advanced heating, ventilating, and air conditioning (HVAC) principles in a combination of classroom and work-site experiences. An integral part of the instructional program is participation in the student-built house project. Students completing this program are eligible to receive credit at Montgomery College in the Construction Technology program, as well as industry-recognized credentials through the National Center for Construction Education and Research.

HEATING AND AIR CONDITIONING POS *(4 credits required)*		
Heating, Ventilation, and Air Conditioning 1 A/B TP	5123/5129	15 SSL TP
Heating, Ventilation, and Air Conditioning 2 A/B TP	5127/ 5128	15 SSL TP
Internship, Heating, Ventilation, and Air Conditioning	5711	

Offered only at: *Thomas Edison HS of Technology*

HEATING, VENTILATION, AND AIR CONDITIONING 1 A/B TP
5123/5129 15 SSL TP **1.5 credits**

Standards covered include introduction to HVAC; trade mathematics; copper and plastic piping practices; soldering and brazing; ferrous metal piping practices; basic electricity; introduction to cooling; introduction to heating; and air distribution systems.

HEATING, VENTILATION, AND AIR CONDITIONING 2 A/B TP
Prerequisite: *Heating, Ventilation, and Air Conditioning 1 A/B*
5127/5128 15 SSL TP **1.5 credits**

Standards covered include commercial airside systems; chimneys, vents, and flues; introduction to hydronic systems; air-quality equipment; leak detection, evacuation, recovery, and charging; alternating current; basic electronics; introduction to control circuit troubleshooting; troubleshooting gas heating; troubleshooting cooling; heat pumps; basic installation and maintenance practices; sheet metal duct systems; fiberglass duct systems; and flexible duct systems.

INTERNSHIP, HEATING, VENTILATION, AND AIR CONDITIONING
Prerequisite: *Heating, Ventilation, and Air Conditioning 1 A/B*
5711 **0.5 credit**

This course provides an internship opportunity related to construction and Heating, Ventilation, and Air Conditioning. *This course may be repeated for credit.*

MASONRY POS *(4 credits required)*

The Masonry program provides opportunities for students to learn a variety of skills related to brick and block construction. Students gain practical work experience by participating in the student-built house project. By completing this program, students are eligible to receive credit at Montgomery College in the Construction Technology program, as well as industry-recognized credentials through the National Center for Construction Education and Research. An approved apprenticeship program, on-the-job training, and/or a career as a brick mason also are options for students who complete this program.

MASONRY—POS *(4 credits required)*		
Masonry 1 A/B TP	5567/5568	15 SSL TP
Masonry 2 A/B TP	5565/5566	15 SSL TP
Internship, Masonry	5714	

Offered only at: *Thomas Edison HS of Technology*

MASONRY 1 A/B TP
5567/5568 15 SSL TP **1.5 credits**

Standards covered include introduction of masonry; masonry tools and equipment; measurements and drawings; mortar; masonry units; and installation techniques.

MASONRY 2 A/B TP
Prerequisite: *Masonry 1 A/B*
5565/5566 15 SSL TP **1.5 credits**

Standards covered include residential plans and drawing interpretation; residential masonry; grout and other reinforcement; metal work in masonry; advanced laying techniques; construction techniques and moisture control; elevated work; construction inspection; and quality control.

INTERNSHIP, MASONRY
Prerequisite: *Masonry 1 A/B*
5714 **0.5 credit**

This course provides an internship opportunity related to construction and masonry. *This course may be repeated for credit.*

PLUMBING POS *(4 credits required)*

The plumbing program provides students with opportunities to learn the installation, maintenance, and repair of many different types of pipe systems. Plumbers install and repair the water, waste disposal, drainage, and gas systems in homes and commercial and industrial buildings. Students apply their knowledge and skills in the construction of a student-built house project. By completing this program, students are eligible to receive credit at Montgomery College in the Construction Technology program, as well as industry-recognized credentials through the National Center for Construction Education and Research.

