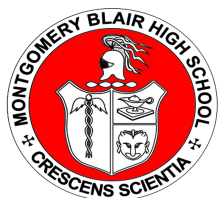
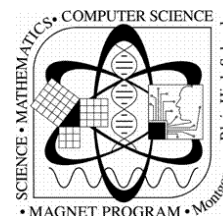


Science, Mathematics and Computer Science Magnet Program



at
Montgomery Blair High School
51 University Boulevard, East
Silver Spring, MD 20901
(240) 740 - 7218
www.mbhs.edu



To College Admissions Officers:

The student whose application is enclosed is participating in the Science, Mathematics, Computer Science Magnet Program for highly able students at Montgomery Blair High School. Each year after careful screening of over 750 applicants from sixteen of the twenty-five high schools in Montgomery County, about 100 students are accepted for admission into the ninth grade. Our sister program at Poolesville High School accepts about 50 students from the remaining nine high schools in the county. This year's senior class was in a remote and hybrid learning environment from March of 2020 through the spring of 2021 while continuing to work diligently toward their educational goals.

The vision of the committee of scientists, university professors, community members and educators who designed the Blair Magnet Program was to provide an educational environment for students who could go beyond the curriculum of a traditional high school. The courses are interdisciplinary in design with more breadth and depth than typically found in honors level courses. Mathematics and technology are interwoven into each course. Fundamental courses are completed in the first two years including all four basic sciences (Physics, Chemistry, Earth Science, and Biology), two years of computer science, mathematics through calculus, and two years of engineering. Research techniques are embedded throughout our entire curriculum. Although we realize that not all of our students will become scientists or mathematicians, we believe that all students, no matter what their eventual goals, need a strong background in these areas.

In the final two years of high school, students can choose from a wide range of offerings from over twenty additional elective classes not traditionally found in other high schools. The elective classes are designed to be narrower in scope than an AP course and extend deeper within the content area. For example, instead of taking an AP Chemistry course, students in our program have the option of taking Physical Chemistry, Analytical Chemistry, Thermodynamics, Biological Chemistry, Materials Science and Organic Chemistry. The program also has the flexibility to revise curricula with respect to student and community needs, technological advances and current research, incorporating special topics into guided research courses.

In addition to an interdisciplinary approach to learning, the program is designed so that students participate in constructing their own knowledge base, develop a repertoire of problem solving

skills and have the opportunity to pursue both independent and collaborative research projects. Research options include working with an experienced professional research mentor at a local government research institution, university or private corporation.

The success of our students is apparent in the accomplishments of each graduating class. Although competitions and test preparation are not part of the curriculum, the enclosed materials will show that this class has excelled by external measures. In addition, the students have distinguished themselves in many state, national, and international competitions. Students from Blair have been on the US and International Biology, Computer Science, Mathematical, Physics and Chemistry Olympiad Teams. During recent school years, students in our school and program have earned the following recognition:

- 223 National Merit Semifinalists over the past five years
- 43 Regeneron Science Talent Search scholars, including 10 Finalists, 2017-2023
- First Place winner for the University of Maryland Mathematics Competition in 2015-2022
- Students were recognized with awards at the 2023 National Junior Science and Humanities Symposium and 2023 Regeneron International Science and Engineering Fair.

Like eighty other high schools specializing in math and science across the country, students in our program are actively involved in the National Consortium of Secondary STEM Schools (NCSSSS). They participate in annual conventions and in ongoing student-directed research and investigations. The Blair Magnet Program is a founding member of the NCSSSS, which is dedicated to providing innovative and rigorous college level curricula for high achieving students.

The mission of the Blair Magnet Program is to provide an environment in which each person's education is maximized. When reviewing this student's individual record, please consider the nature of the program and the demands it has placed on the candidate. The magnet program is designed to challenge and stretch the minds of some of the brightest and best students in the country. Grade point average should be considered in light of the student's willingness to accept this challenge and to take a risk in leaving a traditional high school setting to enter such a program.

Sincerely,



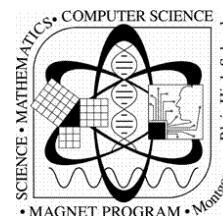
Peter Ostrander

Blair Magnet Program Coordinator

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A Profile of the Class of 2024

The School and Community

Since Montgomery Blair High School opened in 1935, it has served the Silver Spring and Takoma Park areas of Montgomery County, Maryland. As a comprehensive high school, Blair has a long history of academic and innovative programs that meet the needs of its highly diverse community. Montgomery Blair is accredited by the Middle States Association of Colleges and Secondary Schools and by the Maryland Department of Education. Montgomery Blair High School is a founding member of the National Consortium of Secondary STEM Schools (NCSSSS). For the graduating class of 2024, the end of their eighth grade year and the entirety of their freshman year were spent in virtual or hybrid learning environments.

Administrators

Principal: Renay Johnson
Magnet Coordinator: Peter Ostrander

Counselors

Students are assigned to a school counselor alphabetically by last name. Our resource counselor is Makeyda Soriano.

The Students

Class	Whole School Population	Magnet Program
Seniors	689	105
Juniors	733	109
Sophomores	864	104
Freshman	989	104
Total	3275	422

The Magnet Program

The Science, Mathematics and Computer Science Magnet Program, designed to offer accelerated and interdisciplinary courses for highly able students, opened in September, 1985. Located in Montgomery Blair High School, the Magnet Program provides enhanced learning opportunities for talented students from Montgomery County, Maryland. Students have

access to unique coursework that is not offered in traditional high school programs. This coursework is developed to provide an alternative for students for whom an honors or AP program may not be sufficiently challenging in the STEM fields. Our four-year program provides a foundation across mathematics, science, engineering and computer science and works towards having students complete independent research at local universities and institutions by the beginning of their senior year. While students may sit for STEM related AP exams, only math and computer science courses are aligned with the exam content. Our science courses take a depth over breadth approach as you will see in our elective course offerings.

