



# Illinois Mathematics and Science Academy 2019 Profile

## IMSA Offers Unmatched Educational Experiences

The Illinois Mathematics and Science Academy (IMSA) fosters the discoverers. The thinkers. The innovators and experimenters. The problem-solvers of the future who can change the world through their life's work. IMSA innovates the future of science, technology, engineering and math (STEM) education. It creates a strong and diverse pipeline of talented students at its tuition-free residential academy in Aurora, IL for 10th through 12th grade students. IMSA's mission is to ignite and nurture creative, scientific, ethical minds that advance the human condition.

### Investigation and Innovation

20% of students' time is spent outside the classroom exploring independent study, research, innovation or entrepreneurship. Student Inquiry and Research (SIR) exposes students to authentic research experiences in a breadth of fields through on- and off-campus collaborations with university faculty and over 70 world-class institutions. IN2 is IMSA's new state-of-the-art innovation center designed to stimulate entrepreneurship including prototyping, maker-space activity and the launching of new tech start-ups and business ventures.

### Service and Leadership

Through IMSA's service learning program, students are required to complete 200 hours of service during their three year tenure. IMSA's Leadership Education program develops students' personal, social and academic skills through required co-curricular activities. Leadership Education Development (LEAD) is the hallmark Leadership Education Development (LEAD) is the hallmark promoting discussion and action on societal issues including social entrepreneurship, public policy and research development.

### Grading

In order to promote collaborative exploration and discovery, the Academy does not provide grade point averages or class averages.

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**57%**

of IMSA Faculty have  
doctoral degrees.  
100% have master's  
degrees.

**651**

residential academy  
students come from  
over 44 Illinois  
counties.

**#1**

Ranked #1 Public High  
School in America  
by Niche.com

## MATHEMATICS AND COMPUTER SCIENCE

3.0  
credit min.

### Calculus Core Courses

- AB Calculus I
- AB Calculus II
- BC Calculus I
- BC Calculus II
- BC Calculus III
- BC Calculus I/II
- BC Calculus II/III

### Pre-Calculus Core Courses

- Geometry
- Mathematical Investigations I/II
- Mathematical Investigations II
- Mathematical Investigations III
- Mathematical Investigations IV

### Pre-Calculus Electives

- Discrete Mathematics
- Game Theory & Rationality
- Graph Theory with Applications
- Mathematical Modeling
- Modern Geometries
- Problem Solving
- Statistical Experimentation and Inference
- Statistical Exploration and Description

### Post-Calculus Electives

- Advanced Problem Solving
- Advanced Topics in Mathematics
- Differential Equations
- Introduction to Algebraic Structures I and 2
- Multi-Variable Calculus
- Number Theory
- Theory of Analysis

### Computer Science Core Course (Sophomore)

- Computer Science Inquiry

### Computer Science Electives

- Advanced Programming
- Computer Seminar—Cyber Security and Android App Programming
- Micro-controller Applications
- Object Oriented Programming
- Web Technologies

## SCIENCE

All science courses have a lab component.

4.0  
credit min.

### Core Courses (Sophomore)

- Methods in Scientific Inquiry
- Scientific Inquiries—Biology
- Scientific Inquiries—Chemistry
- Scientific Inquiries—Physics

### Physics Electives

- Biophysics
- Computational Science
- Engineering
- Micro-controller Applications
- Modern Physics
- Physics—Sound and Light
- Physics—Calculus-based Mechanics
- Physics—Calculus-based Electricity and Magnetism
- Planetary Science

### Chemistry Electives

- Advanced Chemistry—Structure and Properties
- Advanced Chemistry—Chemical Reactions
- Biochemistry
- Environmental Chemistry
- Organic Chemistry I
- Organic Chemistry II
- Survey of Organic Chemistry

### Biology Electives

- Advanced Biological Systems
- Evolution, Biodiversity and Ecology
- Microbes and Disease
- Molecular and Cellular Biology
- Physiology and Disease
- Seminar in Biology—Molecular Biology Lab

## ENGLISH

3.0 credit minimum

### Core Courses (Sophomore)

- Literary Explorations I
- Literary Explorations II

### Core Courses (Junior)

- Literary Explorations III

### Junior/Senior Electives

- Creative Writing Workshop
- Graphic Novels—Image and Text
- Modern Theater
- Speculative Fiction Studies
- Modern World Fiction
- Victorian Fiction