PLUMBING—POS *(4 credits required)*		
Plumbing 1 A/B TP	5607/5608	15 SSL TP
Plumbing 2 A/B TP	5605/5606	15 SSL TP
Internship, Plumbing	5716	

Offered only at: *Thomas Edison HS of Technology*

PLUMBING 1 A/B TP
5607/5608 15 SSL TP **1.5 credits**

Standards covered include introduction to the plumbing profession; safety; plumbing tools; introduction to plumbing math; introduction to plumbing drawings; plastic pipe and fittings; copper pipe and fittings; cast-iron pipe and fittings; carbon steel pipe and fittings; corrugated stainless steel tubing; fixtures and faucets; introduction to drain, waste, and vent (DWV) systems; and introduction to water distribution systems.

PLUMBING 2 A/B TP
Prerequisite: *Plumbing 1 A/B*
5605/5606 15 SSL TP **1.5 credits**

Standards covered include plumbing math two; reading commercial drawings; hangers, supports, structural penetrations and fire stopping; installing and testing DWV piping; installing roof, floor, and area drains; types of valves; installing and testing water supply piping; installing fixtures, valves, and faucets; introduction to electricity; installing water heaters; fuel gas systems; and servicing of fixtures, valves, and faucets.

INTERNSHIP, PLUMBING
Prerequisite: *Plumbing 1 A/B*
5716 **0.5 credit**

This course provides an internship opportunity related to construction and plumbing. *This course may be repeated for credit.*

Career and Technology Education Automotive Trades Foundation Programs

FOUNDATIONS OF AUTOMOTIVE TECHNOLOGY—POS *(4 credits required)*		
Foundations of Automotive Technology A/B TP	5045/ 5046	15 SSL TP
Internship, Foundations of Automotive Technology	5701	

Offered only at: *Thomas Edison HS of Technology*

AUTOMOTIVE TECHNOLOGY POS *(4 credits required)*

FOUNDATIONS OF AUTOMOTIVE TECHNOLOGY A/B TP

5045/5046 15 SSL TP **1.5 credits**

This course is designed for students new to the automotive program. Standards covered include an introduction to the following areas: tool and equipment safety; preventative maintenance; lubrication system; air brushing; removal and application of paints and finishes; proper use of tools and equipment; application and sanding of body fillers; interior and exterior detailing; application of protective sealers; and employability and communication skills.

INTERNSHIP, FOUNDATIONS OF AUTOMOTIVE TECHNOLOGY, DP

Prerequisite: *Foundations of Automotive Technology A/B*

5701 **1.0 credit**

Automotive Technology students extend automotive skills learned in the classroom through work-based experiences. Industry placements are made in partnership with Montgomery County Students Automotive Trades Foundation, Inc., providing meaningful work-based experiences framed around NATEF competencies and ASE industry certifications. Professional automotive technicians are trained as mentors to supervise and lead students toward these challenging industry certifications. May be repeated for credit.

AUTOMOTIVE BODY TECHNOLOGY/DEALERSHIP TRAINING POS *(4 credits required)*

The Automotive Body Technology/Dealership Training program prepares students interested in pursuing a career in the automotive repair or painting business. Students learn through authentic experiences as they use tools and materials to repair panels, doors, windows, and other damaged parts of automobile bodies. Students completing this program are eligible to receive recognized industry certifications.

These courses align to the National Automotive Technicians Education Foundation (NATEF) Non-Structural Analysis and Damage Repair; Painting and Refinishing Standards.

AUTOMOTIVE BODY TECHNOLOGY/DEALERSHIP TRAINING—POS *(4 credits required)*		
Auto Body Technology/Dealership Training 1 A/B DP	5547/5548	10 SSL DP
Auto Body Technology/Dealership Training 1 A/B TP	5553/5554	15 SSL TP
Auto Body Technology/Dealership Training 2 A/B DP	5549/5550	10 SSL DP
Auto Body Technology/Dealership Training 2 A/B TP	5555/5556	15 SSL TP
Auto Body Technology/Dealership Training 3 A/B DP	5551/5552	10 SSL DP
Internship, Auto Body Technology	5702	

Offered only at: *Thomas Edison HS of Technology, Gaithersburg HS*

AUTO BODY TECHNOLOGY/DEALERSHIP TRAINING 1 A/B DP

5547/5548 10 SSL DP **1.0 credit**
5553/5554 15 SSL TP **1.5 credits**

Standards covered include an introduction to tool and equipment safety and proper usage; dent repair; rough and finish sanding; application of paint systems; body panel replacement and alignment; minor frame alignment; welding and cutting techniques; and employability and communication skills.

