August 2016

The University of Illinois and the College of Agricultural, Consumer and Environmental Sciences are recognized nationally and internationally for excellence in research. From animal genome mapping to crop pest control, family resiliency, water quality, agribusiness marketing and obesity, faculty and staff researchers conduct cutting-edge research on a broad array of topics to improve the lives of people throughout the world.

Research excellence serves as a fundamental partner for excellence in student learning. Faculty who are on the forefront of education and technology carry into the classrooms and laboratories the new knowledge that has been produced through basic and applied research. Likewise, students work side-by-side with researchers to learn the fundamentals of research methodology and to apply those skills in their own research activities.

Pre-college students need opportunities to explore; an important aspect of career development is finding out what they like and finding out what they don’t like. The Research Apprentice Program provides those opportunities by involving participants in activities related to food and agriculture, the environment and technology, and families and communities. The College of ACES welcomes to our campus those young students who otherwise may never learn about the exciting areas of inquiry and the career pathways offered through ACES.

The success of the ACES Research Apprentice Program depends upon identifying potential students from the high schools of Illinois and beyond, assistance from faculty, staff and administrators of the College, and cooperation from other colleges, corporate partners, and campus administration. We greatly appreciate the efforts of all of our partners as they have been integral in ensuring the success of the experience for each of our student guests.

Congratulations to the RAP participants for accepting the challenge of the program and living up to their potential as young scholars.

Sincerely,

Prasanta Kalita
Associate Dean for Academic Programs
Dear Participants and Supporters:

As a culmination of the summer 2016 high school STEM programs conducted through ACES Academic Programs, we are pleased to present a compilation of these summer experiences. Participating students represented a wide range of interests in areas that can be pursued through programs of study offered within the College of ACES.

The goal of the experiential programs is to provide a set of enriching experiences, through special business and industry partnerships to high school students who have demonstrated an interest and aptitude in areas of science that will attract them to pursue studies leading to professional opportunities in the food, agricultural, and environmental sciences. The target audiences are ethnic minorities, students from low socio-economic backgrounds, and urban high schools. Both RAP and Ag Discovery experiences aim to strengthen a student’s interest through team based experiences and science-based projects conducted under the guidance of ACES faculty, staff, and current ACES students with support from business, industry and government professionals. The YSP experience is designed to enhance the academic skills in math, chemistry, and writing through a summer academic bridge experience to prepare incoming students for the challenges of their selected academic major within the College of ACES.

We would like to thank the faculty members, their graduate students and research associates in the academic units of the College of ACES along with our campus partners for making the 2016 summer experiences extremely successful. Support for these summer enriching experiences was provided by gifts from DuPont Pioneer, PepsiCo Research and Development, the USDA Animal Plant and Health Inspection Service, the Institute of Food Technologists Chicago Section, Monsanto, John Deere, Caterpillar and Tyson Foods.

Special funds were also provided by the Office of the Dean, the ACES departments, and the Office of the Provost. We wish to express special thanks to the Hendrick House for their exceptional accommodations and special support of our students and residential staff.

Our special thanks to our ACES family of supporters and past participants for making ACES Pre-College STEM Summer Programs, over its 25 year history, one of the most successful youth educational experiences in the nation focusing on the food, human and environmental sciences.

We invite you to enjoy the contents of the information to follow.

Sincerely,

Jesse Thompson Jr.
Assistant Dean and
Coordinator, Diversity Programs
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III. Executive Summary

College of Agricultural, Consumer and Environmental Sciences  
Office of Academic Programs/Diversity Programs  
University of Illinois at Urbana-Champaign

A. Pre-College S.T.E.M. Summer Youth Programs

The ACES Pre-College STEM experiences are a hands-on introduction to disciplines and careers in the agricultural, consumer and environmental sciences. There are three components of these experiences, namely, The Imagine ACES Experience, the Research Apprentice Program, and the Ag Discovery Program, and a fourth component focused on college success, Young Scholars Program.

The Imagine ACES Experience is a one week program designed to help students understand the interconnectedness of the food and agriculture system. Students are exposed to the major programs of study offered by the College of ACES and the career opportunities associated within each major, while they are engaged in a number of educational activities. Staff and students from the College of ACES, provided an overview of their academic disciplines, providing seminars about programs and potential careers and tours of their facilities, helping student to better understand the nature of the food and agriculture system. By the end of the experience, students were able to describe the portfolio of majors in the College, and identify specific academic major and career pathways that fit their interests.

The Research Apprentice Program students engage in a special 5 week problem-solving activity, in teams of 4-5 members, designed by the disciplines in the major academic disciplines ((Human Development Professions, Ag Communications, Ag Business and Marketing, and Ag Leadership Education, Ag and Biological Engineering, Crop Sciences and Plant Biotechnology, Animal Sciences, Environmental Sciences, and Food Science and Human Nutrition) within the College of Agricultural, Consumer and Environmental Sciences (ACES) in partnership with professionals from business and industry. The first two weeks involves learning skills related to math, biological science, and science writing. During the next three weeks, each disciplined team will conduct a science/research related project designed to demonstrate a basic understanding of those math and science skills as it applies to their assigned team with the food, human and environmental system. The projects are real world problems/solutions designed by business and industry sponsors in collaboration with ACES RAP program staff. Students will visit their related business/industry sponsor and meet with professional managers and scientists as they study their assigned problem.

The Ag Discovery Program engages students in a special 5 week experience focused on food security and biosecurity related issues. It is sponsored by the Animal Plant Health Inspection Service of the USDA, which is the agency charged with safeguarding the U.S. food supply. The first two weeks involves learning skills related to math, biological sciences, and science writing. During the next three weeks, a group of 14 students are selected to participate in a series of hands-on activities lead by government veterinarians, plant and animal biologists, biotechnologists, and wildlife science professionals. At the end of the experience, students will demonstrate a basic understanding of how the federal government works for the protection of plants and animals, and how it related to human health.

In both RAP and Ag Discovery components, students engage in special learning activities as problem-solving disciplinary teams. Each team must demonstrate a basic understanding of the sciences involving
their assigned area of study. The math and science based lessons, along with a series of facility visits and seminars conducted by participating businesses and campus professionals, serve as a resource base for this five week experiential STEM education experience. All activities emphasize group creativity and critical thinking to solve problems. Computers and other technology are utilized as learning tools. At the conclusion of this experience, each team presents their STEM related project.

**Education about STEM** in the context of the food industry emphasizes basic chemistry and microbiology and engineering and involves areas such as food science, sensory science, product development, packaging science, and the business aspects of manufacturing, marketing and distribution systems. Within the context of the plant sciences, students understand physiology, breeding and genetic engineering. Within the context of Animal Sciences, students learn basic biology and microbiology as it applies to animal physiology, genetics, health and nutrition. An emphasis is placed on animal health and safety and the impact of animals on human nutrition.

**The application of math and science skills** is a hallmark of the RAP experience. Students test their STEM knowledge through hands-on projects in various ACES laboratories, where they conduct short experiments designed to continue to build interest in STEM careers as related to the food, human and agricultural sciences, and challenge their basic math, science and writing skills. At the end of their project, each student team submits a joint project paper and makes a presentation to their peers and scientists on the University of Illinois campus.

