

# INDIANA JUNIOR ACADEMY OF SCIENCE

Report for 2017

Approximately 115 students, teachers, and parents representing seven schools attended the annual fall meeting of the Indiana Junior Academy of Science held at Indiana University Bloomington on November 10, 2017.

IU Bloomington and IUPUI research faculty, senior scientists, post docs and graduate students served as judges. I wish to acknowledge them here, they were:

## **Abstract Judges:**

Dr. Emily Fyfe, IU Department of Psychological & Brain Science

Dr. Mary Jean Amon, IU Department of Cognitive Science

Dr. Megan Thielges, IU Department of Chemistry

Dr. Steven Tait, IU Department of Chemistry

Ms. Kathleen Munley, IU Department of Biology

## **OJS Judges:**

Dr. Daniel Schwartz, IU Department of Biology

Dr. Frederika Kaestle, IU Department of Anthropology

Dr. Horia Petrache, IUPUI Department of Physics

Dr. Lauren Slone, IU Department of Psychological & Brain Sciences

## **Research Presentation Judges:**

Dr. Andrea Koenigsberger, IU Department of Psychological & Brain Sciences

Dr. James Reilly, IU Department of Chemistry

Dr. Rasheda Sultana, IU Biotechnology Program

Dr. Dan Watts, IU Department of Biotechnology

Mr. Bryce Cousins, IU STARS Scholar gave a keynote address titled **“Navigating science, from the brain to the stars”** that was very well received by the students and teachers. In addition to talking about his research, he talked about his journey from doing research in high school to being an undergraduate researcher in the IU STARS program and about his future plans. He was very encouraging to the students and challenged them to explore their interests and not be afraid, to not know, exactly what they wanted to study in college.

Five competitions and research tours filled out the remainder of the day followed by the awards ceremony. A brief description and a list of winners for each competition are outlined below.

### **1. The Problem Solving Exam**

This exam provides students with a fun and meaningful exercise in scientific knowledge and problem-solving skills. The exam was written by several people at IU Bloomington. We asked graduate students and faculty from different disciplines to write 10-12 questions. Rita Stephens, Undergraduate Research coordinator proctored and graded the tests. Top four students were recognized with certificates and top two students received plaques.

**This year's winners were:**

**1<sup>st</sup> Place – Harrison Knable, New Albany High School**

**2<sup>nd</sup> Place – Jackson Konty, Floyd Central High School**

**3<sup>rd</sup> Place – Zecong Liang, New Albany High School**

**4<sup>th</sup> Place – Gus Devaul, Northwestern High School**

## **2. The Issues Presentation Competition**

This competition encourages students to learn about the political, social, and scientific issues surrounding the selected topic. This year, the topic was ***“Antibiotic resistance has been called one of the world’s most pressing public health problems.” – CDC.gov. If your physician refused to give you an antibiotic for a minor bacterial infection (e.g. sore throat), would you comply or seek another means to obtain antibiotics for your infection?”*** Each competitor gave a five minute presentation on the topic without the use of visual aids. The students were judged by a panel of peers in the morning session then again by IU undergraduate research students in the afternoon. Plaques were awarded to the top two students and certificates were given to all competitors.

**1<sup>st</sup> Place – Ian Kimbell, New Albany High School**

**2<sup>nd</sup> Place – Kelly Skwarcan, Marian High School**

**3<sup>rd</sup> Place – Jeret McCoy, Floyd Central High School**

**4<sup>th</sup> Place – Faizan Khan, Eman Schools**

## **3. Science Olympiad Competition**

This year we held one Science Olympiad competition called “Fast Facts.” Up to two students from each school were allowed to participate. Students tested their general knowledge by filling in a grid of terms that begin with a given letter to match given science categories. Certificates were given to the 2<sup>nd</sup> place teams and plaques were awarded to the top scoring school.

**This year's winners are:**

**1<sup>st</sup> Place – New Albany High School**

**2<sup>nd</sup> Place – Northwestern High School**

## **4. The Research Paper Competition**

This competition allows students who have carried out an original scientific investigation the opportunity to present their work to a panel of judges. Students who wish to compete in this event submit an abstract of their work to the IJAS Director in early October.

Twenty-two abstracts were submitted for review and the top twelve finalists were selected by a panel of impartial abstract judges from IU Bloomington. The top twelve finalists all received a \$25 cash award from the Indiana Academy of Science. At the IJAS meeting, the finalists gave a 10-minute research presentation to a panel of judges who evaluated them on originality, research procedures, and presentation skill. The second and third place winners received a plaque. The first place winner received a plaque and a \$1,000 scholarship from the Indiana Academy of Science to attend any Indiana College or University.