AUTO BODY TECHNOLOGY/DEALERSHIP TRAINING 2 A/B DP

Prerequisite: *Auto Body Technology/Dealership Training 1 A/B*

5549/5550 10 SSL DP **1.0 credit**
5555/5556 15 SSL TP **1.5 credits**

Advanced standards covered include tool and equipment use; collision repair and refinishing procedures; fundamentals of unibody construction; estimating repair costs; damage analysis; straightening systems and techniques; welding principles; repairing structural components; corrosion protection; repairing and replacing body panels; repairing trim and plastics; vehicle preparation; refinishing; topcoating; and employability and communication skills.

AUTO BODY TECHNOLOGY/DEALERSHIP TRAINING 3 A/B DP

Prerequisite: *Auto Body Technology/Dealership Training 2 A/B*

5551/5552 10 SSL DP **1.0 credit**

Advanced standards covered include collision repair and refinishing shop procedures; fundamentals of unibody construction; tools and equipment; estimating repair costs; damage analysis; straightening systems and techniques; welding principles; repairing structural components; restoring and corrosion protection; repairing and replacing body panels; repairing trim and plastics; vehicle preparation; refinishing; top coating; and employability and communication skills.

INTERNSHIP, AUTO BODY TECHNOLOGY

Prerequisite: *Auto Body Technology/Dealership Training 1 A/B*

5702 **0.5 credit**

Automotive Body students extend automotive skills learned in the classroom through work-based experiences. Industry placements are made in partnership with Montgomery County Students Automotive Trades Foundation, Inc., providing meaningful work-based experiences framed around NATEF competencies and ASE industry certifications. Professional automotive technicians are trained as mentors to supervise and lead students toward these challenging industry certifications. *May be repeated for credit.*

AUTOMOTIVE TECHNOLOGY/DEALERSHIP TRAINING POS *(4 credits required)*

Automotive Technology students are offered an opportunity to train for skilled positions in the automotive professions. This program develops students' technical, analytical, and communication skills. Students are provided instruction and hands-on experience in many areas including engine performance and repair, suspension and steering, brakes, electrical/electronic systems, and heating and air conditioning to develop their knowledge and skills in the maintenance, repair, and sales and marketing of automobiles.

Automotive Technology courses align to the National Automotive Technicians Education Foundation (NATEF) and Maintenance and Light Repair (MLR) standards, as indicated.

AUTOMOTIVE TECHNOLOGY/DEALERSHIP TRAINING—POS *(4 credits required)*		
Automotive Technology/Dealership Training 1 A/B	5047/5048	5 SSL
Automotive Technology/Dealership Training 1 A/B DP	5072/5073	10 SSL DP
Automotive Technology/Dealership Training 1 A/B TP	5061/5062	15 SSL TP
Automotive Technology/Dealership Training 2 A/B DP	5049/5050	AT 10 SSL DP
Automotive Technology/Dealership Training 2 A/B TP	5067/5068	AT 15 SSL TP
Automotive Technology/Dealership Training 3 A/B DP	5064/5065	AT 10 SSL DP
Internship, Automotive Technology	5703	

Offered only at: *Thomas Edison HS of Technology, Damascus HS, Gaithersburg HS, Seneca Valley HS*

AUTOMOTIVE TECHNOLOGY/DEALERSHIP TRAINING 1 A/B

5047/5048 5 SSL **0.5 credit**
5072/5073 10 SSL DP **1.0 credit**
5061/5062 15 SSL TP **1.5 credits**

Standards covered include an introduction to tool and equipment safety; introduction to shop equipment; vehicle maintenance; brake service; brake system repair; automotive electricity, battery, and charging system; and employability and communication skills. This course aligns to the National Automotive Technicians Education Foundation (NATEF) Maintenance & Light Repair (MLR) standards.

