High School Course Bulletin

2004–2005

Published by the Office of Curriculum and Instructional Programs
Montgomery County Public Schools
Rockville, Maryland
301-279-3411

CONTENTS

INTRODUCTION

The *High School Course Bulletin* provides students and parents/guardians with information about high school courses, programs, and career pathways. It includes specific requirements for graduation, as well as information about assessments and opportunities for dual enrollment in college, internships, and other special programs.

In the Montgomery County Public Schools (MCPS) high schools, students experience various academic, extracurricular, and community activities that provide a wealth of experience and help clarify interests, goals, and plans for the future.

Course selection in high school is fundamental to the realization of career and higher education goals. Students will make appropriate academic decisions if they relate the courses they take in high school to career choices they are considering for the future. Students should talk to their teachers and counselors about the courses needed and how they relate to a particular career interest.

This bulletin contains brief descriptions of all approved courses offered in MCPS. Students and parents should work together to identify the most appropriate course of study. Review the course offerings provided, the graduation requirements, and other information in this bulletin to make decisions about the courses required for graduation. Additional information appears in the following MCPS regulations and policies: MCPS Regulation ISB: High School Graduation Requirements; Regulation IKA: Grading and Reporting; Policy IKA: Grade Point Averages (GPA) and Weighted Grade Point Averages (WPGA); MCPS Policy IED: High School Policy; and Policy IGA: High School Core Courses; Policy IOA: Gifted and Talented Education, and Regulation IOA-RA: Gifted and Talented Education. These are available in all school counseling offices and media centers, as well as on the MCPS Web site *http://www.mcps.k12.md.us/departments/policy/*. Meetings with counselors and other school personnel about graduation requirements, scheduling, and related matters are an additional component to the course selection and registration processes.

MCPS has several hundred interesting and rewarding courses that will help prepare students for the demands of the postsecondary world of college and careers. However, no one school can offer all of the courses described in this bulletin.

ASSESSMENTS

Maryland High School Assessments (HSA)

Maryland High School Assessments are rigorous end-of-course tests in Algebra 1/Data Analysis, Biology, English 9, and NSL Government. All middle and high school students enrolled in any of the HSA courses are required to take the HSA at the end of the course. The Maryland State Department of Education (MSDE) has designed the tests to measure student achievement and school performance, providing valuable information to students, parents, and schools.

Passing the HSA will be a graduation requirement for the Class of 2009 and beyond, pending final approval of the Maryland State Board of Education.

For details, visit the MCPS High School Assessment Web site *http://mcps.k12.md.us/curriculum/hsi;* contact High School Instruction and Achievement, Office of Curriculum and Instructional Programs, 301-517-5007; or contact your local school.

Maryland School Assessments (MSA)

The Maryland School Assessments provide educators, parents, and the public with valuable information about student, school, school system, and state performance. The tests meet requirements of the federal No Child Left Behind Act (NCLB ACT) and are administered to students in Grades 3 through 8 in reading and mathematics, and to students in Grade 10 in reading and mathematics. Maryland has identified the MSA in Geometry as the measure of student achievement to meet NCLB assessment and accountability targets in high school mathematics. This test will be administered at the end of the student's course of study in Geometry during the HSA testing schedule.

For details, visit the MSDE Web site *http://www.marylandpublicschools.org*, the MCPS High School Assessments Web site *http://mcps.k12.md.us/curriculum/hsi*, or contact your local school.

MARYLAND DIPLOMA REQUIREMENTS

The state of Maryland authorizes one kind of diploma for all high school graduates, based upon successful fulfillment of the following four kinds of requirements: enrollment, credit, courses, student service learning. MCPS requirements are designated below with a double asterisk (**). All requirements are summarized below.

Enrollment Requirement

Students must satisfactorily complete four years beyond Grade 8. (For exceptions, see Alternatives to Four-Year Enrollment, page iv.)

Credit Requirement

**22 (At least 4 credits must be earned after the completion of Grade 11, unless a pre-approved MCPS alternative is satisfied.)

Course Requirements

English—4 credits

Fine Arts—1 credit (Selected courses in Art, Dance, Drama/Theater, and Music that satisfy the Fine Arts requirement are marked FA)

Technology Education—1 credit (Courses in Career and Technology Education that satisfy the Technology Education requirement are marked TE.)

Mathematics—**4 credits (1 credit Algebra, 1 credit Geometry.) Students who have successfully completed a Calculus course offered by MCPS may be exempted from the 4-credit requirement in mathematics.

Science—3 credits (1 Biology credit and 1 Physical Science credit must be included in the 3 credits)

Social Studies—3 credits (1 credit U.S. History; 1 credit World History; and 1 credit National, State, and Local Government)

Physical Education—**1 credit

Health Education—0.5 credit

Additional Course Requirements

In addition to meeting the specific credit requirements, a student is required to complete at least one of the following:

a. **Foreign Language—**2 credits, or

b. **Advanced Technology Education—**2 credits (courses in Career and Technology Education that satisfy the Advanced Technology requirement are marked with ATE), or

c. **Career Development Program—**successful completion of a state-approved career development program (career development programs are marked with CDP).

Student Service Learning Requirement (SSL)

Service learning is a required diploma component in Maryland. The number of service learning hours required is based on the date a student first enrolled in MCPS. The specific SSL hour requirement is explained, along with other SSL information, at *http://www.mcpsssl.org.* MCPS students 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. The phases of preparation, action, and reflection, distinguish student service learning from volunteering and community service. Students may earn SSL hours in the following ways:

- In curriculum, where *preparation, action, and reflection* phases are included and outcomes and activities are identified in specific courses. Courses in which SSL hours may be earned are marked with **SSL.**
- Through co-curricular activities in the school, where clubs and organizations use *preparation, action, and reflection* to provide service-learning opportunities.
- Within community organizations that are approved nonprofit, tax exempt, and meet a recognized community need. A list of approved activities and organizations is available on the Web site *http://www.mcpsssl.org,* in school counseling offices, and in *Student Service Learning Guide to Volunteer Opportunities.*
- Through special activities offered with nonprofit, tax-exempt organizations that are not on the approved list. MCPS Form 560-50, Application for *Student Service Learning Special Activity* must be submitted and approved in advance of this service.

MCPS Form 560-51, S*tudent Service Learning Activity Verification,* is required to document all SSL activities. For individual SSL questions, contact the SSL coordinator in any middle or high school.

MARYLAND CERTIFICATES

Certificate of Merit

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

a. **Advanced Courses**

At least 12 credits must be earned in advanced courses identified by MCPS as applicable to the Certificate of Merit.

*A **CM** in course listings in this bulletin designates courses that satisfy these requirements.*

b. **Cumulative Grade Point Average**

Students must obtain at least a 3.0 unweighted cumulative grade point average. All courses counted toward the Certificate of Merit must be taken for a letter grade.

Maryland High School Certificate

This certificate may be awarded to students with disabilities who do not meet the requirements for a diploma but who meet one of the following criteria:

1. The student is enrolled in a special education program for at least four years beyond Grade 8, or its age equivalent, and is determined by an Individualized Educational Program Team (IEP Team), with agreement of the student's parents/guardians, to have developed appropriate skills for the individual to enter the world of work, act responsibly as a citizen, and enjoy a fulfilling life. The world of work includes but is not limited to—
   - gainful employment,
   - supported employment, or
   - sheltered workshops.
2. The student has been enrolled in a special education program for four years beyond Grade 8, or its age equivalent, and has reached age 21.

COURSES AND CREDITS

Each high school is responsible for providing a comprehensive program for every student. The ***Basic Core of Courses*** offered in every high school is composed of two categories

Category 1 courses must be offered and given in each high school regardless of course enrollment, except that they may be offered and given in alternate years or in combined classes when enrollment is less than 15.

Category 2 courses must be offered and given in a high school when the enrollment in that course is 15 or more.

All high school courses are one semester in length. All courses satisfying graduation requirements must be taken for a letter grade. The student receives a final grade and earns credit in each course taken upon completion of each semester's work—0.5 credit for successful completion of a single-period course, 1 credit for a double-period course, and so on. Yearlong courses usually have the same name for the two semesters, with the title of the first semester followed by "A" and the second by "B." Limitations on school resources dictate that "A" courses usually are offered in the fall and "B" courses in the spring. Students must meet course expectations as outlined in MCPS curriculum during semester "A" in order to continue in semester "B" of the course of the same title.

High School Credit for Middle School Students

High school credit is awarded to students who complete high school courses while in middle school after the student has passed the final examination and passed the course.

Honors Courses

Honors, Advanced Placement (AP), and advanced-level courses provide rigorous and challenging studies for highly able and potentially high-achieving students who are capable or motivated to pursue rigorous and challenging instruction. Students enroll in individual Honors, AP, and advanced-level courses and not in an Honors program as a whole.

Honors courses include course work in art, computer science, English, foreign languages, mathematics, music, science, and social studies. The curriculum in each Honors course includes appropriate adaptations for accelerated and enriched learning for pursuing in-depth studies that require abstract and higher-order thinking skills. Honors courses provide expectations and opportunities for students to work independently at an accelerated pace, to engage in more rigorous and complex content and processes, and to develop authentic products that reflect students' understanding of key concepts.

Students in Honors, AP, and advanced-level courses are expected to maintain at least a C average. Students who receive a grade of D or E over two consecutive marking periods should be counseled and supported.

Advanced Placement Courses

Advanced Placement (AP) courses are those for which a College Board Advanced Placement examination exists. A qualifying score on an AP exam may give the student college credit or advanced standing in the subject in many colleges. These courses include concepts and skills that help prepare students for the AP exams. AP courses are available in the following MCPS content areas.

Art
Information Technology/Computer Science
English
Foreign Languages
Mathematics
Music
Science
Social Studies

Please consult your school counselor for the titles of the courses offered at your school.

Advanced-Level Courses

Advanced-level courses are based upon previous achievement in a sequence of study. Advanced-level courses are available in the following MCPS content areas.

Information Technology/Computer Science
Foreign Languages
Mathematics
Science
Blair magnet courses (see Countywide Programs, page 59)
Selected International Baccalaureate courses
Poolesville Global Ecology courses (see Countywide Programs, page 59)

Please consult your school counselor for the courses offered at your school.

Honors Work in Designated Courses

Honors work can be pursued in certain regular level courses. To get credit for Honors work, students must enroll under the special Honors code included in the course description. Honors-level courses are available in the following MCPS content areas.

Art
Business Management
Engineering
English
Mathematics
Music
Science
Foreign Languages
Social Studies

Please consult your school counselor for the titles of the courses offered at your school.

The International Baccalaureate (IB) Programs in MCPS

The IB program is offered at Bethesda-Chevy Chase High School (for students in the B-CC area), at Einstein High School (for students in the Downcounty Consortium), at Watkins Mill High School (for students in the Watkins Mill area), and at Springbrook High School (for students in the Northeast Consortium). The IB organization allows schools to develop their individual programs within their subject specifications. Each of these MCPS schools has individualized its programs by unique selections in the IB electives and languages. Local school course listings will indicate those courses unique to a given school.

The IB program at Richard Montgomery High School (RMHS) is designed for highly gifted students in Montgomery County and has an application process that occurs in Grade 8. Please refer to the Countywide Programs section of this bulletin (page 59) for information on this special program.

Criteria for Enrollment in Honors, Advanced Placement, and Advanced-Level Courses

Principals ensure that all students who have the capability, motivation, or potential to accept the challenge of Honors, AP, and advanced-level courses will be accorded an opportunity to do so. Each semester, principals will convene their schools' Honors/AP Review Committee to review the participation of students in Honors, AP, and advanced-level courses to ensure consistent implementation of the *Gifted and Talented Education Policy* and the accompanying regulation. This multi-stakeholder committee is co-chaired by the principal and a faculty member, and includes counselors, teachers, representative resource teachers/department chairs, and staff who have expertise in special needs (e.g., ESOL, special education, and GT/LD).

The Honors/AP Review Committee also ensures that each school provides responsible open enrollment in Honors, AP, and advanced-level courses for every student who is capable or motivated to pursue a rigorous program and higher-level course work. The committee documents the strengths that each student brings to Honors, AP, and advanced-level work and recommends a plan for outreach, nurturing, and support of potential candidates. A profile of student strengths can be determined by conducting a thorough review of the following multiple criteria:

1. Mastery of course prerequisites (grades of A, B, or C)
2. Parent/guardian recommendations
3. Standardized test scores, as appropriate
4. Willingness to complete challenging assignments
5. Student interest or motivation
6. Teacher/counselor recommendations
7. Work samples and portfolios

These are the only criteria, and no single criterion is to be used to exclude a student from pursuing Honors, AP, and advanced-level course work.

Prior to the start of each semester, guidance counselors notify all candidates for Honors, AP, and advanced-level courses regarding their enrollment.

Review Process

Students who are not recommended for enrollment, but who still wish to be considered for Honors, AP, or advanced-level course placement should appeal in writing to the principal for a special review within 10 school days of notification.

RELATED INFORMATION

Student Withdrawals from Courses

A student-initiated withdrawal may occur when the student and parents/guardians determine that withdrawal will be beneficial to the student. The student's withdrawal request must be approved by parents/guardians in writing, reviewed by the counselor, and discussed with the student to ensure that there is understanding of a possible delay in meeting graduation requirements that may result if the student withdraws from a course. The counselor's recommendation is forwarded to the principal for approval or disapproval.

If a student withdraws from a course before the end of the fifth week (25 school days), no notation is made on the student's permanent record card or report card. The request to withdraw must be made by the 25th school day.

If the student withdraws after 25 school days of the course, the date of the withdrawal and the achievement attained to the time of withdrawal will be entered on the report card and permanent record.

Withdrawal grades are not used in computing GPA or WGPA. However, they are included to determine student academic eligibility for participation in extracurricular activities.

Alternative Provisions for Earning Credit

In addition to earning credits during the regular school day and year, credits may be earned through summer school, evening school, work experience programs, and college courses.

Specific provisions govern the use of each of these programs. It is critical that students and parents consider these programs carefully and consult school counselors *in advance* to obtain full information about any alternative means of earning credit and its advisability. In addition, advance permission from the principal or designee is *required*.

Alternatives to Four-Year Enrollment

As with alternative means of earning credit, specific provisions govern the use of alternatives to four-year enrollment. Guidance from counselors is critical and should begin far in advance. Permission of the principal in advance is required. The alternatives include early college admission programs or early admission to an approved vocational, technical, or other postsecondary school. The General Educational Development (GED) testing program is another alternative.

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 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.

GRADING AND REPORTING

Basis for Grading

Grades are based on evidence of attainment of the course outcomes, as outlined in the *MCPS Curriculum Frameworks.*

Procedures for Grading

Teachers grade students on mastery of course skills and concepts. Grades are not forced into a pattern of the normal frequency distribution or any other kind of rating scale or curve that compares students in relation to the performance of others.

A final evaluation activity is required at the conclusion of all courses. Final evaluation activities for English, social studies, mathematics, science, foreign languages, and computer science include a relevant written examination with short-answer and/or essay questions. The grade for the final evaluative activity is part of the grade for the final marking period, except that for English, foreign languages, mathematics, social studies, science, and computer science, semester examinations are computed as a percentage of the final grade for the semester.

Reporting Student Progress

Teachers inform students in advance of the general objectives of each course or unit and the basis upon which the student's performance is evaluated. During the course students receive continuous feedback on the quality of their work. Parents are apprised of learning difficulties through the reporting system and through conferences as needed. Secondary schools also provide interim reports, which must be sent to the parents of each student who is in danger of failing or dropping more than one letter grade during the nine weeks.

Credit/No Credit may be used only in courses not specifically required for graduation by the Maryland State Department of Education or MCPS. Credit/No Credit cannot be applied to a Certificate of Merit. A student may have no more than one credit/no credit option per semester in Grade 9 and Grade 10, and two per semester in Grade 11 and Grade 12.

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

All semester grades (A–E) appear on the report card and on the permanent record and 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*.

An additional quality point will be added to grades of A, B, and C in all Honors, Advanced Placement, and advanced-level courses only to determine WGPA. MCPS does not rank students.

NOTE: The addition of a quality point for a grade of C in all Honors courses to determine WGPA was approved by the Board of Education effective for all Honors courses taken by students during the 2003–2004 school year and subsequent years. This change is not retroactive.

Academic Eligibility for Participation in Extracurricular Activities

Students must maintain a 2.0 marking period average, with not more than one failing grade in the previous marking period, in order to participate in extracurricular activities during the next marking period. The marking period average is not the same as GPA. (MCPS Regulation IQD-RA: *Academic Eligibility for High School Students Who Participate in Extracurricular Activities*)

National Collegiate Athletic Association (NCAA) & Initial Eligibility Clearinghouse (IEC)

The National Collegiate Athletic Association (NCAA) established the Initial Eligibility Clearinghouse (IEC) to serve as the authorizing group for the final review and approval of core courses for freshmen students who want to participate in intercollegiate athletics in NCAA Division I-A, I-AA, and II colleges and universities. The NCAA/IEC Approved Core Courses are identified in the course bulletin as ***NCAA***. Almost all IEC Approved Core Courses in MCPS are in the content areas of English, foreign language, mathematics, science, and social studies. Students who need more specific information about NCAA/IEC Approved Core Courses and /or about NCAA Freshmen Eligibility Standards should contact the resource counselor in their school.

TAKING COURSES NOT AVAILABLE AT THE HOME SCHOOL

Students wishing to attend a neighboring school for a course not available at the home school must apply through the home school counseling office. Courses are open to such students on a space-available basis. Students/parents must provide transportation.

CAREER AND TECHNOLOGY EDUCATION PROGRAMS

Career development programs are state-approved programs that satisfy the career development graduation requirement and are marked with ***CDP***. Each of these programs is part of a planned sequence in a career cluster, designed to help students acquire the specialized knowledge, skills, attitudes, and work habits required for employment and/or postsecondary education. Each high school offers career development programs.

Thomas Edison High School of Technology

Thomas Edison provides opportunities for students in career development programs that might not be available in their home school. Registration packets are available from Thomas Edison and from local school counselors. Students will enroll in Thomas Edison courses through their home school and take classes at both the home school and at Thomas Edison. Bus transportation is provided.

Other Program Options

Schools not offering a particular career development program may request placement of a student in that program at another school. Efforts will be made to fulfill reasonable student requests for transportation. Students requesting a career development program at another school must complete MCPS form 565-6, and submit it to their home school counselor.

MONTGOMERY COLLEGE/MCPS PARTNERSHIP PROGRAMS

Natural Science Program for "College Ready" MCPS High School Students

"College ready" high school juniors or seniors may earn college credits by attending classes at Montgomery College (MC), Germantown Campus. Students may attend their home high school for the first part of the day and then go to MC Germantown for accelerated science and math offerings to prepare for a career in the biological sciences. After completing this program, they may enter MC with 32 college credits, finish their second 30 college credits for an Associate of Arts degree, and then access one of the many four-year programs with which MC has articulation agreements.

Montgomery College offers financial aid to help pay tuition and fees. Call the Natural Science Department at Montgomery College for information and an application packet at 301-353-7722 and the Financial Aid Office at 301-279-5100.

Montgomery College Career Development Program for MCPS High School Students

Students may earn college credit while in high school by enrolling at Montgomery College or at an MCPS high school. Earned credits may be used toward an Associate of Applied Science (AAS) degree at Montgomery College leading to certification and employment.

Montgomery College offers financial aid to help pay tuition and fees. To contact the Financial Aid Office at Montgomery College, please call 301-279-5100. Direct program questions to the MCPS Office of Career and Technology Education at 301-279-3565, or call Montgomery College for information and an application packet at 301-279-5000.

Growing Teachers Program for MCPS High School Students Interested in a Career in Teaching

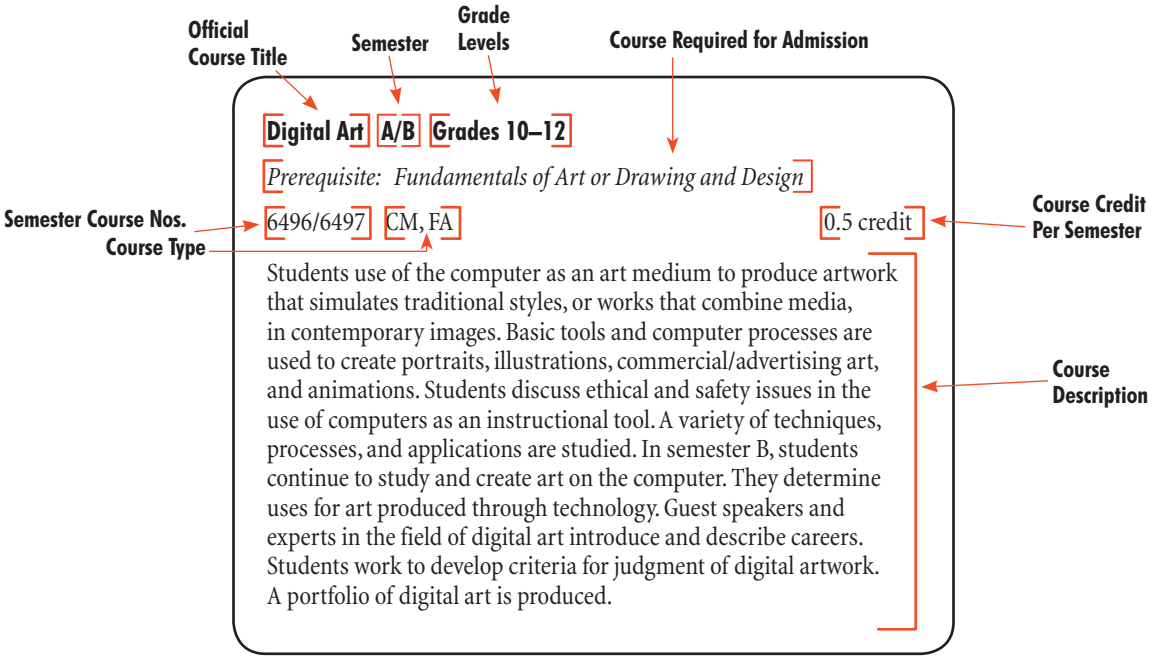
Montgomery College (MC), in collaboration with MCPS, invites students who are high school seniors with a 2.75 GPA or above to apply to the innovative "Growing Teachers Program." ***The Teacher Education Transfer Program AAT (Associate of Arts in Teaching)*** at MC is a degree option for MC students who want to become certified teachers. The AAT degree curriculum provides the first two years of a bachelor's degree in teacher education and certification in partnership with MCPS, MC, Towson University, University of Maryland Baltimore County and University of Maryland—Shady Grove.

Montgomery College offers Growing Teachers Program participants financial aid sources to help pay tuition and fees. High school students may apply for a Montgomery College Maryland State Dual Enrollment Grant, which covers the cost of one 3-credit college course per semester. Once students are enrolled full time in a teacher education program, they are eligible to apply for a $2,000 Maryland Teacher Scholarship while at MC and a $5000-per-year scholarship for juniors and seniors at Maryland's universities and colleges.

This program is open to all MCPS students interested in a teaching career in either elementary or secondary education. Contact the local school guidance counselor for information concerning how students may become involved in this program during high school. Students in Grades 9–11 specifically interested in early childhood educational opportunities may wish to consider participating in child development classes to prepare for enrollment in the Growing Teachers Program as a senior.

Call the Education Department at Montgomery College for an application packet at 301-738-1757 and the Financial Aid Office at 301-279-5100.

HOW TO READ A COURSE DESCRIPTION

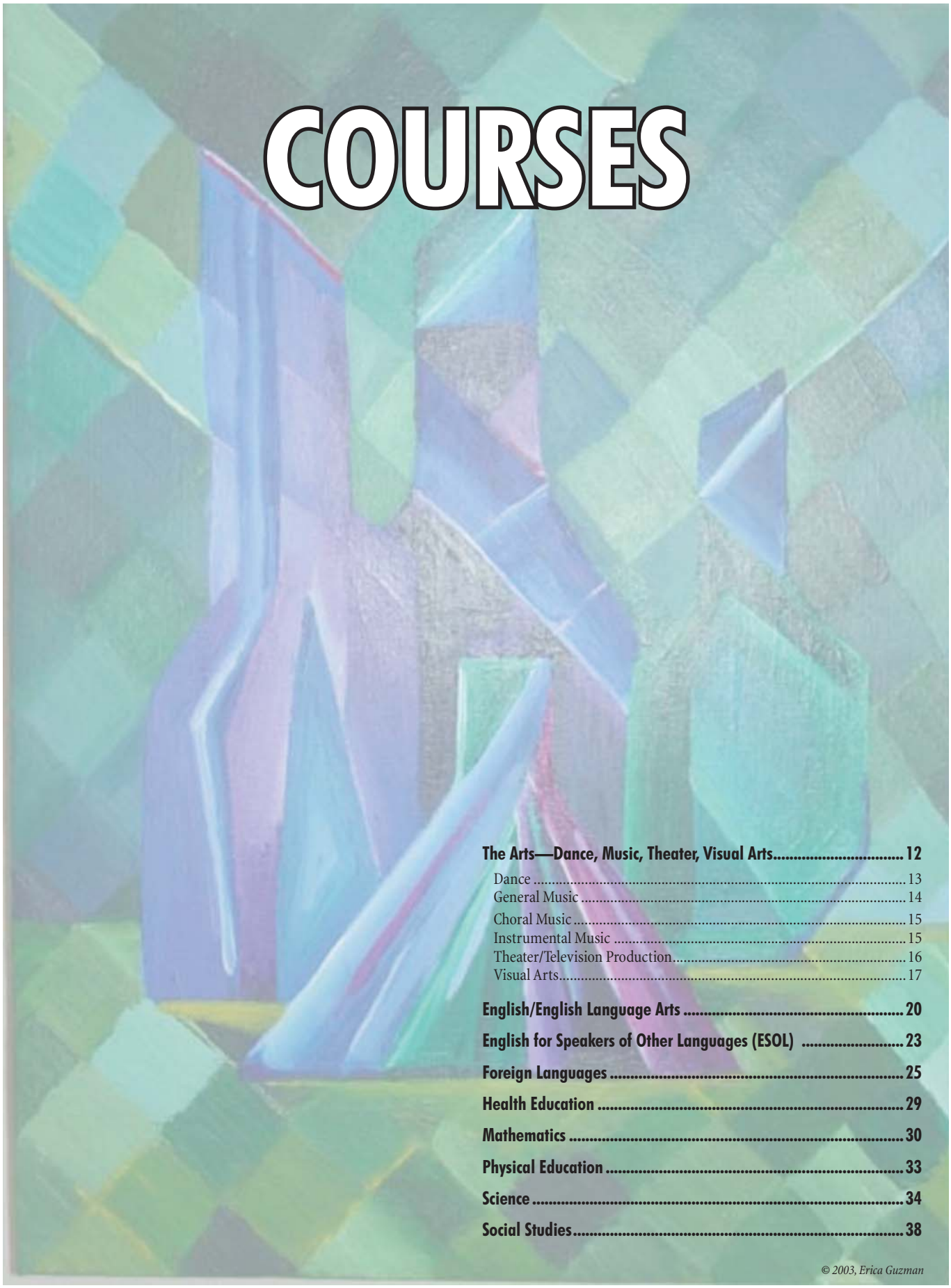


LEGEND OF COURSE TYPES

ATE	Advanced Technology Education course
CM	Certificate of Merit course
CDP	Career Development Program
FA	Fine Arts course
IB-AL	International Baccalaureate Advanced Level course
NCAA	NCAA Initial-Eligibility Clearinghouse Approved Core course
TE	Technology Education course
SSL	Student Service Learning hours may be associated with this course, check with a counselor, the teacher of the course, or the Student Service Learning Coordinator in your school for the details about how many hours may be earned.

Students must meet course expectations outlined in MCPS curriculum during first semester in order to continue that course in the second semester.

COURSES



THE ARTS—DANCE, MUSIC, THEATER, VISUAL ARTS

PHILOSOPHY

The arts provide students with opportunities to fulfill intellectual and emotional needs in unique ways and to express themselves as they cannot in other disciplines. The arts involve learners actively as creators, organizers, observers, and evaluators. The fine arts—dance, music, theater, and visual art—are among humanity's greatest aesthetic and intellectual achievements.

Springing from the human urge to explore ways of understanding, interpreting, and transcending reality, dance, music, theater, and visual art are rooted in curiosity not satisfied by other means of inquiry. By transcending the barriers of time and place, the fine arts have provided for each generation a kaleidoscope of the past, a mirror of the present, and a vision of the future.

The purpose of the fine arts curriculum is to establish a foundation for a lifelong relationship with the arts for every student. The curriculum provides opportunities to develop abilities that allow expression, sensitivity to cultural diversity, and the capacity to embrace sensory stimuli in everyday life.

Students are led in an exploration of self, of others, and the world in relation to the art forms. Students are challenged to become independent, self-motivated workers and creators as they move toward advanced levels of artistic accomplishment. The fine arts curriculum is based on the premise that all students have creative potential and, given the appropriate opportunities, that potential can be realized.

DANCE

Students in dance classes—

- use perceptual skills through performing and responding,
- understand individual, cultural and creative expression through improvisation, organization, and performance, and
- make aesthetic judgments.

MUSIC

Students in music classes—

- develop performance skills, including the use of voice, instruments, and other sound-producing media,
- create musical ideas through composing, arranging, and improvising, and
- describe music through reading and writing music notation, listening to music, and employing their understanding of music verally, visually, and through movement.

THEATER

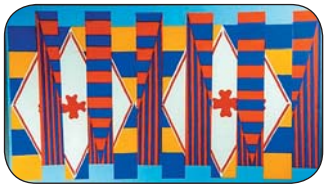
Students in theater classes—

- explore aspects of their individual development,
- express themselves creatively,
- develop intellectual and physical discipline, and
- develop the skills of attending, responding, and evaluating an informed, discriminating audience.

VISUAL ARTS

Students in visual arts classes—

- form a positive and enriching lifelong relationship with art and the visual world,
- focus on increasingly open-ended problems,
- express ideas, thoughts, and feelings that learners want to explore and share, and
- employ visual thinking and aesthetic development supported by perceptual, conceptual, and representational skills.



MCPS requires each student to complete at least one credit in the fine arts in order to graduate. The fine arts curriculum also provides students with an opportunity to earn student service learning hours within the context of the classroom and/or involving projects associated with the classroom.

DANCE		
Course Name	**No.**	**Type**
Dance as Fine Art 1	6017	FA
Dance as Fine Art 2	6018	FA
MUSIC, GENERAL		
Piano 1A/1B	6520/6521	FA
Piano 2A/2B	6535/6536	FA
Music Theory and Composition A/B	6545/6546	FA
Music Theory and Composition A/B, Advanced Placement	6547/6548	FA
Music Perspectives A/B	6565/6566	FA
Guitar 1A/1B	6585/6586	FA
Guitar 2A/2B	6591/6592	FA
Music and Its Technology A/B	6605/6607	FA
MUSIC, CHORAL		
Chorus, General A/B	6701/6702	FA
Chorus 1A/1B	6711/6712	FA
Chorus 2A/2B	6721/6722	FA
Choir, Concert A/B	6731/6732	CM, FA
Choir, Concert A/B, Honors	6733/6734	CM, FA
Choir, Chamber A/B	6741/6742	CM, FA
Choir, Chamber A/B, Honors	6743/6744	CM, FA
Choir, Show A/B	6745/6746	CM, FA
MUSIC, INSTRUMENTAL		
Band, Beginning A/B	6811/6885	FA
Band, Advanced A/B	6831/6832	FA
Band, Concert A/B	6821/6822	CM, FA
Band, Symphonic A/B	6826/6827	CM, FA
Band, Symphonic A/B, Honors	6828/6829	CM, FA
Jazz Ensemble A/B	6871/6872	CM, FA
Jazz Ensemble A/B, Honors	6873/6874	CM, FA
Orchestra, Beginning A/B	6841/6855	FA
Orchestra, Advanced A/B	6861/6862	FA
Orchestra, Concert A/B	6851/6852	CM, FA
Orchestra, Symphonic A/B	6866/6867	CM, FA
Orchestra, Symphonic A/B, Honors	6868/6869	CM, FA
THEATER		
Intro to Dramatics, Grade 9	6908	
Theater 1	6910	FA
Theater 2	6911	CM, FA
Advanced Acting	6912	CM, FA
Stage Design	6913	CM, FA
Directing	6914	CM, FA
TELEVISION PRODUCTION		
Television Production 1	7860	
Television Production 2	7862	

VISUAL ARTS		
Advanced Studio Art A/B	6313/6314	CM, FA
Art History A/B, AP	6456/6457	FA
Art, Studio, 2-D, AP	6486	CM, FA
Art, Studio, 2-D, AP (double period)	6487	CM, FA
Art, Studio, 3-D, AP	6488	CM, FA
Art, Studio, 3-D, AP (double period)	6489	CM, FA
Art, Studio, Drawing, AP	6482	CM, FA
Art, Studio, Drawing, AP (double period)	6484	CM, FA
Art and Culture A/B	6454/6455	FA
Art History A/B	6451/6452	FA
Art, Studio 1A/1B	6105/6106	CM, FA
Art, Studio 2A/2B	6205/6206	CM, FA
Art, Studio 3A/3B	6305/6306	CM, FA
Ceramics/Sculpture 1A/1B	6381/6391	FA
Ceramics/Sculpture 2A/2B	6381/6391	FA
Commercial Art A/B	6401/6411	FA
Creative Crafts A/B	6395/6396	
Digital Art A/B	6496/6497	CM, FA
Drawing and Design A/B	6355/6356	FA
Fundamentals of Art A/B	6055/6056	FA
Painting A/B	6365/6366	FA
Photography 1A/1B	6345/6346	FA
Photography 2A/ 2B	6347/6348	CM, FA
Visual Art Center A/B (double period)	6492/6493	CM, FA
Visual Art Center A/B (triple period)	6490/6491	CM, FA

THE ARTS COURSE DESCRIPTIONS

DANCE

The following two courses satisfy the Fine Arts requirement:

Dance as Fine Art 1

6017 FA 0.5 credit

This introductory course in dance emphasizes the development of technique and the exploration of dance as a fine art. Students learn the basic technical skills needed for each dance discipline and the history of dance in many cultures. Students demonstrate through movement the knowledge and application of the basic elements of dance such as time, force, energy, dynamics, and space.

