Science, Mathematics, & Computer Science MAGNET Program
Course Selection
Montgomery Blair High School 2026-2027

The MAGNET program is an application only program. The recommended program planner for students within the program along with the courses and electives within the program is below, and the required courses per grade level is also below. Magnet students must take 4.5 credits of magnet electives in their combined 11th and 12th grade years. These courses are noted with a % in the course listings.

All Magnet students must take 8 courses per semester.

Grade 9	Grade 10	Grade 11	Grade 12
Science **Magnet Physics and Magnet Chemistry**	**Science** **Magnet Earth Science and Magnet Biology**	**Science** **Magnet Electives**	**Science** **Magnet Electives**
Mathematics **Magnet Precalculus A&B or Magnet Functions A&B** (Students who have not yet taken Geometry will have a summer option complete the course)	**Mathematics** **Magnet Precalculus C/ Analysis I A or Analysis I A&B**	**Mathematics** **Analysis I B/ Applied Statistics or Analysis II A/B +Applied Statistics**	**Mathematics** **Analysis II A/B or Magnet Elective***
Computer Science **Fundamentals of Computer Science A&B Or Fundamentals of Computer Science A & Algorithms Data Structures A**	**Computer Science** **Algorithms and Data Structures A&B Or Algorithms and Data Structures B/Analysis of Algorithms**	**Computer Science** **Magnet Electives**	**Computer Science** **Magnet Electives**
Interdisciplinary **Research and Experimentation 1**	**Interdisciplinary** **Foundations of Engineering Technology A (S2 only)**	**Interdisciplinary** **Foundations of Engineering Technology B & Research Project A**	**Interdisciplinary** **Research Project B & Elective**

English **Honors English 9**	**English** **Honors English 10**	**English** **Honors English 11 or AP Language & Composition**	**Honors or AP English** **Honors English 12 or AP Literature & Composition**
Social Studies **Honors or AP US History**	**Social Studies** **Honors or AP NSL Government**	**Social Studies** **Honors or AP World History**	**Social Studies** **Electives**
World Language Students should plan on taking at least 4 years of world language to meet minimum requirements of most colleges. Additionally, colleges like to see at least 2 of those years taken while in high school	**World Language**	**World Language or Elective**	**World Language or Elective**
Elective **Fine Arts/Music or Physical Education** One credit of fine arts, one credit of physical education and one credit of health education are required for graduation	**Elective** **Fine Arts/Music or Physical Education or Health**	**Required Elective** **Fine Arts/Music or Physical Education or Health**	**Elective**

Mathematic Courses

Course Code(s)	Course Name	Level	Graduation Credit	Grade Level	Prerequisites
MAT2029A/MAT2029B	Magnet Precalculus A/B #	AL		9-10	Magnet/Honors Geometry and enrollment in Magnet Program.
MAT2030C/ MAT2037A	Magnet Precalculus C / Magnet Analysis 1A #	AL		10-11	Magnet Precalculus A/B and enrollment in Magnet Program
MAT2037A/ MAT2037B	Magnet Analysis 1 A/B #	AL		10	Magnet Functions and enrollment in Magnet Program
MAT2037B	Magnet Analysis 1B S1 #	AL		11-12	Magnet Analysis 1A or AP Calculus BC and teacher recommendation

MAT2038A/MAT2038B	Magnet Analysis 2 A/B (Multivariable Calculus and Differential Equations) %	AL		11-12	Magnet Analysis 1B
MAT2039	Applied Statistics %	AL		11-12	Magnet Analysis 1A or AP Calculus BC
MAT2055	Complex Analysis %	AL		11-12	Magnet Analysis 2
MAT2053	Discrete Mathematics %	AL		11-12	Magnet Analysis 1A or AP BC Calculus
MAT2054A	Linear Algebra %	AL		11-12	Magnet Analysis 1B
MAT2045A	Senior Seminar in Statistical Research: Social Sciences/Topic TBD % (course may be offered either S1 or S2)	AL		11-12	Applied Statistics or AP Statistics
MAT2045B	Senior Seminar in Statistical Research: Sports Statistics % (course may be offered either S1 or S2)	AL		11-12	Applied Statistics or AP Statistics
MAT2025	Origins of Math %	AL		11-12	Magnet Analysis 1B or AP AB/BC Calculus
MAT2005	Advanced Geometry %	AL		11-12	Magnet Analysis 1B or AP BC Calculus
MAT2056	Logic Math %	AL		11-12	Magnet Analysis 1A or AP BC Calculus

Computer Science Courses

Course Code(s)	Course Name	Level	Graduation Credit	Grade Level	Prerequisites
ITC2014A/ITC2014B	Algorithms & Data Structures A/B #	AL		9-12	Fundamentals of Computer Science A/B
ITC2016	Analysis of Algorithms %	AL		10-12	AP Computer Science A or Algorithms and Data Structures
ITC2017	Computer Graphics %	AL		11-12	Algorithms & Data Structures or AP Computer Science A
ITC2015	Computer Networking and Security %	AL		11-12	Computer Programming 1 or Algorithms and Data Structures
ITC2018	Software Design %	AL		11-12	Computer Graphics