AUTOMOTIVE TECHNOLOGY/DEALERSHIP TRAINING 2 A/B DP

Prerequisite: *Automotive Technology/Dealership Training 1 A/B*

5049/5050 10 SSL DP **1.0 credit**
5067/5068 15 SSL TP **1.5 credits**

Standards covered include the analysis, diagnosis, and repair of the steering system; front and rear suspension; wheel alignment; wheel and tire diagnosis; engine performance; computerized engine diagnosis of related engine systems such as fuel, intake, exhaust, ignition, and emissions; use of diagnostic scan tools; and employability and communication skills. This course aligns to the National Automotive Technicians Education Foundation (NATEF) Maintenance & Light Repair (MLR) standards.

AUTOMOTIVE TECHNOLOGY/DEALERSHIP TRAINING 3 A/B DP

Prerequisite: *Automotive Technology/Dealership Training 2 A/B*

5064/5065 10 SSL DP **1.0 credit**

Standards covered include in-depth analysis, diagnosis, and repair of the following systems: brakes; electrical; suspension/steering; engine performance; computerized engine diagnosis of related engine systems such as fuel, intake, exhaust, ignition, and emissions; use of diagnostic scan tools; and employability and communication skills. This course aligns to the National Automotive Technicians Education Foundation (NATEF) Maintenance & Light Repair (MLR) standards.

INTERNSHIP, AUTOMOTIVE TECHNOLOGY

Prerequisite: *Automotive Technology/Dealership Training 1 A/B*

5703 **0.5 credit**

Automotive Technology students extend automotive skills learned in the classroom through work-based experiences. Industry placements are made in partnership with Montgomery County Students Automotive Trades Foundation, Inc., providing meaningful work-based experiences framed around NATEF competencies and ASE industry certifications. Professional automotive technicians are trained as mentors to supervise and lead students toward earning these challenging industry certifications. *This course may be repeated for credit.*

Career And Technology Education Programs of Study in Computer Science and Information Technologies

Computer Science and Information Technologies Programs of Study offer a broad range of career-related computer science, networking, cybersecurity, and industry certification options. Dual enrollment and articulated college credits may be earned through successful completion of the programs.

NAF ACADEMY OF INFORMATION TECHNOLOGY (NAF) POS *(4 credits required)*

The AOIT introduces students to the broad career opportunities in today's digital workforce and, in the process, equips them with the personal, analytical, technical, and communications skills they need to thrive. Students may select from three pathway options: Computer Programming, Information Resource Design, and Networking. This program of study is offered at *Damascus, Gaithersburg, Seneca Valley, Springbrook, Wheaton, and Wootton high schools.*

ACADEMY OF INFORMATION TECHNOLOGY (NAF)—IT PROGRAMMING (AOIT OPTION 1) POS *(4 credits required)*

This program offers students opportunities to explore careers related to computer science and programming. The sequence of four courses is designed to give a thorough background in all aspects of computer science.

Offered only at: *Damascus HS, Gaithersburg HS, Seneca Valley HS, Springbrook HS, Wheaton HS, Wootton HS*

IT PROGRAMMING (AOIT OPTION 1) *(4 credits required)*		
Foundations of Computer Science A/B	2922/2923	CM CDP (AL)
AP Computer Science Principles A/B	2924/2925	CM CDP AP (AL)
Computer Programming 1 A/B	2989/2990	CM (AL)
AP Computer Science Java A/B	2901/2902	CM AP (AL)
Computer Programming 3—Advanced Topics in Computer Science A/B	2965/2966	CM (AL)
Internship, NAF	5720	CM (AL)
Guided Research—NAF A/B	2938/2939	CM (AL)

ACADEMY OF INFORMATION TECHNOLOGY (NAF)—WEB DESIGN (AOIT OPTION 2) POS *(4 credits required)*

Information Resource Design offers students opportunities to explore careers related to website development and database administration.

Offered only at: *Damascus HS, Gaithersburg HS, Seneca Valley HS, Springbrook HS, Wheaton HS, Wootton HS*

WEB DESIGN (AOIT OPTION 2) POS *(4 credits required)*		
Website Development A/B	2991/2992	CM
Web Tools and Digital Media, Advanced A/B	2936/2937	CM (AL)
Internship, NAF	5720	CM (AL)
Guided Research—NAF A/B	2938/2939	CM (AL)

ACADEMY OF INFORMATION TECHNOLOGY (NAF)—IT NETWORKING (AOIT OPTION 3) POS *(4 credits required)*

The networking pathway of the AOIT offers students opportunities to learn basic technical and problem-solving skills, while providing a comprehensive foundation of microcomputer and network technology, in preparation for earning international industry credentials. Hands-on laboratory experiences train students as entry-level technicians in the field of IT, and for advanced studies in engineering and IT in colleges, universities, and the military.