**Encouraging students to pursue careers in the STEM areas** related to the food and agricultural sciences is the key mission of the Research Apprentice Program experiences at the University of Illinois. This is accomplished as noted below:

1) Promoting math and science careers through lessons and techniques starting at the high school level and extending into college.
2) Bridging gaps in the math skills of high school students while encouraging them to pursue STEM majors in the College of ACES.
3) Bridging gaps in the science skills of high school students through academic experiences in chemistry and biology, while encouraging them to pursue STEM majors in the College of ACES.
4) Providing hands-on STEM experiences for high school students through creative projects and laboratory experiments in the College of ACES research facilities.
5) Exploring exciting STEM disciplines and scientific fields through demonstrations, classroom presentations, hands-on activities, and contacts with professionals in these technical fields.
6) Promoting students’ stronger performance in STEM core courses in high school, which creates a successful gateway to college.
7) Creating opportunities for STEM faculty and graduate students to serve as mentors for high school students and promote awareness of STEM career opportunities.

**Pre-College STEM education** in the College of ACES, through the Research Apprentice Program, characterized by:

- Hands-on experimental learning with real projects and experiments
- Math and science learning as its core
- Technology driven
- Team project focused
- Mentoring by university scientists and graduate students in STEM disciplines
- Promotes creativity and inspires critical thinking
• Leads to success in rewarding STEM careers

Young Scholars Program (YSP) is intensive summer enrichment, college transition program for students enrolling in the College of ACES. During the summer prior to enrollment, students take a four week intensive classroom and on-line review of pre-calculus/calculus, chemistry and writing composition, designed to prepare them for their academic year in college. It includes a discovery component in which students learn about the academic supports and leadership development opportunities available to enhance their academic experience. Academic support is continued throughout the academic year to support high academic performance in the selected discipline. The focus is primarily on underrepresented student groups and first generation college students.

YSP is designed to help new college students to gain an early perspective on college life that will improve their academic and social transition from their communities into the fast paced and highly competitive college environment. College retention through improved academic performance and improved social networks is the goal. Academic progress in coursework is monitored closely and students receive personal counseling throughout their college experience to ensure that they succeed in their chosen academic major and career pathway. The YSP experience provides students with a well round college education through scholarly performance, mentoring, undergraduate research, leadership development, internship experiences, and global awareness.

B. Brief RAP History 1988 – 2014
• 1246 students have participated in ACES pre-college experiences between 1988-2014
• African Americans- 60 percent and Latinos at 35 percent of participants
• Females - 78 percent of all participants
• 60 percent of participants from public and private schools located in the seven county Illinois metropolitan area (i.e. Cook, Lake, DuPage, Kane, Grundy, McHenry, Will)
• 43 percent of participants live within the city of Chicago
• Approximately 574 of 586 RAP II seniors enrolled in a four year college following graduation
• 84 students selected a math, science or engineering related field as a college major
• 25 percent of all RAP I and 60 percent of RAP II participants after their senior year enrolled at the University of Illinois at Urbana-Champaign (UIUC)
• Eighty two percent of RAP students attending UIUC selected majors offered by the College of ACES:
  ➢ Agricultural and Biological Engineering 6%
  ➢ Agricultural and Consumer Economics 16%
  ➢ Animal Sciences 20%
  ➢ Crop Sciences 5%
  ➢ Food Sciences and Human Nutrition 22%
  ➢ Human and Community Development 10%
  ➢ Natural Resources and Environmental Sc. 3%
  ➢ Other Non-ACES majors 18%
C. **College Choices of Pre-college Program Seniors – 2010 – 2014**

- Between 2010 and 2014, 105 senior level students who participated in Pre-college STEM experiences made college choices
- 76 percent (80 of 105) elected to attend the University of Illinois
- 85 percent (68 of 80) of UIUC students selected majors in the College of ACES
- 20 percent of currently enrolled ACES minority undergraduates have participated in these experience

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<th>ABE</th>
<th>FSHN</th>
<th>CPSC</th>
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<td>3</td>
<td>3</td>
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**ACES Summer STEM Program Sponsors Summer 2016**

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<th>Sponsor Name</th>
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<th>Y S P</th>
<th>Imagine ACES</th>
<th>Ag Discovery</th>
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<tr>
<td>DuPont Pioneer</td>
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<td>X</td>
<td></td>
</tr>
<tr>
<td>PepsiCo Research and Development</td>
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<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Institute of Food Technologists, Chicago</td>
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<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>USDA Animal &amp; Plant Health Inspection Service</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Monsanto Company</td>
<td>X</td>
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</tr>
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<td>John Deere Company</td>
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<tr>
<td>Caterpillar, Inc.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tyson Foods, Inc</td>
<td>X</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Office of the Provost, U of Illinois</td>
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<td>X</td>
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<tr>
<td>ACES Administration</td>
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<td>X</td>
<td>X</td>
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<td>ACES Departments</td>
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<td></td>
</tr>
<tr>
<td>Hendrick House</td>
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### D. Demographics of Summer RAP and Ag Discovery 2016 Participants

Summer 2016 (N=65)

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<tr>
<th>Ethnic/Racial Breakdown of Participants</th>
<th>Count</th>
<th>Percentage</th>
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<tr>
<td>African Americans</td>
<td>17</td>
<td>26%</td>
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<tr>
<td>Latinos/Latinas</td>
<td>30</td>
<td>46%</td>
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<tr>
<td>Other Minorities</td>
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<td>12%</td>
</tr>
<tr>
<td>Non-Minority</td>
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<td>15%</td>
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</table>

<table>
<thead>
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<th>Gender Breakdown of Participants</th>
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<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
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<td>Male</td>
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<td>23%</td>
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<table>
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<tr>
<th>Geographical Breakdown of Participants</th>
<th>Count</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Illinois: Chicago</td>
<td>39</td>
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<tr>
<td>Illinois: Metro Area (excluding Chicago)</td>
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<td>Illinois: Outside Metro-Chicago Area</td>
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<td>8%</td>
</tr>
<tr>
<td>Out of State</td>
<td>6</td>
<td>9%</td>
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</table>

<table>
<thead>
<tr>
<th>Year in High School of Participants</th>
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<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Freshman</td>
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<td>Sophomore</td>
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<tr>
<td>Junior</td>
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<tr>
<td>Senior</td>
<td>11</td>
<td>17%</td>
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### E. Demographics of the Imagine ACES Experience Participants

Summer 2016 (N=43)

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<th>Ethnic/Racial Breakdown of the Imagine ACES Experience Participants</th>
<th>Count</th>
<th>Percentage</th>
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</thead>
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<tr>
<td>African Americans</td>
<td>11</td>
<td>26%</td>
</tr>
<tr>
<td>Latinos/Latinas</td>
<td>15</td>
<td>35%</td>
</tr>
<tr>
<td>Other Minorities</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td>Non-Minority</td>
<td>12</td>
<td>28%</td>
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<table>
<thead>
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<th>Gender Breakdown of Participants</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
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<td>74%</td>
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<tr>
<td>Male</td>
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<td>26%</td>
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</table>

<table>
<thead>
<tr>
<th>Geographical Breakdown of Participants</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois: Chicago</td>
<td>30</td>
<td>70%</td>
</tr>
<tr>
<td>Illinois: Metro Area (excluding Chicago)</td>
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</tr>
<tr>
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<td>Out of State</td>
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<table>
<thead>
<tr>
<th>Year in High School of Participants</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>8</td>
<td>19%</td>
</tr>
<tr>
<td>Sophomore</td>
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<td>Senior</td>
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## IV. THE IMAGINE ACES EXPERIENCE

