Illinois Mathematics and Science Academy®

IMSA 2015 Profile

Founding Member of the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology
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, and it serves thousands of educators and students in Illinois and beyond through innovative instructional programs that foster imagination and inquiry. IMSA also advances education through research, groundbreaking ventures and strategic partnerships. (www.imsa.edu)

IMSA employs 55 full-time teaching faculty members, all of whom have advanced degrees, with 47% holding doctorate degrees. In addition, 31% 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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**Student Inquiry and Research (SIR)** pairs students with on-campus and off-campus professionals so that they can actively investigate a topic about which they are passionate. The SIR standards focus on planning, investigating, analyzing and communicating. Requirements include a proposal, investigation journal/notebook, active engagement, progress report, abstract, investigation paper and presentation at IMSAloquium.

**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.

**Advanced Study** provides students the opportunity to pursue learning for graduation credit and receive a letter grade in a class not included in IMSA’s regular course offerings. An Advanced Study proposal is completed jointly by a senior student and IMSA faculty member; the class is conducted under the direction of the faculty member for one or two semesters.

**Leadership Education** helps students become leaders within the Academy, in the community and in the world. Navigation is a forum for sophomores to process their academic, social and emotional experiences at IMSA. Leadership Education and Development engages all students in open discussion, meaningful activities, real-life applications and personal reflection to develop their passions and impact social change. Residence Life develops students’ personal and social skills and academic talents.

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

In light of IMSA’s selective admission process and in order to promote collaborative exploration and discovery, the Academy does not provide grade point averages or class rankings.
All science courses have a lab component

Core Courses 3.0 credit minimum

Biology Electives
- Evolution, Biodiversity and Ecology
- Viruses and Disease
- Molecular and Cell Biology
- Seminar in Biology: Animal Behavior

Chemistry Electives
- Advanced Chemistry
- Chemical Reactions
- Environmental Chemistry
- Organic Chemistry I
- Survey of Organic Chemistry

Physics Electives
- Biophysics
- Computational Science
- Modern Physics
- Physics: Sound and Light
- Physics: Calculus-based Mechanics
- Physics: Calculus-based Electricity and Magnetism
- Planetary Science

Pre-Calculus Core Courses 2.0 credit minimum

Pre-Calculus Electives
- Advanced Problem Solving
- Advanced Topics in Mathematics
- Introduction to Abstract Structures
- Multivariable Calculus
- Number Theory
- Theory of Analysis

Calculus Core Courses 4.0 credit minimum

Calculus Electives
- Advanced Calculus
- Graph Theory with Applications
- Problem Solving
- Statistical Experimentation and Inference
- Statistical Exploration and Description

Post-Calculus Core Courses 2.5 credit minimum

Post-Calculus Electives
- Advanced Problem Solving
- Advanced Topics in Mathematics
- Differential Equations
- Introduction to Abstract Structures
- Multivariable Calculus
- Number Theory
- Theory of Analysis

Computer Science Electives
- Advanced Programming Computer Science
- Computational Thinking
- Computer Science
- Robotics Programming
- Web Technologies I

ENGLISH 3.0 credit minimum

Core Courses 3.0 credit minimum

Senior Electives
- The Idea of the Individual
- Topics in World Literature: Modern World Fiction
- Topics in World Literature: Victorian Fiction

Pre-Calculus Core Courses 0.5 credit minimum

Pre-Calculus Electives
- Creative Writing Workshop
- Film Study: History and Criticism
- IMSA’s Non-Fiction Film Study
- Modern Theater
- Speculative Fiction Studies

SOCIAL SCIENCE 2.5 credit minimum

Core Courses (Sophomore)

American Studies

Senior Electives
- Advanced Social Theory
- History of Philosophy
- History of Technology and Culture
- International Relations
- Political Theory
- The Philosophy of China and India

WORLD LANGUAGES 2.0 credit minimum

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

FINE ARTS 0.5 credit minimum

Music Electives
- Chamber Choir
- Chamber Strings
- Concert Band
- Concert Choir

WELLNESS EDUCATION 1.0 credit minimum

Core Course (Sophomore)

Wellness Electives
- Dance
- Lifesaving and Water Polo
- Movement and Relaxation
- Outdoor and Indoor Games
- Tennis and Badminton

INDEPENDENT LEARNING

Advanced Study

Independent Study

Student Inquiry and Research (SIR)

Total Applied Learning for Entrepreneurs (TALENT)

ACT Scores - Class of 2014- Middle 50% Ranges and Means

IMSA Mean (N = 181)

Illinois College-Bound Senior Mean

All College-Bound Senior Mean

Composite
32.2
31.0-34.0
20.7
21.0

SAT Reasoning Test - Class of 2014 - Middle 50% Ranges and Means

IMSA Mean (N = 152)

Illinois College-Bound Senior Mean

All College-Bound Senior Mean

Critical Reading
682
622-740
600
496

Math
727
680-770
617
514

Writing
681
632-730
590
488

Advanced Placement (AP) Examinations for 2013–2014 School Year

Although IMSA does not offer AP courses, 688 AP examinations were administered to 315 students.

