

IDEAVENTIONS ACADEMY

FOR MATHEMATICS AND SCIENCE

Mission

Our mission is to empower intellectually curious students to understand and improve the world.

About

Head of School: Ryan Heitz **School Counselor:** Sheri Hicks

Ideaventions Academy for Mathematics and Science, founded in September 2015, is a college-preparatory school for gifted to profoundly gifted students with a special interest in one or more of the STEM fields. Ideaventions students are intellectually curious and want to engage in significant endeavors that reach beyond the classroom. We believe that a rigorous high-school education can coexist with a balanced and healthy lifestyle, and adolescence is a time to explore and learn about oneself.

Our goal is to build a community of intellectually-curious, mature, and inspired students and teachers. By immersing students in engaging courses with expert faculty, we challenge students to develop their analytical thinking, creativity and communication skills. Independence, leadership, and a persistent drive for understanding and improving the world are fostered by the school's nurturing and empowering environment. We currently serve 57 students. Thirty-six are in grades 4th-8th and 21 are in grades 9th-12th. The class of 2022 is our second graduating class.

Accreditation

We are fully-accredited through Cognia (formerly AdvancED)/Southern Association of Colleges and Schools Council on Accreditation (SACS-CASI), an approved accrediting association of the Virginia Council for Private Education, as authorized by the Virginia State Board of Education. Our program has also been STEM Certified through Cognia.

Faculty

The school has 11 full-time faculty and eight part-time faculty members. Six faculty members hold master's degrees and two hold a doctorate degree. There is a ratio of one faculty member to three students.

Graduation Requirements

Students must complete an equivalent of 23 full-year courses, or 23 credits, comprised of the following:

- English 4 credits
- Mathematics 4 credits
- Science 4 credits
- History/Social Studies* 3 credits
- Computer Science or Engineering 1 credit
- STEM Post-AP Class, Research or Internship 1 credit
- Economics & Personal Finance 1 credit
- World Language 2 credits
- Physical Education 2 credits
- Elective 1 credit

Due to the accelerated nature of the coursework, 9th-grade students are limited to five academic classes. Students in 10th-12 grades may enroll in more than five academic classes if they have demonstrated the ability to manage the workload. Students are encouraged to enrich their education by auditing courses of interest, or taking electives.

* One must be US History or US Government

Seal of biliteracy granted for completing the English sequence with a grade C or above AND:

- AP examination with a score of three or higher; or
- Score 600 or higher on a Latin SAT II test (SAT Subject Test); or
- ILR Proficiency rating of 1+ or higher; or
- ACTFL Proficiency rating of Int-Mid or higher

2021 - 2022 Profile

12340 Pinecrest Rd., Reston, Virginia, 20191

703-860-0211 | www.ideaventionsacademy.org

CEEB School Number: 470033

School Calendar

The school operates a two semester system. A semester is 18 weeks with two nine-week reporting periods. The school day is divided into four 1-hour, 25-minute periods. The high-school schedule is designed to academically, socially and emotionally prepare students for challenging colleges and universities::

- Daily, 30-minute, *Morning Walk* (or run) as part of PE
- Self-directed *Work Periods* throughout the week for individual work, mentoring, academic exploration, and small group collaboration. Students learn to self-manage their time while working in an open environment
- Optional daily, 30-minute, mid-day *Break*
- Optional *Activity Period* at the end of each day for student-led clubs, study groups, office hours, and research

Class Ranking and Grading

Ideaventions Academy does not rank students. GPAs are calculated on a 4.0 scale for all credit-bearing courses, including Physical Education.

Score	Quality Points	Letter Grade
93 - 100	4.0	A
90-92	3.7	A-
87-89	3.3	B+
83-86	3.0	B
80-82	2.7	B-
77-79	2.3	C+
73-76	2.0	C
70-72	1.7	C-
67-69	1.3	D+
64-66	1	D
Under 64	0	F

- Honors courses are weighted with an additional 0.5 quality points if the grade for the course is an A - C.
- AP Courses receive an additional 0.5 weight for year-long courses for students. Students who earn a 3, 4, or 5 on the AP exam receive an additional 0.5 quality point.
- AP-level, Dual Enrollment, and post-AP courses (courses with AP-level prerequisites) receive an additional 1.0 weight.
- Year-long elective courses may be graded and/or receive credit towards graduation. Half-year electives earn no credit and are P/F.
- A select number of courses may be taken during a compressed summer period. Courses taken during the summer are recorded in the transcript in the school-year following the summer taken.
- Dual Enrollment: Students may earn dual-enrollment credit toward high school graduation by successfully completing coursework at George Mason University (GMU), Northern Virginia Community College (NVCC), or another approved college or university.

Scores

Exam Type	Exam	Mean Score
Advanced Placement	AP Chemistry	4.00
	AP Biology	5.00
	AP Physics C: Mechanics	5.00
	AP Physics C: E&M	4.50
	AP Physics I	4.25
	AP Calculus AB	4.50
	AP Calculus BC	4.33
	AP Computer Science A	4.00
	AP CS Principles	4.09
	AP Government	3.67
	AP Spanish Language	5.00