Dance as Fine Art 2

Prerequisite: Attainment of the outcomes of Dance as Fine Art 1

6018 FA 0.5 credit

Students continue to refine skills and understanding introduced in the prerequisite course. The elements of dance are studied in greater depth, with applications directed at solving movement problems. Students create original choreography and increase improvisational skills. Basic movement skills and techniques are refined to achieve greater technical and artistic competency. Specific dance forms are studied.

Dance may be offered as a physical education course (see page 33).

GENERAL MUSIC

Courses satisfying the Fine Arts requirement are marked with **FA.** Certificate of Merit courses are marked with **CM.**

Special Note: Attainment of specified student service learning hours for each course is not an automatic granting of hours based on successful course completion. Rather, course-specific student service learning maximum hours are determined by program coordinators. Each teacher and student determine the specific student service learning hours for each specific course. At the end of the course the teacher authorizes the number of student service learning hours to be awarded to each student.

Courses applicable to the Fine Arts requirement are marked with **FA.** Certificate of Merit courses are marked with an asterisk **CM.**

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

Piano 1A—Grades 9–12

6520 CM, FA (Basic Core Alt. Category 2) 0.5 credit

Students acquire standard piano technique and learn to read music written for the instrument. This course is open to all students regardless of musical background. In an instructional setting that allows individuals to receive assistance as needed, students develop effective practice habits so they will be able to progress independently. Examples of excellent piano performance are heard and analyzed. This course may be repeated for credit.

Piano 1B—Grades 9–12

Prerequisite: Attainment of the outcomes of Piano 1A

6521 FA 0.5 credit

Students learn to perform musical selections of gradually increasing difficulty, while also gaining skill in creative uses of the keyboard. Aspects of music history and theory relevant to piano performance are presented. This course may be repeated for credit.

Piano 2A—Grades 9–12

Prerequisite: Demonstration of intermediate piano performance skills via audition

6535 FA 0.5 credit

Students continue to build on the notation and technical skills acquired in Piano 1, studying and performing a wide variety of intermediate and advanced repertoire. They continue to improvise, compose, and arrange music. Students refine their understandings of music history through analysis of repertoire. This course may be repeated for credit.

Piano 2B—Grades 9–12

Prerequisite: Attainment of the outcomes of Piano 2A

6536 FA 0.5 credit

Piano students continue to study works of increasing difficulty at the intermediate and advanced levels. By playing duets, serving as accompanists, or playing in ensembles, they expand their performing expertise. They improvise and compose in a variety of styles. Each student selects and studies a major period of music history in depth. This course may be repeated for credit.

Music Theory and Composition, Advanced Placement A/B—Grades 9–12

Prerequisite: Attainment of the outcomes of Music Theory B or permission of instructor

6547/6548 FA 0.5 credit

Students with strong interest and preparation in music prepare to meet the requirements of the College Board for advanced placement in Music Theory. They gain increased fluency in all aspects of music notation while strengthening skills in tonal imagery and tonal memory. 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, while fulfilling requirements similar to those of a college music theory course. They analyze music of increasing complexity and study in detail the techniques used to compose music, including electronic media. Students apply a variety of techniques in creating their own compositions and improvisations.

Music Theory and Composition A/B—Grades 9–12

6545/6546 CM, FA 0.5 credit

Students study the elements of music with emphasis on music terminology, notation, major and minor keys, intervals, triads, and beginning part writing. They practice melodic, rhythmic, and harmonic dictation, as well as keyboard harmony and sight-singing. They learn how to improvise and compose music in different styles for various combinations of voices and instruments.

Students build on the skills acquired earlier in Music Theory and Composition A. Diction, keyboard harmony, and sight-singing continue on a more advanced level. Students compose more involved works in a variety of styles. Performance and analysis of student compositions is a major activity during this class.

Music Perspectives A—Grades 9–12

6565 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.

Music Perspectives B—Grades 9–12

Prerequisite: Music Perspectives A or permission of instructor

6566 FA 0.5 credit

Students continue to study music of their own and other cultures and historical eras. They explore historical and cultural influences on the creation of music and the other arts. Students learn to make informed personal judgments about music and music performances. Using electronic technology, students create their own compositions.

Guitar 1 A/B—Grades 9–12

6585/6586 FA (Basic Core Category 2) 0.5 credit

Students learn beginning guitar technique including selected major, minor, and seventh chords; basic finger picks and strums; and tuning technique. Music theory and historical perspective are studied as they relate to guitar performance. This course is open to all students regardless of music background.

Students acquire more advanced guitar performance skills in semester B, while continuing to improve their ability to read and write music notation. Students learn all the major, minor, and seventh chords and play melodies in all areas of the fretboard. The technological aspects of contemporary guitar playing are studied through demonstrations and recorded examples. These courses may be repeated for credit.

Guitar 2 A/B—Grades 9–12

Prerequisite: Attainment of the outcomes of Guitar 1B

6591/6592 FA 0.5 credit

Students with a high level of interest, ability, and preparation in guitar study and perform music representing a variety of musical styles. Ear-training and music theory are emphasized; and students complete several creative projects. This course may be repeated for credit.

Second semester students continue to refine their guitar performance skills while gaining increased proficiency in creating and adapting music for guitar. They analyze the guitar styles of a variety of cultures and incorporate them into their own improvisations. These courses may be repeated for credit.

Music and Its Technology A/B—Grades 9–12

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 works featuring the use of electronic music in combination with other arts.

Second semester students extend their knowledge and skills introduced in Music and Its Technology A. They use computers to record and edit musical performances, and to create and print music notation. Career options in electronic music are explored.

CHORAL MUSIC

Chorus, General A/B—Grades 9–12

6701/6702 FA (Basic Core Alt. Category 1) 0.5 credit

Students learn the fundamentals of choral singing technique, including diction, breathing, tone production, intonation, and sight-reading. Membership in this choral group is open to all students and previous choral experience is not required. A wide variety of choral music is used, and the group performs occasionally at school and community programs. This course may be repeated for credit.

Chorus 1—Grades 9–12

Students develop music reading skills and improve breathing, tone articulation, and sensitivity to the expressive qualities of music. Membership in this choral group is open to all students, and previous choral experience is not required. A wide variety of music is used, and occasional performances are given. This course may be repeated for credit.

Chorus 1A—Grades 9–12

6711 FA (Basic Core Category 1) 0.5 credit

Students learn the fundamentals of singing and develop sight-reading skills through a variety of choral literature from various cultures and historical eras. Membership is open to all students and previous choral singing experience is not required. Students learn to appreciate and understand the historic and cultural contexts of this music. Several performances are given at school.

Chorus 1B—Grades 9–12

Prerequisite: Attainment of the outcomes of Chorus 1A or audition

6712 FA (Basic Core Category 1) 0.5 credit

Students learn to perform musical selections of increasing difficulty, while expanding their ability to recognize and use the elements of music.

Chorus 2A—Grades 10–12

Prerequisite: Attainment of the outcomes of Chorus 1B or audition

6721 FA (Basic Core Category 1) 0.5 credit

Students continue developing vocal techniques and experience a more varied and complex repertoire. They explore the historic, aesthetic, and cultural context of the music, as well as the social and intellectual influences affecting its development. A number of performances are given at school and within the community.

Chorus 2B

Prerequisite: Attainment of the outcomes of Chorus 2A or audition

6722 FA (Basic Core Category 1) 0.5 credit

Students continue to build on skills learned in Chorus 2A and perform music of increasing difficulty. Appreciation of the cultural, historical, and aesthetic qualities of each piece is deepened through more thorough investigation.

Choir, Concert A—Grades 9–12

Prerequisite: Attainment of the outcomes of Chorus 2B or audition

6731 CM, FA 0.5 credit
6733 CM, FA (taken for Honors-level work)

Students whose singing skills and musicianship demonstrate readiness to perform challenging repertoire audition for placement in Concert Choir A. An audition is required for membership, and previous choral experience is expected. Music representing a broad variety of historical eras and cultures is performed and analyzed. Frequent performances are given at school and in the community.

Choir, Concert B—Grades 9–12

Prerequisite: Attainment of the outcomes of Concert Choir A or audition

6732 CM, FA 0.5 credit
6734 CM, FA (Taken for Honors-level work)

Students sing masterworks from different cultures in their original languages. Emphasis is on refining sight-reading skills, ensemble performance, and vocal production.

Choir, Chamber A—Grades 9–12

6741 CM, FA 0.5 credit
6743 CM, FA (taken for Honors-level work)

Students sing a variety of music written for small vocal ensembles, often without accompaniment. Chamber Choir allows select singers to refine their vocal skills in the highly demanding small ensemble setting. The ensemble has a very active performing schedule and offers leadership opportunities for student conductors and soloists.

Choir, Chamber B—Grades 9–12

6742 CM, FA 0.5 credit
6744 CM, FA (taken for Honors-level work)

Students continue to build on the vocal and music reading skills acquired in the previous semester. They improvise, arrange, and compose music for the small vocal ensemble. Students continue their explorations into the history of small vocal ensemble literature and how it interrelates with other arts. They develop their aesthetic judgment skills by critiquing a variety of performances.

Choir, Show A—Grades 9–12

Prerequisite: Audition

6745 CM, FA 0.5 credit

Students sing a variety of music in jazz and popular vocal styles. Emphasis is on learning to integrate good vocal technique with dance/movement and improvisation. They acquire critical listening skills to use in evaluating their own and others' performances. This ensemble has a very active performing schedule, and offers leadership opportunities for student soloists, conductors, and choreographers.

Choir, Show B—Grades 9–12

Prerequisite: Attainment of the outcomes of Show Choir A or audition

6746 CM, FA 0.5 credit

Students continue to build on the skills acquired in the previous semester, extending their ability to integrate singing and dance/movement. They improvise and compose music and continue their explorations of the history of jazz and show choir genres. This ensemble has a very active performing schedule, and offers leadership opportunities for student soloists, conductors, and choreographers.

INSTRUMENTAL MUSIC

Band, Beginning A/B

6811/6885 FA 0.5 credit

Students with no instrumental music experience should elect this course. They develop basic instrumental skills through a variety of music 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 skills necessary to perform Grade I music is stressed.

Students continue to develop skills in Beginning Band B. Emphasis is on preparing the student for enrollment in a high school band. The development of skills necessary to perform Grade II music is stressed. Public performances during and after school may be required to meet course objectives.

Instructors may suggest that advanced students be transferred to Advanced Band second semester to enhance instrumentation.

Band, Advanced A/B

6831/6832 FA 0.5 credit

Prerequisite: Attainment of the outcomes of Beginning Band B

Advanced Band students develop skills that will enable them to perform music at the Grade II to III level 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

6821/6822 CM FA (Basic Core Category 1) 0.5 credit

Prerequisite: Attainment of the first-year outcomes of Advanced Band, by audition, and the musical need to balance the instrumentation as determined by the director

Students will have the opportunity to develop and refine the skills that will enable them to perform music at the Grade III level of difficulty. Basic skills in transposition, melodic dictation, and the performance of triads are included. Written projects in the areas of music history, performance critiques, and musical composition may be used. Public performances during and after school may be required to meet course objectives.

This course may be repeated once for credit.

A second year of Advanced Band may be substituted for the first year of Concert Band.

Band, Symphonic A/B

6826/6827 CM FA (Basic Core Category 1) 0.5 credit
6828/6829 CM FA (Taken for Honors-level work)

Prerequisite: Attainment of the second-year outcomes of Concert Band, by audition, and the musical need to balance the instrumentation as determined by the director

Students develop skills that will enable them to perform music at the Grade IV to VI level of difficulty. The emphasis will be on the study of literature composed originally for the band/orchestra during the 20th century. 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

6871/6872 CM FA 0.5 credit
6873/6874 CM FA (taken for Honors-level work)

Prerequisite: Attainment of the first-year outcomes of Concert Band and Concert Orchestra, by audition, and the need to balance the instrumentation as determined by the director

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 of jazz interpretation and improvisation through studying this literature. They continue to study jazz harmony and theory, along with 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

6841 FA 0.5 credit

Students with no instrumental music experience should elect this course. They 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.

Orchestra, Beginning B

Prerequisite: Attainment of the outcomes of Beginning Orchestra A

6855 FA 0.5 credit

Students continue to develop skills started in Beginning Orchestra A. Emphasis is upon preparing the student for enrollment in a high school orchestra. The development of skills necessary to perform Grade II music is stressed. Public performances during and after school may be required. Instructors may suggest that advanced students be transferred to Advanced Orchestra second semester to enhance instrumentation.

Orchestra, Advanced A/B

6861/6862 FA 0.5 credit

Prerequisite: Attainment of the outcomes of Beginning Orchestra B

Advanced Orchestra students develop skills that will enable them to perform music at the Grade II to III level 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

6851/6852 CM FA (Basic Core Category 2) 0.5 credit

Prerequisite: Attainment of the first-year outcomes of Advanced Orchestra, by audition, and the musical need to balance the instrumentation as determined by the director

Students will have the opportunity to develop and refine the skills that will enable them to perform music at the Grade III level of difficulty. Basic skills in transposition, melodic dictation, and performance of triads are included. Written projects in the areas of music history, performance critiques, and musical composition may be used. Public performances during and after school may be required to meet course objectives.

This course may be repeated once for credit.

A second year of Advanced Orchestra may be substituted for the first year of Concert Orchestra.

Orchestra, Symphonic A/B

6866/6867 CM FA (Basic Core Alt. Category 2) 0.5 credit
6868/6869 CM FA (when taken for Honors-level work)

Prerequisite: Attainment of the second-year outcomes of Concert Orchestra, by audition, and the musical need to balance the instrumentation as determined by the director

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

This course may be repeated for credit.

THEATER/TELEVISION PRODUCTION

Introductory Dramatics—Grade 9

6908 0.5 credit

This course will acquaint students with basic understandings and skills in theater. The focus is self-developmental through creative theatrical experiences—theater games, pantomime, improvisation, and vocal and body development exercises. Production experience is minimized. This course does not apply to the Fine Arts graduation requirement.

Theater 1—Grade 10

6910 CM FA (Basic Core Category 1) 0.5 credit

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

Theater 2—Grade 10

Prerequisite: Attainment of the outcomes of Theater 1

6911 CM FA (Basic Core Category 2) 0.5 credit

Understandings and skills learned in Theater 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 theater, reading plays, and attending plays provide a balanced framework for application of theater criticism. Careers in acting and technical theater are discussed.

Sixth Annual Youth Festival. © 2001, Mona Caron. Used with permission.

Acting, Advanced—Grades 10–12

Prerequisite: Attainment of the outcomes of Theater 1 and 2

6912 CM FA 0.5 credit

This course provides complex development of acting skills and theories begun in Theater 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' Theater also are provided.

Stage Design—Grades 11–12

Prerequisite: Attainment of the outcomes of Theater 1 and 2

6913 CM FA 0.5 credit

Stage production and the design and mounting of stage presentations, with emphasis on problems of technical production are studied. Students use advanced skills in both the design and construction aspects of technical theater—sets, costumes, lighting, sound, and properties. Students compare design/production approaches of various designers/directors and practice technical skills related to performance.

Television Production 1/2—Grades 9–12

7860/7862 0.5 credit

This course introduces the fundamentals of television. Activities are centered on classroom work on television topics such as the history and technology of television, production fundamentals, commercial analysis, and studio hands-on experiences in the production of commercials. The course offers a combination of theory and practical experiences using technology with the opportunity for students to create their own productions.

TV Production 2 builds on skills and outcomes of Television Production 1. Activities include the exploration of major issues affecting television broadcasting, programming, and scheduling. Advanced writing and production techniques for presentations in news broadcasting, documentary/magazine, interview/talk, education, children, comedy, game, and variety formats are covered.

Play Directing—Grades 11–12

Prerequisite: Attainment of the outcomes of Theater 1 and 2

6914 CM FA 0.5 credit

Students focus on the skills required in theater 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 theater forms as culminating productions.

VISUAL ARTS

Fundamentals of Art A/B—Grades 9–12

6055/6056 FA (Basic Core Category 1) 0.5 credit

Students create artworks that demonstrate basic skills in drawing, painting, crafts, and commercial art. These studies are linked with information about historically significant artists or periods of art, including the contributions of minority artists. Students examine various sources of design and are given some choice of medium and subject matter. Career information is provided.

In the second semester, students create artworks that demonstrate basic skills in printmaking, sculpture, environmental design, and visual communication. Films, lectures, and discussions focus on production techniques and on historically significant examples of each art form, representing a variety of cultures. Career information is provided.

Art and Culture A/B—Grades 10–12

6454/6455 FA 0.5 credit

Students study the visual designs in our environment with a focus on cultural influences and social significance. They analyze and discuss architecture, crafts, decorative arts, environmental design, communication arts, design in commerce and industry, as well as fine arts. Studio projects and textbook assignments are given. Basic art skills are used.

In the second semester, students study drawings, paintings, sculptures, and prints and the way they reflect the personal, social, or cultural concerns and interests of people in various countries. Needs and traditions are considered in analyzing current styles in art and architecture. The role of art in society and the contributions of minority artists are among the topics studied. Students are assigned visual technology study, textbook readings, and studio projects.

Studio Art 1A/1B—Grades 10–12

Prerequisite: 1 credit of Fundamentals of Art or Drawing and Design or 0.5 credit of Fundamentals of Art and 0.5 credit in any other art elective.

6105/6106 CM, FA (Basic Core Category 2) 0.5 credit

Students continue their study of the principles of design and use the elements of art in drawing, painting, printmaking, and/or sculpture with references to art masterpieces and work by contemporary artists. Students can exhibit their work.

In the second semester, students apply their skills in drawing, design, color theory, perspective, and three-dimensional form to their artwork. They analyze natural forms and the works of artists from a variety of cultures, which serve as inspiration. Students can exhibit their work.

Studio Art 2A/2B—Grades 11–12

Prerequisite: Attainment of the outcomes of Studio Art 1A and 1B

6205/6206 CM, FA 0.5 credit

Students concentrate on building a portfolio of their work and a collection of sketches using a preferred medium and showing details of composition. They study realistic, abstract, and nonobjective styles.

In the second semester, students continue to build a portfolio with original drawings, paintings, prints, and/or sculptures. Classroom reading assignments and visuals serve as the basis for discussing historically significant art styles and periods.

Studio Art 3A/3B—Grade 12

Prerequisite: Attainment of the outcomes of Studio Art 2A and 2B

6305/6306 CM, FA 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.

Students prepare and present their artwork 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 (teachers) may be arranged.

Advanced Studio A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of two art courses (1 art credit)

6313/6314 CM, FA 0.5 credit

This course code provides additional time needed to continue the in-depth study that was begun in another art course. It may be repeated for credit.

In the second semester, students participate in individualized critiques of their own work and show evidence of a completed special project. May be repeated for credit.

Commercial Art A/B—Grades 9–12

6401/6411 FA (Basic Core Category 2) 0.5 credit

Students develop the basic skills required for the design and production of advertising and promotional art. Students use professional drawing tools to produce finished artwork. They create posters and receive lessons in illustration. Students may be able to study photography and other graphic processes, including digital art, if time, equipment, and facilities allow. Related health and safety hazards are studied.

In the second semester, students focus on product and environmental design. They develop packages and simple architectural designs. Students may continue work in photography, computer graphics, film-making, television, and other graphic processes that were studied during the first semester course. Related health and safety hazards are reviewed.

Digital Art A/B—Grades 10–12

Prerequisite: Fundamentals of Art or Drawing and Design

6496/6497 CM, FA 0.5 credit

Students use the computer as a tool to produce artwork that simulates traditional styles, or works that combine media, in contemporary images. Digital art, software, and computer processes are used to create portraits, illustrations, commercial/advertising art, and animations. Students discuss ethical and safety issues in the use of computers as an instructional tool. A variety of techniques, processes, and applications are studied.

Students continue to study and create art on the computer in the second semester. They determine uses for art produced through technology. Guest speakers and experts in the field of digital art introduce and describe careers. Students work to develop criteria for judgment of digital artwork. A portfolio of digital art is produced.

Ceramics/Sculpture 1A/1B—Grades 9–12

6381/6391 FA (Basic Core Category 2) 0.5 credit

Students focus on basic hand-building techniques and glazing clay pieces. They study the compositions and general characteristics of clay bodies and conduct a brief survey of significant styles in pottery and ceramic sculpture. An introduction to the potter's wheel may be presented. Health and safety hazards are studied.

In the second semester, students focus on three-dimensional art forms using a variety of materials and techniques. They are introduced to glaze composition and procedures for glaze application. Craftsmanship and safe studio practices are emphasized. Related health and safety hazards are studied.

Ceramics/Sculpture 2A/2B—Grades 10–12

Prerequisite: Attainment of the outcomes of Ceramics/ Sculpture 1A and 1B

6383/6393 CM, FA 0.5 credit

Students learn about natural and historically significant ceramic forms as the basis for pottery and sculpture designs. The formulation and firing characteristics of basic glazes are studied along with additional techniques for throwing on the potter's wheel. Kiln theory is introduced as students learn to stack and monitor the kiln. Health hazards are reviewed.

In the second semester, students study sculpture and pottery styles and their sources. They may explore surface treatments for pottery such as overglazes, carving, underglazes, and several patina methods for sculpture. Craftsmanship and safe studio practices are emphasized. Health hazards are reviewed.

Ceramics/Sculpture 3A/3B—Grades 11–12

Prerequisite: Attainment of the outcomes of Ceramics/Sculpture 2A and 2B

6385/6386 CM, FA 0.5 credit

Students study the works of contemporary potters and sculptors in terms of form, finish, and conceptual statement. They combine hand-formed and thrown clay forms to create pottery or sculpture that reflect a personal interest or concern. They study glaze formulation and test tiles of glaze. They may assume some responsibility for kiln firings. Group critiques are conducted. Health hazards are reviewed.

In the second semester, students create a series of forms that reflect a common source or theme. Similar efforts by professional artists and fellow students are studied. Class discussions focus on work in local shows and in periodicals. Techniques for displaying work are demonstrated in a student exhibit. Health hazards are reviewed.

Art History A/B—Grades 9–12

6451/6452 FA 0.5 credit

Students conduct a brief chronological overview of the major periods of world art with an emphasis on cultures. They develop a time line to help them associate major periods of art with significant historical events. Students also learn the important crafts and/or architectural achievements of various cultures.

In the second semester, students continue an overview of world art and architecture by comparing major works of art in terms of a central theme or image. They also consider the role of the artist in society and the political or technological influences of certain periods of history on artists. References are made to 20th century art and to major art collections in the area.

Art History, Advanced Placement A/B—Grades 10–12

Prerequisite: Based on criteria for Honors courses as listed in this bulletin

6456/6457 CM, FA 0.5 credit

Students prepare for the AP Art History exam. They study the evolution of Western and non-European art in contemporary society by examining the major forms of visual expression in world cultures. Students analyze architecture, sculpture, painting, and the decorative arts within a historical and cultural context. They also focus on the ancient through the medieval periods of history, as prescribed by the College Board curriculum.

Semester B emphasizes the period from the Renaissance to the present. Students will take the AP Art History exam in the spring.

Drawing and Design A/B—Grades 9–12

6355/6356 FA 0.5 credit

Students focus on the creation of form and space using the elements of art and principles of design. They analyze the structure of forms and study drawing in perspective. Two-dimensional design problems consider the use of positive-negative elements, value, and color. Students discuss historically significant drawings and designs.

In the second semester, students explore drawing, design, and illustration through exercises and a study of published examples. They study the works of outstanding artists as a basis for developing one's drawing style. Students create abstract art, three-dimensional designs, and solve design problems through a series of sketches and the construction of prototypes or models.

Painting A/B—Grades 10–12

6365/6366 FA 0.5 credit

Prerequisite: 1 credit of Fundamentals of Art or Drawing and Design or 0.5 credit of Fundamentals of Art and 0.5 credit in any other art elective

Students paint on a variety of surfaces with tempera, acrylic, and watercolor. Translating sketches and real-life forms requires a study of composition, the structure of form, and the relationships of colors. Students study a variety of contemporary painting styles and review the works of painting masters. The toxicity of some pigments, mediums, and solvents is studied.

In the second semester, students may elect to concentrate on a preferred painting medium such as watercolor, tempera, or acrylic. Subject matter for paintings is drawn from a required sketchbook, student-planned photographs, or the environment. They analyze the styles of other painters in terms of color, composition, and technique; and they do exercises in linear perspective, foreshortening, and color theory. Health hazards are studied.

Photography 1A/1B—Grades 9–12

6345/6346 FA 0.5 credit

Students learn how to use a camera, process film, and print black-and-white photographs. Several theme projects are assigned through which students demonstrate their sensitivity to subject matter, lighting, form, and composition. Contemporary photographic technology is demonstrated and used where available. Safe darkroom practices are learned, and opportunities to exhibit work are presented. Related health hazards are studied.

In the second semester, students focus on a variety of subjects, including still life, portrait, landscape, and architecture. The chemistry of photography and the operation of a darkroom with reference to health, safety, and economics is discussed. Students critique work done with a digital camera and computer, and discuss the works of known well-known photographers. Students produce a portfolio of their work.

Photography 2A/2B—Grades 10–12

Prerequisite: Attainment of the outcomes of Photography 1A and 1B

6347 CM, FA 0.5 credit

Students create, produce, and develop a body of work using a variety of aesthetic concepts. Advanced camera and darkroom techniques and digital camera technology are demonstrated and discussed. Students continue studies in the history of photography, photographers, and technical developments. Composition and aesthetic criteria are stressed. Students mat and display their work for exhibit.

In the second semester, students develop a portfolio of work, with the option of using a unifying concept or theme, in terms of the photographer's intent and interpretation. They investigate a variety of techniques and relate them to expression. They continue to study the history of photography and may emphasize the achievements of one period or photographer, continue to study digital camera technology, and have an opportunity to apply aesthetic criteria to a variety of photographic exhibits. Optional projects may be presented. Photographs will be discussed. Students produce and exhibit a portfolio of their work.

Creative Crafts A/B—Grades 9–12

6395/6396 0.5 credit

Students use clay, fiber, fabric, glass, metal, paper, or wood to form functional or decorative craft pieces. Principles of design and theories of aesthetics are considered in discussing historically significant craft forms from a variety of cultures. Craftsmanship and the safe use of tools and equipment are stressed.

In the second semester, students may concentrate on one or two crafts or continue to use a variety of materials, either individually or in a combined form. They learn some of the characteristics of crafts that are popular in various countries and use an appropriate vocabulary to describe them. Emphasis is placed on craftsmanship, design, and safe work practices. Health hazards are reviewed.

Visual Art Center A/B—Grades 9–12

6490/6491 CM, FA (Triple period) 1.5 credits
6492/6493 CM, FA (Double period) 1 credit

Students concentrate on a variety of two-dimensional 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. Interested students must have a portfolio of artwork and should call the Visual Art Center for additional information and to schedule a portfolio review.

In the second semester, students who have completed semester A successfully may apply for a second semester of study. A comprehensive portfolio suitable for advanced placement will be further developed. College representatives and local artists will be scheduled to talk with students. Field trips will be arranged for sketching and study. Approvals will be required as previously stated. This course may be repeated for credit.

Studio Art Drawing, Advanced Placement

Prerequisite: 2 credits including Fundamentals of Art, or Drawing and Design, and Studio Art 1A or 1B. These courses may be repeated for credit.

6482 CM, FA 0.5 credit
6484 CM, FA (Double period) 1 credit

Studio Art 2-D, Advanced Placement

6486 CM, FA 0.5 credit
6487 CM, FA (Double period) 1 credit

Studio Art 3-D, Advanced Placement

6488 CM, FA 0.5 credit
6489 CM, FA (Double period) 1 credit

This individualized program focuses on art projects that demonstrate the competencies expected of Advanced Placement art applicants, as identified by the College Board. Students assemble portfolios to meet the submission requirements. Students may earn credits through any combination of the following courses.

ENGLISH/ENGLISH LANGUAGE ARTS

PHILOSOPHY

The goal of the secondary English Language Arts program is to create literate, thoughtful communicators, capable of controlling language effectively as they negotiate an increasingly complex and information-rich world. Students will refine specific skills and strategies in reading, writing, speaking, listening, and viewing and will use these skills and strategies widely as tools for learning and reflection. Exploring a variety of texts, students will understand and appreciate language and literature as catalysts for deep thought and emotion.

ENDURING UNDERSTANDINGS

The secondary English Language Arts program is founded on the following beliefs:

- Language is a powerful tool for expressing ideas, beliefs, and feelings.
- Knowledge of language facilitates thought.
- Readers, listeners, and viewers continually develop and apply strategies to construct meaning from increasingly complex and challenging texts.
- Writers and speakers strategically use language to communicate for a variety of purposes.
- Individuals need advanced literacy skills to participate actively and successfully in today's demanding, information-based society.
- Literature reveals the complexities of the world and human experience.

OVERVIEW

The secondary English Language Arts program integrates the communication processes of reading, writing, speaking, listening, and viewing through the study of language and literature. No one process or content is taught in isolation; rather, students learn the dynamic relationships among the components. Students explore the human experience across time and distance in their own writing and published exposition, narration, poetry, and drama. They analyze text to consider historical, cultural, political, and social contexts, and they develop their writing skills to express ideas with clarity and precision.

REQUIREMENTS FOR GRADUATION

Four credits in English are required for graduation.

Grade 9	
English 9A and 9B	English 9A and 9B (Honors)
Grade 10	
English 10A and 10B	English 10A and 10B (Honors)
Grade 11	
English 11A and 11B	English 11A and 11B (Honors) English Language and Composition, Advanced Placement, A/B
Grade 12	
English 12A and 12B	English 12A and 12B (Honors) English Literature and Composition, Advanced Placement, A/B

BASIC CORE COURSES IN ENGLISH LANGUAGE ARTS

Basic Core Category 1 and Category 2 courses are indicated in parentheses immediately following the course codes in the list on the next page. An explanation of the Basic Core of Courses can be found on page 7 of this bulletin. Certificate of Merit courses are marked with "CM."

ENGLISH

Course Name	No.	Type
English 9A/9B	1311/1312	HSA
English 9A/9B (Honors)	1313/1314	HSA, CM
English 10A/10B	1321/1322	
English 10A/10B (Honors)	1323/1324	CM
English 11A/11B	1331/1332	
English 11A/11B (Honors)	1333/1334	CM
English 11: Language and Composition, Advanced Placement A/B	1015/1016	CM
English 12A/12B	1341/1342	
English 12A/12B (Honors)	1343/1344	CM
English 12: Literature and Composition, Advanced Placement A/B	1017/1018	CM

ENGLISH LANGUAGE ARTS

Course Name	No.	Type
Advanced Composition A/B	1130/1135	CM
Basic Reading	1145	
College Prep Literacy I	1188	
College Prep Literacy II	1189	
College Prep Literacy III	1190	
College Prep Literacy IV	1191	
Developmental Reading	1143	
Informative and Argumentative Speaking	1461	CM
Journalism A: Editing, Gathering, and Reporting the News	1150	
Journalism B: Advanced News Writing and Newspaper Production	1151	
Oral Interpretation and Media Study	1462	CM
Publications Editing, Layout, and Business Management	1153	CM
SAT-I: Verbal and Mathematics Preparation	1142	
Techniques of Advanced Journalism	1152	CM

ENGLISH COURSE DESCRIPTIONS

English 9A/9B

1311/1312 NCAA (Basic Core Category 1) 0.5 credit
1313/1314 CM, NCAA (when taken for Honors-level work)

This course integrates the processes of reading, writing, speaking, listening, and viewing with study of the contents of language and literature. Students develop strategies for close reading of texts from a variety of genres and time periods during two units aligned with ninth grade history courses. Students complete mandatory common tasks that focus primarily on the writing process but include development of other language skills.

English 10A/10B

Prerequisite: Attainment of the outcomes of English 9

1321/1332 NCAA (Basic Core Category 1) 0.5 credit
1323/1334 CM, NCAA (Honors-level)

This course integrates the processes of reading, writing, speaking, listening, and viewing with study of the contents of language and literature. Students develop strategies for close reading of texts from a variety of genres and time periods during two thematic units. Students complete mandatory common tasks that focus primarily on the writing process but include development of other language skills.