### Senior Electives

- African American Studies
- Digital Library Studies
- Gender Studies
- The Idea of the Individual
- Shakespeare
- Tolkien—Language and Literature

## SOCIAL SCIENCE

2.5 credit minimum

### Core Courses (Sophomore)

- American Studies

### Core Courses (Junior)

- The World in the Twentieth Century

### Junior Electives

- Ancient World Religion and Philosophy
- Art, Worldview and Society in History
- Conflict in World History
- Historic Global Commodities and Culture

### Senior Electives

- African American Studies
- America in the Contemporary World
- History of Astronomy
- History of Biology
- History of Philosophy
- History of Technology and Culture
- Modern Genocide and Mass Violence
- Political Theory
- Rise of the Atlantic World 1492-1815
- Science and Society
- United States Government and the Constitution

## INDEPENDENT LEARNING

- Independent Study
- Student Inquiry and Research (SIR)
- Total Applied Learning for Entrepreneurs (TALENT)

## WORLD LANGUAGES

2.0 credit minimum, A student must complete two years of world language study, with one year at level II or higher

- French I
- French II
- French III
- French IV
- French V
- German I
- German II
- German III
- Mandarin Chinese I
- Mandarin Chinese II
- Mandarin Chinese III
- Russian I
- Russian II
- Russian III
- Spanish II
- Spanish III
- Spanish IV
- Spanish V

## WELLNESS EDUCATION

1.0 credit minimum

### Core Course (Sophomore)

- Moving and Learning

### Wellness Electives

- Dance
- Movement and Relaxation
- Net and Wall Games
- Outdoor and Indoor Games
- Wellness in the Water

## FINE ARTS

0.5 credit minimum

### Music

- Chamber Choir
- Chamber Strings
- Concert Band
- Concert Choir
- Music Appreciation
- Music Theory
- String Orchestra
- Wind Ensemble

### Visual Arts

- 3d Design Foundations
- Art and Design
- Digital Photography
- Observational Drawing
- Printmaking

# IMSA Academic Highlights

Recognition of Scholarships, Class of 2019

199 Seniors

34 National Merit Semifinalists

58 Commended Students

## ACT Scores - Class of 2018

Middle 50% Ranges and Means

	IMSA Mean (n=149)	IMSA Middle 50% Range	IL College -Bound Senior Mean	All College -Bound Senior Mean
Composite	32.1	30.0 - 35.00	23.9	20.8

## SAT Reasoning Test - Class of 2018

Middle 50% Ranges and Means

	IMSA Mean (n=166)	IL College-Bound Senior Mean	All College -Bound Senior Mean
ERW	714	559	553
Math	749	556	527

## Sample of Advanced Placement (AP) Examinations for 2017-2018 School Year

Although IMSA does not offer AP courses, 678 AP examinations were administered to 292 students.

	Biology	Calculus AB	Calculus BC	Chemistry	Computer Science A	Physics C: E&M	Physics C: Mech	English Language
No. of Students Tested	48	22	140	86	66	43	56	38
Average Scores	4.0	3.0	4.4	3.2	3.9	3.6	4.1	4.1

## A Sample Grade Distribution Report for Junior Course Enrollement (2017 - 2018)

A = Exceeds course requirements B = Meets course requirements C = Needs improvement D = Does not meet course requirements, no credit awarded

SEMESTER 1	A	A-	B+	B	B-	C+	C	C-	D	All
Literary Explorations III	35	69	33	42	10	6	2	0	3	200
Mathematical Investigations IV	15	20	10	20	10	6	5	1	1	88
Adv. Chemistry—Structure and Properties	25	34	2	10	7	1	5	3	0	87
Microbes and Disease	1	2	1	8	3	2	2	1	0	20
Anceint World Religions	28	31	13	12	2	1	2	1	0	90
Mandarin II	24	21	9	6	0	0	1	0	0	61
SEMESTER 2	A	A-	B+	B	B-	C+	C	C-	D	All
BC Calculus	5	9	11	22	5	6	6	1	0	65
Adv. Chemistry—Chemical Reactions	16	18	8	15	10	4	1	4	0	76
World and the 20th Century	35	84	26	35	12	4	2	1	1	200
Microbes and Disease	10	9	2	12	3	1	4	0	0	41

**20%**

of students' time is spent on independent research and internships.