Offered only at: *Damascus HS, Gaithersburg HS, Seneca Valley HS, Springbrook HS, Wootton HS*

IT NETWORKING (AOIT OPTION 3) POS *(4 credits required)*		
Microcomputer Technologies A/B	5611/5612	CM (AL)
Network Engineering and Management A/B	5615/5616	CM (AL)
Network Engineering and Management, Advanced A/B	4230/4231	CM (AL)
Internship, NAF	5720	CM (AL)
Guided Research—NAF A/B	2938/2939	CM (AL)

CISCO NETWORKING ACADEMY POS *(4 credits required)*

The Cisco networking POS provides a comprehensive foundation of microcomputer and network technologies in preparation for earning international industry credentials. Hands-on laboratory experiences train students as entry-level technicians in the field of IT, and for advanced studies in engineering and IT in colleges, universities, and the military. Dual enrollment and articulated college credits may be earned through successful completion of the program.

Offered only at: *Bethesda-Chevy Chase HS, Damascus HS, Gaithersburg HS, Quince Orchard HS, Seneca Valley HS, Springbrook HS, Wootton HS*

CISCO NETWORKING ACADEMY POS *(4 credits required)*		
Microcomputer Technologies A/B	5611/5612	CM (AL)
Network Engineering and Management A/B	5615/5616	CM (AL)
Network Engineering and Management, Advanced A/B	4230/4231	CM (AL)
Student Internship	7813/7816 7818/7819 7822/7823	
Dual Enrollment Options		

COMPUTER SCIENCE/CODE.ORG POS

(4 credits required)

The computer programming pathway offers students opportunities to explore careers related to computer science and programming.

Offered at: *All high schools*

COMPUTER SCIENCE/CODE.ORG POS *(4 credits required)*		
Foundations of Computer Science A/B	2922/2923	CM CDP (AL)
AP Computer Science Principles A/B	2924/2925	CM CDP AP (AL)
AP Computer Science Java A/B	2901/2902	CM AP
Cybersecurity Capstone A/B	2822/2823	CM (AL)
Student Internship	7813/7816 7818/7819 7822/7823	
Dual Enrollment Options		

AOIT, CISCO, COMPUTER SCIENCE POS COURSES

AP COMPUTER SCIENCE JAVA A/B

Prerequisite: *Computer Programming 1 A/B or AP Computer Science Principles A/B*

2901/2902 CM AP **0.5 credit**

Using the **JAVA** language, students explore in-depth work with text files and arrays, abstract data types, recursion, searching and sorting algorithms, and program efficiency. Students examine and study specified class behaviors, interrelated objects, and object hierarchies. Students may elect to take the A version of the AP Computer Science exam upon completion of this course.

AP COMPUTER SCIENCE PRINCIPLES A/B

2924/2925 CM CDP AP (AL) **0.5 credit**

This course, offered in partnership with Code.org, advances student understanding of the central ideas of computer science, engaging them in activities that show how computing changes the world. Through a focus on creativity, students explore technology as a means for solving computational problems, examining computer science's relevance to and impact on the world today. Aligned to the new AP test of the same name, this course is part of an MSDE-approved 4-credit Program of Studies in Computer Science.

COMPUTER PROGRAMMING 1 A/B

Corequisite: *Geometry or Honors Geometry*

2989/2990 CM (AL) **0.5 credit**

This course introduces the basic principles of structured programming, within the context of an object-oriented language. Topics covered include fundamentals of the **C++ programming language,** simple and structured data types, control statements, functions, arrays, and classes. Emphasis is placed on developing effective problem-solving techniques through individual and team projects.