Magnet Program Courses

All magnet courses are considered to be advanced level courses by our school system.

Required Magnet Courses

- *Science*
 - Advanced Science 1: Physics
 - Advanced Science 2: Chemistry
 - Advanced Science 3: Earth/Space Systems
 - Advanced Science 4: Biology
- *Research/Engineering*
 - Research & Experimentation A/B
 - Foundations of Engineering Technology A/B
- *Computer Science*
 - Fundamentals of Computer Science A/B
 - Algorithms & Data Structures A/B (students may sit for the AP CS A exam after this class)
- *Mathematics*
 - Magnet Precalculus A/B/C or Magnet Functions A/B (includes topics traditionally found in Algebra II and Precalculus courses)
 - Magnet Analysis 1 A/B (students may sit for the AP BC Calculus exam after this class)
 - Applied Statistics (students may sit for the AP Statistics exam after this class)

Magnet Elective Courses

Elective courses in the Magnet Program are most often single-semester courses that provide an in-depth study of a topic. Most courses are taken in lieu of or after an AP equivalent course.

- **Science & Engineering**
 - Advanced Topics in Earth Science
 - Analysis of Equity and Identity in STEM
 - Analytical Chemistry
 - Astronomy
 - Biological Chemistry
 - Chemistry of Art
 - Cell Physiology
 - Entomology
 - Immunology
 - Introductory Genetic Analysis
 - Marine Biology
 - Materials Science
 - Mathematical Physics A/B (Coded as AP Physics, but requires the completion of Multivariable Calculus and Differential Equations)
 - Neuroscience
 - Optics
 - Origins of Science
 - Organic Chemistry
 - Physical Chemistry
 - Robotics
 - Quantum Physics
 - Senior Research Project
 - Thermodynamics
- **Computer Science**
 - Analysis of Algorithms
 - Computational Methods
 - Computer Graphics (programming)
 - Computer Modeling & Simulation
 - Adv CS Programming 3B: Future of Programming Languages
 - Introduction to Artificial Intelligence
 - Introduction to Networking (Cybersecurity)
 - Senior Research Project
 - Software Design
 - Adv CS Programming 3A: Video Game Programming
- **Mathematics**
 - Advanced Geometry
 - Complex Analysis
 - Discrete Mathematics
 - Linear Algebra
 - Logic
 - Multivariable Calculus and Differential Equations A/B
 - Senior Research Project
 - Senior Seminar in Statistical Research

Student Data

The data below provides ranges for where our students fall in relation to their peers and national standards. The data below is from exams taken prior to the beginning of the students' senior year.

Distribution of Cumulative GPA, weighted and unweighted, for the Magnet Program class of 2024		
Montgomery County Public Schools provides grades on a 4.0 unweighted scale and a 5.0 weighted scale. We do not use +/- modifiers for grades.		
GPA Range	Number in range for unweighted GPA	Number of Magnet Seniors in range for weighted GPA
4.75 and above	-	85
4.50 - 4.74	-	10
4.25 - 4.49	-	6
4.00 - 4.24	46	<5
3.75 - 3.99	48	<5
3.50 - 3.74	5	<5
3.25 - 3.49	<5	<5
3.00 - 3.24	<5	<5
2.99 and below	<5	0

PSAT scores for the Magnet Program class of 2024		
Forty-One class of 2024 seniors at Montgomery Blair High School qualified as National Merit Scholarship Semifinalists.		
Students Tested	Reading/Writing Average	Math Average
100	712	734

SAT scores for the Magnet Program class of 2024		
Students Tested	Reading/Writing Average	Math Average
99	750	779

ACT scores for the Magnet Program class of 2024					
Students Tested	English Average	Math Average	Science Average	Reading Average	Composite Average
17	35	35	33	35	34

Distribution of AP scores for the Magnet Program class of 2024						
The Magnet Program at Blair is not an AP based program for STEM courses. Students may sit for the AP exams in any area, but our courses are offered independently of AP oversight. Exams below were taken through junior year. Exams taken in the students' freshman year were taken on-line due to the COVID-19 Pandemic.						
Exam	Score 1	Score 2	Score 3	Score 4	Score 5	Total
Art History	0	1	0	1	0	2
Art Studio	0	0	0	0	1	1
Biology	0	0	4	9	20	33
Calculus BC	0	3	9	9	74	95
Chemistry	0	1	4	9	14	28
Chinese Language	0	0	2	1	19	22
Computer Science A	0	2	14	20	66	102
Macroeconomics	0	0	1	5	6	12
Microeconomics	0	0	0	4	10	14
English Lang & Comp	0	2	16	33	44	95
Environmental Science	0	0	1	2	2	5
European History	0	0	0	1	1	2
French Language	0	0	0	1	1	2
Government US	0	4	20	18	55	97
Government Comp	0	0	0	0	1	1
Human Geography	0	0	0	1	4	5
Japanese	0	0	0	0	1	1
Music Theory	0	0	0	1	0	1
Physics C: E&M	0	0	1	1	5	7
Physics C: Mechanics	1	0	3	5	14	23
Psychology	0	0	0	3	12	15
Spanish Language	0	0	0	5	13	18
Statistics	1	0	6	27	49	83
US History	0	0	0	1	3	4
World History	0	1	4	27	62	94
All Exams	2	14	85	184	477	762