**32.1**

is the mean composite ACT score of the IMSA Class of 2017.

**43,333**

hours of community service are performed by IMSA students each year.

**16 of 35**

required classes for graduation are in math and science. (Each class is .5 credit.)

# IMSA MATRICULATIONS - CLASS OF 2018 (192 GRADUATES)

	Attending	Accepted		Attending	Accepted		Attending	Accepted
Albion College	1	1	Indiana University at Bloomington	1	4	Texas A&M University	1	2
Amherst College	1	2	Indiana University-Purdue University Indianapolis	1	3	Transylvania University	1	1
Babson College	1	1	Iowa State University	1	8	Tuskegee University	1	1
Bard College	1	1	Johns Hopkins University	1	2	United States Air Force Academy	1	1
Baylor University	1	8	Kettering University	1	3	The University of Arizona	1	5
Boston College	1	2	Lane Community College	1	1	University of California, Berkeley	1	6
Boston University	2	11	Lawrence University	2	4	University of Chicago	6	8
Bradley University	2	7	Lincoln Land Community College	1	1	University of Illinois at Chicago	13	61
Brown University	2	3	Loyola University Chicago	4	20	University of Illinois at Springfield	1	1
Carleton College	1	3	Massachusetts Institute of Technology	3	3	University of Illinois at Urbana-Champaign	33	131
Carnegie Mellon University	4	7	Michigan State University	5	23	University of Kansas	1	2
Case Western Reserve University	6	37	Michigan Technological University	2	8	University of Kentucky	1	1
College of DuPage	1	1	Mississippi State University	1	1	University of Miami	1	5
College of William and Mary	1	4	New York University	2	9	University of Michigan	3	9
Cornell University	1	2	Northeastern University	3	10	University of Missouri, Kansas City	2	12
Dartmouth College	1	1	Northwestern University	3	4	University of Oxford, UK	1	1
Drexel University	2	10	The Ohio State University	2	11	University of Pennsylvania	3	5
Duke University	1	3	Purdue University	3	24	University of Rochester	1	7
Elon University	1	1	Randolph College	1	1	University of San Diego	1	1
Embry-Riddle Aeronautical University - Daytona Beach	1	2	Rensselaer Polytechnic Institute	1	4	University of South Carolina	1	1
Emory University	1	10	Rice University	1	3	University of Southern California	1	3
Florida Institute of Technology	1	10	Rose-Hulman Institute of Technology	1	8	University of Texas, Dallas	2	10
The George Washington University	1	3	Saint Louis University	4	16	University of Washington	1	9
Georgetown University	1	1	Sarah Lawrence College	1	1	University of Wisconsin, Madison	2	18
Georgia Institute of Technology	3	12	Scripps College	1	1	Vanderbilt University	5	10
Grinnell College	3	11	Southern Illinois University, Edwardsville	1	1	Wellesley College	1	2
Gustavus Adolphus College	1	1	Stanford University	3	3	Willamette University	1	1
Harvard University	1	1				Xavier University	1	1
Illinois Institute of Technology	8	23				Yale University	1	3

## 2018 College Placement Profile (192 Graduates)

### Private Schools

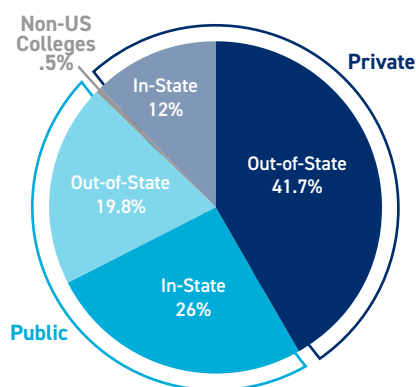
- Private Out-of-State
- Private In-State

### Public Schools

- Public In-State
- Public Out-of-State

- Non-US Colleges

\*includes 3 two-year colleges

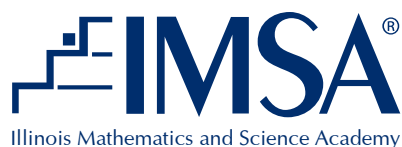


## Student Population of Academy, 2018-2019

Percentage of students identifying as:

- 41.7 Asian
- 35.4 White
- 8.9 Hispanic or Latino
- 8.1 Black
- 5.9 Two of More Races, Non-Hispanic or -Latino

Male = 50% Female = 50%



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