COMPUTER PROGRAMMING 3—ADVANCED TOPICS IN COMPUTER SCIENCE A/B

Prerequisite: *AP Computer Science Java A/B*

2965/2966 CM (AL) **0.5 credit**

Students will study advanced programming methodology, the features of programming languages, primitive data types, dynamic allocation of memory, data structures, searching, sorting, and numerical algorithms, using the **JAVA** programming language. Students also are introduced to software engineering concepts and team-oriented approaches for solving problems. Students will explore advanced topics such as memory management, network programming, simulation and game development, and multimedia programming.

CYBERSECURITY CAPSTONE A/B

Prerequisite: *AP Computer Science A/B*

2822/2823 CM(AL) **1.5 credit**

Students completing this course will be well prepared for the demands of college curriculum and industry credentials and certifications. Students will master a variety of Cybersecurity skills by applying knowledge through their participation in actual and virtual exercises including preparation for Cybersecurity competitions as well as the CompTIA Security+ certification exam. In addition, this program has articulation agreements with Montgomery College. For students who earn a B grade or better, up to 12 credits may be transferred to Montgomery College's Computer Science Track, Computer Science and Technologies AA:107; Information Systems Track, Computer Science and Technologies AA: 109.

Offered only at: *Thomas Edison High School of Technology*

FOUNDATIONS OF COMPUTER SCIENCE A/B

2922/2923 CM CDP (AL) **0.5 credit**

This course is a part of the MSDE-approved 4-credit Program of Studies in Computer Science. The course provides an engaging introduction to computing concepts through a nationally developed curriculum, offered through a unique partnership with Code.org. The course focuses on the conceptual ideas of computing so that students understand why tools and languages are used to solve problems through a study of human computer interaction, problem solving, web design, programming, data analysis, and robotics.

MICROCOMPUTER TECHNOLOGIES A/B

5611/5612 CM (AL) **0.5 credit**

This course offers an in-depth exposure to computer hardware and operating systems. Students will learn how computer hardware works, how to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. In addition, they will be introduced to networking and wireless networking. Students will be prepared to take the CompTIA A+ certification exam. Several schools offer the Cisco Networking Academy program and this course is the first course in the Cisco certification process.

NETWORK ENGINEERING AND MANAGEMENT A/B

Prerequisite: *5615 is a prerequisite for 5616*

5615/5616 CM (AL) **0.5 credit**

Students are introduced to the basic foundations of networking. Concepts covered include LANS, WANS, the OSI model, cabling, router configuration, and management. As part of the Cisco Networking Academy program, this course emphasizes critical thinking, problem solving, collaboration, and practical application of skills through hands-on labs and Packet Tracer simulations. Students are prepared to take the CompTIA Cisco CCENT and CCNA certification exams.

NETWORK ENGINEERING AND MANAGEMENT, ADVANCED A/B

Prerequisite: *Network Engineering and Management A/B*

4230/4231 CM (AL) **0.5 credit**

Advanced concepts of functionally connecting multiple computing devices are addressed in this course. Advanced subnetting techniques, routing protocols, advanced router and switch management, wireless networking, and the creation of VLANs are covered throughout the course.

WEBSITE DEVELOPMENT A/B

Prerequisite: *2991 prerequisite for 2992*

2991/2992 CM **0.5 credit**

Students learn web design from storyboard to finished online web page and develop actual sites from customers' specifications, using XHTML, CSS, and web editors. Skills in streaming media, audio, and simple animation are developed. Project management provides students with skills to lead teams through projects from inception to completion.

WEB TOOLS AND DIGITAL MEDIA, ADVANCED A/B

Prerequisite: *Website Development A/B; 2936 prerequisite for 2937*

2936/2937 CM (AL) **0.5 credit**

This course introduces students to advanced web topics such as webscripting, web server administration, and web-based multimedia tools. Students also study digital media and related topics, including audio, video, graphics, text, and animation tools as well as color and animation concepts.

GUIDED RESEARCH—NAF A/B

Prerequisite: *At least 2 credits in a related program of study*

2938/2939 CM (AL) **0.5 credit**

This course provides an opportunity for National Academy students to apply the knowledge and skill sets from their programs of study to complete a structured research project or authentic internship. Students may collaborate with professionals and mentors in the related career field and participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences.