English 11A/11B

Prerequisite: Attainment of the outcomes of English 10

1331/1332 NCAA (Basic Core Category 1) 0.5 credit
1333/1334 CM, NCAA (when taken for Honors-level work)

This course integrates the processes of reading, writing, speaking, listening, and viewing with study of the contents of language and literature. Students develop strategies for close reading of texts from a variety of genres and time periods during two thematic units. Students complete mandatory common tasks that focus primarily on the writing process but include development of other language skills.

English 11: Language and Composition, Advanced Placement, A/B

Prerequisite: Semester A—Attainment of the outcomes of English 10 and teacher recommendation

1015/1016 CM, NCAA (Basic Core Category 1) 0.5 credit

This course is designed for able and 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 12A/B

Prerequisite: Attainment of the outcomes of English 11

1341/1342 NCAA (Basic Core Category 1) 0.5 credit
1343/1344 CM, NCAA (Honors-level)

This course integrates the processes of reading, writing, speaking, listening, and viewing with study of the contents of language and literature. Students develop strategies for close reading of texts from a variety of genres and time periods during two thematic units. Students complete mandatory common tasks that focus primarily on the writing process but include development of other language skills.

English 12: Literature and Composition, Advanced Placement, A/B

Prerequisite: Semester A—Attainment of the outcomes of English 11 and teacher recommendation

1017/1018 CM, NCAA (Basic Core Category 1) 0.5 credit

This course is designed for able and 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.

ENGLISH LANGUAGE ARTS COURSE DESCRIPTIONS

Courses that count toward satisfying the General Elective portion of the high school graduation requirements.

These courses are open to students in Grades 9–12.

Informative and Argumentative Speaking

Prerequisite: Attainment of the outcomes of English 10

1461 CM (Basic Core Category 2) 0.5 credit

Students interested in competitive debate and effective speaking will enjoy this course. Students improve their oral communication skills during two core units on speechwriting and argumentation and supplementary units on 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.

Oral Interpretation and Media Study

Prerequisite: Attainment of the outcomes of English 10

1462 CM (Basic Core Category 2) 0.5 credit

This course offers opportunities for students interested in forensics, effective speaking, and oral interpretation. Students engage in a variety of activities, including using their own personalities to interpret literature, analyzing texts for oral interpretation, communicating experiences through writing, and studying characteristics of radio and television. Students also explore the career implications of speech in the media.

Journalism A: Editing, Gathering, and Reporting the News

1150 (Basic Core Category 2) 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 Newspaper Production

Prerequisite: Attainment of the outcomes of Editing, Gathering, and Reporting the News

1151 (Basic Core Category 2) 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 areas of newspaper or magazine writing for which they show greatest promise. Students study the principles of newspaper layout and makeup, and are encouraged to contribute stories and apply layout principles to the school newspaper production.

Techniques of Advanced Journalism

Prerequisite: Attainment of the outcomes of Editing, Gathering, and Reporting the News and of Advanced News Writing and Newspaper Production

1152 CM 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: Attainment of the outcomes of Editing, Gathering, and Reporting the News

1153 CM 0.5 credit

This course helps students learn the techniques and knowledge needed to produce and manage school newspapers and yearbooks. Although the course is not required for participation in the production of these school publications, it is highly recommended for students serving on the editorial staff of either. The course provides instruction in all aspects and phases of publications planning, including editing, layout, advertising, and budget.

Advanced Composition A/B

Prerequisite: Attainment of the outcomes of English 9

1130/1135 CM, NCAA 0.5 credit

This course is designed for able students interested in creative or expository writing. Students receive guided instruction in areas of their choice: —creative writing with special emphasis on poetry, drama, or prose fiction; advanced expository writing; or a combination of writing types. Regular guidance and instruction take place mainly in small, common-interest groups, supplemented by frequent teacher-student conferences and critiques.

SAT-I: Verbal and Mathematics Preparation

1142 0.5 credit

This course is designed to improve student achievement on both the verbal and mathematics components of the SAT-I. Students learn the SAT-I format and develop test-taking skills by taking released editions of the SAT-I under simulated test conditions. Students keep a record of their performance on five practice tests, receive individual feedback based on these tests, and learn a variety of strategies for improving their performance.

Developmental Reading

1143 0.5 credit

Students reading on or below grade level 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.

Basic Reading

1145 (Basic Core Category 1) 0.5 credit

Students who are more than two years behind in reading, according to state standards, may take this course upon recommendation of the principal or designee. The course may be taken more than once for credit. Using a variety of materials, students receive instruction in reading strategies and study techniques for use in their content classes.

College Prep Literacy I

1188 (Basic Core Category 1) 0.5 credit

College Prep Literacy II

1189 (Basic Core Category 1) 0.5 credit

College Prep Literacy III

1190 (Basic Core Category 1) 0.5 credit

College Prep Literacy IV

1191 (Basic Core Category 1) 0.5 credit

Students who are able decoders and literal readers and students who do not view themselves as "college bound" are encouraged to take this class upon recommendation of the principal or designee. Students are introduced to 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.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL)

PHILOSOPHY

The philosophy of the English for Speakers of other Languages (ESOL) program is to provide 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. Central to language acquisition is the instruction of pragmatics, which includes the social and cultural skills that are crucial for acculturation to school and society. 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 share in the responsibility and collaborate to provide an effective education for ESOL students. The diverse nature of the ESOL student population provides rich linguistic and socio-cultural resources to develop schoolwide recognition and knowledge of the valuable contributions of diverse cultures and the need for improvement of communication in a global society.

ENDURING UNDERSTANDINGS

- English language acquisition is essential for communicating and expressing ideas, beliefs, and feelings.
- English language learning occurs through meaningful and significant use of the language within a social and educational setting.
- English language learning includes valuing the contributions of bilingual and multilingual individuals.
- English language learning involves developing and nurturing cultural, social, and cognitive processes.
- English language acquisition involves developing and applying strategies for listening, speaking, reading and writing to construct meaning from a variety of texts and other sources.
- English language acquisition includes developing literacy skills to fully and actively participate in the demanding, information-based environment of today's global society.

OVERVIEW

The English for Speakers of Other Languages program at the secondary level enrolls linguistically and culturally diverse secondary students who require intensive English language instruction. Students in the Montgomery County Public Schools are assessed on a state-mandated test of language proficiency and placed in an appropriate level of ESOL instruction, levels 1 through 5. The composition of the student population in each level is multi-grade and heterogeneous; instructional goals are based on the development of language proficiency. ESOL classes provide structured instruction in the acquisition of the English language, with specific emphasis on the listening, speaking, reading, and writing skills that are prerequisites 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. Students are exposed to developmentally appropriate texts representing the genres of narration, poetry, drama, and exposition; and they are taught to analyze text from historical and cultural perspectives. Students develop competency in understanding spoken English and use grammatically correct English to express social and academic needs, and to organize and clearly express their ideas in written English.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) COURSE DESCRIPTIONS

ESOL courses may be taken for credit in English. No repeats for subject credit are allowed.

ESOL Level 1A

1201 NCAA 0.5 credit

This course is designed to teach beginning-level American English skills—reading, writing, listening, and speaking. These four skills are integrated into thematic units that emphasize school life, community life, and planning for the future. A general introduction to American culture is provided. Emphasis is placed on the development of vocabulary and language structures that facilitate academic success. Students are introduced to basic language patterns in all four language skills. They learn the simple present, simple past, future, and progressive present tenses, as well as other simple grammatical structures.

ESOL Level 1B

1211 NCAA 0.5 credit

This course is designed to build on the American English skills taught in Level 1A. Development of communicative language skills, American culture, and academic content vocabulary and language structures is continued. Students begin practicing process writing and functional reading skills. They continue to develop grammatical structures introduced in the first semester and begin to study additional simple grammatical structures needed for meaningful communication.

ESOL Level 2A

1202 NCAA 0.5 credit

Students at this level of proficiency understand basic vocabulary dealing with everyday life of school and home. They continue to incorporate that vocabulary into more complex structures—in both oral and written language—that focus on functional and academic skills. Emphasis is placed on the use of verb tenses. Other important structures such as comparison of adjectives and adverbs and the use of modals are presented. These structures are presented in context as students explore the themes of identity and adventure. Students are required to make oral presentations and do research using technology.

ESOL Level 2B

1212 NCAA 0.5 credit

Students continue language development through the themes of family and courage. They are presented with new vocabulary and ideas through textbooks, structured readers, and authentic materials in written and visual/aural forms. Students are required to read a short novel.

ESOL Lab A

1206 0.5 credit

This basic course is recommended for ESOL levels 1 and 2 students to further develop the language skills taught in the ESOL 1201 and 1202 courses. Students focus on all four language skills, with a particular emphasis on the development of academic language and literacy skills. The course is organized around the units taught in the 1201 and 1202 ESOL courses, with the aim that students develop the beginning reading and writing skills that are prerequisite for accessing content across the curriculum. This course may be taken more than once for elective credit.

ESOL Lab B

1216 0.5 credit

In this second-semester academic language class, ESOL Levels 1 and 2 students continue to practice the four language skills and improve communication in oral and written formats. The emphasis is on the further development of academic vocabulary and discourse, which helps students continue to acquire reading and writing skills required for grade-level academic material. This course may be taken more than once for elective credit.

ESOL Level 3A

1203 NCAA 0.5 credit

Students review the structures taught at Levels 1 and 2, striving always for greater ease and fluency and for more sustained responses. They continue to expand their vocabulary, improve their pronunciation, and acquire greater precision in their use of grammatical forms. Included at this level are activities designed to develop language awareness and critical literacy as well as activities that will prepare students to succeed in test-taking. They are required to read a novel and respond to literature.

ESOL Level 3B

1213 NCAA 0.5 credit

More complex grammatical structures such as clauses, modals, reported speech, past perfect, gerunds, and infinitives are introduced and expanded on. In addition to continuing the practice of process writing, students engage in reflective writing and critical analysis. They are required to read a novel and to analyze how choices are reflected in literature. They go beyond reading for a class assignment and begin to read for pleasure.

ESOL Level 4A

1204 NCAA 0.5 credit

Students review grammar structures taught in Level 3 and learn more complex sentence structures such as connecting ideas, noun and adjective clauses, and using conditionals. They continue to expand their vocabulary—both orally and in written form—and demonstrate an awareness and appreciation of the American culture. An additional link to the regular English curriculum is provided with the study of the elements of literary style. Students are required to read novels and complete the activities and assessments.

ESOL Level 4B

1214 NCAA 0.5 credit

Students continue to increase their proficiency in the four language skills to expand their ability to communicate in oral and written form. They continue to practice and use grammar structures taught in previous courses. Elements of literature such as tone and style are taught. Students expand their reading of novels and drama and continue to develop critical analysis of literary genres. They write multi-paragraph essays and practice interviewing skills as well as editing and revising. Students are required to read a novel as well as other genres of literature.

ESOL Level 5A

1205 NCAA 0.5 credit

Students continue to work at an advanced level of language development and cultural knowledge. They continue to expand their vocabulary through reading authentic materials and are able to make predictions, express ideas, justify opinions, and comprehend and exchange detailed information. They communicate their ideas with intelligible pronunciation and read for enjoyment and information with little or no guidance. Writing skills continue to be refined through extended essays and grammar instruction in advanced structures such as participial phrases, gerunds and infinitives, and unmarked infinitives. Students critique literature and learn to infer a native speaker's/writer's intended message. They are expected to demonstrate knowledge of specific topics and information that form the course content. Students continue to investigate elements of literary style through literature and to use those elements in their writing. The objectives of this course parallel those of the regular English curriculum.

ESOL Level 5B

1215 NCAA 0.5 credit

At this level, students are preparing to exit ESOL. They use the four skills of listening, speaking, reading, and writing to summarize material, compare and evaluate different points of view, debate, analyze, and draw conclusions. They are able to express their thoughts in an organized manner and can effectively integrate their literary skills with the content of language and literature. They explore at greater depth the genres of literature; and their use of language—both orally and in written form—will reflect an appropriate command of English structure. The objectives of this course parallel those of the regular English curriculum.

FOREIGN LANGUAGES

The Foreign Language Program of Studies is designed to enable students to use oral and written language for meaningful and culturally appropriate communication in the situations they are most likely to encounter.

The program helps students appreciate linguistic and cultural diversity and the contributions of other cultures to world civilization.

Students begin to acquire the knowledge, skills, and attitudes necessary for effective participation in an economically, socially, and politically interdependent world.

Research indicates that students who study foreign languages—

- score higher on the SATs;
- develop greater cultural sensitivity toward others;
- have larger vocabularies and a better understanding of their own language;
- perform better on tests of reading and math;
- have higher developed listening and retention skills;
- are more creative;
- display more highly developed thinking skills;
- possess skills critical to national defense;
- will be better prepared to contribute to the ability of local, state, and national economies to compete in the global economy.

FOREIGN LANGUAGE IN OUR HIGH SCHOOLS

Curriculum frameworks aligned with the National Standards for Foreign Language Learning have been written for all languages, both modern and classical, that are taught in the county high schools. The frameworks contain student outcomes that describe what students should know and be able to do at the end of each unit of study. These student outcomes are the mandated curriculum of MCPS and are the basis for the countywide exams for Levels 1–3 in Spanish and French.

Immersion language students from middle school Spanish and French programs are expected to enter the Level 4 Honors courses of their respective languages as they transition into high school. Chinese immersion students are expected to enter Level 4 Honors at those county high schools offering Chinese.

BASIC CORE COURSES IN FOREIGN LANGUAGES

Basic Core Category 1 courses are French and Spanish, Levels 1 through 4. Basic Core Category 2 courses are French and Spanish, Levels 5 and 6, plus two levels (four semesters) of one of the following languages: Chinese, German, Hebrew, Italian, Japanese, Latin, or Russian. An explanation of the Basic Core of Courses can be found on page 7 of this bulletin. All courses are open to students in Grades 9–12.

Certificate of Merit courses are marked with an "CM."

If students select a foreign language to fulfill Maryland diploma requirements, it is recommended that the two foreign language credits be in the same language.

Foreign language courses must be taken in sequential order. The prerequisite for all courses, except 1A, is successful completion of the preceding course.

FOREIGN LANGUAGE LEVEL 1		
Course Name	**No.**	**Type**
Arabic 1A/1B	1589/1590	NCAA
Chinese 1A/1B	1871/1872	NCAA
French 1A/1B	1611/1621	NCAA
German 1A/1B	1961/1971	NCAA
Hebrew 1A/1B	1891/1892	NCAA
Italian 1A/1B	1981/1982	NCAA
Japanese 1A/1B	1831/1832	NCAA
Korean 1A/1B	1583/1584	NCAA
Russian 1A/1B	1851/1852	NCAA
Spanish 1A/1B	1711/1721	NCAA
FOREIGN LANGUAGE LEVEL 2		
Arabic 2A/2B	1591/1592	NCAA
Chinese 2A/2B	1873/1874	NCAA
French 2A/2B	1612/1622	NCAA
German 2A/2B	1962/1972	NCAA
Hebrew 2A/2B	1893/1894	NCAA
Italian 2A/2B	1983/1984	NCAA
Japanese 2A/2B	1833/1834	NCAA
Korean 2A/2B	1585/1586	NCAA
Russian 2A/2B	1853/1854	NCAA
Spanish 2A/2B	1712/1722	NCAA
FOREIGN LANGUAGE LEVEL 3		
Chinese 3A/3B	1875 /1876	CM, NCAA
Chinese 3A/3B Honors	1925/1926	CM
French 3A/3B	1613/1623	CM, NCAA
French 3A/3B Honors	1633/1633	CM, NCAA
German 3A/3B	1963/1973	CM, NCAA
Hebrew 3A/3B	1895/1896	CM, NCAA
Hebrew 3A/3B Honors	1935/1936	CM, NCAA
Italian 3A/3B	1985/1986	CM, NCAA
Japanese 3A/3B	1835/1836	CM, NCAA
Russian 3A/3B	1855/1856	CM, NCAA
Spanish 3A/3B	1713/1723	CM, NCAA
Spanish 3A/3B Honors	1733/1733	CM, NCAA
FOREIGN LANGUAGE LEVEL 4		
Chinese 4A/4B	1877/1878	CM, NCAA
Chinese 4A/4B Honors	1927/1928	CM, NCAA
French 4A/4B	1614/1624	CM, NCAA
French 4A/4B Honors	1634/1644	CM, NCAA
German 4A/4B	1964/1980	CM, NCAA
German 4A/4B Honors	1978/1974	CM, NCAA
Hebrew 4A/4B	1897/1898	CM, NCAA
Hebrew 4A Honors	1937	CM, NCAA
Italian 4A/4B	1987/1988	CM, NCAA
Italian 4A/4B Honors	1991/1992	CM, NCAA
Japanese 4A/4B	1837/1842	CM, NCAA
Japanese 4A/4B Honors	1841/1838	CM, NCAA
Russian 4A/4B	1857/1858	CM, NCAA
Russian 4A/4B Honors	1848/1849	CM, NCAA
Spanish 4A/4B	1714/1724	CM, NCAA
Spanish 4A/4B Honors	1734/1744	CM, NCAA
FOREIGN LANGUAGE LEVEL 5		
French 5A/5B	1615/1625	CM, NCAA
German 5A/5B	1965/1975	CM, NCAA
Japanese 5A/5B	1843/1844	CM, NCAA
Russian 5A/5B	1859/1860	CM, NCAA
Spanish 5A/5B	1715/1725	CM, NCAA
Chinese 5A/5B	1879/1880	CM, NCAA
FOREIGN LANGUAGE LEVEL 6		
Chinese 6A/6B	1881/1882	CM, NCAA
French 6A/6B	1616/1626	CM, NCAA
German 6A/6B	1966/1976	CM, NCAA
Japanese 6A/6B	1829/1830	CM, NCAA
Russian 6A/6B	1861/1862	CM, NCAA
Spanish 6A/6B	1716/1726	CM, NCAA
ADVANCED PLACEMENT		
French Language A/B, Adv. Placement	1635/1636	CM, NCAA
French Literature A/B, Adv. Placement	1637/1638	CM, NCAA
Spanish Literature A/B, Adv. Placement	1761/1762	CM, NCAA
Spanish Language A/B, Adv. Placement	1759/1760	CM, NCAA
SPANISH FOR SPANISH SPEAKERS		
Spanish for Spanish Speakers 1A/1B	1777/1778	
Spanish for Spanish Speakers 2A/2B	1779/1780	
Spanish for Spanish Speakers 3A/3B	1781/1782	CM
Spanish for Spanish Speakers 3A/3B Honors	1783/1784	CM
LATIN		
Latin 1A/1B	1811/1821	NCAA
Latin 2A/2B	1812/1822	NCAA
Latin 3A/3B	1813/1823	CM, NCAA
Latin 3A/3B Honors	1815/1825	CM, NCAA
Latin 4A/4B	1814/1824	CM, NCAA
Latin 4A Honors	1816/1826	CM, NCAA
Latin Literature A/B, Advanced Placement	1809/1810	CM
Latin Vergil A/B, Advanced Placement	1819/1820	CM
SIGN LANGUAGE		
American Sign Language Level 1A/1B	1596/1597	

FOREIGN LANGUAGES COURSE DESCRIPTIONS

Foreign Languages Level 1

Arabic 1A/1B	1589/1590	NCAA	0.5 credit
Chinese 1A/1B	1871/1872	NCAA	
French 1A/1B (Basic Core Category 1)	1611/1621	NCAA	
German 1A/1B	1961/1971	NCAA	
Hebrew 1A/1B	1891/1892	NCAA	
Italian 1A/1B	1981/1982	NCAA	
Japanese 1A/1B	1831/1832	NCAA	
Korean 1A/1B	1583/1584	NCAA	
Russian 1A/1B	1851/1852	NCAA	
Spanish 1A/1B (Basic Core Category 1)	1711/1721	NCAA	

In Level 1A students begin to learn to communicate orally and in written form about daily life. Emphasis is on vocabulary development, simple grammatical structures, and the basic culture of the people. Students are encouraged to use the language beyond the school setting and keep informed of current events in countries where the target language is spoken.

Students continue to develop oral and written communication skills. Emphasis remains focused on vocabulary development, simple grammatical structures, the application of language skills to daily life, and the basic culture of the people. Students are encouraged to use the language beyond the school setting and keep informed of current events in countries where the target language is spoken.

Foreign Languages Level 2

Prerequisite: Attainment of the outcomes of Level 1B

Arabic 2A/2B	1591/1592	NCAA	0.5 credit
Chinese 2A/2B	1873/1874	NCAA	
French 2A/2B (Basic Core Category 1)	1612/1622	NCAA	
German 2A/2B	1962/1972	NCAA	
Hebrew 2A/2B	1893/1894	NCAA	
Italian 2A/2B	1983/1984	NCAA	
Japanese 2A/2B	1833/1834	NCAA	
Korean 2A/2B	1585/1586	NCAA	
Russian 2A/2B	1853/1854	NCAA	
Spanish 2A/2B (Basic Core Category 1)	1712/1722	NCAA	

Students expand vocabulary and learn increasingly complex expressions and structures for written and oral communication to discuss the past. The culture of the people is examined in greater depth. Students continue to make comparisons with the language and culture studied. They are encouraged to use the language beyond the school setting and keep informed of current events in countries where the target language is spoken.

Students continue to grow in their ability to communicate in oral and written forms using increasingly complex vocabulary, expressions, and grammatical structures in the present and the past. They study the target culture in greater detail. They continue to make comparisons with the language and culture being studied. They use the language beyond the school setting and keep informed of current events in countries where the target language is spoken.

Foreign Languages Level 3

Prerequisite: Attainment of the outcomes of Level 2B

Chinese 3A/3B	1875 /1876	CM, NCAA	0.5 credit
Chinese 3A/3B Honors	1925/1926	CM	
French 3A/3B (Basic Core Category 1)	1613/1623	CM, NCAA	
French 3A/3B Honors	1633/1633	CM, NCAA	
German 3A/3B	1963/1973	CM, NCAA	
Hebrew 3A/3B	1895/1896	CM, NCAA	
Hebrew 3A/3B Honors	1935/1936	CM, NCAA	
Italian 3A/3B	1985/1986	CM, NCAA	
Japanese 3A/3B	1835/1836	CM, NCAA	
Russian 3A/3B	1855/1856	CM, NCAA	
Spanish 3A/3B (Basic Core Category 1)	1713/1723	CM, NCAA	
Spanish 3A/3B Honors	1733/1733	CM, NCAA	

In Level 3 students learn to exchange information and justify opinions in authentic settings. Vocabulary development and accuracy of expression continue to increase. Students continue to make comparisons with the language and culture being studied, further their knowledge of school subjects, and keep informed of current events in countries where the target language is spoken.

Students continue to build on skills developed previously. Vocabulary themes include travel, health, technology, and the media. Increased grammatical accuracy is stressed. Students continue to make comparisons with the language and culture being studied, further their knowledge of other school subjects, and keep informed of current events in countries where the target language is spoken.

Foreign Languages Level 4

Prerequisite: Attainment of the outcomes of Level 3B

Chinese 4A/4B	1877/1878	CM, NCAA	0.5 credit
Chinese 4A/4B Honors	1927/1928	CM, NCAA	
French 4A/4B (Basic Core Category 1)	1614/1624	CM, NCAA	
French 4A/4B Honors	1634/1644	CM, NCAA	
German 4A/4B	1964/1980	CM, NCAA	
German 4A/4B Honors	1978/1974	CM, NCAA	
Hebrew 4A/4B	1897/1898	CM, NCAA	
Hebrew 4A Honors	1937	CM, NCAA	
Italian 4A/4B	1987/1988	CM, NCAA	
Italian 4A/4B Honors	1991/1992	CM, NCAA	
Japanese 4A/4B	1837/1842	CM, NCAA	
Japanese 4A/4B Honors	1841/1838	CM, NCAA	
Russian 4A/4B	1857/1858	CM, NCAA	
Russian 4A/4B Honors	1848/1849	CM, NCAA	
Spanish 4A/4B (Basic Core Category 1)	1714/1724	CM, NCAA	
Spanish 4A/4B Honors	1734/1744	CM, NCAA	

Students learn to understand the main ideas from authentic edited materials. They participate in extemporaneous conversations on familiar topics; are able to narrate present, past, and future events; and take notes in the target language. They are expected to demonstrate knowledge of specific topics and information that form the course content.

Students use the four skills to explain main ideas with detail and supporting statements. They write short compositions using a variety of tenses and structures, initiate and sustain conversations with increasing complexity of expression, and learn how to adjust language to their audience. They must demonstrate knowledge of specific topics that form the course content.

Foreign Languages Level 5

Prerequisite: Attainment of the outcomes of Level 4B

French 5A/5B	1615/1625	CM, NCAA	0.5 credit
German 5A/5B	1965/1975	CM, NCAA	
Japanese 5A/5B	1843/1844	CM, NCAA	
Russian 5A/5B	1859/1860	CM, NCAA	
Spanish 5A/5B	1715/1725	CM, NCAA	
Chinese 5A/5B	1879/1880	CM, NCAA	

Students continue to increase their proficiency in understanding others and expressing themselves in a foreign language. They paraphrase information from authentic edited or unedited materials, make predictions based on background knowledge and textual information, express ideas, justify opinions, and comprehend and exchange detailed information. They must demonstrate knowledge of specific topics and information that form the course content.

Foreign Languages Level 6

Prerequisite: Attainment of the outcomes of Level 5B

Chinese 6A/6B	1881/1882	CM, NCAA	0.5 credit
French 6A/6B	1616/1626	CM, NCAA	
German 6A/6B	1966/1976	CM, NCAA	
Japanese 6A/6B	1829/1830	CM, NCAA	
Russian 6A/6B	1861/1862	CM, NCAA	
Spanish 6A/6B	1716/1726	CM, NCAA	

Students work at a highly advanced level critiquing films, events, and works of art or literature. They also learn to make inferences and to present and analyze both sides of an argument. Writing skills continue to be refined as is student ability to interact in a culturally appropriate manner, while demonstrating knowledge of specific topics and information that form the course content.

Language Courses in French and Spanish, Advanced Placement

French Language A/B, Adv. Placement	1635/1636	CM, NCAA	0.5 credit
French Literature A/B, Adv. Placement	1637/1638	CM, NCAA	
Spanish Literature A/B, Adv. Placement	1761/1762	CM, NCAA	
Spanish Language A/B, Adv. Placement	1759/1760	CM, NCAA	

This course is for foreign language students interested in college-level courses or gaining advanced college credit. Students concentrate on developing proficiency in speaking, listening, reading, and writing in preparation for the Advanced Placement language examination. In addition, this course will emphasize mastery of linguistic competencies at a very high level of proficiency.

This course is for foreign language students interested in college-level work or credit. A selection of challenging literature and materials helps students deepen their understanding of how literature communicates meaning through form and content. Students read, discuss, and react to representative works of a range of literary genres and themes in preparation for the appropriate AP exam.

Spanish for Spanish Speakers

Spanish for Spanish Speakers 1A/1B	1777/1778		0.5 credit
Spanish for Spanish Speakers 2A/2B	1779/1780		
Spanish for Spanish Speakers 3A/3B	1781/1782	CM	
Spanish for Spanish Speakers 3A/3B Honors	1783/1784	CM	

Students can take Spanish for Spanish Speakers 3A and 3B at the Honors level by completing the local school procedures and registering under the Honors code given below.

Latin 1A/1B

1811/1821 NCAA 0.5 credit

Focusing on the basic elements of Latin grammar, students begin to build a foundation in vocabulary. The proficiency skills of speaking, listening, and writing are involved to help students develop reading skills. Throughout the course students discuss Latin derivatives in English and modern foreign languages. Students also learn about the daily life and heritage of the early Romans and the Western world.

During semester B, students continue to master basic Latin structures, using listening, speaking, and writing to increase reading comprehension and translation skills. Attention focuses on Latin word-building (roots, prefixes, spelling changes in compounds, and word families) and related patterns in English. Students continue to learn about the Roman world and its impact on contemporary life.

Latin 2A/2B

Prerequisite: Attainment of the outcomes of Latin 1B

1812/1822 NCAA 0.5 credit

Continuing their study of basic Latin grammar, after a review of Latin 1 concepts, students concentrate on grammatical structures that involve phrases and subordinate clauses. Students continue to build their Latin vocabulary, analyzing the patterns of compounding and networking within the language and tying the new Latin words to English. There is ongoing study of various aspects of Roman life.

During Semester B, students study basic Latin grammar and translate passages from various authors. Options include tales of mythology, Ovid's poetry, the comedies of Plautus, and excerpts from Caesar's *De Bello Gallico*. Students learn about Caesar's life and his impact on the political structures of the Roman republic. They also learn about Roman military practices and the early cultures in Gaul and Britain.

Latin 3A/3B

Prerequisite: Attainment of the outcomes of Latin 2B

1813/1823 CM, NCAA 0.5 credit
1815/1825 CM, NCAA (Honors level)

In this course students concentrate on the prose of major Latin authors. They translate a major writing of Cicero and learn the hallmarks of his style. They also read selections from Sallust the historian and Pliny the letter writer, plus medieval Latin or Roman satire. Students master advanced grammatical structures and focus on the use of rhythm, word placement, and rhetorical devices.

This course focuses on poetry and lighter themes of Latin literature. Students read the lyric poems of Horace and Catullus, the elegies of Propertius and Tibullus, and the verses of Ovid. They also may read scenes from a comedy by Plautus. In connection with their readings, students learn basic metrical schemes, poetic devices, and special grammatical forms used by poets.

Latin 4A/4B

Prerequisite: Attainment of the outcomes of Latin 3B

1814/1824 CM, NCAA 0.5 credit
1816/1826 CM, NCAA (Honors level)

Students focus on the writings of Virgil, the epic poet of the Augustan Age, including the *Aeneid*. In addition to the life of Virgil, students learn about early imperial Rome and Augustus' planned reforms for the political and moral resurgence of his people. Students make comparisons and contrasts between contemporary America and imperial Rome, between the epics of Virgil and others.

Semester B continues the study of Virgil's epic, the *Aeneid*. Using the grammatical knowledge and skills of poetic analysis learned in the first semester, students translate significant portions of Books IV and VI. They discuss in detail Virgil's indebtedness to Homer and his own subsequent impact on later writers.

Latin Literature, Advanced Placement A/B

1809/1810 CM 0.5 credit

This course prepares students for the AP Latin Literature test. The course offers selections from Cattulus, Cicero, Horace, or Ovid. The examination is designed to test the candidates' ability to read, translate, understand, analyze, and interpret the required selections. In addition, AP Latin courses include the study of the cultural, social, and political context of the literature on the syllabus.

Latin Vergil, Advanced Placement A/B

1819/1820 CM 0.5 credit

This course prepares students to sit for the AP Vergil examination. The course offers selections from the *Aeneid*. Students are expected to be able to translate the *Aeneid* from Latin into English, and demonstrate a grasp of the grammatical structures and vocabulary. Stylistic analysis as well as the study of the cultural, social, and political context of the literature is integral to the course.

American Sign Language Level 1A/1B

1596/1597 0.5 credit

Students will receive foreign language credit for American Sign Language.

Students use ASL to talk about daily life using basic vocabulary and simple grammatical structures. Students learn the alphabet, numbers 1 to 100, and develop sensitivity to the cultural and linguistic heritage of the Deaf community and its influence on our own.

HEALTH EDUCATION

PHILOSOPHY

The philosophy of the secondary Health Education program is to provide 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 needed to enhance their potential for achieving academic success and attaining healthier, happier, and more productive lives. Developing knowledge of accurate health information is essential, but practicing health-related skills in real-life situations and developing healthful behaviors are the ultimate goals of the program.

ENDURING UNDERSTANDINGS

The secondary Health Education program is founded on the following beliefs:

- Health-behaviors are developed, and given accurate knowledge and sufficient motivation one will develop behaviors that are health-enhancing.
- A health literate individual is one who develops an understanding of basic health information and services and, through skills and practice, develops the competence to use the information and services to improve or maintain personal health.
- Practical application of life skills such as communication, conflict resolution, decision-making, goal-setting, and stress management are key to the development of a healthful lifestyle.
- Identifying the risks and consequences associated with unsafe and unhealthy behaviors is essential to preventing injury and disease and promoting good health.
- Developing a healthful lifestyle includes the ability to access valid health information and health-promoting products and services in the home, school, and community.
- Taking personal responsibility for one's own health, while assisting others in addressing their health needs is a major step toward developing a healthy community.

OVERVIEW

The high school Health Education program comprises four one-semester courses. All students must complete Grade 10 Comprehensive Health Education as part of the Maryland high school graduation requirements. Students may select from the basic core course or the Honors course to complete this requirement. Two elective courses are offered for students who complete Comprehensive Health Education successfully and have further interest in health education topics. Family life and human sexuality provides information about topics such as interpersonal relationships, economics of family life, responsibilities of marriage and parenting, and pregnancy prevention. Human Behavior is a one-semester elective course in which students learn about human needs, perception, self-image and coping, and behavior. All four courses highly emphasize the importance of developing knowledge and skills that will lead to healthy behaviors and a healthful lifestyle.

HEALTH EDUCATION COURSE DESCRIPTIONS

Comprehensive Health Education—Grade 10

7835 (Basic Core Category 1) 0.5 credit
7841 (Honors-Level)

Students learn factual health information and develop lifetime skills in mental health; tobacco, alcohol, and other drugs; nutrition and fitness; safety and injury prevention; family life and human sexuality; and disease prevention. Although this course is required for graduation, parental permission must be specifically provided for students under the age of 18 to participate in family life and human sexuality and HIV/STI prevention.

