

# IDEAVENTIONS ACADEMY

## FOR MATHEMATICS AND SCIENCE

### 2023-2024 Profile

12340 Pinecrest Rd., Reston, Virginia, 20191  
703-860-0211 | [www.idealventionsacademy.org](http://www.idealventionsacademy.org)  
CEEB School Number: 470033

#### Mission

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

#### About

**Head of School:** Ryan Heitz      **College Counselor:** Liz Crowder

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

Sixty-nine percent of our faculty hold advanced degrees (17 faculty: 10 advanced degrees, including 2 PhDs). By immersing students in engaging courses with expert faculty, we challenge students to develop their analytical thinking, creativity and communications 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 67 students. Forty-three are in grades 2nd-8th and 24 are in grades 9th-12th. The class of 2024 is our fourth graduating class.

#### Accreditation

We are fully-accredited by Cognia, an educational accreditor recognized by the U.S. Department of Education and the Council for Higher Education Accreditation, as well as the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI). We are STEM Certified through Cognia. In 2023, we were awarded the Cognia School of Distinction Award, one of 25 schools honored worldwide out of 1100 reviews in 2022-23.

#### 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
- Advanced STEM (AP-level or higher) 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 core, academic classes. Successful completion of Algebra 1 is required prior to 9th grade.

\* One must be U.S. History or U.S. Government

#### Global Seal of Biliteracy

Students are eligible to earn a Global Seal of Biliteracy™ or a School Seal of Biliteracy.

The School Seal of Biliteracy is earned by completing either:

- World Language AP examination with a score of 3 or higher; or
- ACTFL Proficiency rating of Int-Mid (1-2) or higher

The Global Seal of Biliteracy™ may be earned at the Functional Fluency or Working Fluency:

- ACTFL Proficiency rating of Int-Mid (1-4) or higher; or
- World Language AP exam with a score of 5 (Working Fluency)

#### School Calendar

The school operates two 18-week semesters with two nine-week reporting periods. The day is divided into four 1-hour, 25-minute periods.

#### Class Ranking and Grading

Ideaventions Academy does not rank students. GPAs are calculated on a 4.0 scale for credit-bearing courses, excluding 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.
- College-level (INT and Post-AP) courses earn an add'l 1.0 weight.
- AP Courses receive an additional 0.5 weight if the grade for the course is an A - C. Students who take and earn a 3, 4, or 5 on the AP exam receive an additional 0.5 quality point.
- Year-long elective courses may receive credit towards graduation and be graded. 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 following school-year.
- Dual Enrollment (DE): Students may earn dual-enrollment credit toward high school graduation by successfully completing coursework at an accredited college or university.

#### Test Scores

Exam Type	Exam	Ideaventions Mean	Global
SAT*	Critical Reading & Writing	762	541
	Math	772	538
	Total	1534	1088
ACT*	Composite	33.4	22
Advanced Placement	AP Chemistry	3.94	2.73
	AP Biology	4.92	3.11
	AP Physics C: Mechanics	4.67	3.41
	AP Physics C: E&M	4.56	3.44
	AP Physics 1	4.36	2.47
	AP Physics 2	5.00	3.14
	AP Calculus AB	4.35	2.91
	AP Calculus BC	4.00	3.68
	AP Computer Science A	4.25	3.20
	AP CS Principles	4.00	2.91
	AP World History	4.60	2.96
	AP US History	3.33	2.57
	AP US Government	3.67	2.58
	AP Macroeconomics	4.75	2.71
AP Spanish Language	4.33	3.54	
AP Spanish Literature	5.00	2.91	

*Scores are average of all AP tests administered between 2018 and 2023*

\*Scores for the classes of 2021 - 2024

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### Core Curriculum Courses

- **Honors English:** English Literature, English Non-Fiction, English 11, English 12
- **Mathematics:**
  - High School Level: Honors Geometry, Honors Algebra 2 $\mp$ , Honors Precalculus & Trigonometry
  - College Level: AP AB, AP BC, AP Statistics
  - Post-AP: Multivariable Calculus, Multivariable Calculus & Calculus C\*\* (22-23 only), Differential Equations, Numerical Methods
- **Science:**
  - Chemistry: Honors, AP
  - Biology: Honors, AP
  - Physics: AP 1, AP 2, AP C: Mechanics and Elect. & Magnetism
  - Post-AP Cellular Neuroscience & Brains/Behavior
- **History:**
  - U.S. History: Honors, Intensive I, Intensive II, AP
  - World History: Honors, Intensive I, Intensive II, AP - Modern
  - European: Honors, Intensive I, Intensive II, AP
  - History of Genetics
- **Social Studies & Economics:**
  - AP United States Government
  - Economics & Personal Finance
  - AP Macroeconomics & History of Economics
  - AP Microeconomics & Behavioral Economics
- **Computer Science & Engineering:**
  - Computer Science: AP CS Principles\*, AP CS A
  - Engineering Design: Mechanical, Civil, & Electrical
  - Engineering Design: Electrical & Environmental
  - Post-AP: AI & Parallel Computing Research Lab
  - Post-AP: Machine Learning & Data Science\*\*\*
- **World Language:**
  - Spanish: Honors 1, 2, 3, 4, AP Language
  - Mandarin Chinese: Honors 1, 2, 3, 4, AP Language
- **Physical Education**

### Elective Courses

Credit awarded in parentheses. Courses with no credit are P/F.