### Participating Schools

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<tr>
<th>School Name</th>
<th>City</th>
<th>State</th>
<th>Number of Participants</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>Bolingbrook</td>
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<td>IL</td>
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</tr>
<tr>
<td>Byron High School</td>
<td>Byron</td>
<td>IL</td>
<td>1</td>
</tr>
<tr>
<td>Centennial HS</td>
<td>Champaign</td>
<td>IL</td>
<td>1</td>
</tr>
<tr>
<td>Central High School</td>
<td>Champaign</td>
<td>IL</td>
<td>2</td>
</tr>
<tr>
<td>Chicago HS for Agricultural Sciences</td>
<td>Chicago</td>
<td>IL</td>
<td>7</td>
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<tr>
<td>Curie Metropolitan HS</td>
<td>Chicago</td>
<td>IL</td>
<td>8</td>
</tr>
<tr>
<td>Glenbard North HS</td>
<td>Carol Stream</td>
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<td>Hubbard High School</td>
<td>Chicago</td>
<td>IL</td>
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<td>1</td>
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<tr>
<td>Lemont</td>
<td>Lemont</td>
<td>IL</td>
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</tr>
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<td>Chicago</td>
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<td>Lindblom</td>
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<td>IL</td>
<td>1</td>
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<tr>
<td>Pritzker College Prep</td>
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<td>Proviso Mathematics and Science Academy</td>
<td>Forest Park</td>
<td>IL</td>
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<tr>
<td>Southland College Prep HS</td>
<td>Richton Park</td>
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<td>Urban Prep for Young Men – Bronzeville</td>
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<tr>
<td>Back of the Yards</td>
<td>Chicago</td>
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</tr>
</tbody>
</table>
The Imagine ACES Experience Schedule Overview

Natural Sciences, Week One

Sunday, June 19, 2016
Hendrick House (904 West Green, Urbana, IL 61801)

Orientation, Mumford Hall Room 103

Global Crisis activity, Crop Sciences

Monday, June 20, 2016
Monsanto Visit, St. Louis, MO

Tuesday, June 21, 2016
Tour Pinnacle Foods Inc., Mattoon, IL

Wednesday, June 22, 2016
Overview of Natural Resources and Related Sciences and a Tour of Wetlands

Thursday, June 23, 2016
Overview of Agricultural and Biological Engineering Programs and learning activity

Friday, June 24, 2016
Animal Sciences overview and a learning activity at Beef Farm
Meat Sciences Lab/Horse Farm/Clowder

Social Sciences, Week Two

Tuesday, July 5, 2016
Hendrick House (904 West Green, Urbana, IL 61801)

Orientation, Mumford Hall Room 103

Agricultural Education overview and a learning activity

Wednesday, July 6, 2016
Agricultural Communications overview and a learning activity

Thursday, July 7, 2016
Workshop: How to be a competitive applicant
Workshop: Scholarship and Study Abroad

Friday, July 8, 2016
Careers in Human Professions overview and a learning activity
V. RESEARCH APPRENTICE PROGRAM (RAP) June 26 –July 31, 2016

A. Participating Schools (including the Ag Discovery Experience)

<table>
<thead>
<tr>
<th>School Name</th>
<th>City</th>
<th>State</th>
<th>Number of Participants</th>
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</thead>
<tbody>
<tr>
<td>Addison Trail High School</td>
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<td>Carpentersville</td>
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<td>Aurora</td>
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<tr>
<td>Infinity Math Science &amp; Tech High School</td>
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<tr>
<td>ITW David Speer Academy</td>
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<td>IL</td>
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<td>John F. Kennedy High School</td>
<td>Chicago</td>
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<td>Kenwood Academy</td>
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<tr>
<td>Lane Tech College Prep</td>
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<tr>
<td>Lindblom Math and Science Academy</td>
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<td>Mundelein High School</td>
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<td>Noble Street College Prep</td>
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<tr>
<td>Normal Community High School</td>
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<td>IL</td>
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<td>Oak Park River Forest High School</td>
<td>Oak Park</td>
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<td>Pritzker College Prep</td>
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<td>Proviso East</td>
<td>Maywood</td>
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<td>Proviso Math and Science Academy</td>
<td>Forest Park</td>
<td>IL</td>
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<tr>
<td>Springfield High School</td>
<td>Springfield</td>
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<tr>
<td>UNSN Garcia</td>
<td>Chicago</td>
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<td>Urban Prep Charter – Bronzeville</td>
<td>Chicago</td>
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<tr>
<td>Von Steuben Metropolitan Science Center</td>
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<tr>
<td>Whitney Young Magnet</td>
<td>Chicago</td>
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<tr>
<td>William Howard Taft</td>
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### Out of State Schools

<table>
<thead>
<tr>
<th>School Name</th>
<th>City</th>
<th>State</th>
<th>Number of Participants</th>
</tr>
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<tbody>
<tr>
<td>Carvin School, Inc.</td>
<td>Carolina</td>
<td>Puerto Rico</td>
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<tr>
<td>Charlotte Amalie High School</td>
<td>St. Thomas</td>
<td>Virgin Islands</td>
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<tr>
<td>Collierville HS</td>
<td>Collierville</td>
<td>TN</td>
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<tr>
<td>Freedom High School</td>
<td>South Riding</td>
<td>VA</td>
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<tr>
<td>Somerset County Vocational Technical</td>
<td>Bridgewater</td>
<td>NJ</td>
<td>1</td>
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<tr>
<td>The Piney Woods Country Life School</td>
<td>Piney Woods</td>
<td>MS</td>
<td>1</td>
</tr>
</tbody>
</table>

### B. Program Description Overview

The Program Director provided a comprehensive overview of the summer program, the schedule, and standards of student performance. This also provided an opportunity for students and parents to meet the Program Director and program staff and learn more about the current sponsors of RAP. This meeting was required of participants and their parents or guardians.

**Academic Enrichment Component - June 26 – July 8, 2016**

**Microcomputer Applications Workshop (three sessions)**  
This workshop series ensured that all participants achieved a basic level of computer literacy. Students were taught basic word processing, e-mail, spreadsheets, power point, and uses of the internet as an information gathering tool.

**Issues/Ethics Seminar (two sessions)**  
These sessions focused on ethical behavior in both academic and business settings. Topics such as academic integrity, personal choices, and research behavior were discussed. During field trips, students were introduced to business ethics.

**Reading, Writing, and Qualitative Skills**  
Over three weeks, exercises were used to challenge the reading and writing skills of participants. Participants were exposed to educational programming designed to improve basic writing skills and performance on standardized testing. This included reading and writing assignment utilizing the resources of the University Library.

**Technology/Computer Skills**  
A special computer laboratory was set up in the residence hall to enable students to work on their assigned team projects. Students were required to demonstrate the use of technology, such as PowerPoint, in their final presentations. Also students learned how to utilize technology to access information and other resources, in the University of Illinois Library System, the largest university library system in the nation.

**Biological Sciences Knowledge**  
Over two weeks, a biology instructor is employed to assess the knowledge of participants in advance of their beginning their assigned team projects. Basic terms and concepts are discussed, along with safety quizzes focusing on research, laboratory, etc. being administered to all participants.
Quantitative Reasoning and Math Skills
Students engage in a series of assessment activities and exercises related to math and its application to science to determine the quantitative and reasoning skills of participants and to formulate a plan to improve these. Students then apply math concepts to solve problems typically encountered in business and industry. A math assessment tool, called ALEKS, is utilized to assess and assist participants in improving their math and quantitative reasoning skills.

