

Illinois Mathematics and Science Academy®

# 2017 Profile

## IMSA Offers Unmatched College Preparatory Education

The internationally recognized Illinois Mathematics and Science Academy® (IMSA) develops creative, ethical leaders in science, technology, engineering and mathematics. As a teaching and learning laboratory created by the State of Illinois, IMSA enrolls academically talented Illinois students (grades 10-12) in its advanced, residential college preparatory program. 99.5% of graduating seniors matriculate to colleges and universities.

IMSA employs 54 full-time and 1 part-time teaching faculty members, all of whom have advanced degrees, with 50.9% holding doctorate degrees. In addition, 22.6% of faculty members are certified by the National Board for Professional Teaching Standards (NBPTS). IMSA fosters a collaborative learning environment that is problem-centered, inquiry-based and integrative. IMSA's students are engaged in rich opportunities to work with prominent researchers, explore questions of their own, champion their ideas for product development and make significant leadership contributions.

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## Founding Member of the National Consortium for Specialized STEM Schools

### Unique Educational Offerings Enhance Classroom Learning

**Student Inquiry and Research (SIR)** provides students with authentic research experiences with on- and off-campus professionals including university research faculty. The SIR standards focus on planning, investigating, analyzing and communicating. Requirements include a proposal, investigation, active engagement, progress report, abstract, investigation paper and presentation at IMSAloquium, the annual campus-wide research forum.

### Total Applied Learning for Entrepreneurs (TALENT)

provides students with experiential learning opportunities related to bringing an idea to the market-place to solve real world problems. TALENT instills the thinking patterns and mindset of an entrepreneur and engages students in understanding intellectual property, developing a business plan, developing products, securing funding, networking, communicating ideas and starting a business.

**Independent Study** is a student-selected learning experience that provides the opportunity to personalize learning beyond the IMSA course offerings. An Independent Study may be conducted by a senior (or junior with Principal's permission) under the direction of an IMSA faculty member for one or two semesters.

**Leadership Education** develops students' personal, social and academic skills through required co-curricular activities. One hallmark—Leadership Education and Development (LEAD)—promotes discussion and action on societal issues including social entrepreneurship, public policy, and research development.

**Service Learning** requires students to complete 200 hours of service during their three years at IMSA.

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

# Total graduation requirement: 17 credits. Eight (8) credits must be in mathematics and science.

For information on course descriptions, please visit our website: [www.imsa.edu/academics/CAC](http://www.imsa.edu/academics/CAC)

## Science 4.0 credit minimum; All science courses have a lab component

### Core Courses [Sophomore]

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

### Biology Electives

Evolution, Biodiversity and Ecology  
 Microbes and Disease  
 Molecular and Cellular Biology  
 Physiology and Disease  
 Seminar in Biology—*Virology*

### Chemistry Electives

Advanced Chemistry—*Structure and Properties*  
 Advanced Chemistry—*Chemical Reactions*  
 Biochemistry  
 Environmental Chemistry  
 Organic Chemistry I  
 Organic Chemistry II

### Physics Electives

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

## Mathematics and Computer Science 3.0 credit minimum

### 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 I/II  
 Mathematical Investigations I/II  
 Mathematical Investigations II  
 Mathematical Investigations III  
 Mathematical Investigations IV

### Pre-Calculus Electives

Discrete Mathematics  
 Graph Theory with Applications  
 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  
 Multi-Variable Calculus  
 Number Theory  
 Theory of Analysis

### Computer Science Core Course [Sophomore]

Computer Science Inquiry

### Computer Science Electives

Advanced Programming  
 Computational Thinking  
 Computer Seminar  
 Object Oriented Programming  
 Robotics Programming  
 Web Technologies I  
 Web Technologies II

## English 3.0 credit minimum

### Core Courses [Sophomore]

Literary Explorations I  
 Literary Explorations II

### Core Courses [Junior]

Literary Explorations III

### Junior/Senior Electives

20th Century Poetry  
 Creative Writing Workshop  
 Graphic Novels—*Image and Text*  
 Modern Theater