INTERNSHIP, NAF

Prerequisite: *At least 2 credits in a National Academy Foundation POS*

5720 CM (AL) **0.5 credit**

Students apply knowledge and skill sets acquired in their program of study to an authentic internship. Collaborating with professionals and mentors in the related career field, students participate in program-specific learning, leadership seminars, networking opportunities, and relevant workplace experiences. This is a required course for National Academy Foundation students.

INTERNSHIP, STUDENT A/B

7813/7816 **0.5 credit**
7818/7819 DP **1.0 credit**
7822/7823 TP **1.5 credit**

This unpaid internship complements the student's school program and is pursued under the supervision of school staff. Regularly scheduled in-school seminars explore career and workplace issues. Students will learn about society directly and explore various career options. Internships are coordinated at the student's home school. Hours required per semester for the internship experience are single period: 75 hours; double period: 150 ours, and triple period: 225 hours. Students may be required by the sponsoring organization to provide appropriate documentation that may include a social security number and/or proof of citizenship.

NETWORK OPERATIONS TRADES FOUNDATION PROGRAM

The Network Operations Program of Study offers students opportunities to learn technical and problem-solving skills, while providing a comprehensive foundation of microcomputer and network technologies. Preparation for international industry credentials validate the knowledge students have attained. Hands-on laboratory experiences train students as entry-level technicians in the field of IT as well as for advanced studies in Engineering and IT in colleges, universities, and the military. Articulated college credits may be earned through successful completion of the program.

PATHWAYS IN TECHNOLOGY EARLY COLLEGE HIGH AT CLARKSBURG HIGH SCHOOL

One of the newest dual enrollment programs slated to start in the fall of 2019 is the Pathways in Technology Early College High (P-TECH) at Clarksburg High School (CHS). P-TECH is an early college school model which combines high school, college, and employment. The P-TECH mission is to provide students with an academic course sequence that starts in grade nine (9) and culminates in the attainment of a Network and Wireless Technologies Associate of Applied Science degree from Montgomery College and a high school diploma. The P-TECH program at CHS is offered at no cost to the student and includes authentic work experiences, mentorships, and paid internships designed to prepare students for positions in the networking career field immediately upon graduation.

NETWORK OPERATIONS—POS *(4 credits required)*		
Network Operations A/B TP	4202/4203	CM 15 SSL TP
Network Operations 1 A/B, DP	4242/4243	CM 10 SSL DP
Network Operations 2, DP	4244	CM 10 SSL DP
Network Operations Internship	4187	
Network Operations Guided Research	4188	

Offered only at: *Clarksburg HS, Thomas Edison High School of Technology*

NETWORK OPERATIONS POS *(4 credits required)*

NETWORK OPERATIONS A/B TP

4202/4203 CM CDP 15 SSL TP **1.5 credits**
4242/4243 CM 10 SSL DP **1.0 credit**

Students acquire knowledge and skills needed to install, configure, diagnose, repair, and upgrade PC hardware, including power supplies, memory, I/O, storage devices, drives, and peripherals. Students install, configure, and troubleshoot a variety of computer operating systems. Students learn networking configuration, protocols, security, and troubleshooting of wired and wireless networks. Students earn valuable industry-standard CompTIA A+ and Network+ certification credentials in addition to articulated college credits.

NETWORK OPERATIONS 2, DP

Prerequisite: *Network Operations 1B*

4244 CM 10 SSL DP **1.0 credit**

Students learn the features and functions of computer network components and acquire the skills required to install, configure, and troubleshoot networking hardware, peripherals, and protocols. Concepts covered include media and topologies, protocols and standards, network implementation, and support. Students learn the OSI model, LANS, WANS, cabling, router configuration, and wireless networking. Students take the CompTIA Network+ certification exam, earning valuable industry-standard certification.