C. Program Schedule Overview

The Academic Schedule – June 26 – July 9 (week one and two)

Week One and Week Two

Day 1/Sunday, June 26
Program participants check-in at Hendrick House
Program Welcome/Program Overview

Day 2 – Day 13 (June 27 through July 8) S.T.E.M. Classes

Monday through Friday

8:30 AM – 10:00 AM Math Session #1 (Boone)  
10:15 AM – 11:45 AM Math Session #2 (Boone)  
1:00 PM – 2:30 PM Science Session (Oglesby) Biology  
2:30 PM – 4:00 PM Science Session (Oglesby) Social Sciences  
6:00 PM – 7:30 PM Writing Session #1 (Khadri)  
7:35 PM – 9:00 PM Writing Session #2 (Khadri)

(Additional sessions were added to accommodate USDA Ag Discovery which began on July 5th)

Day 7/Saturday, July 2  Six Flags, Gurnee, IL
Day 8/Sunday, July 3  Lincoln Park Zoo
Day 14/Saturday, July 9  Abraham Lincoln Presidential Library and Museum

Team Projects Component - July 10 – July 29, 2016 (week three, four and five)
Over three weeks, students were assigned to small groups or teams where they conducted a set of special science learning activities as developed by the activity sponsor and the hosting academic department in the College of ACES. Students are expected to demonstrate a basic understanding of how their science group contributes to the food supply chain. A series of visits and seminars both on and off campus serves as a resource base for the information necessary to successfully complete this exercise. All activities emphasized teamwork, problem-solving, computer skills, and presentation skills. At the end of the program, each team presented the outcomes of their assigned project activities.
Week Three

Day 16/Monday, July 11

**Presentation Day for Sponsors & ACES Departments**
- 9:00 – 9:30 AM  USDA APHIS Ag Discovery Presentations
- 9:35 – 10:05 AM  Plant Biotechnology - DuPont Pioneer Presentation
- 10:10 – 10:40 AM  Plant Biotechnology - Monsanto Presentation
- 10:45 – 11:15 AM  Engineering/Technology – Deere Presentation
- 11:20 – 11:50 AM  Engineering/Technology - CAT Presentations
- 11:55 – 12:35 PM  Animal Technology - Tyson Foods Presentation
- 12:35 – 1:40 PM  Lunch (Catered Heritage Room)
- 1:40 – 2:20 PM  Food Industry - PepsiCo Presentation
- 2:25 – 2:55 PM  Business and Marketing Presentation
- 3:00 – 3:30 PM  Environmental Sciences Presentation
- 3:35 – 4:05 PM  Human Development Professions Presentation
- 4:10 – 4:40 PM  Ag Communications Presentation

Week Four

Day 24/Tuesday, July 19

**IFT Conference at McCormick Place, Chicago**
- Food Industry Team
- Laboratory Research Group
- Engineering and Technology Team
- Human Professions Team
- Communications Team
- Plant Biotechnology Team

Day 25/Wednesday, July 20

**ARS labs in Peoria**
- Plant Biotechnology Team
- Engineering & Tech Team
- Ag Discovery Team

Day 29/Sunday, July 24 - Joint YSP & RAP-Cook out at Illini Grove

Week Five

Day 31/Tuesday, July 26

**PepsiCo Research & Development, Barrington, IL**
- Food Industry Team
- Engineering and Technology Team
- Ag Business and Marketing Team
- Communications Team
- Human Professions Team
Environmental Sciences Team
Dow Agro science World Headquarters Indianapolis, IN

Plant Biotechnology Team
Business and Marketing Team

Day 32/Wednesday, July 27 – 29

Tyson Foods Discovery Center (Springdale, Arkansas)

Ag Discovery Team
Food Industry Team
Animal Sciences-Tyson Foods Team
Young Scholars Program

Day 35/Saturday, July 30

RAP Team Presentations
10:00AM – 10:30AM  Ag Discovery PPQ
10:35AM – 11:05AM  Plant Biotech Presentation
11:10AM – 11:40AM  Engineering/Tech Presentation
11:45AM – 12:15PM  Ag Discovery Wildlife Sciences
12:15PM – 1:00PM   Lunch -Catered in Heritage Room, ACES Library
1:00PM – 1:30PM    Animal Sciences/Tyson Presentation
1:35PM – 2:05PM    Ag Discovery Veterinary Sciences
2:10PM – 2:40PM    Food Industry/PepsiCo Presentation
2:45PM – 3:15PM    Ag Business Presentation
3:20PM – 3:50PM    Environmental Sciences Presentation
3:55PM – 4:25PM    Human Professions Presentation
4:30PM – 5:00PM    Communications Presentation

Day 36/Sunday, July 31

ACES Pre-College Programs Banquet

Guest Speaker: Mr. Ken Johnson
Director Office of Civil Rights, Diversity and Inclusion
APHIS, Washington, DC

Student Presentations: RAP FSHN Laboratory Research Projects
VI. RAP Team Schedules

A. Animal Technology/Tyson Team:
Sponsored by Tyson Foods, Inc.

Team Leader: Brandon Klehm
Department: Animal Sciences

This team of 5 students involved learning about the food supply chain involving animals from production to the consumer. Students conducted a science project which involved area of the meat science and muscle biology. Participants visited the Hillshire Brands facility (Downers Grove, IL) where they conducted small hands-on projects to better understand the meat science industry, and the Tyson Foods World Headquarters and Discovery Center (Springdale, AR) where they engaged in various learning activities to expand their knowledge of the profession.

<table>
<thead>
<tr>
<th>T. Burnett</th>
<th>Chicago Vocational</th>
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<tbody>
<tr>
<td>I. Cruz</td>
<td>Benito Juarez</td>
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<tr>
<td>A. Hill</td>
<td>Waukegan High School</td>
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<tr>
<td>L. Johnson</td>
<td>Chicago H.S. Ag Sciences</td>
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<td>T. Linares</td>
<td>Carvin School, Inc.</td>
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## Animal Technology Team Schedule

<table>
<thead>
<tr>
<th>Monday, July 11</th>
<th>Tuesday, July 12</th>
<th>Wednesday, July 13</th>
<th>Thursday, July 14</th>
<th>Friday, July 15</th>
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<tbody>
<tr>
<td><strong>Presentations</strong></td>
<td><strong>Intro to Meat Science</strong></td>
<td><strong>Slaughter Video</strong></td>
<td>Kill Floor</td>
<td><strong>Hillshire</strong></td>
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<tr>
<td><strong>ACES Library Monsanto Rm</strong></td>
<td>Lunch</td>
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<tr>
<td></td>
<td>Pork fabrication</td>
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<td></td>
<td>Sausage making?</td>
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<td></td>
<td>Grocery Store Visit for Brat Investigation</td>
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<table>
<thead>
<tr>
<th>Monday, July 18</th>
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<th>Wednesday, July 20</th>
<th>Thursday, July 21</th>
<th>Friday, July 22</th>
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<tbody>
<tr>
<td><strong>Intro to Project</strong></td>
<td><strong>IFT</strong></td>
<td><strong>Weigh out PAs</strong></td>
<td><strong>Weigh back PAs</strong></td>
<td><strong>Weigh back PAs</strong></td>
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<tr>
<td><strong>Sensory Analysis Demo</strong></td>
<td>Sensory Panels</td>
<td>Sensory Panels</td>
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<tr>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
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<tr>
<td></td>
<td>Sausage Patty Lab and Curing Demo</td>
<td>Texture Analysis</td>
<td>DoD/ Cookery Lab</td>
<td>Organize Data and BBQ Demo</td>
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</table>

<table>
<thead>
<tr>
<th>Monday, July 25</th>
<th>Tuesday, July 26</th>
<th>Wednesday, July 27</th>
<th>Thursday, July 28</th>
<th>Friday, July 29</th>
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</thead>
<tbody>
<tr>
<td><strong>Summarize Data</strong></td>
<td><strong>Work on Presentation</strong></td>
<td><strong>Chicken Cut/ Value Added</strong></td>
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<td><strong>Tyson</strong></td>
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<tr>
<td></td>
<td>Grocery Store Visits</td>
<td></td>
<td></td>
<td><strong>Tyson</strong></td>
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<tr>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
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<tr>
<td><strong>Beef Barn Visit</strong></td>
<td>Old Time Meat &amp; Deli Visit</td>
<td>Work on Presentation</td>
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<tr>
<td></td>
<td>Work on Presentation</td>
<td>Practice Presentation</td>
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</table>
B. Food Industry Team:
Sponsored by PepsiCo Research and Development, Barrington, IL

Team Leader: Paul Jung
Department: Food Science and Human Nutrition

This team of 5 students involved learning about the food supply chain involving food product development from the science of food to the consumer. Students conducted science projects which helped them to better understand the food industry. These learning activities were carried out at the research and development facility (PepsiCo Research and Development in Barrington, IL) and the production and distribution plant (Quaker Oats Plant in Danville, IL).