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Core Curriculum Courses

- **English:** English Literature, Honors English Literature, English Non-Fiction, Honors English Non-Fiction, Honors English 11, Honors English 12
- **Mathematics:** Algebra I, Honors Algebra I*, Geometry, Honors Geometry*, Algebra II, Honors Algebra II*, Precalculus & Trigonometry, Honors Precalculus & Trigonometry*, AP Calculus AB, AP Calculus BC, Multivariable Calculus, Applied Math: Mathematics for Engineers, Differential Equations, Numerical Methods
- **Science:** Honors Chemistry, AP Chemistry, Honors Biology, AP Biology, AP Physics I, AP Physics II, AP Physics C: Mechanics+Extended Topics, AP Physics C: E&M, Geology
- **History:** US History I, Intensive European History I & II, Intensive US History I, Intensive World History I & II, AP World History-Modern, History of Genetics, World War II History, Exploration & Colonial America,
- **Social Studies:** Technology & Society, Engineering & German Society, AP United States Government
- **Economics & Personal Finance:** Honors Economics, Personal Finance, Economics & Personal Finance, AP Macroeconomics & History of Economics
- **Computer Science:** AP Computer Science Principles, AP Computer Science A, Artificial Intelligence & Parallel Computing, Machine Learning & Data Science: Autonomous Cognitive Assistant
- **Engineering:** Engineering Design, Solar-Powered Outdoor Monitoring System with Data Logging
- **World Language:**
 - Spanish: III, IV, Honors I, Honors II, Honors III, Honors IV, AP Language, AP Literature
 - Mandarin Chinese: Honors I, Honors II, Honors III
- **Physical Education**

*Honors options offered starting with the 2020-2021 school year.

Note: Students have the option of taking up to one core curriculum course through Virtual Virginia each school year.

Elective Courses

- **English:** Writing the Epic Video Game, Rhetoric & Propaganda, Creative Writing (.5 credit)
- **Mathematics:** Intro to MATLAB (.5 credit), Beg & Int MATLAB
- **Fine Arts:** Fine & Visual Arts I & II (.5 credit), Photography 101, 102, 103, One-Person Art Show
- **Performing Arts:** Performing Arts I & II (.5 credit), Theater, Improv, Digital Music Production, Guitar, On-Camera Acting
- **History:** History of Cinema, History of Classical Games (.5 credit)
- **Science:** Concepts in Physics, Neuroprosthetics
- **Computer Science:** Mobile App Development
- **Engineering:** Unmanned Aerial Vehicles, Computer-Assisted Design, Mechanical Engineering: Combat Robotics
- **Management Science:** Organizational Behavior & Leadership, Vision & Innovation (.5 credit)

Authentic Learning

We believe that students learn the most when faced with authentic learning experiences.

- We work with students to accommodate off-campus internships.
- We showcase our engineering projects annually at the NoVA Maker Faire held at George Mason University and every other year at the US Science and Engineering Festival in Washington, DC.
- Our students' World History research on World War I was featured by the World War I Centennial Commission.
- Social Studies courses that complement educational travel experiences are available to students.

Advanced Placement and Post-AP Courses

AP, college-level, and Post-AP courses are open to students based on teacher recommendation. Sixteen of the 21 high-school students are taking or have taken AP or AP-level coursework.

Advanced Placement courses offered:

- **Science:** AP Biology, AP Chemistry, AP Physics I, AP Physics II, AP Physics C: Mechanics, AP Physics C: Electricity & Magnetism
- **Math:** AP Calculus AB, AP Calculus BC
- **Computer Science:** AP Computer Science Principles, AP Computer Science A
- **History:** AP World History - Modern
- **History & Social Studies:** AP United States Government and Politics, AP World History-Modern
- **World Language:** AP Spanish Language and Culture, AP Spanish Literature

College (AP)-Level courses:

- **History:** Intensive US History I, Intensive World History I & II, Intensive European History I & II
- **Mathematics:** Applied Math: Mathematics for Engineers, Introduction to Proofs

Post-AP courses (AP or college-level course is a prerequisite):

- **Math:** Multivariable Calculus, Differential Equations, Numerical Methods
- **Science:** Introduction to Geology (not offered in 21-22)
- **Computer Science:** Artificial Intelligence & Parallel Computing Research Lab, Machine Learning & Data Science: Autonomous Cognitive Assistant

Access to Coursework

In order to academically challenge our students, our lower-school students study high-school level science and history in middle school (grades 6-8). Based on their performance in these courses, teachers evaluate each student's readiness for college-level work starting in grade 9 and make a recommendation on course placement.

Extracurricular Activities and Clubs

- **Clubs:** Drama Club, Sports Club, Naturalist Club, Business Lab, Dungeons & Dragons Club, SysAdmin Club, Inventors Club, Literary Magazine, Newspaper, Rocketry Club, Social Committee
- **Honor Societies:** Math Honor Society
- **Elected:** STEM Student Leadership Association
- **Competitions:** America Rocketry Challenge, Odyssey of the Mind

COVID-19 Impact and Changes

2021 - 2022: We are operating fully in person. Students who are healthy to attend school, but need to quarantine may attend virtually.

2020 - 2021: Our school opened for full-time, in-person instruction. Families had the option of selecting full-time, virtual instruction. 75% of the students attended in person and 25% of the students attended virtually. Our hybrid-class model was one where students attend class in person and a subset of the students attended the same class virtually, could see the teacher and the class, and could be seen by their classmates through the use of various cameras in each classroom. Starting November 20, 2020, our school switched to full virtual, live, and synchronous classes due to the substantial community transmission. We reopened for in-person learning February 5, 2021. Starting April 2021, 100% of the school returned for in-person learning.

Spring 2020: We transitioned to a synchronous virtual school on Monday, March 16, 2020 with the normal school schedule. Students attended academic classes virtually from 9 am-noon and from 1 pm-3:55 pm, five-days per week. Physical Education was completed with a parent-signed log of physical activities. Tests and exams were proctored by parents in person or by a teacher virtually. Students completed AP exams and the planned curriculum for the year and were assigned grades for their work in the 4th Quarter.