This one-semester course meets the 0.5 credit Health Education graduation requirement.

Family Life and Human Sexuality—Grades 11–12

7833 (Basic Core Category 2) 0.5 credit

Prerequisite: Comprehensive Health Education

Students develop a greater understanding of how family relationships and human sexuality have an impact on individual health and society. Topics include interpersonal relationships; economics of family life; responsibilities of marriage and parenting; pregnancy prevention; pregnancy and childbirth; and sexually transmissible infections. Due to the nature of this course, parental permission is required for students under 18 years old.

This course does not satisfy the Health Education graduation requirement.

Human Behavior—Grades 11–12

Course Code: 7834 (Basic Core Category 2) 0.5 credit

Prerequisite: Comprehensive Health Education

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, and how those decisions affect ourselves and others are the focus of the study of human behavior. Group dynamics and communication skills are integral parts of this course.

This course does not satisfy the Health Education graduation requirement.

MATHEMATICS

REQUIREMENTS FOR GRADUATION IN MATHEMATICS

Four credits in mathematics, including 1 credit in Algebra and 1 credit in Geometry are required for graduation.

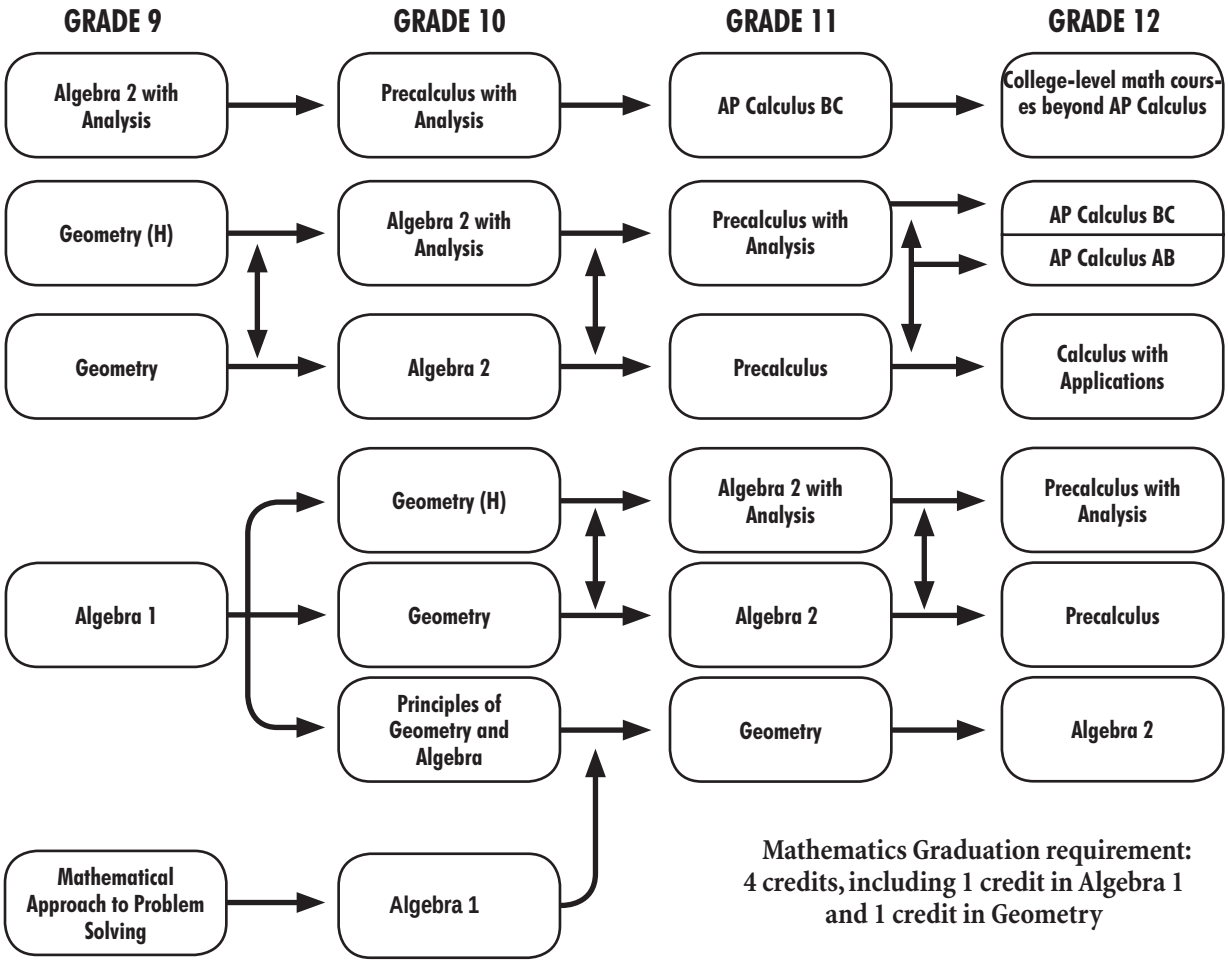
Students who have successfully completed a calculus course may be exempted from the 4-credit requirement in mathematics. Students must consult with school counselors in advance to obtain full information about the credit waiver and its advisability. They are strongly encouraged to have a graphing calculator. Graphing calculators are used on the High School Assessments (HSA), PSAT, SAT, and Advanced Placement examinations and in the courses leading to those examinations.

All Maryland state colleges and universities require mathematics through Algebra 2 for admission.

Basic Core Courses in Mathematics: Basic Core Category 1 courses are Mathematical Approach to Problem Solving 1A and 1B, Principles of Geometry and Algebra A and B, Algebra 1A and 1B, Geometry A and B, Algebra 2A and 2B, Related Mathematics A and B, Algebra 2 with Analysis A and B, Precalculus A and B, Precalculus with Analysis A and B, and AP Calculus AB, A, and B, and AP Calculus BC, A, and B. Category 2 courses are Consumer Mathematics A and B, Statistics and Mathematics Modeling A and B, AP Statistics A and B, and Calculus with Applications A and B.

Courses involved in the High School Assessments program are marked with "HSA." Courses that are involved in the Maryland School Assessment are marked with "MSA." Certificate of Merit courses are marked with "CM."

RECOMMENDED SEQUENCE OF CLASSES



ADDITIONAL MATHEMATICS ELECTIVES

Course	*No. of Semesters*	*Course*	*No. of Semesters*
Related Mathematics	2	Statistics and Mathematical Modeling	2
Consumer Mathematics	2	AP Statistics	2

MATHEMATICS		
Course Name	**No.**	**Type**
Mathematical Approach to Problem Solving A/B	3014/3015	
Algebra 1A/1B	3111/3112	CM, HSA, NCAA
Related Mathematics A/B	3231/3232	
Geometry A/B	3201/3202	CM, MSA, NCAA
Geometry A/B, Honors	3203/3204	CM, MSA, NCAA
Principles of Geometry and Algebra A/B	3205/3206	NCAA
Algebra 2A/2B	3301/3302	CM, NCAA
Algebra 2 with Analysis A/B, Honors	3310/3311	CM, NCAA
Consumer Mathematics A/B	3241/3242	
Statistics and Mathematical Modeling A/B	3322/3323	CM, NCAA
Precalculus A/B	3489/3490	CM, NCAA
Precalculus with Analysis A/B, Honors	3350/3351	CM, NCAA
Calculus with Applications A/B	3356/3357	CM, NCAA
Calculus AB, A/B, Advanced Placement	3452/3453	CM, NCAA
Calculus BC, A/B, Advanced Placement	3491/3492	CM, NCAA
Statistics A/B, Advanced Placement	3320/3321	CM, NCAA
SAT-I Verbal and Mathematics Preparation	1142	

MATHEMATICS COURSE DESCRIPTIONS

Mathematical Approach to Problem Solving A/B

3014/3015 (Basic Core Category 1) 0.5 credit

This is a general mathematics course designed for students needing additional help with pre-Algebra. Calculators and computers are used in problem-solving situations and in the development of concepts and skills from arithmetic, Algebra, Geometry, and Probability and Statistics.

Algebra 1A/1B

3111/3112 CM, HSA, NCAA (Basic Core Category 1) 0.5 credit

This course examines the basic structure of real numbers, algebraic expressions, and functions. The topics studied are linear equations, inequalities, functions and systems, quadratic equations and functions, polynomial expressions, data analysis, probability, and the elementary properties of functions. Mathematical modeling of real-life problems and problem solving are major themes of the course.

Related Mathematics A/B

3231/3232 (Basic Core Category 1) 0.5 credit

This course is taken in conjunction with Algebra 1A and IB. This course reinforces the essential pre-Algebra and Algebra concepts and skills necessary to function in authentic problem-solving situations. Students focus on skills and applications related to success in Algebra. Students learn how to use technology in the problem-solving process.

Geometry A/B

Prerequisite: Attainment of the outcomes of Algebra 1A and 1B

3201/3202 CM, MSA, NCAA (Basic Core Category 1) 0.5 credit
3203/3204 CM, MSA, NCAA (for Honors-level work)

Students study Geometry as a mathematical system through the deductive development of relationships in the plane and space developed intuitively in previous years. Students study congruent segments and angles, circle chords, secants and tangent segments, parallel and perpendicular lines, angle measure in triangles, direct and indirect triangle congruence and similarity, proofs, solids of revolution, logic, similar triangles, transformations, the Pythagorean Theorem, geometric constructions, coordinate geometry, and surface area and volume of solids.

Principles of Geometry and Algebra A/B—Grades 10–12

3205/3206 NCAA (Basic Core Category 1) 0.5 credit

This course integrates the basic concepts of Algebra and Geometry in the solution of real-life problems using technology. Topics of study include perimeter, area, volume, construction, polygons, right-triangle applications, first-degree equations and inequalities, angle relationships, linear functions, triangles, polynomials, quadratics, special quadrilaterals, radicals, data analysis, and probability. This course is not open to students who have successfully completed Algebra 2A.

Algebra 2A/2B

Prerequisite: Attainment of the outcomes of Algebra 1 and Geometry

3301/**3302** CM, NCAA (Basic Core Category 1) 0.5 credit

Algebra 2 is the study of the complex number system, symbolic manipulation, and functions. Students discuss, represent, and solve increasingly sophisticated real-world problems using advanced algebraic and data analysis techniques, incorporating technology. They also study the properties of functions, the algebra of functions, matrices, and systems of equations. Linear, quadratic, exponential, logarithmic, polynomial, and rational functions are studied, with an emphasis on making connections to other disciplines and as preparation for a multitude of careers. Students apply advanced data analysis techniques to find, justify, and use the best-fit model from all function models. Communication of the problem-solving skills used is an important part of this course.

Algebra 2 with Analysis A/B

Prerequisite: Attainment of the outcomes of Algebra 1 and Geometry

3310/3311 CM, NCAA (Basic Core Category 1) 0.5 credit

Algebra 2 with Analysis is an intensive, accelerated course intended to prepare students for advanced mathematics courses. Algebra 2 with Analysis focuses on the use of technology and data analysis to develop students' thinking, problem-solving, and communication skills. Properties, applications, algebra, and parametric representation of functions; matrix algorithms; and linear, quadratic, radical, exponential, logarithmic, polynomial, and rational functions are studied. Data analysis techniques include the use of re-expression and residuals to find and verify best-fit rules. Applications as well as the properties of conics relevant to advanced mathematics also are studied.

This is designated as an advanced-level course. General information about advanced-level courses is given on page 7 of this bulletin.

Consumer Mathematics A/B—Grades 11–12

3241/3242 (Basic Core Category 2) 0.5 credit

Consumer education is combined with the mathematics necessary for making wise consumer decisions. Topics include income, budgeting, purchasing, banking, credit, investments, taxation, transportation and travel, housing, insurance, and the operation of a small business. Spreadsheets are studied and used in consumer and business applications. Emphasis is placed on the mathematics involved in various careers. They study probability and statistics to illustrate business applications. Much of the material is presented in the context of problem-solving situations, and the use of technology is integrated. Materials from daily newspapers, consumer magazines, and Web sites keep the content relevant and current.

Statistics and Mathematical Modeling A—Grades 11–12

Prerequisite: Attainment of the outcomes of Algebra 2A and 2B

3322 CM, NCAA (Basic Core Category 2) 0.5 credit

Topics of this course include data analysis, probability, simulations, inferential statistics, normal and binomial distributions, techniques of sampling, confidence intervals, and hypotheses testing. Students use exploratory methods to identify patterns and make decisions. Emphasis is placed on applications and the use of statistics to solve real-life problems.

Statistics and Mathematical Modeling B—Grades 11–12

Prerequisite: Attainment of the outcomes of Algebra 2A and 2B

3323 CM, NCAA (Basic Core Category 2) 0.5 credit

Topics presented in this course are chosen from discrete mathematics topics, including Cryptography and Coding, Game and Graph Theory, Architecture, Trigonometry, Fairness and Apportionment, Careers, Investment and Finance, and College Placement Test Review. Students learn an application-based approach to the study of mathematical modeling.

Precalculus A/B

Prerequisite: Attainment of the outcomes of Algebra 2A and 2B

3489/3490 CM, NCAA (Basic Core Category 1) 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 involving data analysis, trigonometric and circular functions, their inverses, polar coordinates, complex numbers, conics, and quadratic relations. Discrete topics include the Principles of Mathematical Induction, the Binomial Theorem, and sequences and series.

Precalculus with Analysis A

Prerequisite: Attainment of the outcomes of Algebra 2A and 2B

3350/3351 CM, NCAA (Basic Core Category 1) 0.5 credit

The formal study of elementary functions is extended in this course. Students apply technology, modeling, and problem-solving skills to the study of trigonometric and circular functions, identities and inverses, and their applications, including the study of polar coordinates and complex numbers. Vectors in two and three dimensions are studied and applied. Problem simulations are explored in multiple representations—algebraic, graphic, and numeric are explored. Quadratic relations are represented in polar, rectangular, and parametric forms. The concept of limit is applied to rational functions and to discrete functions such as infinite sequences and series. The formal definition of limit is applied to proofs of the continuity of functions and provides a bridge to calculus.

This is designated as an advanced-level course. General information about advanced-level courses is given on page 7 of this bulletin.

Calculus with Applications A/B

Prerequisite: Attainment of the outcomes of Precalculus A and B

3356/3357 CM, NCAA (Basic Core Category 2) 0.5 credit

The introductory topics of this course include limits and continuity of functions, derivatives of functions, the definite integral, and their real-world applications. Students find derivatives numerically, represent derivatives graphically, and interpret the meaning of a derivative in applications. Previously studied functions will be analyzed using calculus concepts. The relationship between the derivative and the definite integral is developed as well. Students will model real-world situations involving rates of change using difference or differential equations. *This is designated as an advanced-level course.*

Calculus AB, Advanced Placement, A/B

Prerequisite: Attainment of the outcomes of Precalculus A and B

3452/3453 CM, NCAA (Basic Core Category 1) 0.5 credit

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

Calculus BC, Advanced Placement, A/B

Prerequisite: Attainment of the outcomes of Precalculus with Analysis A and B

3491/3492 CM, NCAA (Basic Core Category 1) 0.5 credit

The BC course includes all of the topics in the AB course, as well as convergence tests for series; Taylor or Maclaurin series, vector, polar, and parametric functions. Students in BC Calculus generally receive two semesters of Advanced Placement in mathematics.

Statistics, Advanced Placement, A/B

Prerequisite: Attainment of the outcomes of Algebra 2A and 2B

3320/3321 CM, NCAA (Basic Core Category 2) 0.5 credit

Students engage in the exploratory analysis of data, making use of graphical and numerical techniques. They generate conjectures about relationships among variables. Association is distinguished from causation. Data sets are collected according to a well-developed plan, from which inferences will be made. These data sets lay the groundwork for an ongoing, yearlong project. Students are expected to produce appropriate models using probability and simulation and statistical inference. Models and data interact in statistical work; models are used to draw conclusions from data, while the data may support or discredit the model when analyzed with inferential methods. This course is the equivalent of a non-Calculus-based introductory college statistics course.

SAT-I: Verbal and Mathematics Preparation

1142 0.5 credit

This one-semester course is designed to improve student achievement on both the verbal and mathematics components of the SAT-I. They acquire skills related to the SAT-I format and develop test-taking skills by taking released editions of the SAT-I under simulated test conditions. This course is also listed in the English section (page 22).

PHYSICAL EDUCATION

Physical Education will provide an individualized, developmentally appropriate, and personally challenging instructional program that advances the student's knowledge, confidence, skills, and motivation to engage in a lifelong, healthy, active lifestyle. The goal of physical education is for each student to set and achieve personally challenging standards in physical activity and apply higher-order thinking skills and scientific principles to human movement

COURSE REQUIREMENTS

One credit in Physical Education is required for graduation.

See Dance section (page 13) for complete information on dance as a Fine Art. Dance may be offered as a Physical Education course.

PHYSICAL EDUCATION	
Course Name	**No.**
Physical Education 1, General	7720
Physical Education 2, General	7720
Physical Education, Concentrated	7720
Physical Education, Specialty	7720

PHYSICAL EDUCATION COURSE DESCRIPTIONS

Physical Education 1, General—Grades 9–12

7720 (Basic Core Category 1) 0.5 credit

This course includes opportunities for a varied selection of individual, dual, team, dance, and personal development activities. Students are guided in identifying and improving their individual physical fitness levels. Recommended for students for whom basic skills and experiences are appropriate. It is recommended that ninth graders be enrolled in General Physical Education 1 as an introduction to the high school physical education curriculum.

Physical Education 2, General —Grades 9–12

7721 (Basic Core Category 1) 0.5 credit

General Physical Education 2 is recommended as the second course for ninth graders. Students focus on continuous skill development and improvement of their physical fitness levels.

Physical Education, Concentrated —Grades 9–12

7722 (Basic Core Category 1) 0.5 credit

This course includes instruction in two or three activity units during a semester (six or nine weeks for each activity). Students may select from one interest area (e.g., all dance units) or from two or more interest areas (individual, dual, team, dance, fitness, personal development). Emphasis is on fitness and intermediate and advanced skill techniques in selected sports and activities, as ninth graders are less likely to be in this course.

Physical Education, Specialty —Grades 9–12

7723 (Basic Core Category 1) 0.5 credit

This course includes instruction in one or two selected activities during a semester. Improving individual fitness levels is also emphasized in this course. Skill work progresses from beginning through intermediate to advanced skill levels, but the emphasis is on intermediate and advanced skill levels. Ninth graders are less likely to be in this course.

SCIENCE

PHILOSOPHY

We live in a world that is dominated by the influences of science and technology. The ability to make informed decisions as voters and consumers requires an understanding and appreciation of the nature of science. Since science is both a body of knowledge and a process of investigation, these two components are integral parts of each science course offering. Students should expect a rigorous course of study that encourages higher-level reasoning, incorporates the use of technology, and involves laboratory inquiry. Skills in reading, writing, and mathematics are important components of science instruction. Science courses are carefully aligned with the National Science Education Standards and the Maryland Science Content Standards and develop appropriate skills for the HSA. All students are encouraged to take four years of science that provide a balance of the life sciences and the physical sciences.

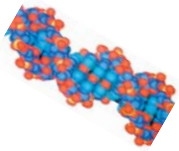
THE SCIENCE CURRICULUM

CHEMISTRY

The study of matter

BIOTECHNOLOGY

The study and application of molecular biology technology

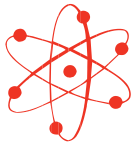


BIOLOGY

The study of life

PHYSICS

The study of force and motion



EARTH/SPACE SYSTEMS

The study of Earth and space

ELECTIVES

A wide variety of science courses

REQUIREMENTS FOR GRADUATION

Three science credits are required for graduation. One biology credit **(BC)** and one physical science credit **(PC)** must be included in the three credits.

Note that Maryland state colleges and universities require two laboratory sciences for admission. All listed science courses, except internship courses, meet the criteria for laboratory science.

BASIC CORE COURSES IN SCIENCE

Basic Core Category 1 courses are Matter and Energy A and B, Biology A and B, Chemistry A and B, Physics A and B, and Earth Space Systems A and B. Additionally, schools must treat as Category 1 courses one of the following pairs: Biology AP A and B, Chemistry AP A and B, Physics AP A and B, Biology AP (double period) A and B, Chemistry AP (double period) A and B, and Environmental Science AP A and B. Basic Core Category 2 courses are Applied Science A and B, Astronomy A and B, Environmental Science A and B, Horticulture Science A and B, Engineering Science A and B, Molecular Biology A and B, Nutrition Science A and B, and Physical Science A and B. An explanation of the Basic Core of Courses is on page 7 of this bulletin.

BC—Satisfies biology requirement

PC—Satisfies physical science requirement

SC—Satisfies third science credit

SCIENCE COURSE DESCRIPTIONS

SCIENCE		
Course Name	**No.**	**Code**
Anatomy and Physiology A/B	3761/3762	BC, CM, NCAA
Applied Science A/B	3611/3612	SC
Astronomy A/B	3856/3857	PC, CM, NCAA
Astronomy A/B, Honors	3858/3859	PC, CM, NCAA
Biology A/B	3631/3632	BC, HSA, NCAA
Biology A/B, Honors	3621/3622	BC, HSA, CM, NCAA
Biology, Advanced Placement A/B	3641/3642	BC, CM, NCAA
Biology, Advanced Placement A/B, Dbl. Period	3651/3652	BC, CM, NCAA
Biological Anthropology/Archaeology	3656	SC
Biotechnology A/B	3636/3637	SC, CM
Chemistry A/B	3721/3712	PC, CM, NCAA
Chemistry A/B, Honors	3711/3712	PC, CM, NCAA
Chemistry, Advanced Placement A/B	3741/3742	PC, CM, NCAA
Chemistry, Advanced Placement A/B, Dbl. Per.	3751/3752	PC, CM, NCAA
Earth/Space Systems A/B	3811/3812	PC, NCAA
Earth/Space Systems A/B, Honors	3815/3816	PC, CM, NCAA
Engineering Science A/B	3609/3610	SC, CM
Environmental Science A/B	3661/3662	SC, NCAA
Environmental Science A/B, Honors	3676/3677	SC, CM, NCAA
Environmental Science A/B, Honors, Dbl. Per.	3674/3675	SC, CM, NCAA
Environmental Science, Adv. Placement A/B	3659/3660	SC, CM, NCAA
Horticultural Science A/B	3671/3672	SC
Internship A/B	3511/3512	CM
Internship A/B, Double period	3521/3522	CM
Matter and Energy A/B	3749/3750	PC, NCAA
Matter and Energy A/B, Honors	3764/3765	PC, CM, NCAA
Molecular Biology A/B	3657/3658	BC, CM, NCAA
Molecular Biology A/B, Double period	3653/3654	BC, CM, NCAA
Nutrition Science A/B	3560/3561	SC
Nutrition Science A/B, Honors	3562/3563	SC, CM
Physical Science A/B	3941/3942	PC
Physics A/B	3831/3832	PC, CM, NCAA
Physics A/B, Honors	3821/3822	PC, CM, NCAA
Physics, Advanced Placement A/B	3841/3842	PC, CM, NCAA
Physics, Advanced Placement A/B, Dbl. Per.	3851/3852	PC, CM, NCAA
Wildlife Biology	3655	SC

Anatomy and Physiology A/B (BC)

Prerequisite: Section A—Attainment of the outcomes of Biology A and B
Corequisite: Chemistry A and B

3761/3762 (Basic Core Category 1) (Advanced Level) 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. Dissection is required.

Applied Science A/B (SC)

3611/3612 (Basic Core Category 2) 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.

Astronomy A/B (PC)

3856/3857 (Basic Core Category 1) 0.5 credit
38583859 (Honors-level)

These courses focus on our solar system and planetary astronomy. Topics in Astronomy A include the Earth, Moon, Sun, planets, asteroids, and comets. Topics in Astronomy B include cosmology, stars, nebulae, pulsars, black holes, galaxies, quasars, and the Big Bang. Experiences with telescopes, observatories, and planetaria may be included. Either semester may precede the other.

Biology A/B (BC)

3631/3632 (Basic Core Category 1) 0.5 credit
3621/3622 (Honors-level)

These courses emphasize the study of living things through laboratory experiences. Topics include ecology, chemistry of life, cells in living things, cell energy, nucleic acids and protein synthesis, energy, inheritance, applied genetics, evolution, and systems and living things. Ecology and evolution are unifying themes throughout the course. Attention is given in both semesters to pertinent social issues and career opportunities. Dissections may occur in this course. See Alternatives to Dissection at the end of the Science section (page 37).

Biology, Advanced Placement A/B (BC)

Prerequisite: Section A—Attainment of the outcomes of Biology A and B
Corequisite: Attainment of the outcomes of Chemistry A and B

3641/3642 (Basic Core Alt. Category 1) (AP-level) 0.5 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 are prepared to take the Advanced Placement 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 (page 37).

Biology, Advanced Placement A/B (Double period) (BC)

Prerequisite: Attainment of the outcomes of Biology A and B
Corequisite: Attainment of the outcomes of Chemistry A and B

3651/3652 (Basic Core Alt. Category 1) (AP-level) 1 credit

These are double-credit courses that meet two periods each day. The courses have the same objectives as Biology AP A and AP B, with the provision that the content, materials, and activities of Biology AP (double period) follow the Biology Advanced Placement curriculum. Students may not earn credit for both single and double-period AP Biology A and B. Dissections may occur in

this course. See Alternatives to Dissection at the end of the Science section (page 37).

Biological Anthropology/Archaeology (SC)

Prerequisite: Attainment of the outcomes of Biology A and B

3656 (Basic Core Category 2) 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: Attainment of the outcomes of Biology A and B

36363637 (Basic Core Category 2) 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. This course is the science credit component of the Career Pathway—Biotechnology.

Chemistry (PC)

Prerequisite: Attainment of the outcomes of Geometry A and B or concurrent enrollment

3721/3722 (Basic Core Category 1) 0.5 credit
3711/3712 (Honors-level)

These courses emphasize the study of matter through laboratory investigations. Chemistry A topics include classification and properties of matter, atomic theory, periodicity, mole concept, heat, molecular motion, and chemical bonding. Chemistry B includes molecular shapes, thermodynamics, reaction kinetics, equilibrium systems, solutions and solubility, acids, bases, and salts.

Chemistry, Advanced Placement A/B (PC)

Prerequisite: Attainment of the outcomes of Chemistry A and B, and Algebra 2A and 2B

3741/3742 (Basic Core Alt. Category 1) (AP-level) 0.5 credit

Chemistry AP A and B are for highly motivated students with interest in the physical sciences. Chemistry AP builds on concepts covered in chemistry with greater detail in content and laboratory investigations. Students are prepared to take the Advanced Placement chemistry examination at the end of the course. Topics in Chemistry AP include atomic theory, chemical bonding, phases of matter, solutions, types of reactions, equilibrium, reaction kinetics, and thermodynamics.

Chemistry, Advanced Placement A/B (Double period) (PC)

Prerequisite; Attainment of the outcomes of Chemistry A and B, and Algebra 2A and 2B

3751/3752 (Basic Core Alt. Category 1) (AP-level) 1 credit

These are double-credit courses that meet two class periods each day. The courses have the same objectives as Chemistry AP A and AP B, with the provision that the content, materials, and activities of Chemistry AP (double period) follow the AP curriculum. Students may not earn credit for both single- and double-period AP Chemistry A and B.

Earth/Space Systems A

3811/3812 (Basic Core Category 1) 0.5 credit
3815/3816 (Honors-level)

These courses emphasize the dynamic processes of systems on and inside the Earth and its surrounding space environment. Topics include the interrelated systems—hydrosphere, cryosphere, geosphere, biosphere, and atmosphere.

Engineering Science A/B (SC)

Corequisite: Attainment of the outcomes of Physics A

3609/3610 (Basic Core Category 2) 0.5 credit

These courses are designed to give students an understanding of the principles and applications of engineering. The students build products to meet given specifications; they physically test and mathematically analyze the products. Students must complete a design package containing justification for the design, assembly instructions, cost analysis, parts list, engineering drawings, analysis of results, and suggested future modifications.

Environmental Science A/B (SC)

3661/3662 (Basic Core Category 2) 0.5 credit
3676/3667 (Honors-level)
3674/3675 (Basic Core Category 2) (Honors-level) (Double period) 1 credit

These courses explore 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.

Environmental Science, Advanced Placement A/B (SC)

Prerequisite: Attainment of the outcomes of Biology A and B
Corequisite: Chemistry A and B recommended

3659/3660 (Basic Core Alt. Category 1) (AP-level) 0.5 credit

Environmental Science AP A and B are for highly motivated students with interest in interdisciplinary science. Environmental Science AP builds on concepts covered in Environmental Science with greater detail in content and laboratory investigations. Students are prepared to take the Advanced Placement environmental science examination at the end of the course. Topics in Environmental Science AP include the interrelationships of the natural world, environmental problems, issues, and solutions.

Horticultural Science A/B(SC)

3671/3672 (Basic Core Category 2) 0.5 credit

Horticultural Science A and B are 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.

Internship—Science A/B

3511/3512 (Basic Core Category 2) 0.5 credit
3521/3522 (Basic Core Category 2) (Double period) 1 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.*

Matter and Energy A/B (PC)

3749/3750 (Basic Core Category 1) 0.5 credit
3764/3765 (Honors-level)

These courses emphasize the development of observation, experimentation, and analytic skills applicable to succeeding in laboratory courses in high school science. Matter and Energy A includes scientific skills and processes, properties of waves, forces, motion, electricity, and magnetism. Matter and Energy B includes properties of matter, heat, and atomic and nuclear structure.

Molecular Biology A/B (BC)

3657/3658 (Basic Core Category 2) (Advanced-level) 0.5 credit

Prerequisite: Attainment of the outcomes of Biology A and B
Corequisite: Attainment of the outcomes of Chemistry A and B

3653/3654 (Basic Core Category 2) (Advanced-level) (Double period) 1 credit

Prerequisite: Attainment of the outcomes of Biology A and B
Corequisite: Attainment of the outcomes of Chemistry A and B

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 (SC)

Prerequisite: Attainment of the outcomes of Biology A and B

3560/3561 (Basic Core Category 2) 0.5 credit
3562/3563 (Basic Core Category 2) (Honors-level) 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, digestion, and investigate the current trends and scientific research that is evolving about this science.

Physical Science A/B (PC)

3941/3941 (Basic Core Category 2) 0.5 credit

These courses focus 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.

Physics (PC)

Prerequisite: Attainment of the outcomes of Geometry A and B or concurrent enrollment

3831/3832 (Basic Core Category 1) 0.5 credit
3821/3822 (Honors-level)

These courses are for students who wish to investigate physical laws and theories, relationships of physical phenomena, and the interrelationships of physics to other fields of human endeavor. Physics includes topics in vectors, kinematics, dynamics, energy, momentum, thermodynamics, electricity and magnetism, waves, and quantum physics.

Physics, Advanced Placement (PC)

Prerequisite: Attainment of the outcomes of Physics A and B, and Precalculus A and B

3841/3842 (Basic Core Alt. Category 1) (AP-level) 0.5 credit

Physics AP A and B are for highly motivated students with interest in the physical sciences. Physics AP builds on concepts covered in physics with greater detail in content and laboratory investigations. Students are prepared to take the Advanced Placement physics examination at the end of the course. During Physics AP A, Newtonian mechanics is the central topic. During Physics AP B, emphasis is placed on electricity and magnetism.

Physics, Advanced Placement (Double period) (PC)

Prerequisite: Attainment of the outcomes of Physics A and B, and Precalculus A and B

3851/3852 (Basic Core Alt. Category 1) (AP-level) 1 credit

These are double-credit courses that meet for two periods each day. The courses have the same objectives as Physics AP A and AP B, with the provision that the content, materials, and activities of Physics AP (double period) follow the AP curriculum, but with extensive laboratory work in each of the topic areas. Students may not earn credit for both single- and double-period AP Physics.

Wildlife Biology (SC)

Prerequisite: Attainment of the outcomes of Biology A and B

3655 (Basic Core Category 2) 0.5 credit

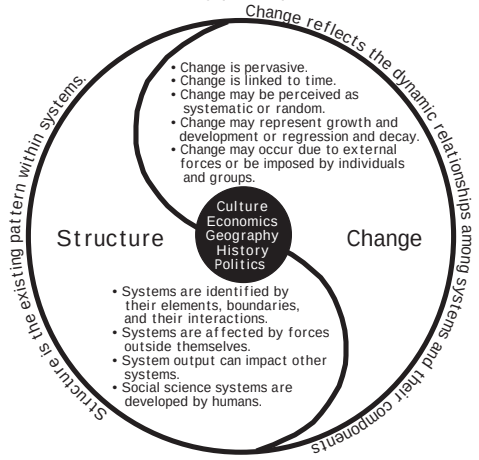
This introductory course for students interested in wildlife management or zoology includes field study techniques and information about careers in areas of animal science. Topics include statistical tests, wildlife management habitat usage, foraging preference, behaviors, and body morphology to identify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

Alternatives to Dissection

Dissection is one of many instructional methods that may be used in Biology and AP Biology. Students may request from the teacher alternatives to dissection in Biology and AP Biology. Alternatives may include such materials as videos, computer programs, film, filmstrips, models, transparencies, charts, diagrams, and textbook overlays. Dissections are required in Anatomy and Physiology. Alternatives to this course include AP Biology and other advanced-level science courses.