K. Gomez
C. Greer
C. Roman
H. Valdez
J. Ventura

Chicago H. S. for Agricultural Sciences
Proviso Math and Science Academy
William Howard Taft
ITW David Speer Academy
Chicago H.S. for Agricultural Sciences
Food Industry Team Schedule:

Monday, July 11: Presentations - PepsiCo Presentation

Tuesday, July 12: Product Development
Finance and Cost of Products
Introduction to Product Development Process

Wednesday, July 13 PepsiCo, Research & Development Center, Barrington, IL
Learn what ingredients are important to a granola bar and how these ingredients affect the product, Granola Bar Nutrition

Thursday, July 14 Team Sponsor Visit – Second Day
PepsiCo, Research & Development Center, Barrington, IL

Experimental Design for Food Scientists
Demonstration on how to make granola bars.
Work directly with food technologists to develop batches of granola bars.

Friday, July 15 Campus Tour
Team Meeting

Monday, July 18 Microsoft Excel
Team Meeting

Tuesday, July 19 IFT 2016 - Institute of Food Technologists - Food Expo
Location: McCormick Place, Chicago, IL

Wednesday, July 20 Baking Experiment
Fundamentals of Nutrition

Thursday, July 21 Marketing
Food Safety and Microbiology

Friday, July 22 PepsiCo, Danville, IL - Large Scale Plant
Travel to PepsiCo’s Danville, IL facility. Tour the Quality Assurance (QA) labs and observe large scale manufacturing of chewy granola bars.

Monday, July 25: Texture Lab
Sensory Science

Tuesday, July 26 PepsiCo Research & Development, Barrington, IL

Wednesday, July 27/28/29 Tyson Tour, Springdale, Arkansas
C. Plant Biotechnology Team:
Co-sponsored by DuPont Pioneer and Monsanto

Team Leaders:
Taylor Wilkinson, graduate student
Wendy White, Staff Member, Crop Sciences

This team of 5 students involved learning about plant breeding, genetics and other aspects of plant biotechnology. This involved gaining a better understanding of these areas and how they relate to food security by visiting the major research and development laboratories at DuPont Pioneer (Johnston, Iowa) and Monsanto Research (St. Louis, MO). At both sponsors, and in Crop Science laboratories on campus, students engaged in various learning activities which expanded their knowledge.

<table>
<thead>
<tr>
<th>G. Balto</th>
<th>G. Chicago H.S. for Agricultural Sciences</th>
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<tbody>
<tr>
<td>A. Cardine</td>
<td>A. Curie Metro</td>
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<tr>
<td>J. Lin</td>
<td>J. Curie Metro</td>
</tr>
<tr>
<td>A. Roman</td>
<td>A. Kenwood</td>
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<tr>
<td>L. Wang</td>
<td>L. Normal Community High School</td>
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</table>
Plant Biotechnology Team Schedule

Monday, July 11  All Presentations Monsanto Room, ACES Library

Tuesday, July 12  DuPont Pioneer Facilities, Johnston Iowa
                 Travel to Moline and stay overnight

Wednesday, July 13  John Deere – Moline, IL
                     Botanical Gardens

Thursday, July 14  Pioneer – Ivesdale, IL
                  Team Project Overview/Plant Biotechnology/Genetics Introduction
                  Discuss Pioneer presentation /Complete Pioneer Handout

Friday, July 15  Check Experiments
                 Crop Science’s Student Visit Day
                 Campus Lab & Research Facilities Tours

Monday, July 18  University of Illinois Pollinatarium
                 W.M. Keck Center for Comparative & Functional Genomics
                 Stephen Moose Corn Functional Genomics Lab at Illinois

Tuesday, July 19  IFT 2016 - Food Expo – McCormick Place

Wednesday, July 20  USDA ARS – Peoria, IL
                    CAT Simulators

Thursday, July 21  Mighty Vine Hydroponic Greenhouse, Rochelle, IL
                  Dupont Pioneer – Rochelle Research Station

Friday, July 22  Fred Below Lab - The Seven Wonders of the Corn Yield World
                 Experiments
                 Plant Clinic
                 Schroeder Lab - Nematodes

Monday, July 25  Danforth Center, St. Louis, MO
                 Monsanto, St. Louis, MO

Tuesday, July 26  SoyFACE
                 Energy Farm, Energie Biosciences Institute (E.B.I.)
                 Juvik Lab – Tissue Culture
                 Brown Lab – Genetic Markers/PCR

Wednesday, July 27  DOW AgrowSciences Global Headquarters - Indianapolis, IN

Thursday, July 28  Program review and prepare Team Presentation

Friday, July 29  Program review and prepare Team Presentation

Saturday, July 30  Team Presentations

Sunday, July 31  Awards Banquet
D. Engineering and Technology Team:
Co-sponsored by John Deere Company and Caterpillar, Inc.

Team Leader: Grace Chen
Department: Agricultural and Biological Engineering

This team of 4 students involved learning about how engineering and technological development support the food and agricultural system. This involved better understanding of areas of agricultural engineering such as food and bioprocessing, soil and water conservation, power, and biological; as well as the management of such systems. Participants conduct project in laboratories of the department of Agricultural and Biological Engineering. At the CAT Center, they experienced the simulator, and at John Deere, they attended a lecture and toured the Harvester Works plant.
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Type</th>
<th>Notes</th>
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<tbody>
<tr>
<td>7/11/2016</td>
<td>Orientation, External committee will give a brief introduction</td>
<td>Speakers</td>
<td>N/A</td>
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<tr>
<td>7/12/2016</td>
<td>Visit E2-Energy Lab; pilot-reactor; Project Introduction</td>
<td>Visit</td>
<td>Homework 1</td>
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<tr>
<td>7/13/2016</td>
<td>Distillation of Food-processing biocrude Oil--1</td>
<td>Lab activities</td>
<td>Homework 2</td>
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<tr>
<td>7/14/2016</td>
<td>Prof. Rodriguez</td>
<td>Lectures</td>
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<tr>
<td>7/15/2016</td>
<td>Field Trip to John Deere</td>
<td>Visit</td>
<td>Worksheet 1</td>
</tr>
<tr>
<td>7/18/2016</td>
<td>Distillation of Food-processing biocrude Oil--2</td>
<td>Lab activities/lecture</td>
<td>Homework 3</td>
</tr>
<tr>
<td>7/19/2016</td>
<td>IFT Conference to Chicago (Group Trips)</td>
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<tr>
<td>7/20/2016</td>
<td>Field Trip to USDA /CAT</td>
<td></td>
<td>Worksheet 2</td>
</tr>
<tr>
<td>7/21/2016</td>
<td>Distillation of Food-processing biocrude Oil—3</td>
<td>Lab activities/lecture</td>
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<tr>
<td>7/22/2016</td>
<td>Measure the heating values, densities, viscosity, acidity of FPW- and SW-distillates and diesel.</td>
<td>Lab activities/lecture</td>
<td>Homework 4</td>
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<tr>
<td>7/25/2016</td>
<td>(Morning) Slide show preparation/Results calculations</td>
<td>Group activities/Discussion</td>
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<tr>
<td>7/25/2016</td>
<td>(Afternoon) Ms. Ann Marie Boone</td>
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<tr>
<td>7/26/2016</td>
<td>Pepsico Visit (Whole day with Dean Thompson)</td>
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<tr>
<td>7/27/2016</td>
<td>Work on presentation</td>
<td></td>
<td>Worksheet 3</td>
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<tr>
<td>7/28/2016</td>
<td>Slide show preparation (Ann Marie will stop by at 3pm)</td>
<td>Group activities/Discussion</td>
<td>Draft slide show</td>
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<tr>
<td>7/29/2016</td>
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<td>Group activities/Discussion</td>
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<td>7/30/2016</td>
<td>Final Presentation</td>
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<tr>
<td>7/31/2016</td>
<td>Reception Banquet</td>
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*Ms. Boone will have her activities in the afternoon.*
E. Ag Business and Marketing Team:

**Team Leader:** Patrese Anderson, graduate student  
**Department:** Agricultural and Consumer Economics

This team of 5 students involved learning about the challenging role involving how we apply economic principal to solve issues in financing the feeding and clothing of people around the world. This involved learning about markets and management skills that answer questions related to food production, processing and the retail sector of the agricultural and food industry, as well as the impact of such issues on the environment. The students visited PepsiCo where they learned about marketing of food products, and Dow AgroSciences, to better understand production issues affecting the market.

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<tr>
<td>C. Brown</td>
<td>Bowen High School</td>
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<td>K. Fakoya</td>
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<td>M. Hill</td>
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<tr>
<td>J. Shi</td>
<td>Illinois Mathematics &amp; Science Academy</td>
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**ACE Marketing and Business Team Schedule**

<table>
<thead>
<tr>
<th>Location</th>
<th>Monday July 11</th>
<th>Tuesday July 12</th>
<th>Wednesday July 13</th>
<th>Thursday July 14</th>
<th>Friday July 15</th>
<th>Monday July 18</th>
<th>Tuesday July 19</th>
<th>Wednesday July 20</th>
<th>Thursday July 21</th>
<th>Friday July 22</th>
<th>Monday July 25</th>
<th>Tuesday July 26</th>
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<tbody>
<tr>
<td>451 Mumford 10-11</td>
<td></td>
<td>Introduction</td>
<td>Lecture 1</td>
<td>Lecture 1</td>
<td></td>
<td>Grad Panel Discussion</td>
<td>Current Events</td>
<td>Lecture 1</td>
<td>Lecture 3</td>
<td>Lecture 4</td>
<td>Lecture 4</td>
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<tr>
<td>451 Mumford 11-12</td>
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<td>Lecture 1</td>
<td>Freakanomics Discussion 1</td>
<td>Current Events</td>
<td>Lecture 2</td>
<td>Lecture 3</td>
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<td>Lecture 3</td>
<td>Lecture 3</td>
<td>Current Events</td>
<td>Presentation</td>
<td>Freakanomics Discussion 5</td>
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<tr>
<td>029 Aces Computer Lab 1-4</td>
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<td>Lecture 1</td>
<td>Lecture 2</td>
<td>Freakanomics Discussion 2</td>
<td>Lecture 2</td>
<td>Lecture 3</td>
<td>Lecture 3</td>
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<td>Lecture 3</td>
<td>Lecture 5</td>
<td>Lecture 4</td>
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**Wednesday July 27**

**Dow Agro science World Headquarters Indianapolis, IN**

**Thursday July 28**

Undergrad Panel Discussion  | Freakanomics Discussion 6 | Presentation

**Friday July 29**

Presentation Review

**Saturday July 30**

Presentation Day

**Sunday July 31**

Awards Banquet

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**Lecture 1 (1 day)**

Intro to STATA: What is stata, downloading data bringing it into stata looking at it etc

**Lecture 2 (2 days)**: Summary Statistics

**Lecture 3 (2 days)**: Displaying Data histograms, graphs etc.

**Lecture 4 (2 days)**: Finding relationships in data and their meanings

**Lecture 5 (1 day)**: Finding data, data formats etc.

**Lecture 6 (1 day)**: Data formats for excel using excel to import and export data

**Lecture 7 (1 day)**: Other software Mathematica, Python, Matlab, R, Geoda

---

**Freakanomics** by Steven Levitt and Stephen Dubner

**Freakanomics** merges economics with pop culture helping the reader to see incentives and choice in daily life. I hope that this book will help explain how economics relates to everything. The following are the topics in the book:

- Chapter 1: Discovering cheating as applied to teachers and sumo wrestlers, as well as a typical Washington DC area bagel business and its customers
- Chapter 2: Information control as applied to the Ku Klux Klan and real-estate agents
- Chapter 3: The economics of drug dealing, including the surprisingly low earnings and abject working conditions of crack cocaine dealers
- Chapter 4: The role legalized abortion has played in reducing crime, contrasted with the policies and downfall of Romanian dictator Nicolae Ceaușescu (Levitt explored this topic in an earlier paper entitled "The Impact of Legalized Abortion on Crime," written with John Donohue.)
- Chapter 5: The negligible effects of good parenting on education
- Chapter 6: The socioeconomic patterns of naming children (nominative determinism)
F. Environmental Sciences Team:

Team Leader: Eric Green  
Department: Natural Resources and Environmental Sciences

This team of 4 students involved learning about the how humans need to learn to better manage complex issues involving climate, clean and abundant water, biodiversity, and the ecosystem in general. This involved filed trips to various local locations where students could observe wetlands, waterways, and ecosystems to better expand their knowledge.

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<thead>
<tr>
<th></th>
<th>Gonzalez</th>
<th>Centennial High School</th>
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<tbody>
<tr>
<td>H.</td>
<td>Patel</td>
<td>Dundee Crown High School</td>
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<td>J.</td>
<td>Poole</td>
<td>Chicago H. S. for Agricultural Sciences</td>
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<tr>
<td>D.</td>
<td>Velazquez</td>
<td>Lincoln Park High School</td>
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</table>
Environmental Science Team Schedule

Monday, July 11  (Presentations) NRES Presentation

Tuesday, July 12  Purpose of Science / Disciplines of Thought / Environmental Philosophy
  Trip to Meadowbrook -Reflection

Wednesday, July 13  Reflection Responses/Scientific Method/Research
  Question Development/Systems Thinking
  Nancy and Pattsi Presentation
  Tour of John Street Watershed –Reflection

Thursday, July 14  Reflection Responses/Problem Identification – Question/Solution Development
  Rain Garden Tour/Rain Garden Introduction
  Components of a rain garden/Reflection

Friday, July 15  Plant Identification with Samantha Chavez
  Restoration Principles/Human-Environment Interactions
  Plants as a resource/Plant Selection

Monday, July 18  Soils with Dr. Yanarell
  Plant Review: Plant Choices
  Topsoil Issues and Maintenance/Brownfields and Urban Soil Contaminants
  Soil as a resource/Soil composition and impact on rain garden

Tuesday, July 19  Water Sampling with Dr. Kent, UI POLLINATARIUM
  Soil Review: Composition and Drainage
  Groundwater and Surface Issues
  Water as a resource/Storm water and pollutant runoff

Wednesday, July 20  Pollinators with Dr. Molano-Flores
  Water Review: Pollutant and water capture
  Ecosystems and Habitats
  Economics of Rain Gardens/Cost-Benefit Analysis

Thursday, July 21  Site Visit
  Principles of Design with Andrew Weiss
  Hand Sketches

Friday, July 22  Site Visit/Tools of Design with Andrew Weiss
  Storm size/water capture/Area & Volume Calculations/Soil Amendments
  Siting/Plant Selection
  Rough designs using CAD and Photoshop

Monday, July 25  Design Review/Design Update
  Implementation and Sourcing Materials/Update Design

Tuesday, July 26  Outline Presentation/Preliminary Presentation
  Feedback and Critique/Integration of feedback

July 27 – July 29  Presentation Work
G. Communications Team:

Team Leader: Leia Flure  
Program: Agricultural Communications

This team of 4 students gained an understanding of how media impacts the food and environmental systems by the way that media professionals communicate about such complex issues to the public. Student explored areas such as public relations, advertising, journalism, and broadcast field involving food, agriculture and the environment. They participated in a live local broadcast on one of the TV stations, and learned how to manage a survey.