- **English:** Writing the Epic Video Game (no credit), Rhetoric & Propaganda (no credit), Creative Writing (.5 credit)
- **Mathematics & Computer Science:** Programming in MATLAB (.5 credit), Intro to MATLAB (no credit), Game Theory (no credit)
- **History & Social Studies:** Exploration & Colonial America (.5), History and Cinema Studies, History of Classical Games (.5 credit), Forgotten History of the 20s-40s (.5 credit), Technology & Society (.5 credit), Engineer & German Society (1 credit), Community (.5 credit)
- **Science:** Examining Evolution and the Galapagos (.5 credit)
- **Engineering:** Mech Engineering: Combat Robotics (no credit), Engineering Design: Unmanned Aerial Veh's (.5 credit)
- **Business:** Organizational Behavior & Leadership (no credit), Vision & Innovation (.5 credit)
- **Fine & Performing Arts:** Fine & Visual Arts (.5 credit), Photography (no credit), Performing Arts (.5 credit), On-Camera Acting (no credit)

### Student Achievement (Graduating Class Size)

- **Class of 2021 (2):** 1 National Merit Scholar, 1 AP Scholar with Distinction, 1 AP Scholar, 1 National Hispanic Recognition Scholar
- **Class of 2022 (2):** 1 National Merit Finalist, 2 AP Scholars with Distinction, 1 Presidential Scholar Candidate
- **Class of 2023 (4):** 1 National Merit Finalist, 1 National Merit Semifinalist, 1 National Merit Commended Scholar, 3 AP Scholars with Distinction, 1 AP Scholar w/Honors, 1 National Hispanic Recognition Scholar
- **Class of 2024 (8):** 3 National Merit Semifinalists, 2 National Merit Commended Scholars, 4 AP Scholars with Distinction, 2 AP Scholars with Honors, 2 AP Scholars, 1 National Hispanic Recognition Scholar

### College-Level Coursework

Intensive college-level, Advanced Placement (AP), and Post-AP courses are open to students based on teacher recommendation.

College-Level courses:

- **History:** Writing-intensive courses where students write multiple history research papers (INT): Intensive US History I & II, Intensive World History I & II, Intensive European History I & II

Advanced Placement (AP) courses:

- **Science:** AP Biology, AP Chemistry, AP Physics 1, AP Physics 2, AP Physics C: Mechanics and Electricity & Magnetism
- **Math:** AP Statistics, AP Calculus AB\*\*, AP Calculus BC\*\*
- **Computer Science:** AP CS Principles\*, AP CS A
- **History:** AP World - Modern, AP US, AP European History
- **Social Studies & Economics:** AP United States Government and Politics, AP Macroeconomics, AP Microeconomics
- **World Languages:** AP Spanish Language and Culture, AP Chinese Language and Culture

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

- **Math:** Multivariable Calculus & Calculus C\*\*, Multivariable Calculus, Differential Equations, Numerical Methods
- **Science:** Cellular Neuroscience & Brains/Behavior
- **Computer Science:** Machine Learning & Data Science: Autonomous Cognitive Assistant\*\*\*, Artificial Intelligence (AI) & Parallel Computing Research Lab

Over one-hundred-fifty AP exams have been administered between 2018 and 2023. In 2022, 2020, and 2018, we had a 100% pass rate for all administered exams. In 2023 we had a 98% pass rate, in 2021 we had 90% pass rate and in 2019 we had a 91% pass rate.

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

\* AP CS Principles no longer offered after 2021-2022

\*\* Only AP Calculus AB was offered in 2021-22 to support student mental health during COVID. For those students, Post-AP Calculus C + Multivariable Calculus was offered in 2022-23, which included the material of Calculus BC not covered in AB.

\*\*\*Second year college-level course that leverages the MIT BWSI Cog\*Works course curriculum and taught with permission from MIT.

### Extracurricular Activities and Clubs

- **Clubs:** Drama Club, Sports, Naturalist, Business Lab: School Store, Dungeons & Dragons, SysAdmin, Inventors, School Magazine, Rocketry, HS Social Committee, Animal Lovers, Student-
- **Sports (ISSAC League):** Basketball, Cross Country, Golf, Volleyball
- **Honor Societies:** Spanish Honor Society
- **Competition Teams:** America Rocketry Challenge, Vertical Robotics

### 2021 - 2023 College Acceptances & Matriculation

- |  |   |
|--|---|
| ● Carnegie Mellon University           | ● Pennsylvania State University - University Park |
| ● Case Western Reserve University      | ● Purdue University $\mp$                         |
| ● Champlain College $\mp$              | ● Rensselaer Polytechnic Institute                |
| ● College of William & Mary* $\mp$     | ● Rochester Institute of Technology $\mp$         |
| ● Colorado School of Mines             | ● Rose-Hulman Institute of Technology             |
| ● Cornell University                   | ● Stevens Institute of Technology*                |
| ● Eckerd College                       | ● University of Colorado-Boulder                  |
| ● Embry-Riddle Aeronautical University | ● University of Maryland-College Park*            |
| ● George Mason University*             | ● University of Pittsburgh                        |
| ● Georgia Institute of Technology      | ● University of Vermont                           |
| ● Haverford College $\mp$              | ● University of Virginia $\mp$                    |
| ● Johns Hopkins University             | ● Virginia Commonwealth University                |
| ● Mercyhurst University                | ● Virginia Polytechnic Institute                  |
| ● Mount Holyoke College                | ● Worcester Polytechnic Institute                 |
| ● North Carolina State University      |   |
| ● Northeastern University*             |   |
| ● Olin College of Engineering $\mp$    |   |

\* Honors College     $\mp$  Matriculated