NETWORK OPERATIONS INTERNSHIP

Prerequisite: *Network Operations A/B (4202/4203 or 4242/4243)*

4187 CDP **0.5 credit**

Network Operations students extend computer skills learned in the classroom through work-based experiences. Industry placements are made in partnership with Montgomery County Students Information Technology Foundation, Inc., providing meaningful work-based experiences framed around CompTIA Server+, Security+, or Microsoft Certified Technology Specialist industry certifications. Trained mentors in the professional IT business community supervise and lead students toward challenging advanced industry certifications. *This course may be repeated for credit.*

NETWORK OPERATIONS GUIDED RESEARCH

Prerequisite: *Network Operations A/B (4202/4203 or 4242/4243)*

4188 CDP **0.5 credit**

This course provides school-based learning opportunities for advanced information technology studies. Under the supervision of the Network Operations teacher, students will pursue a project or concentrated study in an area of computer and information sciences related to a networking career, leading to advanced IT certification and college credits. Students may attain such advanced industry certification as CompTIA Server+, Security+, or Microsoft Certified Technology specialist. *This course may be repeated for credit.*

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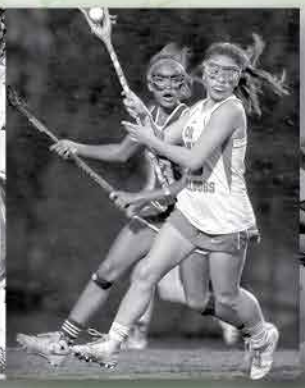
MCPS NONDISCRIMINATION STATEMENT

Montgomery County Public Schools (MCPS) prohibits illegal discrimination based on race, ethnicity, color, ancestry, national origin, religion, immigration status, sex, gender, gender identity, gender expression, sexual orientation, family/parental status, marital status, age, physical or mental disability, poverty and socioeconomic status, language, or other legally or constitutionally protected attributes or affiliations. Discrimination undermines our community's long-standing efforts to create, foster, and promote equity, inclusion, and acceptance for all. Some examples of discrimination include acts of hate, violence, insensitivity, harassment, bullying, disrespect, or retaliation. For more information, please review Montgomery County Board of Education Policy ACA, *Nondiscrimination, Equity, and Cultural Proficiency*. This Policy affirms the Board's belief that each and every student matters, and in particular, that educational outcomes should never be predictable by any individual's actual or perceived personal characteristics. The Policy also recognizes that equity requires proactive steps to identify and redress implicit biases, practices that have an unjustified disparate impact, and structural and institutional barriers that impede equality of educational or employment opportunities.

For inquiries or complaints about discrimination against MCPS staff *	**For inquiries or complaints about discrimination against MCPS students ***
Office of Employee Engagement and Labor Relations Department of Compliance and Investigations 850 Hungerford Drive, Room 55 Rockville, MD 20850 240-740-2888 OCOO-EmployeeEngagement@mcpsmd.org	**Office of School Administration** Office of School Administration Compliance Unit 850 Hungerford Drive, Room 162 Rockville, MD 20850 301-279-3444 OSSI-SchoolAdministration@mcpsmd.org

**Inquiries, complaints, or requests for accommodations for students with disabilities also may be directed to the supervisor of the Office of Special Education, Resolution and Compliance Unit, at 301-517-5864. Inquiries regarding accommodations or modifications for staff may be directed to the Office of Employee Engagement and Labor Relations, Department of Compliance and Investigations, at 240-740-2888. In addition, discrimination complaints may be filed with other agencies, such as: the U.S. Equal Employment Opportunity Commission, Baltimore Field Office, City Crescent Bldg., 10 S. Howard Street, Third Floor, Baltimore, MD 21201, 1-800-669-4000, 1-800-669-6820 (TTY); or U.S. Department of Education, Office for Civil Rights, Lyndon Baines Johnson Dept. of Education Bldg., 400 Maryland Avenue, SW, Washington, DC 20202-1100, 1-800-421-3481, 1-800-877-8339 (TDD), OCR@ed.gov, or www2.ed.gov/about/offices/list/ocr/complaintintro.html.*

This document is available, upon request, in languages other than English and in an alternate format under the *Americans with Disabilities Act*, by contacting the MCPS Department of Public Information and Web Services at 240-740-2837, 1-800-735-2258 (Maryland Relay), or PIO@mcpsmd.org. Individuals who need sign language interpretation or cued speech transliteration may contact the MCPS Office of Interpreting Services at 240-740-1800, 301-637-2958 (VP) or Interpreting_Services@mcpsmd.org. MCPS also provides equal access to the Boy/Girl Scouts and other designated youth groups.



MONTGOMERY COUNTY PUBLIC SCHOOLS

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