ITC2022	Intro to Artificial Intelligence with LISP %	AL		11-12	Analysis of Algorithms
ITC2023	Computational Methods %	AL		11-12	Analysis of Algorithms and Magnet Analysis 1A or AP Calculus BC
ITC2019	Computer Modeling and Simulation %	AL		11-12	Analysis of Algorithms and Magnet Analysis 1A or AP Calculus BC
ITC2021A	Computer Science 3A: Advanced topics in Computer Programming (Video Game Programming) %	AL		11-12	Algorithms and Data Structures or AP Computer Science
ITC2021B	Computer Science 3B: Advanced topics in Computer Programming (Future of Programming Languages) %	AL		11-12	Algorithms and Data Structures or AP Computer Science

Science Courses

Course Code(s)	Course Name	Level	Graduation Credit	Grade Level	Prerequisites
SCI2014	Advanced Science 3: Earth Space Systems S1 #	AL	PSC	10	Enrollment in Magnet Program
SCI2013A/SCI2013B	Advanced Science 4: Biology A/B #	AL	BIO	10	Enrollment in Magnet Program
SCI2022	Marine Biology %	AL	BIO	11-12	Honors/AP Biology and Honors/AP Chemistry or Advanced Science 2 & 4
SCI2033A	Intro to Genetic Analysis %	AL	BIO	11-12	Honors/AP Biology and Honors/AP Chemistry or Advanced Science 2 & 4
SCI2021	Cellular Physiology %	AL	BIO	11-12	Honors/AP Biology and Honors/AP Chemistry or Advanced Science 2 & 4
SCI2054	Foundations of Immunology %	AL	BIO	11-12	Honors/AP Biology and Honors/AP Chemistry or Advanced Science 2 & 4, Cellular Physiology

SCI2034	Neuroscience %	AL	BIO	11-12	Honors/AP Biology and Honors/AP Chemistry or Advanced Science 2 & 4, Cellular Physiology
SCI2024	Quantum Physics %	AL	PSC	11-12	AP Physics or Advanced Science 1
SCI2017	Thermodynamics %	AL	PSC	11-12	AP Physics or Advanced Science 1, Honors/AP Chemistry or Advanced Science 2 recommended
SCI2016	Optics %	AL	PSC	11-12	Advanced Science 1 or AP Physics and AP Calculus BC or Magnet Analysis 1
SCI2036	Intro to Physical Chemistry %	AL	PSC	11-12	Advanced Science 2 or AP Chemistry
SCI2018	Analytical Chemistry %	AL	PSC	11-12	Advanced Science 2 or AP Chemistry
SCI2020A	Advanced topics in Earth Science (Plate Tectonics and Oceanography) %	AL	PSC	11-12	Honors Biology and Honors Chemistry or Advanced Science 2 & 4; Honors or Magnet Precalculus
SCI2068A	Astronomy %		PSC	11-12	AP Physics or Advanced Science 1
SCI2019	Materials Science %	AL	PSC	11-12	AP Chemistry or Advanced Science 2
SCI2025	Origins of Science %	AL	PSC	11-12	
SCI2070	Intro to Biochemistry %	AL	SC	11-12	AP Biology and Honors Chemistry or Advanced Science 2 & 4
SCI2037	Organic Chemistry %	AL	SC	11-12	AP Chemistry or Advanced Science 2
SCI2056	Chemistry of Art %		SC	11-12	AP Chemistry or Advanced Science 2
SCI2029	Entomology %		SC	11-12	Honors Biology or Advanced Science 2
SCI2065A/SCI2065B NAC2013-10/NAC2013-20	Mathematical Physics # Related Activity (Must be taken with Mathematical Physics)	AP	PSC	12	Enrollment by teacher recommendation only. Students must be enrolled in Related Activity as well.
SCI2111	Analysis of Equity and Identity in STEM %			11-12	

Engineering, Interdisciplinary & Other Elective Courses

Course Code(s)	Course Name	Level	Graduation Credit	Grade Level	Prerequisites
TEC2016A - 2nd Semester	Foundations of Engineering Technology A S2		TE	10	Enrollment in Magnet Program
TEC2016B - 1st Semester	Foundations of Engineering Technology B S1 #		TE	11	Enrollment in Magnet Program
ENR2004A	Senior Research Project A S2 #	AL		11	Enrollment in Magnet Program
ENR2004B	Senior Research Project B S1 #	AL		12	Enrollment in Magnet Program, completion of Senior Research Project A and summer internship, concurrent enrollment or completion of Applied Statistics
ENR2012	Robotics %	AL		11-12	IED or POE and Analysis of Algorithms or AP CS
ENR2002A	Electronics (Guided Engineering Research) %			11-12	Completion of Precalculus
Code entered by counselor	Study Hall (Magnet) S1/S2			9-12	Must have counselor and/or admin approval. Email your counselor if you wish to take a study hall.