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.

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 IMSAlouquium, 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.

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Principal
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mdahleh@imsa.edu

Dr. Robert Hernandez
Executive Director, Student Affairs
(630) 907-5009
hernandi@imsa.edu

Julia Husen
Coordinator of College and Academic Counseling
(630) 907-5013
ura@imsa.edu
**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 IV
- BC Calculus V

**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

<table>
<thead>
<tr>
<th>French I</th>
<th>German I</th>
<th>Japanese I</th>
<th>Mandarin Chinese I</th>
<th>Russian I</th>
<th>Spanish II</th>
</tr>
</thead>
<tbody>
<tr>
<td>French II</td>
<td>German II</td>
<td>Japanese II</td>
<td>Mandarin Chinese II</td>
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<td>French III</td>
<td>German III</td>
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<td>Spanish IV</td>
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<tr>
<td>French IV</td>
<td></td>
<td></td>
<td></td>
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<td>Spanish V</td>
</tr>
<tr>
<td>French V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fine Arts 0.5 credit minimum

**Music**
- Chamber Choir
- Chamber Strings
- Concert Band
- Concert Choir

**Visual Arts**
- Art Design
- Photography
- Printmaking

**Music Appreciation**
- Music Theory
- String Orchestra
- Wind Ensemble

### 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)**

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Science

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</tr>
</thead>
<tbody>
<tr>
<td>French II</td>
<td>German II</td>
<td>Japanese II</td>
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<td>Russian II</td>
<td>Spanish III</td>
</tr>
<tr>
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<td>German III</td>
<td>Japanese III</td>
<td>Mandarin Chinese III</td>
<td>Russian III</td>
<td>Spanish IV</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Spanish V</td>
</tr>
<tr>
<td>French V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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- Student Inquiry and Research (SIR)

**Total Applied Learning for Entrepreneurs (TALENT)**
# ACT Scores—Class of 2016

<table>
<thead>
<tr>
<th></th>
<th>IMSA Mean (n = 192)</th>
<th>IMSA Middle 50% range</th>
<th>Illinois College-Bound Senior Mean</th>
<th>All College-Bound Senior Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Composite</strong></td>
<td>32.2</td>
<td>31.0–35.0</td>
<td>20.8</td>
<td>20.8</td>
</tr>
</tbody>
</table>

# SAT Reasoning Test—Class of 2016

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

# 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Biology</th>
<th>Calculus AB</th>
<th>Calculus BC</th>
<th>Chemistry</th>
<th>Computer Science A</th>
<th>Physics C: E &amp; M</th>
<th>Physics C: Mech</th>
<th>Statistics</th>
<th>English Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Students Tested</td>
<td>67</td>
<td>39</td>
<td>114</td>
<td>121</td>
<td>52</td>
<td>39</td>
<td>50</td>
<td>28</td>
<td>46</td>
</tr>
<tr>
<td>Average Scores</td>
<td>3.7</td>
<td>3.7</td>
<td>4.3</td>
<td>3.2</td>
<td>4.0</td>
<td>3.8</td>
<td>4.1</td>
<td>4.2</td>
<td></td>
</tr>
</tbody>
</table>

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

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

### 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** = Meets course requirements for course taken pass/fail
- **P+** = Exceeds course requirements, pass with distinction
- **F** = Does not meet requirements for course taken pass/fail
- **W** = Withdrawal from course
- **WF** = Withdrawal from course with failing grade
Universities and Colleges With the Largest IMSA Graduate Enrollment Classes of 2014–2016

<table>
<thead>
<tr>
<th>University</th>
<th>2014 Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Illinois at Urbana-Champaign (150)</td>
<td></td>
</tr>
<tr>
<td>University of Illinois at Chicago (32)</td>
<td></td>
</tr>
<tr>
<td>Vanderbilt University (26)</td>
<td></td>
</tr>
<tr>
<td>Case Western Reserve University (21)</td>
<td></td>
</tr>
<tr>
<td>Northwestern University (19)</td>
<td></td>
</tr>
<tr>
<td>University of Minnesota, Twin Cities (13)</td>
<td></td>
</tr>
<tr>
<td>Carnegie Mellon University (10)</td>
<td></td>
</tr>
<tr>
<td>Illinois Institute of Technology (9)</td>
<td></td>
</tr>
<tr>
<td>Saint Louis University (9)</td>
<td></td>
</tr>
<tr>
<td>Purdue University (8)</td>
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</tr>
<tr>
<td>Boston University (8)</td>
<td></td>
</tr>
<tr>
<td>Yale University (8)</td>
<td></td>
</tr>
<tr>
<td>Washington University in St. Louis (8)</td>
<td></td>
</tr>
<tr>
<td>Johns Hopkins University (7)</td>
<td></td>
</tr>
<tr>
<td>Iowa State University (7)</td>
<td></td>
</tr>
<tr>
<td>Miami University, Oxford (6)</td>
<td></td>
</tr>
<tr>
<td>University of Chicago (6)</td>
<td></td>
</tr>
<tr>
<td>University of Michigan (6)</td>
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</tr>
<tr>
<td>University of Pennsylvania (6)</td>
<td></td>
</tr>
<tr>
<td>Loyola University Chicago (5)</td>
<td></td>
</tr>
<tr>
<td>University of Notre Dame (5)</td>
<td></td>
</tr>
<tr>
<td>New York University (5)</td>
<td></td>
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<td>Brown University (5)</td>
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<tr>
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<td>Stanford University (5)</td>
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</tbody>
</table>

College Placement Profile by %

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-year college</td>
<td>99.5</td>
<td>97.0</td>
<td>99.0</td>
</tr>
<tr>
<td>Private Schools</td>
<td>48.2</td>
<td>42.5</td>
<td>53.5</td>
</tr>
<tr>
<td>In-State</td>
<td>9.7</td>
<td>10.0</td>
<td>6.1</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>38.5</td>
<td>33.0</td>
<td>47.5</td>
</tr>
<tr>
<td>Public Schools</td>
<td>51.2</td>
<td>54.0</td>
<td>45.5</td>
</tr>
<tr>
<td>In-State</td>
<td>32.2</td>
<td>33.0</td>
<td>28.3</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>19.0</td>
<td>21.0</td>
<td>17.2</td>
</tr>
<tr>
<td>Non-US Colleges</td>
<td>0</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2-year college</td>
<td>0</td>
<td>2.5</td>
<td>0.5</td>
</tr>
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Student Population of Academy, 2016-2017

<table>
<thead>
<tr>
<th>Percentage of students identifying as:</th>
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<tbody>
<tr>
<td>42.9% Asian</td>
</tr>
<tr>
<td>37.1% White</td>
</tr>
<tr>
<td>7.8% Hispanic or Latino</td>
</tr>
<tr>
<td>7.0% Black</td>
</tr>
<tr>
<td>5.2% Two or More Races, Non-Hispanic or -Latino</td>
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