SOCIAL STUDIES

The goal of social studies is to help create literate and well-informed citizens who actively participate in a democratic society.



Social studies is the study of the interaction of human and physical systems and how these interactions occur over time.

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 (change). Human systems of interaction include culture, economics, geography, history, and political systems;
- 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, films, and oral history;
- development and communication of social studies concepts and knowledge using a variety of formats, with a special emphasis on analytic and persuasive writing.

Additional information regarding the MCPS Social Studies program can be found at: www.mcps.k12.md.us/curriculum/socialstd/

BASIC CORE COURSES IN SOCIAL STUDIES

Basic Core Category 1 courses are U.S. History A and B; National, State, and Local Government A and B; Modern World History A and B; and Economics. Additionally, schools must treat as Category 1 courses one of the following pairs: U.S. History Advanced Placement A and B; United States Government and Politics Advanced Placement with NSL A and B; European History Advanced Placement A and B; or World History Advanced Placement A and B.

Schools must treat as Category 2 courses two of the following five: History, Africa South of the Sahara; History, African American; History, Eastern Asia; History, Latin American; History, Middle East; Psychology 1 or Sociology 1. An explanation of the Basic Core of Courses is on page 5 of this bulletin.

Three credits in social studies are required for graduation.

Grade 9

United States History A and B

Grade 10

National, State, and Local Government A and B

Grade 11 or 12

Modern World History A and B

SOCIAL STUDIES

Course Name	No.	Type
Comparative Religions	2320	CM, NCAA
Cultural Anthropology A/B	2309/2329	CM, NCAA
Economics	2303	CM, NCAA
Economics: Macroeconomics, Advanced Placement	2315	CM, NCAA
Economics: Microeconomics, Advanced Placement	2316	CM, NCAA
Government, National, State, and Local A/B	2107/2108	HSA, NCAA
Government, National, State, and Local A/B, Honors	2127/2128	HSA, CM, NCAA
Government, United States and Politics with NSL A/B, Advanced Placement	2104/2105	HSA, CM, NCAA
Government, United States Government and Politics, Advanced Placement	2131	CM, NCAA
Government, Comparative Government and Politics, Advanced Placement	2132	CM, NCAA
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 A/B, Advanced Placement	2216/2217	CM, NCAA
History, Latin American	2204	CM, NCAA
History, Medieval European	2209	CM, NCAA
History, Modern World A/B	2221/2222	CM, NCAA
History, Modern World A/B, Honors	2223/2224	CM, NCAA
History, Russian	2205	CM, NCAA
History, The Middle East	2226	CM, NCAA
History, United States A/B	2110/2112	NCAA
History, United States A/B, Honors	2111/2113	CM, NCAA
History, United States, Advanced Placement A/B	2114/2124	CM, NCAA
History, World A/B, Advanced Placement	2240/2241	CM, NCAA
Human Geography A/B, Advanced Placement	2332/2333	CM, NCAA
Humanities A/B	2318/2319	CM, NCAA
Law	2312	CM, NCAA
Philosophy	2311	CM, NCAA
Psychology 1/2	2304/2313	CM, NCAA
Psychology 1/2, Advanced Placement	2330/2331	CM, NCAA
Seminar in Peace Studies	2225	CM
Sociology 1/2	2305/2314	CM, NCAA
Student Leadership A/B	2339/2340	
Executive High School Internship Program (2.0 credits	2323	CM
Executive High School Internship Program (2.5 credits	2324	CM
Executive High School Internship Program (3.0 credits	2325	CM

SOCIAL STUDIES COURSE DESCRIPTIONS

Comparative Religions—Grades 11–12

2320 CM, NCAA 0.5 credit

The basic elements and historical development of world religions are surveyed in this course. The course introduction may be taught through a study of primitive religions or a general examination of the sociology of religion. Other units are organized around comparisons of the religions of India, China, and the Near East. Specific religions studied include Buddhism, Christianity, Confucianism, Hinduism, Islam, Judaism, Taoism, and Zoroastrianism.

Cultural Anthropology A/B—Grades 11–12

2309/2329 CM, NCAA 0.5 credit

This course introduces students to anthropological science with a predominantly cultural focus. Students learn methods used by archaeologists to uncover finds, determine age, and classify artifacts. Students trace the origins of social interaction through family and kinship relationships; traditional law and order; theories concerning the origin of religion, and the commonalities of certain religious, linguistic, and cultural expressions.

In semester B students receive an introduction to physical anthropology in which theories relating to the origin of life and genetics are studied. Students examine the place of human life in the animal world, human fossil forms, and racial theories. Cultural prehistory is a distinctive part of the semester, and New World prehistory is compared and contrasted with Old World prehistory. Archaeological case studies are used.

Economics—Grades 11–12

2303 CM, NCAA (Basic Core Category 1) 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, Advanced Placement—Grades 11–12

2315 CM, NCAA (Basic Core Alt. Category 2) 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, Advanced Placement—Grades 11–12

2316 CM, NCAA (Basic Core Alt. Category 2) 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.

Government—National, State, and Local (NSL) A/B—Grade 10

2107/2108 HSA, NCAA (Basic Core Category 1) 0.5 credit
2127/2128 HSA, CM, NCAA (when taken for Honors-level work)

Students learn the basic purposes of government; the structure, function, and workings of government; the rights and responsibilities of citizens; and the change processes that keep American governments workable. Emphasis is placed on the similarity of the structure and functions of governments at the national, state, and local levels. This course is required for graduation.

In semester B, students learn basic economics principles, types of economic systems, and fiscal and monetary policies of the United States and international trade issues. The principles of foreign policy are examined and applied to contemporary situations. The role of government in making public policy is analyzed in areas of environment, entitlements, public health, censorship, crime, and equity. This course is required for graduation

Government, United States and Politics with NSL, Advanced Placement A/B, —Grades 10–12

2104/2105 HSA, CM, NCAA 0.5 credit

This course is a yearlong survey of American government. The course combines the content and skill development of Advanced Placement U.S. Government and Politics and National, State, and Local Government.

Note: Advanced Placement National, State, and Local Government and Politics may be used to satisfy the graduation requirement of a year in National, State, and Local Government A and B.

Government, United States Government and Politics, Advanced Placement —Grades 11–12

2131 CM, NCAA 0.5 credit

This course is a survey of the structure and function of American government and politics that begins with an analysis of the 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.

Government, Comparative Government and Politics, Advanced Placement—Grades 11–12

2132 CM, NCAA 0.5 credit

This 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—Grades 11–12

2206 CM, NCAA (Basic Core Alt. Category 2) 0.5 credit

This course surveys African history by examining the forces and events that have shaped 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—Grades 11–12

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 given to the impact on African Americans of major events in our history.

History, Ancient and Medieval—Grades 11–12

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—Grades 11–12

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—Grades 11–12

2218 CM, NCAA (Basic Core Alt. Category 2) 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—Grades 11–12

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—Grades 11–12

2214/2215 CM, NCAA 0.5 credit

This course begins with the origins of the modern state in the 16th century and ends with the Congress of Vienna in 1815. It covers the development of political, social, and economic institutions; revolutionary movements; and the rise of nationalism. Students focus on the concepts of causation, continuity and change, and social interdependence.

Semester B begins with Europe in 1815 and ends in contemporary Europe. It covers the development of political, social, and economic institutions; revolutionary movements and the rise of nationalism; the Industrial Revolution and its consequences; the clash of ideologies and the causes and effects of world wars; and the intellectual and cultural history of Europe.

History, European, Advanced Placement A/B—Grades 11–12

2216/2217 A CM, NCAA (Basic Core Alt. Category 1) 0.5 credit

This course is for students who are interested in a freshman college-level course in European history. The course surveys 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—Grades 11–12

2204 CM, NCAA (Basic Core Alt. Category 2) 0.5 credit

This course helps students understand 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—Grades 11–12

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, Modern World A/B—Grades 11–12

2221/2222 CM, NCAA (Basic Core Category 1) 0.5 credit
2223/2224 CM, NCAA (Honors-level)

This course is a survey of modern world history from the 15th century through 1850. Students examine six major civilizations about 1500; how the Renaissance, Protestant Reformation, and economic changes resulted in exploration and colonization; changes in philosophical and scientific thinking and the evolution and consequences of the Industrial Revolution on world economic patterns.

Semester B is a survey of modern world history from 1850 to the present. Students examine the forces of nationalism and imperialism and the effects of these forces on the world; causes and effects of World War I; rise of totalitarian governments, worldwide depression and World War II; Cold War, ethnic and religious nationalism, and the development of a world economy. This course is required for graduation.

History, Russian—Grades 11–12

2205 CM, NCAA (Basic Core Alt. Category 2) 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—Grades 11–12

2226 CM, NCAA (Basic Core Category 2) 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.

History, United States A/B—Grade 9

2110/2112 NCAA (Basic Core Category 1) 0.5 credit
2111/2113 CM, NCAA (Honors-level)

This course, a continuation of eighth grade U.S. history, is a survey of U.S. history in four major areas—the enduring impact of the Civil War and Reconstruction on people; the effects of the Industrial Revolution and immigration on the U.S. economy and society; the changing role of the United States in world affairs through World War I; and major developments of the 1920s and 1930s. This course is required for graduation.

During semester B, students survey our country's history in four major areas: causes, course, and consequences of World War II and its domestic impact; the struggle for equality and the extension of civil liberties from 1945 - 1970; the influence of the cold war and related conflicts on domestic and foreign policy since 1945; and political, economic, social, and cultural developments in contemporary America. This course is required for graduation.

History, United States, Advanced Placement A/B—Grades 11–12

2114/2124 A CM, NCAA (Basic Core Alt. Category 1) 0.5 credit

This course is for students desiring a freshman college-level course in United States history. The course is a survey of our country's history from 1607 to the present, using a college-level text and requiring college-level writing and discussion.

Note: U.S. History AP A and B may be used instead of U.S. History A and B to satisfy the graduation requirement of a year in U.S. History.

History, World, Advanced Placement A/B —Grades 11–12

2240/2241 A CM, NCAA 0.5 credit

This course helps students develop greater understanding of the evolution of global processes and contacts in interactions with different types of 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.

Human Geography, Advanced Placement A/B—Grades 11–12

2332/2333 CM, NCAA 0.5 credit

This AP 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—Grades 11–12

2318/2319 CM, NCAA 0.5 credit

This is an interdisciplinary course organized into three units—Classical Age, Medieval Europe, and Renaissance and Baroque. It examines ideas and ideals of western civilization and, to a lesser extent, eastern civilization. Students study how perceptions of human nature and the place of humans in the universe change over time. Students examine works from the performing and fine arts, literature, philosophy, and historiography.

Section B is organized around the ideas and ideals of western civilization and, to a lesser extent, eastern civilization. Students study how perceptions of human nature and the place of humans in the universe change over time. Students examine works from the performing arts, fine arts, literature, philosophy, and historiography. The three units of study are Neoclassic/Enlightenment, Romantic Era, and The Modern Era.

Law—Grades 11–12

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 intelligently 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 constitutional rights, torts, contracts, property, criminal, family law, and equity.

Philosophy—Grades 11–12

2311 CM, NCAA 0.5 credit

This course acquaints students with the discipline and history of philosophy. 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 are examined through the major philosophers and their writings. Current trends in philosophy are studied as well.

Psychology 1—Grades 11–12

2304 CM, NCAA (Basic Core Alt. Category 2) 0.5 credit

Students are introduced to the scientific study of behavior and mental process. 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 2—Grades 11–12

Prerequisite: Attainment of the outcomes of Psychology 1

2313 CM, NCAA 0.5 credit

This course builds on Psychology 1 and provides further investigation into the major domains in psychology, including Biopsychology, Cognitive Processes, Lifespan Development, and Sociocultural Dimensions of Behavior.

Psychology, Advanced Placement —Grades 11–12

2330/2331 CM, NCAA 0.5 credit

This college-level course introduces students to the scientific study of behavior and mental processes and prepares students for the Advanced Placement examination. While learning to apply psychological principles, students investigate the role of scientific inquiry in the psychological domains, including Methods of Research, Biopsychology, Cognitive Processes, Lifespan Development, and the Sociocultural Dimensions of Behavior.

Semester B continues the study of psychology in preparation for the Advanced Placement examination. Topics include thinking and language; states of consciousness; lifespan development; individual differences; personality and assessment; psychological disorders; treatment of psychological disorders; and social and cultural dimensions of behavior. A comprehensive review of content for both semesters prepares students for the AP exam.

Seminar in Peace Studies

2225 CM 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 non-print sources to analyze the impact of the work of those persons devoted to nonviolent change. Conflict resolution skills and techniques involve students in the practical applications of ideas learned in class.

Sociology 1—Grades 11–12

2305 CM, NCAA (Basic Core Alt. Category 2) 0.5 credit

This course is concerned with human groups and the factors that unite or divide them. Areas of study include culture, values, social groups, social stratification, population, the family, socialization, propaganda, and social institutions. Students focus on the impact of change on mores, norms, and customs. Students engage in modest research projects.

Sociology 2—Grades 11–12

Prerequisite: Attainment of the outcomes of Sociology 1

2314 CM, NCAA 0.5 credit

Building on Sociology 1, emphasis is placed on the application of the basic concepts of social change to American institutions, particularly education and the family. These two institutions are highlighted because of their salient influence on the life of adolescents. Comparative institutions of other cultures are used where appropriate. Students are expected to do research papers that focus on community or on-site research.

Student Leadership A and B

2339 A 0.5 credit
2340 B 0.5 credit

This course offers general elective credit, and may not be used to meet the Social Studies requirement. 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.

Executive High School Internship Program—Grades 11–12

2323/2324/2325 CM 2.0/2.5/3.0 credits

Executive High School Internship Program

2324 CM 2.5 credits

Executive High School Internship Program

2325 CM (Basic Core Category 1) 3 credits

The program gives students the opportunity to work as interns and learn about the concepts of management and delivery of services with professionals. Interns analyze what has been learned in a log; attend seminars; design and present a project; and develop a summary report. Students interested in this program should contact their guidance counselors or the career center. Course 2323 may be repeated once.

CAREER-FOCUSED PROGRAMS

CAREER CLUSTERS AND CAREER AND TECHNOLOGY EDUCATION

ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS CLUSTER

Course Name	No.	Type
Printing, Graphics, and Electronic Media—Completer Program		
Printing, Graphics, and Electronic Media 1A/1B	5118/5119	AT,CDP
Printing, Graphics, and Electronic Media 2A/2B	5121/5122	AT, CDP
Printing Graphics, Internship	5717	CDP

BIOSCIENCES, HEALTH SCIENCE, AND MEDICINE CLUSTER

Biotechnology—Completer Program		
Biotechnology A/B (Double period)	5130/5131	TE, CM, CDP
Biotechnology Science A/B	3636/3637	CM, CDP
Biotechnology A/B (Double period)	420692/420792	AT, CM, CDP
Medical Careers—Completer Program		
Medical Careers A/B	5418/5419	CDP, CM
Medical Careers (DP) A/B	5833/5834	CDP, CM
Medical Careers Internship A/B	5415/5417	CDP, CM
Medical Careers Science (DP) A/B	3995/3996	CDP

BUSINESS MANAGEMENT AND FINANCE CLUSTER

National Academy of Finance		
Accounting A/B	4111/4112	AT, CDP
Financial Planning	4103	CDP, CM
Banking and Credit	4104	CDP, CM
Economics and the World of Finance	4106	CDP, CM
International Finance	4107	CDP, CM
College Business	4074	CDP
Academy of Business Administration Accounting—Completer Program		
Entrepreneurship and Business Management 1 A/1B	5450/5451	CM,CDP
Accounting A/B	4111/4112	AT, CDP
Advanced Accounting A/B	4113/4114	AT, H, CDP
Business Internship A/B (Single period)	5469/5471	CDP
Business Internship A/B (Double period)	5472/5473	CDP
Business Internship A/B (Triple period)	5474/5475	CDP
Business Management—Completer Program		
Software Applications Management A/B	4055/4056	CDP
Software Applications by Design A/B (on Web under Information technology)+	2903/2904	TE, CDP
Advanced Software Applications by Design A/B	2905/2906	AT, CM, CDP
Entrepreneurship and Business Management 1A/1B	5450/5451	CM, CDP
Entrepreneurship and Business Management 2	4135	CM, CDP
Skills for Success	4085	CDP
Financial Management	4158	CDP,CM
Economics and Business Law A/B	4131/4132	CDP,CM
Economics and Business Law A/B	4133/4134	CM, SS Credit
International Business—Grades 11–12	4136	CDP,CM
Business Mathematics A/B	4171/4172	CDP
Business Mathematics A/B	4157/4159	Math credit
Business Internship A/B (Single period)	5469/5471	CDP
Business Internship A/B (Double period)	5472/5473	CDP
Business Internship A/B (Triple period)	5474/5475	CDP
Information Management Systems—Completer Program		
Software Applications by Design A/B (on Web under Information technology)+	2903/2904	TE,CDP
Advanced Software Applications by Design A/B	2905/2906	AT,CM,CDP
Entrepreneurship and Business Management 1 A/B—Grades 10–12	5450/5451	CM, CDP
Information Systems Management A/B (Double period)	4050/4051/ 4054	AT, CM, CDP
Business Internship A/B (Single period)	5469/5471	CDP
Business Internship A/B (Double period)	5472/5473	CDP
Business Internship A/B (Triple period)	5474/5475	CDP
Marketing—Completer Program		
Economics of Marketing A/B	5431/5432	CDP
Principles of Marketing A/B	5433/5434	CDP
Entrepreneurship and Business Management 1 A/B—Grades 10–12	5450/5451	CM, CDP
Marketing Internship A/B (Basic Core)	5461/5462	CDP
Marketing Internship A/B (Double period)	5463/5464	CDP
Marketing Internship A/B(Triple period)	5465/5466	CDP

CONSTRUCTION AND DEVELOPMENT CLUSTER

Building and Construction Technology		
Foundation of Building and Construction Technology	556192	
Carpentry—Completer Program		
Carpentry 1A/1B—Grades 10–12	510092/510192	CDP
Carpentry 2A/2B—Grades 10–12	563992/564092	CDP
Carpentry Internship	570592	CDP
Construction Electricity—Completer Program		
Electricity (Construction) 1A/1B—Grades 10–12	510992/511092	CDP
Electricity (Construction) 2A/2B—Grades 10–12	559592/559692	AT,CDP
Electricity (Construction) Internship (unlimited repeats)	570892	CDP
Heating & Air Conditioning—Completer Program		
Heating, Ventilation and Air Conditioning 1A/B—Grades 11–12	512392/512992	CDP
Heating, Ventilation and Air Conditioning 2A/B—Grades 11–12	512792/512892	AT,CDP
HVAC Internship (Unlimited repeats)	571192	CDP

Masonry—Completer Program		
Masonry 1A/B—Grades 10–12	556792/556892	CDP
Masonry 2A/B—Grades 10–12	556592/556692	CDP
Masonry Internship (unlimited repeats)	571492	CDP

EDUCATION, TRAINING, AND CHILD STUDIES CLUSTER

Early Child Development		
Child Development 1A/B	4847/4848	CDP
Child Development 1A/B (Double period)	4851/4852	CDP
Child Development 2A/B	4849/4850	CDP,CM
Child Development 2A/B (Double period)	4853/4854	CDP,CM
Child Development 3A/B	4866/4867	CDP,CM
Child Development Internship A/B	4860/4861	CDP,CM
Child Development Internship A/B (Double period)	4862/4863	CDP,CM

ENGINEERING, SCIENTIFIC RESEARCH, AND MANUFACTURING TECHNOLOGIES CLUSTER

Academy of Advanced Engineering (PLTW)		
Principles of Engineering A/B	5150/5151	TE, CDP
Introduction to Engineering Design A/B	5152/5153	AT, CM, CDP
Computer Integrated Manufacturing A/B	5154/5155	AT, CM, CDP
Digital Electronics A/B	5156/5157	AT, CM, CDP
Engineering Design Development A/B	5158/5159	AT, CM, CDP
Advanced Engineering Internship	TBD	CDP
Cabinetmaking—Completer Program		
Advanced Cabinetmaking A/B (Double period)	5573/5574	CDP
Basic Cabinetmaking A/B	5649/5650	CDP
Basic Cabinetmaking A/B (Double period)	5569/5570	CDP
Cabinetmaking Internship	5704	CDP
Intermediate Cabinetmaking A/B—Grades 11–12	5571/5572	CDP
Computer Maintenance and Repair—Completer Program		
Computer Maintenance Technology A/B	5611/5612	TE, CDP
Computer Maintenance Technology A/B	4214/4215	AT, CDP
Computer Maintenance Technology A/B (Double period)	5613/5614	TE, CDP
Computer Maintenance Technology A/B (Double period)	4216/4217	AT, CDP
Computer Maintenance Technology and LAN Management A/B	5615/5616	TE, CDP
Computer Maintenance Technology and LAN Management A/B	4218/4219	AT, CDP
Computer Maintenance Technology and LAN Management A/B (DP)	5617/5618	TE, CDP
Computer Maintenance Technology and LAN Management A/B (DP)	4220/4221	AT, CDP
Computer Maintenance Technology Internship	5706	CDP

Design, Illustrating, and Drafting Technology—Completer Program		
Design, Illustrating, and Drafting Technology 1A/1B—Grades 10–12	5810/5811	CDP
Design, Illustrating, and Drafting Technology 1A/1B (Double period)	5812/5813	AT, CDP
Design, Illustrating, and Drafting Technology 2 A/B—Grades 11–12	5814/5815	AT,CM,CDP
Design, Illustrating, and Drafting Technology 2A/2B (Double period)	5816/5817	CM, CDP
Drafting and Design Technology 1A/B—Grades 11–12 (Triple period)	5103/5104	CDP
Drafting and Design Technology 2A/B—Grades 11–12 (Triple period)	5106/5107	AT, CM, CDP
Drafting Internship	5707	CDP
Electronics		
Electronics 1A/B	511292/511392	CDP
Electronics 2A/B (Triple period)	511592/511692	AT, CM, CDP
Engineering Technology—Completer Program		
Engineering Technology Internship	5709	CDP
Exploring Technological Concepts A/B	5500/5501	TE
Pre-Engineering A/B—Grades 10–12 (required)	5504/5505	TE, CM, CDP
Pre-Engineering A/B—Grades 10–12 (required)	4210/4211	AT, CM, CDP
Principles of Technology A/B—Grades 10–12	5661/5663	TE, CDP
Principles of Technology A/B—Grades 10–12	4222/4223	AT, CDP
Principles of Technology/Physics A/B	5662/5664	TE, CM, CDP
Principles of Technology/Physics A/B	4224/4225	AT, CM, CDP
Principles of Technology/Physics A/B (Physics)	3823/3824	CDP, CM
Communications Systems Technology A/B—Grades 10–12	5502/5503	TE, CM, CDP
Communications Systems Technology A/B	4208/4209	AT, CM, CDP
Technological Innovations A/B	5506/5507	TE, CM, CDP
Technological Innovations A/B	4212/4213	AT, CM, CDP
Technology and Research Program A/B (TARP) Double Period	5000/5001	TE, CM
Technology and Research Program A/B (TARP)	5002/5003	TE, CM
Technology and Research Program A/B (TARP) Science	5004/5005	Honors
Technology and Research Program A/B (TARP) (Double period)	4226/4227	AT, CM
Technology and Research Program (TARP) A/B	4228/4229	AT, CM
Technology Education		
Exploring Technological Concepts	5500/5501	TE

ENVIRONMENTAL, AGRICULTURAL, AND NATURAL RESOURCES CLUSTER

Horticulture—Completer Program		
Horticulture 1A/B	5525/5526	CDP
Horticulture 2A/B	5527/5528	CDP
Horticulture 2A/B (Double period)	5529/5530	CDP
Horticulture 3A/B	5531/5532	CDP
Horticulture 3A/B (DP)	5533/5534	CDP
Horticulture Internship	5710	CDP
Landscaping/Nursery Management—Completer Program		
Landscape/Nursery Management 1A/B (Double period))	5656/5657	CDP
Landscape/Nursery Management 2A/B (Double period))	5659/5660	CDP
Landscape/Nursery Management Internship (unlimited repeats)	5713	

HUMAN AND CONSUMER SERVICES, HOSPITALITY, AND TOURISM CLUSTER

Cosmetology—Completer Program		
Cosmetology 1A (Triple period)	5583	CDP
Cosmetology 1B (Double period)	5584	CDP
Cosmetology 1A Related Mathematics	3231	CDP
Cosmetology 2A	5643	CDP
Cosmetology A (Science)	3615	CDP
Cosmetology 2B	5644	CDP
Cosmetology B (Science)	3616	CDP
Cosmetology 3A (Triple period)	5587	CDP
Cosmetology 3B (Double period)	5588	CDP
Cosmetology B Related Mathematics	3232	CDP
Hospitality Management		
International Cultures and Cuisines A/B—Grades 9–12	4630/4640	CDP
Culinary Essentials A/B—Grades 10–12	4825/4826	CDP
Hospitality Management Internship—Grade 12	4816	CDP
Hotel/Travel		
Hotel/Travel A/B—Grades 11–12	5414/5416	CDP
Hotel/Travel Internship A/B—Grade 12	5493/5494	CDP
Nail Technician (Manicuring)		
Nail Technician (Manicuring) A/B	567192/567292	CDP, SSL
Nail Technician (Manicuring) Internship	571592	CDP
On-the-Job Training (Single period/Double period)	571592	CDP
Professional Restaurant Management		
Professional Restaurant Management 1A/1B	4821/4822	CDP
Professional Restaurant Management 1A/1B (Double period)	4823/4824	CDP
Professional Restaurant Management 2A/2B	4831/4832	CDP
Professional Restaurant Management 2A/2B (Double period)	4841/4842	CDP
Professional Restaurant Management Internship	4820	CDP
Family and Consumer Sciences		
Food Trends and Technology A/B (Basic Core Category 1)	4843/4844	CM,TE
Food Trends and Technology A/B (Basic Core Category 1)	4204/4205	CM,AT

INFORMATION TECHNOLOGIES CLUSTER

Information Technology		
Software Applications Management A/B	4055/4056	CDP
Software Applications by Design A/B	2903/2904	TE, CDP
National Academy of Information Technology Programming—Completer Program		
Discovering Programming Concepts A/B—Grades 9–12	2964/2967	TE, CM, CDP
Computer Programming 1 A/B	2989/2990	Adv Level, TE, NCAA, CDP
Computer Programming 1 A/B	4200/4201	Adv Level, AT, NCAA, CDP
Computer Programming 2 A/B,Advanced Placement (JAVA)	2901/2902	AP, AT, NCAA, CDP
Computer Programming 3 A/B,Advanced Placement (JAVA)	2965/2966	AP, AT, NCAA, CDP
Computer Science Internship	2907	CDP
National Academy of Information Technology Internship	5719/5720	CDP
National Academy of Information Technology Guided Research A/B	2938/2939	CDP
Information Resource Design—Completer Program		
Discovering Programming Concepts A/B—Grades 9–12	2964/2967	TE, CM, CDP
Advanced Software Applications by Design A/B	2905/2906	AT, CM, CDP
Web Site Development A/B	2991/2992	AT,CM,CDP
Advanced Web Tools and Digital Media A/B	2936/2937	AT, CM, CDP
Database Administration Programming A/B	4232/4233	AT, CM, CDP
National Academy of Information Technology Internship	5719/5720	CDP
National Academy of Information Technology Guided Research A/B	2938/2939	CDP
Networking/Hardware—Completer Program		
Computer Maintenance Technology A/B	5611/5612	TE, CDP
Computer Maintenance and LAN Management A/B (Double period)	5613/5614	TE, CDP
Computer Maintenance and LAN Management A/B	5615/5616	TE, CDP
Computer Maintenance and LAN Management A/B (Double period)	5617/5618	TE, CDP
Computer Maintenance Technology A/B—Grades 10–12	4214/4215	AT, CDP
Computer Maintenance Technology A/B (Double period)	4216/4217	AT, CDP
Computer Maintenance and LAN Management A/B	4218/4219	AT, CDP

Computer Maintenance and LAN Management A/B (Double period)	4220/4221	AT, CDP
Advanced Networking Management A/B	4230/4231	AT, CM,CDP
Computer Maintenance Tech Internship	5706	CDP
National Academy of Information Technology Internship	5719/5720	CDP
National Academy of Information Technology Guided Research A/B	2938/2939	CDP
Network Operations—Completer Program		
Network Operations A/B—Grades 11–12	411792/411892	TE, CM, CDP
Network Operations A/B—Grades 11–12	420292/420392	AT, CM, CDP

LAW, GOVERNMENT, PUBLIC SAFETY, AND ADMINISTRATION CLUSTER

Fire & Rescue Services/Emergency Medical Technician—Completer Program		
Advanced Fire and Rescue Techniques	5424	CDP,CM
Advanced Fire and Rescue Techniques Internship B	5422	CDP
Essentials of Fire Fighting Internship (Concurrent Internship)	5421	CDP
Essentials of Fire Fighting Internship	5423	CDP
Emergency Medical Technician/Basic	5453	CDP
Emergency Medical Technician B/Basic Science A/B	3993/3994	CDP
Emergency Medical Technician B/Basic Internship A	5458	CDP
Emergency Medical Technician B/Basic Internship B (Double period)	5459	CM, CDP
Junior Reserve Officers' Training Corps (JROTC)		
Naval Junior Reserve Officers' Training Corps 1A/B	7911/7912	
Naval Junior Reserve Officers' Training Corps 2A/B	7914/7915	
Naval Junior Reserve Officers' Training Corps 3A/B	7917/7918	
Naval Junior Reserve Officers' Training Corps 4A/B	7919/7920	
Leadership Education and Training 1A/B	7941/7942	
Leadership Education and Training 2A/B	7944/7945	
Leadership Education and Training 3A/B	7947/7948	
Leadership Education and Training 4A/B	7950/7951	

TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CLUSTER

Foundation of Automotive Technology Program—Completer Program		
Foundation of Automotive Technology—A/B—Grades 10–12	504592/504692	CDP
Automotive Body Repair and Dealership Training—Completer Program		
Auto Body Technology and Dealership Training 1A/B	5547/5548	CDP
Auto Body Technology and Dealership Training 1A/B	555392/555492	CDP
Auto Body Technology and Dealership Training 2A/B	5549/5550	CDP
Auto Body Technology and Dealership Training 2A/B	555592/555692	CDP
Auto Body Technology and Dealership Training 3A/B	5551/5552	CDP
Auto Body Technology Internship (unlimited repeats)	5702/570292	CDP
Automotive Technology—Dealership—Completer Program		
Automotive Technology and Dealership Training 1A/B	5047/5048	CDP
Automotive Technology and Dealership Training 1A/B (Double period)	5072/5073	CDP
Automotive Technology and Dealership Training 1A/B (Triple period)	506192/506292	CDP
Automotive Technology 2A/2B (Double period)	5049/5050	AT,CDP
Automotive Technology Dealership 2A/2B (Triple period)	506792/506892	AT,CDP
Automotive Technology 3A/3B (Double period)	5064/5065	AT,CDP
Automotive Technology Internship	5703/570392	CDP
Automotive Service Assistant—Completer Program		
Automotive Service Assistant 1A/1B—Grades10–12	504592/504692	CDP
Automotive Service Assistant Internship (unlimited repeats)	570192	CDP

WORK-BASED OPPORTUNITIES

Cooperative Work Experience—Completer Program		
Cooperative Work Experience 1A/B	5425/5426	CDP
Cooperative Work Experience 2A/B	5427/5428	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B—Grades 11–12	5439/5440	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B—Grades 11–12	543992/544092	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B Grades 11–12 (Double period)	5441/5442	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B—Grades 11–12 (Double period)	544192/544292	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B—Grades 11–12 (Triple period)	5443/5444	CDP
CWE, On-the-Job Training, Cooperative Work Experience A/B—Grades 11–12 (Triple period)	544392/544492	CDP
Career Education		
Internship A/B	7813/7816	Internship A/B
Internship A/B (Double period)	7818/7819	Internship (DP) A/B
Internship A/B (Triple period)	7822/7823	Internship (TP) A/B

Note on Student Service Learning

Career cluster courses marked with SSL carry Student Service Learning hours. Please check with your guidance counselor to learn more.

CAREER AND TECHNOLOGY EDUCATION COURSE DESCRIPTIONS

ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS CLUSTER

Printing Graphics and Electronic Media—Completer Program (4 credits required)

Students learn a wide variety of design, media, and graphic communications skills that provide a foundation for employment in all aspects of the graphics communications and media industries. Conventional and electronic design, layout, composition activities, and production techniques are included in the instructional program. For more information about the options in this program, *visit http://www.career-futures.net*

Printing, Graphics, and Electronic Media 1 A/B—Grades 10–12

511892/511992 CDP, AT, SSL (Triple period) 1.5 credits

Students use the latest in digital imagery, design, and production with computer technology, including advanced photo editing software; and multimedia and Web design.

Printing, Graphics, and Electronic Media 2 A/B—Grades 11–12

512192/512292 CDP, AT, SSL (Triple period) 1.5 credits

Prerequisite: Attainment of the outcomes for Printing/Graphics and Electronic Media 1.