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<td>V.</td>
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<td>Iturralde</td>
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<tr>
<td>M.</td>
<td>Range</td>
<td>Oak Park River Forest High School</td>
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## Ag Communications Team Schedule

### Week 1

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>7/11</td>
<td>ACES Presentations</td>
</tr>
</tbody>
</table>
| Tuesday   | 7/12 | Morning: FSHNGSA Symposium [https://publish.illinois.edu/foodforthefuture/](https://publish.illinois.edu/foodforthefuture/)  
Afternoon: Moving from research to the real world  
- History of Ag Comm  
- Overview of major areas/skills (photography, newswriting, broadcast media, etc.), audiences  
- Identifying newsworthy agricultural/environmental issues – social media exploration |
| Wednesday | 7/13 | Research Project Work Day                                               |
| Thursday  | 7/14 | Morning: Research Project Work Day  
Afternoon: Plan Ag Answers segment |
| Friday    | 7/15 | Field Trip to Springfield (Illinois Beef Association – Jill Johnson; Illinois Public Radio – Amanda Vinicky) |

### Week 2

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>7/18</td>
<td>Research Project Work Day</td>
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<tr>
<td>Tuesday</td>
<td>7/19</td>
<td>IFT Conference in Chicago</td>
</tr>
</tbody>
</table>
| Wednesday | 7/20 | Morning: Field Trip to Idea Garden and Unit 13 Office (UI Extension – Ava Heap)  
Afternoon: Joint session with PEPSICO Team |
| Thursday  | 7/21 | Research Project Work Day  
Practice for Ag Answers segment |
| Friday    | 7/22 | Tape Ag Answers LIVE at WCIA-3 (5:30 am)  
Field Trip to St. Louis (Novus International – Regan Emkes) |

### Week 3

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Monday</td>
<td>7/25</td>
<td>Research Project Work Day</td>
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<tr>
<td>Tuesday</td>
<td>7/26</td>
<td>Tour Campus Facilities (studios at Campbell and Mumford; Media Commons) with Todd Gleason</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7/27</td>
<td>Johnston, IA/Springdale, AR</td>
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<tr>
<td>Thursday</td>
<td>7/28</td>
<td>Wrap-up/prep for presentation</td>
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<tr>
<td>Friday</td>
<td>7/29</td>
<td>Wrap-up/prep for presentation</td>
</tr>
<tr>
<td>Saturday</td>
<td>7/30</td>
<td>Group presentations</td>
</tr>
<tr>
<td>Sunday</td>
<td>7/31</td>
<td>Banquet</td>
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</tbody>
</table>
H. Human Professions Team:

Team Leader: Lorraine Munoz, graduate student  
Department: Human and Community Development

This team of 4 students who carried out activities to better understand societal issues that affects children, youth, adults, and families. Participants were given an overview of experiences that provided a broad based knowledge of physical, cognitive, and social development of children and adolescents through adulthood. They conducted a survey addressed development and cultural issues among teenagers.

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<tbody>
<tr>
<td>I.</td>
<td>Ahmed</td>
<td>UNSN Garcia</td>
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<tr>
<td>M.</td>
<td>Lara</td>
<td>Eric Solorio Academy High School</td>
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<td>E.</td>
<td>Manzo</td>
<td>Curie Metropolitan High School</td>
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<td>R.</td>
<td>Patino</td>
<td>J.S. Morton East High School</td>
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</table>
Human Professions Team Schedule

**Week One**

*July 11th* – ***Introduction Presentation* (HDFS 3:35 – 4:05 PM)

*July 12th* – Introduction to Human Development

*July 13th* – Human Development (Infant/Toddler/Preschooler)

*July 14th* – Human Development (Preschooler Gender Differences)

*July 15th* – Human Development (Middle School)

**Week Two**

*July 18th* – Human Development (Adolescence)

*July 19th* – Field Trip: **IFT Annual Food Expo, McCormick Place, Chicago, IL**

*July 20th* – Human Development (Emerging Adulthood/Late Adulthood)

*July 21st* – Family Theory

*July 22nd* – Critical Family Transitions

**Week Three**

*July 25th* – Couple Conflict, parent-child conflict, divorce medication & prevention, parenting style

*July 26th* – Field Trip: **PepsiCo Research and Development, Barrington, IL**

*July 27th* – Work on Presentations

*July 28th* – ***Practice Presentations

*July 29th* – ***Practice Presentations

*July 30th* – ***Final Presentation* (HDFS 3:40 – 4:10 PM)
I. Ag Discovery Program/USDA APHIS:
Sponsored by the USDA Animal, Plant, Health and Inspection Service

Team Leaders:
John Andress, graduate student
Ashley Nagele, Alumni

Program/Department: Agricultural Education/Animal Sciences

This group of 14 students had the goal of learning how the USDA through the Animal, Plant, Health and Inspection Service (APHIS) protects the nation’s food supply. Students were involved in activities conducted by USDA Veterinary Services, USDA Wildlife Services, and USDA Plant Protection and Quarantine. This involved field trips to various sites statewide, such as sale barns, meat labs, forest preserves, shipping facilities and airports, to learn about how these federal employees conduct their task of food security and biosecurity.

<table>
<thead>
<tr>
<th>Student</th>
<th>School</th>
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<tr>
<td>M.</td>
<td>Banderas Pritzker College Prep</td>
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<td>D.</td>
<td>Basham Clifton Central High School</td>
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<td>Cleary Chicago H. S. for Agricultural Sciences</td>
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<td>Contreras J. Sterling Morton East</td>
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<td>H.</td>
<td>Funderburg Springfield High School</td>
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<td>D.</td>
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<td>Hernandez Addison Trail High School</td>
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<td>J.</td>
<td>Johnson Somerset County Vocational Tech</td>
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<td>D.</td>
<td>Kane The Piney Woods Country Life School</td>
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<td>S.</td>
<td>Lee Freedom High School</td>
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<td>K.</td>
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<td>A.</td>
<td>Robles Lane Tech College Prep</td>
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<td>E.</td>
<td>Sambora John F. Kennedy High School</td>
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</tbody>
</table>
USDA Ag Discovery Team Schedule

Week 1

Monday, July 4 – Assessment Week
Friday, July 8

Saturday, July 9 Abraham Lincoln Presidential Library and Museum, Springfield, IL

Week 2

Monday, July 11 RAP Presentation Day

Tuesday, July 12 APHIS/Ag Discovery Presentation Day
WS - Diversity of wildlife damage management activities conducted by the Illinois WS program
WS – Recovery and conflict management in Illinois
IES – Introduction to IES
VS – Introduction to VS/Zoonotic and Regulatory Diseases of Livestock
VS – On-farm Biosecurity and Zoonosis Prevention
VS – Donning and Doffing of PPE video and exercise
VS – Introduction to One Health
Introduce Team Projects, prep students for field activities