### Speculative Fiction Studies

Topics in World Literature—*Modern World Fiction*  
 Topics in World Literature—*Victorian Fiction*

### Senior Electives

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  
 History of Cultural Contact  
 Power and Authority in History

### Senior Electives

History of Astronomy  
 History of Biology  
 History of Philosophy  
 History of Technology and Culture

### Senior Electives

Political Theory  
 Rise of the Atlantic World 1492–1815  
 Topics in Current Affairs  
 United States Government and the Constitution

## 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	German I	Japanese I	Mandarin Chinese I	Russian I	Spanish II
French II	German II	Japanese II	Mandarin Chinese II	Russian II	Spanish III
French III	German III	Japanese III	Mandarin Chinese III	Russian III	Spanish IV
French IV					Spanish V
French V					

## 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

Art Design  
 Photography  
 Printmaking

## Wellness Education 1.0 credit minimum

### Core Course [Sophomore]

Moving and Learning

### Wellness Electives

Dance  
 Movement and Relaxation

Outdoor and Indoor Games

## Independent Learning

Independent Study

Student Inquiry and Research (SIR)

Total Applied Learning for Entrepreneurs (TALENT)

# IMSA Academic Highlights

## Recognition of Scholarships Class of 2017

**213**  
Seniors

**54**  
National Merit  
Semifinalists

**63**  
Commended  
Students

### ACT Scores—Class of 2016

Middle 50% Ranges and Means

	IMSA Mean (n = 192)	IMSA Middle 50% range	Illinois College- Bound Senior Mean	All College- Bound Senior Mean
<b>Composite</b>	<b>32.2</b>	<b>31.0–35.0</b>	<b>20.8</b>	<b>20.8</b>

### SAT Reasoning Test—Class of 2016

Middle 50% Ranges and Means

	IMSA Mean (n = 194)	IMSA Middle 50% range	Illinois College- Bound Senior Mean	All College- Bound Senior Mean
<b>Critical Reading</b>	<b>653</b>	<b>600–730</b>	<b>605</b>	<b>494</b>
<b>Math</b>	<b>703</b>	<b>670–770</b>	<b>622</b>	<b>508</b>
<b>Writing</b>	<b>645</b>	<b>580–710</b>	<b>592</b>	<b>462</b>

## Sample of Advanced Placement (AP) Examinations for 2015–2016 School Year

Although IMSA does not offer AP courses, 725 AP examinations were administered to 315 students

	Biology	Calculus AB	Calculus BC	Chemistry	Computer Science A	Physics C: E & M	Physics C: Mech	Statistics	English Language
No. of Students Tested	67	39	114	121	52	39	50	28	46
Average Scores	3.7	3.7	4.3	3.2	4.0	3.8	4.1	4.2	4.2

## A Sample Grade Distribution Report for Junior Course Enrollment (2015–2016)

Courses	A	A–	B+	B	B–	C+	C	C–	D	No. of Students
Advanced Chemistry—Chemical Reactions	27	30	9	29	15	5	10	3	2	130
Advanced Chemistry—Structure and Properties	34	35	8	25	19	3	6	3	0	133
BC Calculus I	3	8	10	20	13	7	9	0	0	70
Creative Writing Workshop	28	24	14	8	2	1	0	0	0	77
Literary Explorations III	30	75	34	59	13	4	1	1	0	217
Mathematical Investigations IV	20	16	9	30	10	6	5	1	0	97
Microbes and Disease	7	15	3	11	10	3	6	1	0	56
Object Oriented Programming	21	15	2	10	1	0	0	1	0	50
The World in the Twentieth Century	60	83	29	28	4	4	5	2	1	216