Students develop skills as they gain knowledge and expertise using graphics communications.

Printing Graphics Internship

571792 CDP (Unlimited repeats) 0.5 credit

Students who complete the course are prepared to seek employment upon graduation or to continue their technical training at a two- or four-year college.

BIOSCIENCES, HEALTH SCIENCE, AND MEDICINE CLUSTER

Biotechnology—Completer Program (4 credits required)

Your future in research science begins here! In addition to offering career windows to numerous scientific careers such as microbiology, marine biology, environmental health, and police forensics, biotechnology interns frequently enter the research field with employers competing for their services. For more information about the options in this program, visit *http://www.career-futures.net*

Biotechnology A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Biology A & B

3636/3637 CM 1(Science) 0.5 credit
5130/5131 TE, CM, SSL (Double period) 1.0 credit
420692/420792 AT, CM, CDP (Double period) (Edison) 1.0 credit

Concepts of biochemistry, genetics, and molecular biology are applied using laboratory equipment and computer technology to investigate molecular and microbiology, organic chemistry, and DNA.

Medical Careers—Completer Program (4 credits required)

Plan and prepare for one of the many careers in the rapidly expanding field of medicine and health care. Upon completion of this program, your résumé will reflect real-life experiences at one of the county's local hospitals and other medical facilities. Students participating in the program gain certified health care skills that enable them to train and work along with health care professionals in various settings. www.career-futures.net

Medical Careers A—Grades 11–12

Prerequisite: Biology A/B (minimum grade B; GPA 2.5 minimum)
Corequisite: Concurrent enrollment in Medical Careers Science (3995) Chemistry A

5418 CDP 0.5 credit
3995 CDP (Medical Science) 0.5 credit

Anatomy, physiology, medical terminology, and patient care skills are highlighted. Students receive CPR certification and an opportunity for nursing assistant and geriatric aide certification.

Note: If over-enrollment occurs, seniors will have priority selection.

Medical Careers B—Grades 11–12

Prerequisite: Attainment of Medical Careers A objectives (minimum grade C), 95 percent attendance, and recommendation of medical careers teacher; CPR/BLS national certification required
Corequisite: Concurrent enrollment in Medical Science (3996) Chemistry B

5419 CDP, CM, SSL 0.5 credit
3996 CDP (Medical Science) 0.5 credit

Students interview, observe, and assist medical professionals through internships at a local hospital and health care facility. Their shared experiences are and analyzed at a weekly seminar.

Medical Careers A—Grades 11–12

Priority placement: Biology A and B (minimum grade B), GPA 2.5 minimum
Corequisite: Concurrent enrollment in Medical Careers Science (3995); Chemistry A

5833 CDP, SSL 1.0 credit
3995 CDP (Science corequisite) 0.5 credit

During the first semester, students learn anatomy, physiology, medical terminology, and disease processes, and perform patient care skills, including CPR.

Medical Careers B—Grades 11–12

Prerequisite: Attainment of Medical Careers A (minimum grade C), 95 percent attendance, and recommendation of Medical Careers teacher; CPR/BLS National Certification required
Corequisite: Concurrent enrollment in Medical Science (3996); Chemistry B

5834 CDP, CM, SSL 1.0 credit
3996 CDP 1B (Science corequisite) 0.5 credit

Class enrollment is governed by state medical regulations. During the second semester, students put their knowledge and skills into practice at local medical facilities.

Note: If over-enrollment occurs, seniors will have priority selection.

Medical Careers Internship A/B—Grade 12

Prerequisite: Successful completion of Medical Careers A and B (minimum grade B), C.N.A. certification and recommendation of medical careers teacher. (Student may enroll in this course for more than one period.)

5415/5417 CDP, CM 0.5 credit

Learning activities are specifically related to students' medical career goals. The internship can be arranged for one, two, or three periods.

BUSINESS MANAGEMENT AND FINANCE CLUSTER

Students enrolled in these programs engage in rigorous and authentic experiences that prepare them for careers in business management and finance fields.

National Academy of Finance—Completer Program (4 credits required)

The National Academy of Finance is a member program of the National Academy Foundation. In this program, students receive intensive course work in economic and business principles. For more information, see *www.naf.org.* This program currently is located at Albert Einstein, Gaithersburg, Paint Branch, and Watkins Mill high schools. Courses followed by an asterisk (*) are available only at National Academy of Finance schools.

Accounting A/B—Grades 10–12

Prequisite: Highly recommend Software Applications by Design A/B

4111/4112 CDP, AT 0.5 credit

Want to become a stockbroker, a financial analyst, or run your own business? Principles of accounting for personal and professional use are emphasized through application of the accounting cycle.

Financial Planning—Grades 9–12*

Prerequisite/Corequisite: Accounting A

4103 CDP, CM 0.5 credit

This course introduces students to the financial planning process and includes topics such as saving, investing, borrowing, risk management (insurance), and retirement and estate planning.

Banking and Credit—Grades 9–12*

4104 CDP, CM 0.5 credit

Prerequisite/Corequisite: Accounting A

Students learn about the major functions of banks and other depository institutions, banking operations and procedures, the Federal Reserve System, securities, and modern trends in the banking industry.

Economics and the World of Finance—Grade 10–12*

Prerequisite/Corequisite: Accounting A

4106 CDP, CM 0.5 credit

Students survey economic concepts, including all of the basic principles recommended by the National Council on Economic Education.

International Finance—Grades 10–12*

Prerequisite/Corequisite: Accounting A

4107 CDP, CM 0.5 credit

This course provides students with opportunities to explore foreign trade, the international monetary system, foreign exchange rates, foreign exchange markets, international financial markets and banking.

College Business—Grades 10–12*

Prerequisite: Participant in the Academy of Finance

4074 CDP 0.5 credit

This course is an Academy of Finance (AOF) dual enrollment requirement for AOF seniors. Students receive both high school and college credit for a Montgomery College business-related course.

Academy of Business Administration—Accounting—Completer Program (4 credits required)

The Academy of Business Administration provides students with a comprehensive study of rigorous pathways in Accounting or Business Management. These programs provide students with accounting principles and the application of these principles to a wide range of business situations while developing a strong foundation in business operations. Students learn how to organize, finance, establish, operate, and manage a small business.

Entrepreneurship and Business Management 1 A/B—Grades 10–12

Prerequisite: *Highly recommend Software Applications by Design A/B*

5450/5451 CDP, CM 0.5 credit

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 organizations.

Accounting A/B—Grades 10–12

4111/4112 CDP, AT 0.5 credits

See the National Academy of Finance section (above) for the course description.

Accounting, Advanced A/B, Honors—Grades 11–12

Prerequisite: Attainment of the outcomes of Accounting B

4113/4114 CDP, AT, CM, H 0.5 credit

Extensive use of accounting knowledge is applied through business simulations, projects, and case studies. Extended use of computer-related technology is an essential component of this course.

Business Internship A/B—Grades 11–12

5469/5471 CPD 0.5 credit
5472/5473 CPD (Double period) 1.0 credit
5474/5475 CPD (Triple period) 1.5 credits

Consider a paid or unpaid internship in Montgomery County's business community. Students network with local business persons and mentors to learn the skills necessary for success in a business-related career.

Business Management—Completer Program (4 credits required)

Software Application Management A/B—Grades 9–12

Prerequisite: Software Application Management A

4055/4056 CDP 0.5 credit

These courses introduce word processing and spreadsheet skills, using Microsoft Word and Excel. Students will integrate written and oral skills and will apply spreadsheet and charting skills within a project-based learning environment.

Software Applications by Design A/B—Grades 9–12

Prerequisite: Attainment of the outcomes of Software Applications by Design A

2903/2904 CDP, TE 0.5 credit

Project based learning helps students prepare to take the Microsoft Office Specialist (MOS) certification core-level examinations for Microsoft Word, Excel, Access, and PowerPoint.

Software Applications by Design, Advanced A/B—Grades 10–12

2905/2906 CDP, AT, CM 0.5 credit

Prerequisite: Attainment of the outcomes of Software Applications by Design B

Project-based learning helps students to apply advanced skills in Microsoft Word and Excel, graphics, desktop publishing, databases, and development of digital portfolios. Students are prepared to take the MOS certification expert-level examinations for Microsoft Word and Excel.

Entrepreneurship and Business Management 1 A/B—Grades 10–12

Prerequisite: Highly recommend Software Applications by Design A/B

5450/5451 CDP, CM 0.5 credit

See the Accounting section (page 49) for the course description.

Entrepreneurship and Business Management 2—Grades 11–12

Prerequisite: Attainment of the outcomes for Entrepreneurship and Business Management 1B

4135 CM, CDP 0.5 credit

Students learn more about organizing, financing, establishing, operating, and managing their own businesses. Students complete a comprehensive business plan in this capstone experience.

Skills for Success—Grades 9–12

4085 CDP 0.5 credit

Students learn skills such as organizing, note-taking, time management, goal-setting, memory-improvement techniques, test-taking strategies, and listening skills to help improve their school performance.

Financial Management—Grades 10–12

Prerequisite: Highly recommend Software Applications by Design A/B

4158 CDP, CM 0.5 credit

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 while they are young.

Economics and Business Law A/B—Grades 10–12

Prerequisite: Highly recommend Software Applications by Design A/B

4131/4132 CDP, CM 0.5 credit
4133/4134 CM (When taken for social studies credit)

Students investigate the impact of economic concepts on decision making in the world of business. Students focus on evaluating both sides of an economics issue and making decisions based upon facts.

International Business—Grades 11–12

Prerequisite: Highly recommend Software Applications by Design A/B

4136 CDP, CM 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.

Business Mathematics A/B—Grades 10–12

4171/4172 CDP 0.5 credit
4157/4159 (When taken for mathematics credit) 0.5 credit

This course uses mathematics to solve problems involving banking transactions, purchasing for personal and household needs, and personal finances.

Business Internship A/B—Grades 11–12

5469/5471 CPD 0.5 credit
5472/5473 CPD (Double period) 1.0 credit
5474/5475 CPD (Triple period) 1.5 credits

See the Accounting section (page 49) for the course description.

Information Management Systems—Completer Program (4 credits required)

The Information Systems Management program emphasizes the development of high-level office skills, computer proficiency, and knowledge of business and management concepts. Individual accountability and work ethics are emphasized as students develop managerial and technical skills in a state-of-the-art office. This program is available at Gaithersburg High School.

Software Applications by Design A/B—Grades 9–12

2903/2904 CDP, TE 0.5 credit

See the Business Management section for the course description.

Software Applications by Design, Advanced A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Software Applications by Design B

2905/2906 CDP, AT, CM 0.5 credit

See the Business Management section for the course description.

Entrepreneurship and Business Management 1 A/B—Grades 10–12

5450/5451 CDP, CM 0.5 credit

See the Accounting section for the course description.

Information Management Systems A/B—Grades 11–12 (Available only at Gaithersburg High School)

4050 CDP, AT, CM, SSL (Semester A) 1.0 credit

Prerequisite: Attainment of the outcomes of Information Management Systems A

4051 CDP, AT, CM, SSL (Semester B) 1.0 credit
4054 CDP, AT, CM, SSL (Semester B) 1.0 credit

Students use state-of-the art technology to develop managerial and technical skills to solve business problems. Human relations, time management, and written and oral communication skills are developed as well.

Business Internship A/B—Grades 11–12

5469/5471 CPD 0.5 credit
5472/5473 CPD (Double period) 1.0 credit
5474/5475 CPD (Triple period) 1.5 credits

See the Accounting section (page 49) for the course description.

Marketing—Completer Program (4 credits required)

This program focuses on a dynamic and competitive field that requires a thorough understanding of consumer behavior and economic trends. Students learn the basics of economics and the total marketing process—from producer to consumer. They study business organizations and marketing services as well as the managerial responsibilities of marketing executives. This program is available at Walt Whitman and Thomas S. Wootton high schools. Courses followed by an asterisk (*) are available only at schools that have the marketing program.

Economics of Marketing A/B—Grades 10–12*

5431/5432 CDP 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.

Principles of Marketing A/B—Grade 12*

5433/5434 CDP 0.5 credit

Students explore the managerial responsibilities of marketing executives and analyze common management techniques problems. Students investigate how marketing concepts affect decision-making in the world of business.

Entrepreneurship and Business Management 1 A/B—Grades 10–12

5450/5451 CDP, CM 0.5 credit

See the Accounting section (page 49) for the course description.

Marketing Internship A/B—Grade 11–12*

5461/5462CPD, (Basic) 0.5 credit
5463/5464 CPD, (Basic) (Double period) 1.0 credit
5465/5466 CPD, (Basic) (Triple period) 1.5 credits

Marketing internships must take place during school hours to allow for required work site supervision by the marketing teacher/coordinator.

CONSTRUCTION AND DEVELOPMENT CLUSTER

Building and Construction Technology

Students in the Construction and Development Cluster participate in a nationally certified curriculum that includes the building of homes and other construction projects. These hands-on activities are planned and coordinated by the Montgomery County Students Construction Trades Foundation, Inc. The nonprofit foundation is a cooperative venture of the school system and volunteers from local businesses, and professional and construction industries.

Foundation of Building and Construction Technology

556192 CDP 1.5 credits

This course is designed for students new to the construction trades. Students rotate through carpentry; electricity; heating, ventilation, and air conditioning (HVAC); masonry; and plumbing in one semester. For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/construction.html.*

Carpentry—Completer Program (4 credits required)

The carpentry program provides students an opportunity to learn about the home building industry. Participants master a variety of construction skills. Students apply their knowledge and skills by participating in the "student-built" house project. Students completing this course are eligible to receive credit at Montgomery College in the Construction Technology program.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/carpentry.html.*

Carpentry 1 A/B—Grades 10–12
510092/510192 CDP, SSL A (Triple period) 1.5 credits

Carpentry 2 A/B—Grades 10–12
563992/564092 CDP, SSL A (Triple period) 1.5 credits/ 15 SSL

Carpentry Internship
570592; CDP (Unlimited repeats) 0.5 credit

Construction Electricity—Completer Program (4 credits required)

Construction electricity 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. By completing this program, students are eligible to receive credit at Montgomery College in the Construction Technology Program.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/electricity.html*

Electricity (Construction) 1 A/B—Grades 10–12
Prerequisite: Algebra 1 preferred
510992/511092 CDP, SSL 1A (Triple period) 1.5 credits

Electricity (Construction) 2 A/B—Grades 11–12
Prerequisite: Attainment of the outcomes of Electricity (Construction) 1
559592/559692 AT, CDP, SSL 2A (Triple period) 1.5 credits

Electricity (Construction) Internship
570892 CDP (Unlimited repeats) 0.5 credit

Heating and Air Conditioning—Completer Program (4 credits required)

Heating, ventilating, and air conditioning (HVAC) prepares students for the challenges and demands of an exciting and technical career. An integral part of the instructional program is participation in the student-built house project. Students completing this course are eligible to receive credit at Montgomery College in the Construction Technology Program.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/hvac.html*

Heating, Ventilation, and Air Conditioning 1 A/B—Grades 11–12
512392/512992 CDP, SSL (Triple period) 1.5 credits

Heating, Ventilation, and Air Conditioning 2 A/B—Grades 11–12
Prerequisite: Attainment of the outcomes of Heating/Air Conditioning 1
512792/512892; AT, CDP, SSL (Triple period) 1.5 credits

HVAC Internship
571192; CDP (Unlimited repeats) 0.5 credit

Masonry—Completer Program (4 credits required)

Masonry 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. Entry into an approved apprenticeship program, on-the-job training, or a career as a brick mason are options for students who complete this course.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/masonry.html*

Masonry 1 A/B—Grades 10–12
556792/556892 CDP, SSL (Triple period) 1.5 credits

Masonry 2 A/B—Grades 11–12
Prerequisite: Attainment of the outcomes of Masonry 1
556592/556692 CDP, SSL (Triple period) 1.5 credits

Masonry Internship
571492 CDP (Unlimited repeats) 0.5 credit

EDUCATION, TRAINING, AND CHILD STUDIES CLUSTER

Early Child Development—Completer Program (4 credits required)

Students work with children in a variety of settings and study child development from the prenatal through early childhood stages. Knowledge of physical, intellectual, language, 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. For more information about options in this program, visit *http://www.career-futures.com*

Child Development 1 A/B
4847/4848 CDP, SSL (Basic Core Category 1) 0.5 credit
4851/4852; CDP, SSL (Double period) 1.0 credit
Prerequisite: Child Development 1A
In this introductory course, students become part of an education team that has direct interaction with 3- and 4-year-olds in a lab school setting.

Child Development 2 A/B
4849/4850; CM, CDP 0.5 credit
4853/4854; CM, CDP (Double period) 1.0 credit
Prerequisite: Child Development 1A and 1B
After successful completion of Child Development 1, students continue to develop their teaching skills as they assume increased leadership responsibilities in the lab school setting and possible 90-Clock Hours Certification.

Child Development 3 A/B
4866/4867 CM, CDP 0.5 credit
Students research careers in education and other child-related fields of study and pursue their interest through independent study, research, advocacy projects, field trips, and observations.

Child Development Internship A/B—Grades 11–12
Prerequisite: 1.0 credit of Child Development courses
4860/4861 CM, CDP, SSL 0.5 credit
4862/4863 CM, CDP, SSL (Double period) 1.0 credit
The Child Development internship extends career preparation as students work with children and adults one or more periods a day at a field site setting.

ENGINEERING, SCIENTIFIC RESEARCH, AND MANUFACTURING TECHNOLOGIES CLUSTER

Cabinetmaking—Completer Program (4 credits required)

Cabinetmakers perform hand and machine operations in cutting, shaping, assembling store fixtures, office equipment, kitchen cabinets, custom furniture, and other articles made of wood or wood substitutes. The cabinetmaker's skill includes reading blueprints and understanding layout and design techniques along with knowledge of how to use fractions, decimals, and simple algebraic formulas. *http://www.career-futures.net*

Basic Cabinetmaking A/B—Grades 10–12

5649/5650 CDP 0.5 credit

This program provides opportunities for students to learn the production and manufacturing process of the cabinetmaking industry.

Cabinetmaking, Basic A/B

5569/5570 CDP (Double period) 1.0 credit

This program provides opportunities for students to learn the production and manufacturing process of the cabinetmaking industry.

Cabinetmaking, Intermediate A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Basic Cabinetmaking

5571/5572 CDP (Double period) 1.0 credit

Students learn to use the appropriate hand and machine operations as they cut, shape, and assemble products made from wood or wood substitutes.

Cabinetmaking, Advanced A/B—Grade 12

Prerequisite: Attainment of the outcomes of Intermediate Cabinetmaking

5573/5574 CDP (Double period) 1.0 credit

Students are expected to have a good understanding of practices in the cabinetmaking industry. Adhering to specifications, and understanding layout and design are emphasized.

Cabinetmaking Internship

5704 CDP (Unlimited repeats) 0.5 credit

Students will have the opportunity to work in businesses using industry standard equipment and procedures to learn the cabinetmaking trade.

Computer Maintenance, Repair, and Networking—Completer Program (4 credits required)

Students learn basic technical and problem-solving skills needed to diagnose and repair computers and local area networks (LANs).

Computer Maintenance Technology A/B—Grades 10–12

Prerequisite: Exploring Technological Concepts and Matter and Energy in Grade 9 is highly recommend

5611/5612 TE, CDP 0.5 credit
4214/4215 AT, CDP 0.5 credit

This course includes basic computer and LAN design and architecture, board-level programming and repair, hardware and software problem diagnosis and repair, and LAN installation and troubleshooting.

Computer Maintenance Technology A/B—Grades 10–12

5613/5614 TE, CDP (Double period) 1.0 credit
4216/4217 AT, CDP (Double period) 1.0 credit

This course includes basic computer and LAN design and architecture, board-level programming and repair, hardware and software problem diagnosis and repair, and LAN installation and troubleshooting.

Computer Maintenance and LAN Management A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Computer Maintenance Technology A and B

5615/5616 TE, CDP 0.5 credit
4218/4219 AT, CDP 0.5 credit

Students completing Computer Maintenance Technology will be qualified to take the A+ industry certification exam. Upon completion of this course, students will be qualified CISCO network technicians.

Computer Maintenance and LAN Management A/B—Grades 10–12

5617/5618 TE, CDP (Double period) 1.0 credit
4220/4221 AT, CDP (Double period) 1.0 credit

Students completing Computer Maintenance Technology will be qualified to take the A+ industry certification exam. Upon completion of this course, students will be qualified CISCO network technicians.

Computer Maintenance Tech Internship

5706 CDP (Unlimited repeats) 0.5 credit

Students who complete the course are prepared to seek employment upon graduation or to continue their technical training at a two- or four-year college.

Design, Illustrating, and Drafting Technology—Completer Program (4 credits required)

Students in the drafting and design technology program develop drawings using mechanical and computerized methods (CAD), and become familiar with the various types of drawings (e.g., architectural, topographic, engineering, and detailed drawings).

Visit *http://www.career-future.net* for more information.

Design, Illustrating, and Drafting Technology 1 A/B—Grades 10–12

5810/5811 CDP 0.5 credit

This course gives students the opportunity to use computer-aided drafting (CAD) systems to prepare drawings and architectural plans used by production and construction companies.

Design, Illustrating, and Drafting Technology 1 A/B

5812/5813 AT, CDP (Double period) 1.0 credit

This double period course gives students the opportunity to use computer-aided drafting (CAD) systems to prepare drawings and architectural plans used by production and construction companies.

Drafting and Design Technology 1 A/B—Grades 11–12

510392/510492 CDP, SSL (Triple period) 1.5 credits

This triple period class is offered only at the Thomas Edison High School of Technology and has the same course description as the single and double period offerings. Students earn SSL hours taking this course.

Design, Illustrating, and Drafting Technology 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Design, Illustrating, and Drafting Technology 1

5814/5815 AT, CM, CDP 0.5 credit

Students have the opportunity to explore all areas and concepts of drafting, utilizing the methods of electronic image preparation of business and industry at a more advanced level.

Design, Illustrating, and Drafting Technology 2 A/B

Prerequisite: Attainment of the outcomes of Design, Illustrating, and Drafting Technology 1

5816/5817 CM, CDP (Double period) 1.0 credit

In this class students have the opportunity to explore all areas and concepts of drafting utilizing the methods of electronic image preparation of business and industry at a more advanced level.

Drafting and Design Technology 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Drafting and Design Technology 1

510692/510792 AT, CM, CDP, SSL (Triple period) 1.5 credits

This triple period class is only offered at the Thomas Edison High School of Technology and has the same course description as the single and double period offerings. Students earn SSL hours taking this course.

Drafting Internship

5707 CDP (Unlimited repeats) 0.5 credit

Students who complete the course are prepared to seek employment upon graduation or to continue their technical training at a two- or four-year college.

Electronics—Completer Program (4 credits required)

Students entering this program should have an interest in math, science, and computers. This course requires knowledge of mathematics and physical science in solving engineering problems. Direct application of basic algebra skills is a must. No prior experience with electronics is necessary.

Electronics 1 A/B—Grades 11–12

511292/511392 CDP, SSL 1.5 credits

Students will learn basic electronic theory, how to read schematic diagrams, prototype circuits, and troubleshoot circuit problems. Offered only at Thomas Edison High School of Technology.

Electronics 2 A/B—Grades 11–12

511592/511692/AT, CM, CDP, SSL 1.5 credits

Emphasis will be on understanding logic circuits and how they function in the world of electronic "smart" circuits found in robotics, automation, and control applications. Offered only at Thomas Edison High School of Technology.

Engineering Technology—Completer Program (4 credits required)

The Engineering Technology program provides a foundation for students interested in a technical career or a career in the field of engineering. Students learn to apply theories and principles of math and science to research and develop economical solutions to technical problems.

Visit *http://www.career-futures.net* for more information.

Exploring Technological Concepts A/B—Grades 9–12

5500/5501 TE (Basic Core Category 1) 0.5 credit

Exploring Technological Concepts provides a foundation for students interested in a technical career or a career in the field of engineering.

Pre-Engineering A/B—Grades 10–12 (Required)

5504/5505 TE, CM, CDP 0.5 credit
4210/4211 AT, CM, CDP 0 5 credit

In this experience-based course, engineering practices of designing, prototyping, analyzing, and improving new and existing designs are included in student activities.

Principles of Technology A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Principles of Technology A.

5661/5663 TE, CDP 0.5 credit
4222/4223 AT, CDP 0.5 credit

This course provides a foundation for students interested in a technical career or a career in engineering.

Principles of Technology/Physics A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Principles of Technology 1; Algebra 1 recommended.

5662/5664 TE, CM, CDP 0.5 credit
4224/4225 AT, CM, CDP 0.5 credit
3823/3824 CM, CDP (Physics) 0.5 credit

Students have the opportunity to participate in extensive hands-on laboratory experiments and activities. Participants may receive 1 physics credit or advanced technology credit for this class.

Communications Systems Technology A/B—Grades 10–12

5502/5503 TE, CM, CDP 0.5 credit
4208/4209 AT, CM, CDP 0.5 credit

This course is for students who enjoy the challenge of solving problems by using electronic and computer imaging, audio-video production, laser and fiber optics, and satellite telecommunications.

Technological Innovations A/B—Grades 10–12

5506/5507 TE, CM, CDP 0.5 credit
4212/4213 AT, CM, CDP 0.5 credit

This course is for students interested in exploring physical, information, and bio-related technologies. Students are involved in the research and exploration of product design by experimenting and collecting data.

Engineering Technology Internship

5709 CDP (Unlimited repeats) 0.5 credit

Students who complete the completer program are prepared to seek employment upon graduation or to continue their technical training in engineering at a two- or four-year college.

Technology and Research Program (TARP) A/B

5000/5001 TE, CM TARP (Double period) 1.0 credit
5002/5003 TE, CM TARP 0.5 credit
5004/5005 Honors TARP Science 0.5 credit
4226/4227 AT, CM TARP (Double period) 1.0 credit
4228/4229 AT, CM, TARP 0.5 credit

Advanced Engineering Technology (Project Lead The Way/PLTW)—Completer Program (4 credits required)

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.

Principles of Engineering A/B—Grades 9–12

5150/5151 TE, CDP 0.5 credit

A broad-based survey course to help students understand engineering and engineering technology and identify career possibilities.

Introduction to Engineering Design A/B—Grades 10–12

5152/5153 AT, CDP, CM 0.5 credit

This course develops students' problem-solving skills, with emphasis on visualization and communication skills using 3-D solid modeling software to produce, analyze, and evaluate models of projects.

Computer Integrated Manufacturing A/B—Grades 10–12

Not Available until 2005-2006

Students are introduced to fundamentals of computerized modeling design and manufacturing technology using prototyping, CNC equipment, CAM software, robotics, and flexible manufacturing systems to solve design problems.

Digital Electronics A/B—Grades 10–12

Not Available until 2006 2007

This course introduces students to applied digital logic using electronic logic circuits. Students use industry-standard computer software in testing and analyzing digital circuitry.

Engineering Design Development A/B—Grade 12

Not available until 2007-2008

Students are required to work in two to four person teams that research an open-ended problem and then design and construct a solution to it.

Engineering Internship, Advanced (TBD)

TBD CDP (Unlimited repeats)

This program of study is part of the National Alliance for Pre-engineering Programs called *Project Lead The Way.* It is designed for students pursuing an advanced career in the field of engineering.

ENVIRONMENTAL, AGRICULTURAL, AND NATURAL RESOURCES CLUSTER

Horticulture—Completer Program (4 credits required)

This program provides information about trees, shrubs, flowers, and other plants and enables students to develop skills necessary to find employment in nurseries, greenhouses, and other businesses upon graduation. Propagating and nurturing small trees, shrubs, plants, and flowers, as well as the importance of planting and arrangements for interior and exterior decoration are studied.

Horticulture 1 A/B—Grades 9–12

5525/5526 CDP 0.5 credit

Students study the propagation and nurturing of small trees, shrubs, plants, and flowers, as well as planting and arrangements for interiors and exteriors.

Horticulture 2 A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Horticulture 1

5527/5528 CDP 0.5 credit
5529/5530 CDP (Double period) 1.0 credit

This course involves in-depth exploration studies about trees, shrubs, flowers, and other plants, as well as the propagation and nurturing of small trees, shrubs, plants, and flowers.

Horticulture 3 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Horticulture 2

5531/5532 CDP 0.5 credit
5533/5534 CDP (Double period) 1.0 credit

Students develop workplace skills as they interact with local businesses and nurseries, gaining knowledge, skills, and experience in residential and commercial landscape planning.

Horticulture Internship

5710 CDP (Unlimited repeats) 0.5 credit

Students who complete the course are prepared to seek employment upon graduation or to continue their technical training at a two- or four-year college.

Landscaping/Nursery Management—Completer Program (4 credits required)

Students learn about plants and maintain shrubs, trees, ornamental plants, ground cover, and turf grass for the beautification of homes or recreational areas. Activities emphasize propagation and harvesting in the greenhouse and the field, landscape planning and maintenance, the use and maintenance of nursery and landscaping equipment, and the skills and techniques of manicured lawn care. Visit *http://www.career-futures.net.*

Landscaping/Nursery Management 1 A/B—Grades 10–12

5656/5657 CDP (Double period) 1.0 credit

Students learn about plants and maintain shrubs, trees, ornamental plants, ground cover, and turf grass for the beautification of homes or recreational areas.

Landscaping/Nursery Management 2 A/B—Grades 10–12

5659/5660 CDP (Double period) 1.0 credit

Students broaden their study about plants and maintaining shrubs, trees, ornamental plants, ground cover, and turf grass for the beautification of homes or recreational areas.

Landscaping/Nursery Management Internship

5713; CDP (Unlimited repeats) 0.5 credit

Students who complete the course are prepared to seek employment upon graduation or to continue their technical training at a two- or four-year college.

HUMAN AND CONSUMER SERVICES, HOSPITALITY, AND TOURISM CLUSTER

Cosmetology—Completer Program (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.

Cosmetology 1 A/B—Grade 10

5583A CDP, SSL (Triple period) 1.5 credits
5584B CDP, SSL (Double period) 1.0 credit
3231A CDP Related Mathematics 0.5 credit

Cosmetology 2 A/B (Triple period)—Grade 11

Prerequisite: Attainment of the outcomes of Cosmetology 1

Corequisite: Students must enroll in 0.5 credit of science listed below each semester

5643/5644 CDP, SSL (Double period) 1.0 credit
3615/3616 CDP, SSL (Science) 0.5 credit

Cosmetology 3 A/B—Grade 12

Prerequisite: Attainment of the outcomes of Cosmetology 2

5587 CDP, SSL 3 (Triple period) 1.5 credits
5588 CDP, SSL 3 (Double period) 1.0 credit
3232 CDP Related Mathematics 0.5 credit

Nail Technician (Manicuring)—Completer Program (4 credits required)

The Manicuring/Nail Technology program prepares students for the Maryland State Board of Cosmetology Licensure Examination for Nail Technicians. Practical instruction includes manicuring, Pedicuring, acrylic nail application, airbrush and freehand nail designs, and nail wraps. Related theory includes bacteriology, anatomy, physiology, sanitation, skin and nail diseases and disorders, and salon management. Nail Technology is a one year program. To earn program completer status, students must successfully complete the one-year program and one semester of a related on-the-job training work experience. To be eligible to apply to take the Maryland State Board Licensure Examination for Nail Technicians, students must complete 250 hours of instruction and turn 17 years old by the end of the school year.

For more information, visit *http://www.2.mcps.k12.md.us/schools/edison/programs/nails.htm*

Program is offered at two sites; Edison and Gaithersburg High Schools. See description at Edison High School of Technology

Nail Technician (Manicuring) A/B—Grades 11–12

567192/567292 CDP, SSL (Triple period) 1.5 credits

Nail Technician (Manicuring) Internship

571592 CDP (Unlimited repeats)

Hospitality Management—Completer Program (4 credits required)

The Hospitality Management program offers opportunities for students to pursue interests and abilities related to careers in the food industry. Nutrition, food safety, and sanitation are emphasized as students practice all aspects of meal planning and preparation. Students participate in the laboratory to investigate the computer programs for the exploration of emerging technologies as they relate to specific dietary and consumer needs.

International Cultures and Cuisine A/B—Grades 9–12

4630/4640 CDP, SSL (Basic Core Category 1) 0.5 credit

International Cultures and Cuisines examine the emphasis on food as it relates to the culture of other countries or special cultural groups of our own country.

Culinary Essentials A/B—Grades 10–12

4825/4826 CDP 0.5 credit

This course offers opportunities to refine culinary skills while developing workplace skills reflective of the industry. Attention is given to all aspects of careers in hospitality and culinary arts.

Hospitality Management Internship—Grade 12

4816 CDP (Unlimited repeats) 0.5 credit

The objectives of the internship are those of the general student internship, however, student learning and skills are related to the hospitality and food service industry.

Hotel/Travel—Completer Program (4 credits required)

Students gain an understanding of hotel operations and management while you learn about tourism and world travel. Develop and practice professional and human relations skills through interacting with representatives of the hospitality industry and by participating in an internship at a local hotel. Become involved in a wide variety of hotel operations including computerized guest registration, events planning, guest services, point-of-sale systems, hotel restaurant procedures, and catering. Improve your commu-

nication skills through experiences as a tour-guide for visiting dignitaries and student tour groups in Thomas Edison and teamwork skills through operating Café Edison, a full service restaurant. Earn national "ServSafe" Food Protection Manager Certification, and earn up to 4 college credits in Hospitality Management through the Montgomery College. A student lab fee is required.