A Sample Grade Distribution Report for Junior Course Enrollment (2013–2014)

<table>
<thead>
<tr>
<th>Course</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D</th>
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<tbody>
<tr>
<td>Mathematical Investigations IV</td>
<td>15</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>0</td>
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<td>6</td>
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<tr>
<td>BC Calculus I</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
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<tr>
<td>HC Calculus II</td>
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<td>7</td>
<td>5</td>
<td>10</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
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<td>Advanced Chemistry - Structure</td>
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<td>24</td>
<td>5</td>
<td>25</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>9</td>
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<tr>
<td>Advanced Chemistry - Chemicals</td>
<td>23</td>
<td>35</td>
<td>7</td>
<td>18</td>
<td>33</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>2</td>
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<tr>
<td>Microbes and Disease</td>
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<td>9</td>
<td>0</td>
<td>23</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>6</td>
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<td>Literary Examinations III</td>
<td>13</td>
<td>53</td>
<td>58</td>
<td>29</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>210</td>
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<tr>
<td>Web Technologies I</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>17</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
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<tr>
<td>The World in the Twentieth Century</td>
<td>45</td>
<td>64</td>
<td>23</td>
<td>34</td>
<td>15</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>6</td>
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</table>

Explanation of Grades

A Exceeds course requirements
B Meets course requirements
C+ Does not meet requirements for course taken pass/fail
C Meets course requirements
C- Withdrew from course with passing grade
C- Withdrawal from course

Scholarship Recognition

Class of 2015
195 Total number of students in class
7 National Achievement Semifinalists
45 National Merit Semifinalists

Class of 2014
198 Total number of students in class
5 National Achievement Finalists
41 National Merit Finalists
3 National AP Scholars
17 AP Scholars with Distinction
14 AP Scholars with Honors
4 Siemens Award Competition Semifinalists
2 Illinois Junior Academy of Science Gold Medal Winners
1 International Math Olympiad Gold Medal Winner
4 Students Selected for Finalist Team in the High School Mathematical Contest in Modeling (HSMCM)
2 1st Place Winners Math Team in the Illinois Council of Teachers of Mathematics (ICTM) Contest
2 1st Place Winners Illinois Future Business Leaders of America State Leadership Conference
2 1st Place Winners Illinois Future Problem Solving Team in State
2 1st Place Winner Scholastic Bowl Team in State
2 1st Place Winner Science Olympiad Team in State
2 1st Place Winner History Bowl Team in State
2 2nd Place Winner National History Bee in State
1 US Geography Olympiad National Champion
1 1st and 2nd 100 Backstroke in the Illinois High School Association (IHSA)
IMSA MATRICULATIONS - CLASS OF 2014 (198 GRADUATES)

UNIVERSITIES AND COLLEGES WITH THE LARGEST IMSA GRADUATE ENROLLMENT CLASSES OF 2012–2014

- University of Illinois at Urbana-Champaign (152)
- University of Illinois at Chicago (21)
- Case Western Reserve University (18)
- Northeastern University (11)
- Northwestern University (11)
- Carnegie Mellon University (10)
- University of Michigan (8)
- Howard University (1)
- University of Illinois at Chicago (10)
- University of Illinois at Urbana-Champaign (46)
- Illinois Institute of Technology (3)
- Indiana State University (1)
- Indiana University at Bloomington (1)
- Iowa State University (3)
- The University of Iowa (1)
- Johns Hopkins University (2)
- Lake Forest College (1)
- Lawrence University (1)
- Loyola University Chicago (1)
- Marquette University (1)
- Massachusetts Institute of Technology (1)
- McGill University (1)
- Miami University. Oxford (3)
- University of Miami (4)
- University of Michigan (4)
- University of Missouri Columbia (2)
- New College of Florida (1)
- New York University (2)
- The University of North Carolina at Chapel Hill (1)
- Northeastern University (4)
- Northwestern University (6)
- University of Oklahoma (1)
- University of Pennsylvania (7)
- University of Pittsburgh (3)

College Placement Profile by %

<table>
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<tr>
<th></th>
<th>2014</th>
<th>2013</th>
<th>2012</th>
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<tr>
<td>4 Yr College</td>
<td>99</td>
<td>99.5</td>
<td>98.6</td>
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<tr>
<td>Private Schools</td>
<td>53.5</td>
<td>55.5</td>
<td>55.2</td>
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<tr>
<td>In-State</td>
<td>8.1</td>
<td>12</td>
<td>8.5</td>
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<tr>
<td>Out-of-State</td>
<td>41.5</td>
<td>45.5</td>
<td>46.7</td>
</tr>
<tr>
<td>Public Schools</td>
<td>45.5</td>
<td>44</td>
<td>43.4</td>
</tr>
<tr>
<td>In-State</td>
<td>28.3</td>
<td>30.4</td>
<td>29.2</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>17.2</td>
<td>13.6</td>
<td>14.2</td>
</tr>
<tr>
<td>2 Yr College</td>
<td>0.5</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Non-US colleges</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
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</tbody>
</table>

Student Population of Academy 2015–2017

- Male = 51%
- Female = 49%
- Percentage of students identifying as:
  - 41.2% Asian
  - 35.3% White
  - 8.8% Hispanic or Latino
  - 5.2% Black
  - 4.9% Two or More Races
  - 0.2% American Indian or Alaska Native
  - 4.5% Not Reported