## Explanation of Grades

**A** = Exceeds course requirements

**B** = Meets course requirements

**C** = Needs improvement

**D** = Does not meet course requirements, no credit awarded

**I** = Incomplete

**P+** = Exceeds course requirements, pass with distinction

**P** = Meets course requirements for course taken pass/fail

**F** = Does not meet requirements for course taken pass/fail

**W** = Withdrawal from course

**WF** = Withdrawal from course with failing grade

## IMSA Matriculations—Class of 2016 (205 Graduates)

Agnes Scott College (1)	Marquette University (2)	Tufts University (1)
Amherst College (1)	Massachusetts Institute of Technology (1)	University of Chicago (2)
Arizona State University (1)	Miami University, Oxford (2)	University of Cincinnati (1)
Baylor University (3)	Michigan State University (3)	University of Colorado at Boulder (1)
Boston University (2)	Milwaukee School of Engineering (1)	University of Evansville (2)
Carleton College (1)	Minerva Schools at KGI (1)	University of Illinois at Chicago (11)
Carnegie Mellon University (4)	Monmouth College (1)	University of Illinois at Urbana-Champaign (52)
Case Western Reserve University (9)	Murray State University (1)	University of Miami (2)
Colorado School of Mines (2)	New York University (1)	University of Michigan (1)
Cornell University (1)	Northern Illinois University (1)	University of Minnesota, Twin Cities (7)
Dartmouth College (1)	Northland College (1)	University of Missouri, Kansas City (1)
DePaul University (1)	Northwestern University (9)	University of Nebraska at Lincoln (2)
Duke University (2)	Pomona College (1)	University of Notre Dame (3)
Florida Institute of Technology (2)	Princeton University (1)	University of Pennsylvania (1)
Grinnell College (3)	Purdue University (4)	University of Pittsburgh (2)
Harvard University (2)	Ripon College (1)	University of Rochester (1)
Harvey Mudd College (1)	Saint Louis University (4)	University of Washington (1)
Illinois Institute of Technology (4)	Southern Illinois University, Edwardsville(1)	Vanderbilt University (9)
Illinois Wesleyan University (1)	Stanford University (2)	Washington University in St. Louis (3)
Indiana Univ-Purdue Univ Indianapolis (1)	The Ohio State University (2)	Western Illinois University (1)
Iowa State University (3)	The University of Alabama at Birmingham (1)	Yale University (4)
Johns Hopkins University (3)	The University of Iowa (1)	Military-enlisted (1)
Knox College (2)	The University of Texas, Dallas (1)	
Lawrence Technological University (1)	Truman State University (1)	

## Universities and Colleges With the Largest IMSA Graduate Enrollment Classes of 2014–2016

University of Illinois at Urbana-Champaign (150)	Boston University (8)	Northeastern University (6)
University of Illinois at Chicago (32)	Yale University (8)	University of Miami (6)
Vanderbilt University (26)	Washington University in St. Louis (8)	Loyola University Chicago (5)
Case Western Reserve University (21)	Johns Hopkins University (7)	University of Notre Dame (5)
Northwestern University (19)	Iowa State University (7)	New York University (5)
University of Minnesota, Twin Cities (13)	Miami University, Oxford (6)	Brown University (5)
Carnegie Mellon University (10)	University of Chicago (6)	California Institute of Technology (5)
Illinois Institute of Technology (9)	University of Michigan (6)	Stanford University (5)
Saint Louis University (9)	University of Pittsburgh (6)	
Purdue University (8)	Massachusetts Institute of Technology (6)	

## College Placement Profile by %

	2016	2015	2014
<b>4-year college</b>	<b>99.5</b>	<b>97.0</b>	<b>99.0</b>
Private Schools	48.2	42.5	53.5
In-State	9.7	10.0	6.1
Out-of-State	38.5	33.0	47.5
<b>Public Schools</b>	<b>51.2</b>	<b>54.0</b>	<b>45.5</b>
In-State	32.2	33.0	28.3
Out-of-State	19.0	21.0	17.2
Non-US Colleges	0	0.5	0.5
<b>2-year college</b>	<b>0</b>	<b>2.5</b>	<b>0.5</b>

## Student Population of Academy, 2016-2017

Male = 50.0% Female = 50.0%

Percentage of students identifying as:

42.9%	Asian
37.1%	White
7.8%	Hispanic or Latino
7.0%	Black
5.2%	Two or More Races, Non-Hispanic or -Latino



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