For more information visit *http://www2.mcps.k12.md.us/schools/edison/programs/hoteltravel.html*

Hotel/Travel A/B—Grades 11–12

5414/5416 CDP, SSL (Triple period) 1.5 credits

Hotel/Travel Internship A/B—Grade 12

Prerequisite: Successful completion of Hotel/Travel A and B and recommendation of the Hotel/Travel teacher.

(Students may enroll in this course for more than one period.)

5493/5494 CDP (Unlimited repeats) 0.5 credit

Professional Restaurant Management—Completer Program (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 food safety principles, professional food handling techniques, and quantity preparation through the use of commercial equipment. Sanitation, safety, personal hygiene, and work place skills are emphasized throughout the program.

Professional Restaurant Management 1 A/B—Grades 10–12

4821/4822 A; CDP, SSL 0.5 credit
4823/4824 A; CDP, SSL (Double period) 1.0 credit

Professional Restaurant Management 2 A/B—Grades 10–12

4831/4832 CDP, SSL 0.5 credit
4841/4842 CDP, SSL (Double period) 1.0 credit

Professional Restaurant Management Internship—Grades 11–12

4820 CDP (Unlimited repeats) 0.5 credit

Family and Consumer Sciences

Family and Consumer Sciences prepares students to be competent in work in the family and careers based on content standards. It empowers students to manage the challenges of living and working in a diverse, global society.

Food Trends and Technology A/B—Grades 9–12

4843/4844 CM, TE (Basic Core Category 1) 0.5 credit
4204/4205 CM, AT, SSL (Basic Core Category 1) 0.5 credit

This course examines the interrelationship of food, science, and nutrition. Purposeful laboratory experiences allow students to prepare and evaluate specific foods and their properties.

INFORMATION TECHNOLOGIES CLUSTER

Students enrolled in this program engage in rigorous and authentic experiences that explore advanced computer-related technology and programming topics.

Information Technology

Software Application Management A/B—Grades 9–12

4055/4056 CDP 0.5 credit

See the Business Management section (page 48) for the course description.

Software Applications by Design A/B—Grades 9–12

2903/2904 CDP, TE 0.5 credit

See the Business Management section for the course description.

National Academy of Information Technology—Completer Program (4 credits required)

The National Academy of Information Technology consists of a ninth through twelfth grade curriculum developed to address future demands of the IT work force across the nation. The program is tightly aligned with relevant academic and employment standards. Students are required to complete a college-level course as well as participate in a paid summer internship program. For more information, see *http://www.naf.org.* This program is available at Gaithersburg and Wheaton high schools. Courses followed by an asterisk (*) are available only at National Information Technology schools.

There are three National Academy of Information Technology strands available.

Programming—Completer Program (4 credits required)

This pathway offers opportunities for students to explore careers related to computer science and programming.

Discovering Programming Concepts A/B—Grades 9–12

Prerequisite: Algebra 1B

2964/2967 CDP, TE, CM 0.5 credit

Students explore fundamental computer science concepts such as algorithms, variables and constants, decision structures, looping structures, functions, arrays, and graphics.

Computer Programming 1 A/B—Grades 9–12

Prerequisite: Geometry
Corequisite: Honors Geometry

2989/2990 CDP, Advanced-level, TE, NCAA 0.5 credit
4200/4201 CDP, Advanced-level, AT, NCAA 0.5 credit

This course introduces the fundamental principles of structured programming within the context of an object-oriented language. Students use a problem-solving approach to implement one or more large programs using the C++ language.

Computer Science, Advanced Placement

This course is designed for students of high academic ability who have a strong interest in computer science and who want to prepare for the APCS A or AB examinations. In colleges recognizing the APCS examinations, a qualifying score gives the student college credit or advanced standing.

Computer Programming 2 A/B, Advanced Placement Computer Science—Grades 10–12

Prerequisite: Attainment of the outcomes of Computer Programming 1 B

2901/*2902* CDP, AP, AT, NCAA 0.5 credit

Students use Java, an object-oriented programming language, to complete in-depth work with text files and arrays. Students may take the A version of the APCS exam upon completion of this course.

Computer Programming 3 A/B, Advanced Placement Computer Science—Grades 11—12

Prerequisite: Attainment of the outcomes of Computer Programming 2 B

2965/2966 CDP, AP, AT, NCAA 0.5 credit

Problem-solving techniques and adaptation or development of appropriate algorithms or data structures are studied. Students may take the AB version of the APCS exam upon course completion.

Computer Science Internship (This course is available for a number of IT completer programs.)

2907 CDP (Unlimited repeats) 0.5 credit

Consider a paid or unpaid internship in Montgomery County's business community. Students network with local business persons and mentors to learn the skills necessary for success in a career.

National Academy of Information Technology Internship A/B

5719/5720 CDP 0.5 credit

This course provides credit to Academy of Information Technology (AOIT) students who are completing their required paid internship in Montgomery County's business community.

National Academy of Information Technology Guided Research A/B*

2938/2939 CDP 0.5 credit

This course provides an opportunity for AOIT students to complete a structured research project related to an IT career-related area.

Information Resource Design—Completer Program (4 credits required)

This pathway offers opportunities for students to explore careers related to Web site development and database administration.

Discovering Programming Concepts A/B—Grades 9–12

Prerequisite: Algebra 1B

2964/2967 CDP, TE, CM 0.5 credit

See the Programming section for the course description.

Software Applications by Design, Advanced A/B—Grades 10–12

2905/2906 CDP, AT, CM 0.5 credit

See the Business Management section (page 48) for the course description.

Web Site Development A/B—Grades 10–12

Prerequisite: Software Applications by Design B or Discovering Programming Concept B

2991/2992 CDP, AT, CM 0.5 credit

Students develop comprehensive Web sites emphasizing design, project management, problem solving, and teamwork. Appropriate web animation and graphics are used to enhance the Web sites.

Web Tools and Digital Media, Advanced A/B—Grades 10–12*

Prerequisite: Web Site Development B

2936/2937 CDP, AT, CM 0.5 credit

In this course students are introduced to advanced Web topics such as webscripting, Web server administration, and Web-based multimedia tools. Students also study digital media and related topics—audio, video, graphics, text, and animation tools as well as color and animation concepts.

Database Administration Programming A/B—Grades 10–12

Prerequisite: Software Applications by Design B or Discovering Programming Concept B

4232/4233 CDP, AT, CM 0.5 credit

Students are introduced to the concepts of relational database engines and the tools to use them. Database concepts of tables, rows, indexes, constraints, triggers, SQL syntax, and storage are among the concepts presented.

National Academy of Information Technology Internship*

5719/5720 CDP 0.5 credit

See the Programming section (page 55) for the course description.

National Academy of Information Technology Guided Research A/B*

2938/2939 CDP 0.5 credit

See the Programming section (page 55) for the course description.

Networking/Hardware—Completer Program (4 credits required)

Network Operations A/B—Grades 11–12

411792/411892 TE, CM, CDP 1.5 credits
420292/420392 AT,CM,CDP 1.5 credits

Network Operations helps students prepare for college information systems majors and network industry certifications. The main thrust of the Network Operations class is to prepare students for the CCNA certification exam through hands-on labs and instructions. The CISCO Certified Network Associate (CCNA) curriculum is provided by CISCO Networking Academy and covers all aspects of internetworking concepts that are applicable to other certifications such as Microsoft's MCSE and Novell's CNE.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/restaurant.html.*

This pathway offers opportunities for students to explore careers related to network management and computer hardware maintenance and repair.

Computer Maintenance Technology A/B—Grades 10–12

Prerequisite: Exploring Technological Concepts and Matter and Energy in Grade 9 Highly recommend

5611/5612 CDP, TE 0.5 credit
4214/4215 CDP, AT 0.5 credit
5613/5614 CDP, TE (Double period) 1.0 credit
4216/4217 CDP, AT (Double period) 1.0 credit

See the Engineering, Scientific Research, and Manufacturing Technologies section (page 51) for the course description.

Computer Maintenance and LAN Management A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Computer Maintenance Technology A and B

5615/5616 CDP, TE 0.5 credit
4218/4219 CDP, AT 0.5 credit
5617/5618 CDP, TE (Double period) 1.0 credit
4220/4221 CDP, AT (Double period) 1.0 credit

See the Engineering, Scientific Research, and Manufacturing Technologies section for the course description (page 51).

Networking Management, Advanced A/B*

Prerequisite: Computer Maintenance and LAN Management B

4230/4231 CDP, AT, CM 0.5 credit

Advanced concepts of functionally connecting multiple computing devices are addressed in this course. Physical and logical connections are presented as well as concepts such as bandwidth, access time, data rate, and error detection and correction.

Computer Maintenance Tech Internship

5706; CDP (Unlimited repeats) 0.5 credit

See the Engineering, Scientific Research, and Manufacturing Technologies section for the course description.

National Academy of Information Technology Internship*

5719/5720 CDP 0.5 credit

See the Programming section (page 55) for the course description.

National Academy of Information Technology Guided Research A/B*

2938/2939 CDP 0.5 credit

See the Programming section (page 55) for the course description.

Network Operations—Completer Program (4 credits required)

This is a state-approved career development program in information technologies. It is located at the Thomas Edison High School of Technology.

Network Operations—Grades 11–12

411792/411892 CM, TE 1.5 credits /15 SSL
420292/420392 CM, AT 1.5 credits/ 15 SSL

Please see the Information Technologies Cluster in the Thomas Edison High School of Technology section (page 68) for course descriptions.

LAW, GOVERNMENT, PUBLIC SAFETY, AND ADMINISTRATION CLUSTER

Fire and Rescue Services/Emergency Medical Technician—Completer Program (4 credits required)

Essentials of Fire Fighting—Grades 11–12

Prerequisites: *Pass National Fire Protection Agency standard physical examination. Must be 16 years old before beginning the course. Must have a 2.0 GPA.*

Corequisite: *Concurrent enrollment in Essentials of Fire Fighting Internship A (5421)*

5423 CDP 1.0 credit
5421 CDP (Concurrent internship) 0.5 credit

Instruction includes regulations of fire departments; identification and use of forcible entry tools and protective apparatus; common causes of fire; and CPR and first aid. Upon successful completion of this course, students receive Fire Fighter Level II certification.

Fire and Rescue Techniques, Advanced—Grades 11–12

Prerequisite: *Essentials of Fire Fighting*

Corequisite: *Concurrent enrollment in Advanced Fire and Rescue Techniques Internship B (5422)*

5424 CDP, CM 1.0 credit
5422 CDP, SSL (Concurrent internship) 0.5 credit

Instruction includes emergency scene tactical problems, fire and rescue strategies, use of fire and rescue apparatus in emergency situations, and the practice of fire and rescue skills under controlled conditions. Alternate between attending classes at the training academy and interning at a fire station or other internship site.

Emergency Medical Technician/Basic—Grades 11–12

Prerequisites: *Pass National Fire Protection Agency physical examination. Must be 16 years old before beginning the course.*

Corequisite: *Concurrent enrollment in Emergency Medical Technician/Basic Internship A (5458) and EMT/B Science (3993)*

5453 CDP 0.5 credit
3993 (EMT/B Science A) CDP 0.5 credit
5458 (EMT/B Internship A) CDP, SSL 0.5 credit

Prepare for certification in Emergency Medical Technician/Basic. Learn emergency diagnosis, treatment, and care for injuries. Students attend class at the training academy each day and should plan for adequate travel time.

Emergency Medical Technician/Basic Internship B—Grades 11–12

Prerequisites: *Emergency Medical Technician/Basic (5453)*

Corequisite: *Concurrent enrollment in EMT/B Science (3994)*

5459 CDP, CM, SSL 1.0 credit
3994 (EMT/B Science) CDP 0.5 credit

Alternate between classes at the training academy and a local fire station, rescue squad, or other internship site. Course includes a 16-hour basic trauma life support class, a 6-hour paramedic unit orientation program, and rotation through different areas of fire and rescue services.

Junior Reserve Officers' Training Corps (JROTC)

Become a leader and develop self-discipline! Select either the Army Junior Reserve Officers' Training Corps (AJROTC) program offered at Magruder High School or enter one of the Navy Junior Reserve Officers' Training Corps (NJROTC) programs offered at Gaithersburg, Kennedy, Paint Branch, Seneca Valley, and Springbrook high schools. No military obligation required; however, upon graduation you can gain advanced military pay grades and ROTC scholarships may be available for qualified students.

Naval Science 1 A/B—Grades 9–12

7911/7912 NJROTC, SSL 0.5 credit

Experience a military environment and study leadership/discipline, the foundations/organization of the Navy and the Defense Department, the mission of naval ships and aircraft, physical fitness, and ship and Navy terminology.

Naval Science 2 A/B—Grades 10–12

7914/7915 NJROTC, SSL 0.5 credit

Gain increased responsibility in leadership positions. Academics will include naval history from the American Revolution to the present, military geography, oceanography, meteorology and weather, astronomy, and physical science.

Naval Science 3 A/B—Grades 11–12

7917/7918 NJROTC, SSL 0.5 credit

Students hold cadet officer positions. Topics include naval leadership and discipline, the naval service as a way of life, shipboard organization, navigation, naval weapon systems, military justice, international law, and the role of sea power in U.S. diplomacy and grand strategy.

Naval Science 4 A/B—Grade 12

7919/7920 NJROTC, SSL 0.5 credit

The practical application of leadership duties and responsibilities are emphasized and requires the cadets to act as class instructors for selected subjects such as military drill, leadership lab, seamanship, flag drill, and knot tying and splices.

Leadership Education and Training 1 A/B—Grades 9–12

7941 ARJROTC, SSL 0.5 credit

Study the history, organization, and functions of the Army. Academics will include leadership development, oral and written communications, maps and navigation, and drills and ceremonies.

Leadership Education and Training 2 A/B—Grades 10–12

7944/7945 ARJROTC, SSL 0.5 credit

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

Leadership Education and Training 3 A/B—Grades 11–12

7947/7948 ARJROTC, SSL 0.5 credit

Leadership principles are applied to resolve situations and to supervise subordinates. Ethical problems caused by technology as well as current and future technological advances in medicine and communication are examined.

Leadership Education and Training 4—Grade 12

7950/7951 ARJROTC, SSL 0.5 credit

The program is structured to allow cadets to perform their assigned command or staff duties, act as a class instructor for selected subjects such as leadership lab, and/or act as assistant class instructors for subjects such as first aid and map reading.

TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CLUSTER (AUTOMOTIVE TECHNOLOGIES)

Automotive Service Assistant—Completer Program (4 credits required)

The Automotive Service Assistant program is an entry-level program that gives students exposure to career opportunities and instructional competencies in the automotive repair fields. Automotive maintenance and basic servicing are the basis for the ASAP program. Students gain valuable entry-level skills, which will prepare them for immediate entry into the automotive

industry or prepare them for further study in the Automotive Technology or Automotive Body Repair Technology programs.

For more information, consult with your counselor.

Automotive Service Assistant 1 A/B—Grades 10–12

Co-requisite: 1 credit from Autobody Technology or Automotive Technology

504592/504692 CDP, SSL 1.5 credits

Automotive Service Assistant Internship

570192 CDP (Unlimited repeats) 0.5 credit

Automotive Body Technology/Dealership Training—Completer Program (4 credits required)

This course provides a program of preparation for students interested in pursuing careers in the automotive repair or painting business. Students learn from authentic experiences as they use tools and materials to repair panels, doors, windows, and other damaged parts of automobile bodies. Areas of focus include the use and care of tools; stretching and shrinking auto body sheet metal; welding; minor frame straightening methods; removing, repairing, and installing auto parts; refinishing preparation and painting; and estimating materials and labor costs.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/autobody.html*

Auto Body Technology/Dealership Training 1 A/B—Grades 10–12

5547/5548 CDP (Double period) Gaithersburg 1 credit
555392/555492 CDP, SSL (Triple period) Edison 1.5 credits

Auto Body Technology/Dealership Training 2—Grades 11–12

Prerequisite: Attainment of the outcomes of Auto Body Repair Technology/Dealership 1

5549/5550 CDP (Double period) Gaithersburg 1 credit
555592/555692 CDP, SSL (Triple period) Edison 1.5 credits

Auto Body Technology/Dealership Training 3—Grade 12

Prerequisite: Attainment of the outcomes of Auto Body Repair Technology/Dealership 2

5551/5552 CDP (Double period) Gaithersburg 1 credit

Auto Body Internship

5702; CDP (Unlimited repeats) Gaithersburg 0.5 credits
570292; CDP (Unlimited repeats) Edison 0.5 credits

Automotive Technology/Dealership Training Programs (4 credits required)

The Automotive Technology and Dealership Training programs prepare students for entry-level employment in the automotive industry as well as for postsecondary education. Students receive classroom training and authentic laboratory experiences that help them develop the technical, analytical, and communication skills necessary in the automotive industry. Student completing this course are eligible to receive credit at Montgomery College in the Automotive Technology program.

Visit *http://www. mcps.k12.md.us/schools/edison/programs* or check with your counselor for more information.

Automotive Technology/Dealership Training 1 A/B—Grades 9–12

5047/5048 CDP Seneca Valley, Damascus, Gaithersburg 0.5 credit
5072/5073 CDP (Double period) SV, Damascus and Gaithersburg 1.0 credit
506192/506292 CDP (Triple period) Edison 1.5 credits

Automotive Technology/Dealership Training 2 A/B—Grades 10–12

Prerequisite: Attainment of the outcomes of Automotive Technology and Dealership Training 1

5049/5050 AT, CDP (Double period) Seneca Valley, Damascus, Gaithersburg 1.0 credit
506792/506892 AT, CDP, SSL (Triple period) Edison 1.5 credits

Automotive Technology/Dealership Training 3 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Automotive Technology and Dealership Training 2

5064/5065 AT, CDP (Double period)S. Valley, Damascus, Gaithersburg 1.0 credit

Automotive Technology Internship

5703/570392; CDP (Unlimited repeats) Seneca Valley, Damascus, Gaithersburg 0.5 credit

WORK-BASED OPPORTUNITIES

Cooperative Work Experience—Completer Program (4 credits required)

The cooperative work experience program at Thomas Edison provides on-the-job training experience for students who have completed a substantial number of objectives from a Thomas Edison career development program. The training is supervised by the employer and coordinated by the Edison job placement coordinator. Students receive both pay and school credit for employment in a career-related area. Prerequisites for the program include successful completion of a program at Thomas Edison and/or recommendation by the Edison instructor. These courses may be repeated once for credit. Visit http://*www.mcps.k12.md.us/departments/cte* for more information.

Cooperative Work Experience 1 A/B—Grades 11–12

5425/5426 CDP (Basic Core Alt. Category 1) 0.5 credit

This class provides students with skills necessary for managing the financial aspects of adult life—financial planning, money management, taxes, investing, establishing credit, housing, and insurance.

Cooperative Work Experience 2 A/B—Grade 12

5427/5428 CDP (Basic Core Alt. Category 1) 0.5 credit

Students plan and implement a management project directly related to their on-the job training. Students explore the characteristics and managerial responsibilities of successful entrepreneurs.

CWE, On-the Job Training (OJT) A/B—Grades 11–12

5439/5440 CDP (Basic Core Alt. Category 1) 0.5 credit

CWE, OJT (Double period) A /B—Grades 11–12

5441/5442 CDP (Basic Core Alt. Category 1) 1.0 credit

CWE, OJT (Triple period) A/B—Grades 11–12

5443/5444 CDP (Basic Core Alt. Category 1) 1.5 credits

Students work directly with business and industry professionals in a career of their choice, while developing skills to successfully meet college and career goals.

CAREER EDUCATION

Student Internship A/B—Grades 11–12

7813/7816 Internship A 0.5 credit

Internship (Double period) A/B

7818/7819 (Basic Core Category 1) 1.0 credit

Internship (Triple period) A/B

7822/7823 (Basic Core Category 1) 1.5 credits

Note on Student Service Learning

Career cluster courses marked with SSL carry Student Service Learning hours. Please check with your guidance counselor to learn more.

COUNTYWIDE PROGRAMS

SUPERINTENDENT'S LEADERSHIP PROGRAM

The Superintendent's Leadership Program is designed as a sequenced Honors program for up to 20 high school seniors. Participants in the program are selected for their academic achievement, demonstrated leadership, maturity, intellectual curiosity, and ability to learn in non-classroom settings. The goals of the program are to encourage lifelong learning, provide practical experience and develop global citizenship. The curriculum includes career development, team-building, critical thinking, and leadership. This is the only humanities-oriented Honors internship program in the county. The curriculum is comparable to with many college courses.

Applicants must have a 3.5 GPA and completed all requirements for graduation, except English and math. This two-semester program during the senior year of high school offers 2 Honors-level internship credits. Students may enroll in up to four classes at their home school in the morning. In addition to the seminars and more than 300 hours of internship per semester, these are intensive research and writing assignments reinforcing work experience and seminar topics. Professional presentations by individual as well as team members are required throughout the year. Students must provide their own transportation, and commute time is not included in the internship hours. Internships are secured throughout the metropolitan Washington, D.C., metropolitan region.

Applications are available on February 1, 2004, from the career or resource counselor in each high school or on the MCPS Web site—*http://www.mcps.k12.md.us*—with a return deadline of March 15, 2004, to Kim Jones, Office of the Superintendent, 850 Hungerford Drive, Room 130, Rockville, MD 20850. Students will be notified of the decision of the selection committee by April 30, 2004. All applicants should register for a regular class schedule at their home school, since participation in this program is limited.

MONTGOMERY BLAIR HIGH SCHOOL SCIENCE/MATHEMATICS/COMPUTER SCIENCE MAGNET PROGRAM

MATHEMATICS

The mathematics curriculum for the magnet program consists of a four-year adjusted sequence beginning with Magnet Geometry. Students then take Precalculus or Magnet Functions, courses replacing Algebra 2/Analysis/Elementary Functions, and finally, Analysis 1.

COMPUTER SCIENCE

The four-year magnet sequence will enable students to become highly proficient in computer science. Courses satisfy the 1-credit requirement in technology education.

INTERDISCIPLINARY

These courses, an integral part of the magnet program, provide the additional time needed for in-depth study of the three other subjects. They provide time for students to interrelate and apply what they have learned through thematic studies, discussions, interaction with practicing researchers, research projects, and field studies.

SCIENCE

The science curriculum consists of a two-year sequence of four one-semester courses in Grades 9–10. Courses include the topics and objectives of four courses presently in the *Program of Studies.* The magnet courses are accelerated and their sequence differs from the standard program. Their pacing and emphasis support differentiated instruction and interdisciplinary topics with mathematics and computer science. In Grades 11–12 students may elect courses to broaden their skills and knowledge in the subject(s) of their choice and prepare for their research projects.

COURSE DESCRIPTIONS

MATHEMATICS

Magnet Geometry A/B

Prerequisite: Attainment of the outcomes of Algebra 1

3038/3039 A CM, NCAA 0.5 credit

Students study logic, methods of proof (direct/indirect, coordinate) in both two-column and essay form, constructions, loci, and transformational geometry. All of the 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/C

Prerequisite: Attainment of the outcomes of Magnet or Honors Geometry and teacher recommendation

3045/3046/3047 CM, NCAA 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 Functions A/B

Prerequisite: Teacher recommendation and the attainment of the outcomes of Magnet or Honors Geometry

3041/3042 CM, NCAA 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: Attainment of the outcomes of Magnet Precalculus or Magnet Functions

3043/3044 CM, NCAA 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 with a greater degree of rigor and sophistication. 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.

Magnet Analysis 2 (MV CALC/DIF EQ) A/B

Prerequisite: Attainment of the outcomes of Magnet Analysis 1 or AP Calculus BC with teacher recommendation

3048/3049 A CM, NCAA 0.5 credit

Vectors, vector-valued functions, partial differentiation, multiple integration, and vector fields provide a strong foundation for further study in mathematics and the physical sciences. Applications to physics such as the theorems of Green, Stokes, and Gauss are studied, concluding with the study of differential equations

Applied Statistics

Prerequisite: Attainment of the outcomes of Magnet Precalculus or equivalent, junior status

3050 CM, NCAA 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 with a greater degree of rigor and sophistication. 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: Attainment of the outcomes of Magnet Precalculus or Functions and Analysis of Algorithms or AP computer science

3423 CM, NCAA 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: Attainment of the outcomes of Magnet Analysis 1 or teacher recommendation

3426 CM, NCAA 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: Attainment of the outcomes of Magnet Analysis 2

3428 CM, NCAA 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.

COMPUTER SCIENCE

Fundamentals of Computer Science A/B—Grade 9

2951/2952 A CM, TE 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—Grade 10

Students learn object-oriented programming methodology, and the use and implementation of abstract data types using a high-level programming language.

Semester 1: Structured Programming

2953 CM, NCAA, ATE, TE 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 methods in order to design and code programming solutions to problems that require the use of files, control structures, methods, functions, classes, and arrays.

Semester 2: Data Structures

2954 CM, NCAA, ATE, TE 0.5 credit

Students study static and dynamic implementation of data structures. Stacks, queues, linked lists, and recursion are emphasized. These structures are used in programs involving simulation and databases.

Introduction to Networking

Prerequisite: Attainment of the outcomes of Algorithms and Data Structures and Algebra II

2955 CM, ATE 0.5 credit

A hands-on course that provides students with an introduction to computer and network systems administration. The important issues of ethics, computer and network security, backup methods, and configuration and maintenance of network services also are studied.

Analysis of Algorithms

Prerequisite: Attainment of the outcomes of Algorithms and Data Structures A and B

2956 CM NCAA, TE, ATE 0.5 credit

Students study the mathematical and empirical analysis of algorithms. Various searching and sorting techniques are examined. Benchmarking, the efficiency of algorithms, and comparative studies are emphasized as well as the current AP computer science case study. All the objectives of the MCPS AP curriculum are studied with a greater degree of rigor and sophistication.

Advanced Application Software—Grades 11 and 12

Prerequisite: Attainment of the outcomes of Algorithms and Data Structures or AP Computer Science

2988 CM, ATE 0.5 credit

Self-motivated, self-directed students explore several sophisticated computer application software packages and study programming languages not otherwise offered in the magnet program. Students actively participate in designing their own course goals and projects.

Computer Graphics

Prerequisite: Attainment of the outcomes of Analysis of Algorithms or AP Computer Science

2957 CM, ATE, TE 0.5 credit

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 also are studied.

Software Design

Prerequisite: Attainment of the outcomes of Computer Graphics

2958 CM, ATE, TE 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: Attainment of the outcomes of Analysis of Algorithms or AP Computer Science

2959 CM, ATE, TE 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: Attainment of the outcomes of Analysis of Algorithms or AP Computer Science

2985 CM, ATE, TE 0.5 credit

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: Attainment of the outcomes of Analysis of Algorithms or AP Computer Science and Analysis 1A

2986 CM, NCAA, ATE, TE 0.5 credit

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

INTERDISCIPLINARY

Research and Experimentation for Problem Solving 1 A/B—Grade 9

2970/2971 CM, ATE 0.25 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—Grade 10

2972 A CM, ATE 0.25 credit

In Grade 10, the R and 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—Grade 11

2974 CM, ATE 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 miniprojects, the 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 Problem Solving

Prerequisite: Attainment of the outcomes of Research Design

2975 CM, ATE 0.5 credit

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

Research Project A/B—Grades 11–12

2981/2982 (Single period) A CM, ATE 0.5 credit

Students conduct research projects based on an approved proposal. All students work either independently in 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.

Guided Research A/B

Prerequisite: Completion of graduation requirements in selected area

2977/2978 (Single period) CM, ATE 0.5 credit

This is an individualized course that addresses the research interests of students who are advanced in a particular subject area. Arrangements are made with a sponsoring teacher for in-depth work in an area of interest, typically involving equipment or materials that go beyond what is available in the classroom. The advisor and student set individual goals and expectations.

Computer-Assisted Drafting Software

Prerequisite: 1 credit computer science or equivalent

3558 CM 0.5 credit

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

SCIENCE

Advanced Science 1, Physics—Grade 9

Prerequisite: Attainment of the outcomes of Algebra 1

3531 CM, NCAA 1 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—Grade 9

Prerequisite: Attainment of the outcomes of Advanced Science 1, Physics

3532 CM, NCAA 1 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 Sciences—Grade 10

Prerequisite: Attainment of the outcomes of Advanced Science 1B, Chemistry

3541 CM, NCAA 1 credit

Students study the same topics and instructional objectives as in the MCPS Earth Science A and B curriculum. Additionally, students study the interpretation of data from remote sensing instruments, computer and mathematical concepts that are related to science and engineering, and current research into the interactive process of earth evolution and global change. Emphasis is placed on the dynamic interaction of the solid earth, its atmosphere, and its oceans as special cases of more general processes occurring throughout the universe.

Advanced Science 4, Biology

Prerequisite: Attainment of the outcomes of Advanced Science 3, Earth/Space Sciences

3542 (Double period) CM, NCAA 1 credit

Students study the same topics and instructional objectives as in the MCPS Honors Biology A and B curriculum. An interdisciplinary approach emphasizes the continued development of problem-solving skills and the collection and analysis of biological data. The culminating activity is a three-day field study of marine ecosystems in which students collect, report, and evaluate physical, chemical, and biological data.

Optics

Prerequisite: Attainment of the outcomes of Advanced Science 1 or Honors or AP Physics and completion of AP Calculus BC or Analysis 1A, junior status

3543 CM, NCAA 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: Attainment of the outcomes of Advanced Science 1 or Honors or AP Physics, junior status

3544 CM, NCAA 0.5 credit

Students are introduced to the macroscopic (observable) 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: Attainment of the outcomes of Advanced Science 2 or AP Chemistry, junior status

3545 CM, NCAA 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

Prerequisite: Interest in science, history, and the arts, junior status

3557 CM, NCAA 0.5 credit

Students 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: Attainment of the outcomes of Advanced Science 2 or AP Chemistry, junior status

3546 CM, NCAA 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 are varied in depth and scope, ranging from the study of toxic materials to the production of synthetic shoes.

Advanced Topics in Earth Science

Prerequisite: Attainment of the outcomes of Biology and Chemistry, junior status

3547 A CM, NCAA 0.5 credit

Plate Tectonics/Oceanography. The historical development of plate tectonic theory and its application to current research in physical and structural geology are studied. Physical and geological oceanography are emphasized, with extensive data collection and analysis as the focal point of student activities.

3548 B CM, NCAA 0.5 credit

Contemporary Astronomy. Basic astronomy is integrated with current topics like 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: Attainment of the outcomes of Advanced Science 1 or Honors or AP Physics, junior status

3556 CM, NCAA 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

Prerequisite: Attainment of the outcomes of Biology and Chemistry, junior status

3553 CM, NCAA 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 an integral part of the course.

Introductory Genetic Analysis

Prerequisite: Attainment of the outcomes of Biology and Chemistry, junior status

3554 (Double period) CM, NCAA 1 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 complement lectures and discussions.

Cell Physiology

Prerequisite: Attainment of the outcomes of Chemistry and Biology, junior status

3551 CM, NCAA 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: Attainment of the outcomes of Advanced Science 2 or AP Chemistry, junior status

3614 CM, NCAA 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.

THOMAS EDISON HIGH SCHOOL OF TECHNOLOGY

MISSION

The mission of the Thomas Edison High School of Technology (TEHST) is to provide students with the technological, academic, and interpersonal skills needed to achieve excellence in their chosen careers and to serve as a foundation for their continuing education. The variety of programs offered at TEHST allows students to explore and experience traditional and nontraditional career options and to prepare for a wide range of expanding and challenging postsecondary options. All these students earn a minimum of 15 hours of student service learning per semester. Students will enroll in TEHST through their home school and may take classes at both the home school and TEHST.

All programs offered at Thomas Edison High School of Technology are state-approved and meet the career development graduation requirement for students.

PROGRAM OFFERINGS

Arts, Humanities, Media, and Communications Cluster

- Printing, Graphics, and Electronic Media

Biosciences, Health Science, and Medicine Cluster

- Biotechnology
- Medical Careers

Construction and Development Cluster

- Carpentry (Building and Construction Technology)
- Construction Electricity
- Heating and Air Conditioning
- Masonry

Engineering, Scientific Research, and Manufacturing Technologies Cluster

- Design, Illustrating, and Drafting Technology
- Electronics

Human and Consumer Services, Hospitality and Tourism Cluster

- Cosmetology
- Manicuring
- Hotel/Travel
- Professional Restaurant Management

Information Technologies Cluster

- Network Operations

Transportation, Distribution, and Logistics Cluster

- Automotive Body Technology
- Automotive Service Assistant Program
- Automotive Technology

ARTS, HUMANITIES, MEDIA, AND COMMUNICATIONS CLUSTER

Printing, Graphics, and Electronic Media—Completer Program (4 credits required)

Printing, Graphics, and Electronic Media 1 A/B—Grades 10–12

511892/511992 CDP, SSL 1A 1.5 credits

Printing, Graphics, and Electronic Media 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes for Printing/Graphics Technology 1

512192/512292 CDP, AT, SSL 1.5 credits

Printing, Graphics, and Electronic Media Internship

571792 CDP (Unlimited repeats) 0.5 credit

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/gem.html*

BIOSCIENCES, HEALTH SCIENCE, AND MEDICINE CLUSTER

Biotechnology—Completer Program (4 credits required)

Biotechnology A/B—Grades 11–12

Prerequisite: Attainment of outcomes of Biology A and B

420692/420792 AT, CM, CDP, SSL 1.0 credit
363692/363792 CM, CDP (Science) 0.5 credit

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/biotech.html*

Medical Careers—Completer Program (4 credits required)

Medical Careers 1A—Grades 11–12

Priority placement: Biology A and B (minimum grade "B"), GPA 2.5 minimum

Pre- or Corequisite: Concurrent enrollment in Medical Careers Science (399592); Chemistry A

583392 CDP, SSL 1.0 credit
399592 CDP (Science corequisite) 0.5 credit

Medical Careers 1B—Grades 11–12

Prerequisite: Attainment of Medical Careers A (minimum grade "C"), 90 percent attendance, and recommendation of Medical Careers teacher; CPR/BLS National Certification required

Corequisite: Concurrent enrollment in Medical Science (399692); Chemistry B

583492 CDP, AT, SSL 1.0 credit
399692CDP (Science corequisite) 0.5 credit

Note: If over-enrollment occurs, seniors will have priority selection) Total enrollment is governed by state medical regulations.