This year's winners are:

- 1<sup>st</sup> Place – 452.5 points: Levi Hrabos, Northwestern High School**
- 2<sup>nd</sup> Place – 434.75 points: Dennis Mammolenti, Marian High School
- 3<sup>rd</sup> Place – 426.50 points: Amanda Wilson, Northwestern High School
- 4<sup>th</sup> Place – 422.50 points: Julianna Meyer, Marian High School
- 5<sup>th</sup> Place – 420.00 points: Brianna Coster, Kankakee Valley High School
- 6<sup>th</sup> Place – 395.50 points: Ethan Smiley, Beech Grove High School
- 7<sup>th</sup> Place – 389.00 points: Harrison Knable, New Albany High School
- 8<sup>th</sup> Place – 387.00 points: Sahar Abdullah, Eman Schools
- 9<sup>th</sup> Place – 380.00 points: Vijay Chirumamilla, New Albany High School
- 10<sup>th</sup> Place – 372.00 points: Amin Rimawi, Eman Schools
- 11<sup>th</sup> Place – 337.50 points: Ezzeldean Elsayed, Eman Schools
- 12<sup>th</sup> Place – 331.00 points: Sarah Burns, Marian High School

### **5. The Outstanding School Award**

The Outstanding School Award is given to the school with the most participation points. To calculate this score, credit is given for every abstract submitted, more credit for those abstracts accepted for the Research and for Outstanding Junior Scientist competitions, and finally for rank scores for the top presentations. Each school received credit for entering students in the Issues Competition, for having a judge at the Issues presentations, and for entering students in the Problem Solving Exam and Science Olympiad Competition. More credit was given to the top five winners.

The top three schools and the teachers representing them today are:

- 1<sup>st</sup> Place – 69 points: New Albany High School, Mr. Jason Cox**
- 2<sup>nd</sup> Place – 68 points: Marian High School, Mr. Ken Andrzejewski
- 3<sup>rd</sup> Place – 52 points: Northwestern High School, Mrs. Linda Wilson

### **6. The Outstanding Junior Scientist Competition**

This event recognizes those students who are exemplary in overall scholarship as well as scientific ability and achievement. Each school may nominate two students for this competition. The top ten nominees are then selected to compete at the IJAS meeting where they are interviewed by a panel of judges. The Outstanding Junior Scientist is selected based upon his/her academic record, involvement in original research and extracurricular scientific activities, abstract scores and the interview. The top ten finalists received a \$25 cash award from the Indiana Academy of Science. The second and third place winners received plaques and the Most Outstanding Junior Scientist received a plaque and a \$1,000 scholarship from the Indiana Academy of Science to attend any Indiana College or University.

This year's winners are:

- 1<sup>st</sup> Place – 153.58 points: Amanda Wilson, Northwestern High School**
- 2<sup>nd</sup> Place – 144.65 points: Dennis Mammolenti, Marian High School
- 3<sup>rd</sup> Place – 135.40 points: Ian Kimbell, New Albany High School
- 4<sup>th</sup> Place – 134.25 points: Ethan Smiley, Beech Grove High School

5<sup>th</sup> Place – 125.00 points: Vijay Chirumamilla, New Albany High School  
6<sup>th</sup> Place – 122.00 points: Emma Kearns, Marian High School  
7<sup>th</sup> Place – 119.08 points: Harrison Knable, New Albany High School  
8<sup>th</sup> Place – 117.03 points: Sarah Burns, Marian High School  
9<sup>th</sup> Place – 115.23 points: Amin Rimawi, Eman Schools  
10<sup>th</sup> Place – 112.93 points: Ezzeldean Elsayed, Eman Schools

## **7. Tours of research labs and facilities on campus**

Students had two opportunities, one in the morning and one in the afternoon, to go on a research based tours. Tours included:

- The Smith Research Lab  
<http://www.indiana.edu/~efishlab/>
- Kirkwood Observatory & Solar Telescope Tour  
<http://www.astro.indiana.edu/kirkwoodinfo.shtml>
- William R. Adams Zooarchaeology Laboratory  
<http://www.indiana.edu/~zooarch/home.php>  
Wiley Bioanthropology Lab  
<http://www.indiana.edu/~anthro/people/faculty/wileya.shtml>
- Molecular Structure Center  
<https://www.iumsc.indiana.edu/>
- Nuclear Magnetic Resonance Facility  
<https://www.iumsc.indiana.edu/>
- Laboratory for Biological Mass Spectrometry  
<http://www.chem.indiana.edu/bms/>
- Chemistry Glass Shop  
<http://glass.chem.indiana.edu/>