See the description in Career Clusters/Career Technology Education for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/medcareers.html*

CONSTRUCTION AND DEVELOPMENT CLUSTER

Building and Construction Technology

Foundation of Building and Construction Technology

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/construction.html*

Foundations of Building and Construction

556192 1.5 credits

This is the initial course for ALL Construction and Development Cluster program completer courses (page 50).

Carpentry—Completer Program (4 credits required)

Prerequisite: Foundations of Building and Construction A/B

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/carpentry.html*

Carpentry 1 A/B—Grades 10–12

510092/510192 CDP, SSL 1.5 credits

Carpentry 2 A/B—Grades 10–12

563992/564092 CDP, SSL 2A 1.5 credits

Carpentry Internship

570592 CDP (Unlimited repeats) 0.5 credit

Construction Electricity—Completer Program (4 credits required)

Prerequisite: Foundations of Building and Construction A/B

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/electricity.html*

Electricity (Construction) 1 A/B—Grades 10–12

510992/511092 CDP, SSL 1.5 credits
Prerequisite: Algebra 1 preferred

Electricity (Construction) 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Electricity (Construction) 1

559592/559692 AT, CDP, SSL 1.5 credits

Electricity (Construction) Internship

570892CDP (Unlimited repeats) 0.5 credit

Heating and Air Conditioning—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/hvac.html*

Prerequisite: Foundations of Building and Construction A/B

Heating, Ventilation, and Air Conditioning 1 A/B—Grades 11–12

512392/512992 CDP, SSL 1.5 credits

Heating, Ventilation, and Air Conditioning 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Heating/Air Conditioning 1

512792/512892 CDP, AT, SSL 1.5 credits

HVAC Internship
571192 CDP (Unlimited repeats) 0.5 credit

Masonry—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/masonry.html*

Prerequiste: Foundations of Building and Construction A/B

Masonry 1 A/B—Grades 10–12
556792/556892 CDP, SSL 1.5 credits

Masonry 2 A/B—Grades 11–12
Prerequisite: Attainment of the outcomes of Masonry 1
556592/556692 CDP, SSL 1.5 credits

Masonry Internship
571492CDP (Unlimited repeats) 0.5 credit

ENGINEERING, SCIENTIFIC RESEARCH, AND MANUFACTURING TECHNOLOGIES CLUSTER

Design, Illustrating, and Drafting Technology—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/didt.html*

Drafting and Design Technology 1 A/B—Grades 11–12
510392/510492 CDP, SSL 1.5 credits

Drafting and Design Technology 2 A/B—Grades 11–12
Prerequisite: Attainment of the outcomes of Drafting and Design Technology 1
510692/510792 CM, CDP, AT 1.5 credits

Drafting Internship
570792CDP (Unlimited repeats)

Electronics

See the description in Career Clusters/Career Technology Education for more details.

Electronics 1 A/B—Grades 11–12
511292/511392 CDP, SSL 1.5 credits

Electronics 2 A/B—Grades 11–12
511592/511692 CDP, CM, AT, SSL 1.5 credits

HUMAN AND CONSUMER SERVICES, HOSPITALITY, AND TOURISM CLUSTER

See the description in Career Clusters/Career Technology Education (page 44) for more details.

Cosmetology—Completer Program (4 credits required)

Cosmetology 1 A/B—Grade 10
558492 B; CDP (Double period) 1.0 credit
558392 A; CDP (Triple period) 1.5 credits
323192 A; CDP Related Mathematics 0.5 credit

Cosmetology 2 A/B (Triple period)—Grade 11
Prerequisite: Attainment of the outcomes of Cosmetology 1
Corequisite: Students must enroll in .5 credit of science listed below each semester
564392/564492 A; CDP 1.0 credit
361592/361692 A; CDP (Science) 0.5 credit

Cosmetology 3 A/B—Grade 12
Prerequisite: Attainment of the outcomes of Cosmetology 2
558792 CDP A (Triple period) 1.5 credits
558892 CDP B (Double period) 1.0 credit
323292 CDP B Related Mathematics 0.5 credit

Hotel/Travel—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

For more information, visit *http://www2.mcps.k12.md.us/schools/edison/programs/hoteltravel.html*

Hotel/Travel A/B—Grades 11–12
541492/541692 CDP, SSL 1.5 credits

Hotel/Travel Internship A/B—Grade 12
Prerequisite: Successful completion of Hotel/Travel A and B and recommendation of the Hotel/Travel teacher.
Students may enroll in this course for more than one period.
5493/5494 CDP (unlimited repeats) 0.5 credit

Manicuring—Nail Technology—Completer Program (4 credits required)

See description in Career Clusters.

Professional Restaurant Management—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

Professional Restaurant Management 1 A/B—Grades 11–12
483492/483592 CDP, SSL 1.5 credits

Professional Restaurant Management 2—Grade 12
483792/483892 CDP, SSL 1.5 credits

Professional Restaurant Management Internship—Grade 12
482092 CDP (Unlimited repeats) 0.5 credit

INFORMATION TECHNOLOGIES CLUSTER

Information Resource Design

The information Resource Design course offerings at the Thomas Edison High School of Technology are not part of an approved career development program and do not meet the requirements for high school graduation.

Web Site Development A/B—Grades 10–12

Prerequisite: Software Applications byDesign B or Discovering Programming Concepts

2991/2992 CM, ATE 0.5 credit

Please see the National Academy of Information Technology section (page 55) in the Information Technologies cluster for the course description.

Advanced Web Tools and Digital Media A/B—Grades 10–12

2936/2937 CM, ATE 0.5 credit

Please see the National Academy of Information Technology section (page 55) in the Information Technologies cluster for the course description.

Academy of Information Technology Guided Research A/B—Grades 10–12

2938/2939 CM 0.5 credit

Please see the National Academy of Information Technology section (page 55) in the Information Technologies cluster for the course description.

Network Operations—Completer Program (4 credits required)

Network Operations A/B—Grades 11–12

411792/411892 TE, CM, CDP 1.5 credits
420292/420392 AT, CM,CDP 1.5 credits

TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CLUSTER
(Automotive Technologies)

Automotive Body Technology and Dealership Training—Completer Program (4 credits required)

See program description under Transportation, Distribution, and Logistics Cluster in the Career and Education Technology section (page 57).

Auto Body Technology and Dealership Training 1 A/B—Grades 10–12

555392/555492 CDP, SSL 1.5 credits

Auto Body Technology and Dealership Training 2 A/B—Grades 11–12

Prerequisite: Attainment of the outcomes of Auto Body Repair Technology/ Dealership 1

555592/555692 CDP, SSL 1.5 credits

Auto Body Repair Internship

570292 CDP (Unlimited repeats) 0.5 credits

Automotive Technology/Dealership—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

Automotive Technology and Dealership Training 1 A/B—Grades 9–12

506192/506292 CDP, SSL 1.5 credits

Automotive Technology and Dealership Training 2—Grades 10–12

Prerequisite: Attainment of the outcomes of Automotive Technology and Dealership Training 1

506792/506892 AT, CDP, SSL 1.5 credits

Automotive Technology Internship

570392 CDP (Unlimited repeats) 0.5 credit

Automotive Service Assistant—Completer Program (4 credits required)

For more information, visit *http://www.curriculum/indus*

Automotive Service Assistant 1 A/B—Grades 10–12

50459/504692 CDP, SSL 0.5 credit

Automotive Service Assistant Internship

570192 CDP (Unlimited repeats) 0.5 credit

WORK-BASED OPPORTUNITIES

Cooperative Work Experience Program—Completer Program (4 credits required)

See the description in Career Clusters/Career Technology Education (page 44) for more details.

CWE, On-the-Job Training (OJT) A/B—Grades 11–12

543992/544092 CDP (Basic Core Alt. Category 1) 0.5 credit

CWE, OJT (Double period) A /B—Grades 11–12

544192/544292 CDP (Basic Core Alt. Category 1) 1.0 credit

CWE, OJT (Triple period) A/B—Grades 11–12

544392/544492 CDP (Basic Core Alt. Category 1) 1.5 credits

Note on Student Service Learning

Career cluster courses marked with SSL carry Student Service Learning hours. Please check with your guidance counselor to learn more.

RICHARD MONTGOMERY HIGH SCHOOL INTERNATIONAL BACCALAUREATE PROGRAM

PROGRAM OVERVIEW

The International Baccalaureate (IB) program is a two-year liberal arts curriculum that meets the requirements established by the International Baccalaureate Organization based in Geneva, Switzerland. This program leads to the IB diploma, recognized for university entrance in all participating countries.

The IB program provides a rigorous liberal arts education for highly motivated and academically proficient students in Grades 11 and 12. It represents a deliberate compromise between the demand for specialization in the high school curriculum and the emphasis for breadth of knowledge. Students are required to become proficient in six broad areas: English (Language A), a modern foreign language (Language B), social studies, experimental science, mathematics, and a sixth academic area of their choice.

The interdisciplinary nature of learning is an important component of the IB program. Students develop an appreciation for the relationship between disciplines as they progress through the different subject areas of the program and Theory of Knowledge.

Diploma candidates must select three areas for higher-level study (two years) and three for standard-level study (one year). Students take examinations designed and graded by examiners selected by the IB testing office in Wales.

Students must take two semesters of Theory of Knowledge, a course that stimulates critical thought and integrates the various disciplines and non-Western approaches to knowledge. It helps students develop a personal mode of thought based on critical examination of evidence and argument. While it is required and graded, Theory of Knowledge is assessed by two externally evaluated essays rather than by an examination.

Diploma candidates also must research and write an extended essay in any subject within the IB program. Like the IB examinations, the extended essay is read and graded by readers through the office in Wales. In addition, students must complete 150 hours of Creativity, Action, and Service (CAS).

Students in the IB program register for the IB examinations in the fall of their junior and senior years. The students pay the registration and subject fees set by the IB office in Wales.

Students who complete the requirements and pass the examinations in all six areas receive the IB diploma. Those who do not pass the prescribed examinations in all areas are awarded a certificate for each exam. Many colleges recognize these certificates for advanced standing or credit. Students who complete the IB diploma program with the Maryland State Department of Education graduation requirements receive the Maryland diploma and, where applicable, a Certificate of Merit. All IB courses are advanced-level courses and are applicable to the Certificate of Merit (CM). Courses marked with a section mark (IB-AL) count as advanced-level courses.

MCPS grading policies and procedures are used to grade and report student progress in the program. Continuation is based on the student's level of commitment and achievement.

FEES

Students pay an application fee to cover entrance testing for the IB program at RMHS. Students in Grades 11 and 12 will pay the registration and subject fees set by the International Baccalaureate Organizaiton. Financial assistance is available for both fee structures.

ENGLISH

Course Name	No.	Type
Pre-IB English 9 A/B—Grade 9	1022/1023	CM, NCAA
Pre-IB English 10 A/B—Grade 10	1024/1025	CM, NCAA
IB English 1A/B—Grade 11	1026/1027	CM, IB-AL, NCAA
IB English 2A/B—Grade 12	1028/1029	CM, IB-AL, NCAA

MODERN FOREIGN LANGUAGES (LANGUAGE B)

Pre-IB Level 2		
Chinese 2A/2B	1647/1648	CM, NCAA
French 2A/2B	1609/1610	CM, NCAA
Spanish 2A/2B	1749/1750	CM, NCAA
Pre-IB/IB Level 3		
Chinese 3A/3B	1649/1650	CM, NCAA
French 3A/3B	1617/1618	CM, NCAA
Spanish 3A/3B	1717/1718	CM, NCAA
IB Level 4		
Chinese 4A/4B	1651/1652	CM, IB-AL, NCAA
French 4A/4B	1619/1620	CM, IB-AL, NCAA
Spanish 4A/4B	1751/1752	CM, IB-AL, NCAA
IB Level 5		
Chinese 5A/5B	1653/1654	CM, IB-AL, NCAA
French 5A/5B	1627/1628	CM, IB-AL, NCAA
Spanish 5A/5B	1753/1754	CM, IB-AL, NCAA
IB Level 6		
Chinese 6A/6B	1655/1656	CM, IB-AL, NCAA
French 6A/6B	1629/1630	CM, IB-AL, NCAA
Spanish 6A/6B	1755/1756	CM, IB-AL, NCAA

MATHEMATICS

Pre-IB Geometry A/B	3208/3209	CM, NCAA
IB Analysis and Applications of Functions A/B	3306/3307	CM, IB-AL, NCAA
IB Math Studies A/B	3410/3418	CM, IB-AL, NCAA
IB Precalculus A/B	3420/3424	CM, IB-AL, NCAA
Multivariable Calculus and Differential Equations A/B	3048/3049	CM, IB-AL, NCAA
Calculus AB, Advanced Placement A/B	3452/3453	CM, NCAA
Calculus BC, Advanced Placement A/B	3491/3492	CM, NCAA

SCIENCE

Pre-IB Biology A/B—Grade 9	3634/3635	CM, NCAA
Pre-IB Chemistry A/B—Grade 10	3744/3745	CM, NCAA
IB Biology A/B—Grade 12 (Double period)	3606/3607	CM, IB-AL, NCAA
IB Physics 1 A/B—Grade 11	3844/3845	CM, IB-AL, NCAA
IB Physics 2 A/B—Grade 12	3846 /3847	CM, IB-AL, NCAA
IB Chemistry 1 A/B—Grade 11 or 12	3746/3747	CM, NCAA
IB Chemistry 2 A/B—Grade 12	3755/3756	

SOCIAL STUDIES

Pre-IB Government A/B—Grade 9	2133/2134	CM, NCAA
IB History 1 A/B—Grade 11	2230/2231	CM, IB-AL, NCAA
IB History 2—Grade 12A	2403/2404	CM, IB-AL, NCAA
IB Psychology A/B	2232/2233	CM, IB-AL, NCAA
IB Economics A/B	2234/V	CM, IB-AL, NCAA
IB Economics B		CM, IB-AL, NCAA

THEORY OF KNOWLEDGE

Theory of Knowledge 1—Grade 11	2007	CM, IB-AL, NCAA
Theory of Knowledge 2—Grade 12	2008	CM, IB-AL, NCAA

ART

Pre-IB Art and Culture A/B—Grade 10	6454/6455	
IB Visual Arts 1 A/B—Grade 11	6102/6103	CM, IB-AL
IB Visual Arts 2 A/B	6107/6108	CM, IB-AL

MUSIC

IB Advanced Music A/B	6567/6568	CM , IB-AL

THEATER

IB Theater A/B	8071/8072	IB-AL

COURSE DESCRIPTIONS

ENGLISH

Pre-IB English 9 A/B—Grade 9

1022/1023 CM, NCAA 0.5 credit

During the first semester, the writing process is emphasized with assignments complementing the study of literature. In the second semester, the focus shifts to the study of literature, which includes narrative and lyric poetry; world mythology; novels; and Greek, Shakespearean, and modern drama. Students examine the connection between the classical tradition and modern thought.

Pre-IB English 10 A/B—Grade 10

1024/1025 CM, NCAA 0.5 credit

Composition and speech assignments focus on literature and the structure of the IB higher-level oral and written assignments. Students study classic and contemporary American and world literature. The theme of the universality of humanity provides a framework for an interdisciplinary focus. Students are introduced to literary criticism as they complete a personal study of an author.

IB English 1A/1B—Grade 11

1026/1027 CM, IB-AL, NCAA 0.5 credit

This required two-year sequence includes a detailed analysis of a Shakespearean tragedy and in-depth analysis of selected works of fiction, drama, and poetry with an emphasis on world literature. 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 higher-level IB English exam.

This course completes the requirements for the higher-level IB English exam. Students complete a detailed analysis of an author and in-depth studies of selected works of fiction, drama, and poetry with an emphasis on world literature. Skills on essay responses to detailed questions and oral analysis of selected literature are polished. The second paper for the external assessment is completed.

MODERN FOREIGN LANGUAGES (LANGUAGE B)

Pre-IB Level 2 Modern Foreign Languages—Grades 9–11

Prerequisite: Attainment of the outcomes of Level 1

1647/1648	Chinese 2A/2B	CM, NCAA	0.5 credit
1609/1610	French 2A/2B	CM, NCAA	0.5 credit
1749/1750	Spanish 2A/2B	CM, NCAA	0.5 credit

Courses in Pre-IB Level 2 Language B (modern foreign language) continue intensive training in the basic foundations of the language to enable students to become proficient in both oral and written expression at the appropriate level. In addition to mastering the MCPS Level 2 modern foreign language curriculum, students begin additional study of literature, culture, and civilization.

Pre-IB/IB Level 3 Modern Foreign Languages—Grades 9–11

Prerequisite: Attainment of the outcomes of Level 2

1649/1650	Chinese 3A/3B	CM, NCAA	0.5 credit
1617/1618	French 3A3A/3B	CM, NCAA	0.5 credit
1717/1718	Spanish 3A3A/3B	CM, NCAA	0.5 credit

Courses in Pre-IB Level 3 Language B (modern foreign language) develop the higher-level language skills needed for increased proficiency in both oral and written expression and listening and reading comprehension. In addition to mastering the MCPS Level 3 modern foreign language curriculum, students are introduced to literary analysis and literary, cultural, and historical topics.

IB Level 4 Modern Foreign Languages—Grades 10–12

Prerequisite: Attainment of the outcomes of Level 3

1651/1652	Chinese 4A/4B	CM, IB-AL, NCAA	0.5 credit
1619/1620	French 4A/4B	CM, IB-AL, NCAA	0.5 credit
1751/1752	Spanish 4A/4B	CM, IB-AL, NCAA	0.5 credit

Courses in IB Level 4 Language B (modern foreign language) are 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.

IB Level 5 Modern Foreign Languages—Grades 10–12

Prerequisite: Attainment of the outcomes of Level 4

1653/1654	Chinese 5A/5B	CM, IB-AL, NCAA	0.5 credit
1627/1628	French 5A/5B	CM, IB-AL, NCAA	0.5 credit
1753/1754	Spanish 5A/5B	CM, IB-AL, NCAA	0.5 credit

Courses in IB Level 5 Language B (modern foreign language) complete the preparation of students for the standard-level IB foreign language and the Advanced Placement language exam. 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..

IB Level 6 Modern Foreign Languages—Grades 11–12

Prerequisite: Attainment of the outcomes of Level 5

1655/1656	Chinese 6A/6B	CM, IB-AL, NCAA	0.5 credit
1629/1630	French 6A/6B	CM, IB-AL, NCAA	0.5 credit
1755/1756	Spanish 6A/6B	CM, IB-AL, NCAA	0.5 credit

Courses in IB Level 6 Language B (modern foreign language) 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 characteristic of works and increased oral and written proficiency. In-depth study of the life and civilization of pertinent countries continues. Students are prepared for the higher-level IB exam.

MATHEMATICS

Pre-IB Geometry A/B—Grades 9–10

Prerequisite: Attainment of the outcomes of Algebra 1

3208/3209 CM, NCAA 0.5 credit

Pre-IB 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—Grades 9–11

Prerequisite: Attainment of the outcomes of Pre-IB Geometry

3306/3307 CM, IB-AL, NCAA 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—Grades 11–12

Prerequisite: Attainment of the outcomes of IB Analysis and Applications of Functions.

3410/3418 CM, IB-AL, NCAA 0.5 credit

This course builds on the concepts of IB Analysis and Application of Functions and Pre-IB 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—Grades 10–11

Prerequisite: Attainment of the outcomes of IB Applications and Analysis of Functions

3420/3424 CM, IB-AL, NCAA 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.

Multivariable Calculus and Differential Equations A/B

Prerequisite: Attainment of the outcomes of IB Calculus

3048/3049 IB-AL,CM, NCAA 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. Students prepare for the higher-level IB Mathematics examination.

Calculus AB, Advanced Placement A/B

3452/3453 CM, NCAA 0.5 credit

Calculus BC, Advanced Placement A/B

3491/3492 CM, NCAA 0.5 credit

SCIENCE

IB science courses help students develop a knowledge of scientific facts, principles, and concepts; the ability to analyze scientific information critically and independently and to recognize the limitations of scientific knowledge; the ability to apply knowledge and skills to generate new knowledge; the awareness of the impact of science on ethical, philosophical, and political issues; and an understanding of the international dimensions of scientific thinking.

Pre-IB Biology A/B—Grade 9

3634/3635 CM, NCAA 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.

Pre-IB Chemistry A/B—Grade 10

Prerequisite: One year of biology

3744/3745 CM, NCAA 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. Some topics included are properties of matter, atomic theory, chemical bonds and reaction kinetics, periodicity and radioactivity, organic chemistry and thermodynamics.

IB Biology A/B—Grade 12

Prerequisite: One year of Honors or Pre-IB Biology and one year of Honors or Pre-IB Chemistry

3606/3607 (Double period) A CM, IB-AL, NCAA 1 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.

IB Physics 1 A/B—Grade 11

3844/3845 CM, IB-AL, NCAA 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 included are vector mathematics, kinematics, dynamics, energy, thermodynamics, electricity and magnetism, and nuclear structure and energy. An additional focus is on the social and historical perspective in which physical ideas have developed throughout the world.

IB Physics 2 A/B—Grade 12

Prerequisite: Attainment of the outcomes of Pre-Calculus and IB Physics 1

3846/3847 CM, IB-AL, NCAA 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. Some topics included are 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 Chemistry 1 A/B—Grade 11 or 12

Prerequisite: Attainment of the outcomes of Pre-IB or Honors Chemistry

3746/3747 CM, NCAA 0.5 credit

IB Chemistry 1 is a study of the materials of our environment, their properties, and the way 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 Chemistry 2 A/B—Grade 12

Prerequisite: Attainment of the outcomes of IB Chemistry 1

3755/3756A 0.5 credit

IB Chemistry 2 is an extension of the topics in IB Chemistry 1. Topics are also expanded to include quantum theory, chemistry of transition elements, hybridization and resonance, mathematical treatment of enthalpy, entropy and free energy, reaction mechanisms, instrumentation in organic chemistry. This course prepares students for the higher-level IB Chemistry examination.

SOCIAL STUDIES

Social Studies Pre-IB Government A/B—Grade 9

2133/2134 CM, NCAA 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.

IB History 1 A/B—Grade 11

2230/2231 CM, IB-AL, NCAA 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.

IB History 2 A/B—Grade 12

2403/2404 CM, IB-AL, NCAA 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.

IB Psychology A/B

2232/2233 CM, IB-AL, NCAA 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 Economics A/B

2234/2235 CM, IB-AL, NCAA 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 economic topics are emphasized in both semesters.

THEORY OF KNOWLEDGE

Theory of Knowledge 1—Grade 11

2007 CM, IB-AL, NCAA 0.5 credit

Theory of Knowledge 1 (TOK) 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. A special yearlong section of TOK1 at RMHS combines TOK with the extended essay preparation.

Theory of Knowledge 2—Grade 12

2008 CM, IB-AL, NCAA 0.5 credit

Students first 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.

ART

Pre-IB Art and Culture A/B—Grade 10

6454/6455 0.5 credit

This course is an adaptation of the standard MCPS Art and Culture course. The adaptation includes art history, multicultural studies, and an introduction to the techniques needed for the studio component of IB Visual Art. Other topics include visual awareness of aesthetics. Students also keep independent journals and attend art exhibitions.

IB Visual Arts 1 A/B—Grade 11

Prerequisite: Pre-IB Art and Culture

6102/6103 CM, IB-AL 0.5 credit

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

IB Visual Arts 2 A/B—Grade 11

Prerequisite: IB Visual Arts 1

6107/6108 CM, 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 unless waived by the instructor

6567/6568 CM, 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 Theater A/B

8071/8072 IB-AL 0.5 credit

IB Theater 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.

POOLESVILLE HIGH SCHOOL GLOBAL ECOLOGY PROGRAM

OVERVIEW

This four-year sequenced program in global ecology consists of an interdisciplinary investigation of Earth's ecosystem. A core curriculum of environmental science and social studies is integrated with the traditional English and mathematics programs to provide a unique specialty, fulfilling local and state requirements for graduation. The program builds from a local to an international focus during the four years, and allows students to explore the world's ecological condition from a hands-on perspective through field study and classroom work.

Grade 8 students may apply for admission to this full-day, four-year program. Students interested in obtaining further information may pick up an application in their school's guidance office, or contact the Global Ecology Studies Program coordinator at Poolesville High School at 301-972-7916.

SELECTION AND CONTINUATION CRITERIA

The selection process begins with the student's application. Interested students in Grade 8 who are enrolled in Algebra I or above compete for entry based on their academic potential and clear evidence of interest in an interdisciplinary investigation of Earth's ecosystem. Grades, a reasoning and critical thinking assessment that also includes a writing component, an interview, and teacher recommendations are used to make student selections.

GRADUATION

For graduation in the Global Ecology Studies Program, a student needs to successfully complete all the courses listed for the Global Ecology Studies Program.

TRANSPORTATION

Transportation will be provided from central pickup points throughout Montgomery County.

GRADE 9—LOCAL FOCUS

In Grade 9 students take Environmental Science 1A and 1B, a field study investigation course that covers physical and biochemical concepts from an environmental perspective. Students are introduced to issues of environmental significance through personal experience. Field research is the primary methodology used to explore environmental issues, including water and air quality, land use and management, energy, natural resource management and identification, as well as population dynamics. On-site wet lab investigations, using the on-site ecosystem, complement a variety of technological monitoring equipment and serve to further the goal of the course. Computer Applications and Exploring Technological Concepts are taken in conjunction with students' Environmental Science studies.

U.S. History A and B completes the ninth grade core curriculum. Issues and events of our past are related to our present and future, with a persistent eye on ecological/environmental issues and on how these issues may have influenced these events.

Exploring Technological Concepts
5500 CM 0.5 credit

Environmental Science 1A (physical/biochemical concept), Honors
3664A CM 0.5 credit

Computer Applications
2963 0.5 credit

Environmental Science 1B, Honors
3665 CM 0.5 credit

U.S. History A, Honors
2111 CM, NCAA 0.5 credit

U.S. History B, Honors
2113 CM, NCAA 0.5 credit

GRADE 10—REGIONAL FOCUS

Environmental Chemistry A and B is a course in which the methods of discovery and personal decision making are continued and emphasized. Concepts introduced are developed through real-world issues and focused on environmental issues from pollution to world nutrition. Topics of study include ionization, periodicity, stoichiometry, nuclear chemistry, kinetics, chemical analysis, synthesis, acids, bases, and pH, gas laws, biochemistry, industrial chemistry, and organic chemistry.

Extensive field study in Environmental Science IIA and B incorporates chemistry and addresses the biological aspects of specific environmental issues. The regional focus of the sophomore curriculum centers on the watershed of the Chesapeake Bay. The structure and development of life forms in the bay watershed and the human factors influencing them are explored in detail in a student-developed mini-bay wet lab. Cell structure, reproduction and metabolism in monerans, protists, fungi, plants, animals, genetics, and evolution are introduced with an environmental perspective. Field research in population and species diversity offer investigative opportunities beyond the scope of general survey biological courses. Biological relationships important to the development of an environmental ethic are cultivated, including life cycles, energy flow, biodiversity, population study, and management techniques. This course explores issues of current concern, environmental careers, and differing points of view in the development of a broad-based ecological perspective. The course work is interwoven with the social studies course National, State, and Local Government, where a model governmental system called "Centra," which is based on that of the United States, is developed. The students learn government through direct participation. Using the U.S. Constitution as a guide, students write laws; solve social, political, and environmental problems; and serve in the Centra Congress.

Environmental Science IIA/B Environmental Biology (Biochemical Applications), Honors
3666/3667 CM 0.5 credit

National, State, and Local Government A, Honors
2127/2128 CM, NCAA 0.5 credit

Environmental Chemistry A/B, Honors
3711/3712 CM 0.5 credit

GRADE 11—NATIONAL FOCUS

Environmental Science IIIA and B is a physics/earth science course taken in the junior year. Students use environmental case studies to explore the basic concepts of physics and earth science. Issues include water systems, climatic atmospheric pollutants, and meteorological and geological forces that sculpt the earth. They also explore the motion of, and on, Earth (planetary motion, motion of the sea, motion of the air) and the technology of systems used to monitor these phenomena. Students develop a variety of energy topics including the nature of the electromagnetic spectrum (electrical and magnetic fields), sound, optics, electricity, and thermal energy transfers. Modern technology exploration expands student understanding of the range of human endeavor in the causes and effects of geophysical and environmental relationships. A thorough development of basic Newtonian physics (motion and dynamics) is accomplished while exploring the topics above.

Modern World History incorporates many of these concepts to further student understanding. Parallel political, cultural, and social systems are studied in conjunction with the scientific and technological growth occurring within different periods of history.

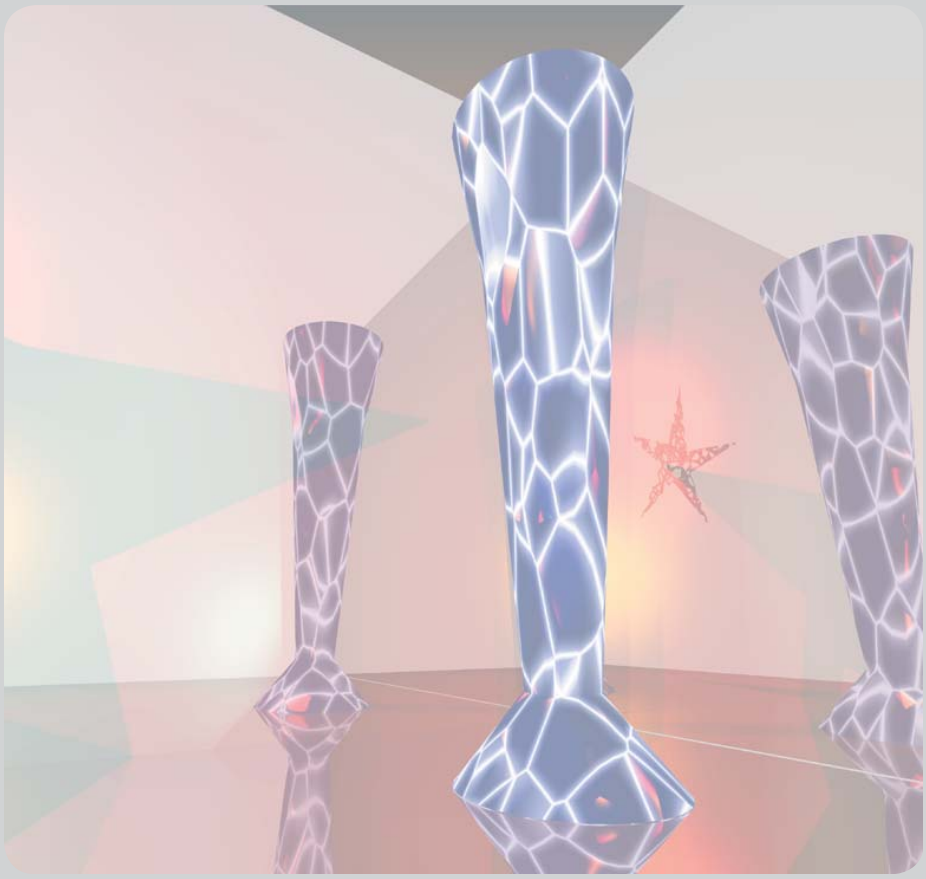
Environmental Science IIIA/IIIB, Environmental Physics (Field and Case Studies), Honors
3668/3669 CM, NCAA 0.5 credit

Modern World History A/B, Honors
2223/2224 CM, NCAA

GRADE 12—INTERNATIONAL FOCUS

In the senior year, students take AP Environmental Science. Topics include renewable and nonrenewable resources, environmental quality, interdependence of Earth's systems, human population dynamics, futuristic farming and plant genetics, salt water marsh systems, the subtropical rain forest environment, marine mammalian research programs, trade-offs and decision making, choices for future human history and population development as it evolves through archeology. Students continue field studies, make presentations using computer presentation software, and participate in formal debates.

Environmental Science, Advanced Placement A/B
3659/3660 CM, NCAA



INDEX

A

B

C

D

E

F

G

H

I

J

L

M

N

O

P

Q

R

S

T

U

V

W