Wednesday, July 13 VS/WS – Kilgus Farmstead – Dairy, Creamery, and Country Store; Fairbury
WS – European Starling Damage Management at a Dairy
VS – Discussion of regulatory/public health concerns in cattle/dairies
Afternoon
VS – Fisher Community Fair and Horse Show, Fisher
Discussion of livestock identification, interstate livestock movement, husbandry, important livestock diseases at an exhibition, etc.
Observe livestock exhibitions

Thursday, July 14 VS/PPQ – Mid-America Airport, Mascoutah
WS – Wildlife mitigation techniques at an airfield
PPQ – North Bay Produce, Mascoutah
Cold treatment techniques for imports

Friday, July 15 VS – Dr. Clifford Shipley’s deer farm, St. Joseph
Overview of cervid husbandry, important diseases of cervids, etc.
Afternoon
Activity TBD/Work on Team Projects

Week 3

Monday, July 18 VS – Central Illinois Poultry Processing Plant, Arthur
Overview of humane poultry slaughter, meat processing, food safety/sanitation, poultry biosecurity, etc.
LUNCH at Yoder’s Kitchen, Arthur
VS – Arthur Sale Barn, Arthur
Overview of market operations, livestock identification and recordkeeping, etc
Observe sale proceedings

Tuesday, July 19 VS – U of IL Meat Sciences Laboratory, Urbana
Overview of humane mammal slaughter, meat processing, food safety/sanitation

**PPQ** – Lake of the Woods Park, Mahomet (Izaak Walton Cabin)
Overview of Gypsy Moth Program
Overview of PPQ domestic trapping program

**Wednesday, July 20**

PPQ – ARS Lab and Containment Facility, Peoria

**Thursday, July 21**

VS – U of IL College of Veterinary Medicine, Urbana
Veterinary Hospital tour
Fistulated cow
Gross Anatomy Lab
VS/IES – U of IL Veterinary Medicine Research Farm, Urbana
Mock FAD investigation exercise

**Friday, July 22**

AC – Scovill Zoo, Decatur
Mock Animal Care inspection of zoo facilities
VS – NIES presentation
Ocean Drover presentation
Work on Team Projects

**Week 4**

**Sunday, July 24**

Travel to Chicago overnight lodging

**Monday, July 25**

VS – Shedd Aquarium, Chicago
Behind the scenes tour, meet with aquarium veterinarian
Explore exhibits, including “At Home on the Great Lakes”

VS – VS Port Office, Des Plaines
Overview of Veterinary Services’ Port Operations

PPQ/CBP – Chicago-O’Hare International Airport, Des Plaines
Overview of Customs and Border Patrol’s Agricultural Passenger Operations

**Tuesday, July 26**

WS – Cook County Forest Preserve, Orland Park
Introduction and overview of Wildlife Services’ research projects at the Forest Preserves of Cook County
Overview of wildlife tracking
Overview of turtle biomonitoring
Overview of wildlife trapping methods

**Wednesday, July 27**

RAP Tyson Visit, Springdale, AR

**Thursday, July 28**

RAP Tyson Visit, Springdale, AR

**Friday, July 29**

RAP Tyson Visit, Springdale, AR

**Saturday, July 30**

Team Project Presentations

**Sunday, July 31**

Awards Banquet
J. LABORATORY RESEARCH GROUP

Research Mentors:
Adams Kriska, graduate student
Luis Vargas, graduate student

Department: Food Science and Human Nutrition

This six-week advanced learning activity is provided at the request of departmental faculty for a select number of highly talented second year RAP and Ag Discovery students to pursue a research experience in a laboratory with the College of ACES. Students are interviewed and selected based on how their area of interest matches with the available research laboratory project. Two students are assigned to a graduate student mentor, who works closely with the student in conducting a scientific project. A project paper and oral presentation are required. Each student devotes approximately 25-30 hours per week to his/her project.

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<thead>
<tr>
<th>K. Crook</th>
<th>Mother McAuley Liberal Arts High School</th>
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<tbody>
<tr>
<td>E. Neeson</td>
<td>Chicago High School for Agricultural Sciences</td>
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<tr>
<td>A. James</td>
<td>Jones College Prep</td>
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<td>S. Booker</td>
<td>Gwendolyn Brooks College Prep Academy</td>
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**VII. Young Scholars Program: July 5 – July 31, 2016**

1. **Bridging the Gap/Academic Preparation**

   The Young Scholars Program provides a unique opportunity for former RAP participants and traditionally underserved students admitted to the University of Illinois in the College of ACES, to gain an early look at the demands of the academic environment. Participants attend special non-credit summer courses in math, writing and chemistry designed to prepare them for their first fall semester college experience. They receive special financial assistance through various scholarship programs as well as academic counseling to aid them in their transition from high school to the competitive university environment. YSP students also participate in a two-year academic support program during the freshman and sophomore years designed to increase retention, maintain scholarly performance, and enhance leadership development and public service.

2. **Summer Session II, 2016 Activities**

   During the pre-college summer session, incoming students are encouraged to participate in one of two types of academic activities. The first is an experience at their local community colleges that is designed to prepare them for their fall semester at the University of Illinois. Students who select this option are guided towards courses that will meet their personal goals and that can be transferred to credit at the U of I. The second involves a four-week academic enrichment session at the U of I that includes in-class and on-line instruction in chemistry, math and writing skills. The goal is to strengthen these skills prior to the fall academic term. An on-line component in math and chemistry is utilized through ALEKS.
Young Scholars Program (YSP) - Schedule of Activities

July 5th – July 31, 2016

Weekly Schedule

Monday
8:00 AM – 9:30 AM  Composition Writing Skills (Khadri)
10:15 PM – 11:45 PM  Chemistry Review sessions (Huynh)
2:30 PM – 4:00 PM  Math Review /Pre-Calculus (Boone)

Tuesday
8:00 AM – 9:30 AM  Composition Writing Skills (Khadri)
10:15 PM – 11:45 PM  Chemistry Review sessions (Huynh)
2:30 PM – 4:00 PM  Math Review /Pre-Calculus (Boone)

Wednesday
8:00 AM – 9:30 AM  Composition Writing Skills (Khadri)
10:15 PM – 11:45 PM  Chemistry Review sessions (Huynh)
2:30 PM – 4:00 PM  Math Review /Pre-Calculus (Boone)

Thursday
8:00 AM – 9:30 AM  Composition Writing Skills (Khadri)
10:15 PM – 11:45 PM  Chemistry Review sessions (Huynh)
2:30 PM – 4:00 PM  Math Review /Pre-Calculus (Boone)

Friday
8:00 AM – 9:30 AM  Composition Writing Skills (Khadri)
10:15 PM – 11:45 PM  Chemistry Review sessions (Huynh)
2:30 PM – 4:00 PM  Math Review /Pre-Calculus (Boone)

Saturday
Open

Sunday
Open
### On-Campus Young Scholars Program Participants (Summer 2016)

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<th>First Name</th>
<th>Last Name</th>
<th>High School</th>
<th>Major</th>
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<td>Cooney</td>
<td>Prophetstown High School</td>
<td>ANSC</td>
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<tr>
<td>Gabriella</td>
<td>Cruz</td>
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<td>Estrada</td>
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<td>Elizabeth</td>
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<td>Ariel</td>
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<td>Kamber</td>
<td>Maine Township South</td>
<td>ABE</td>
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<td>Luciano</td>
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<tr>
<td>Rossy</td>
<td>Tejeda</td>
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<td>Lisa</td>
<td>Wetzel</td>
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### Young Scholars Program (Did not participate this summer)

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<td>Mascoutah High School</td>
<td>ANSC</td>
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VIII.  ACES Pre-College Summer Programs 2016
Recognition and Awards Banquet
University of Illinois, I-Hotel, Illinois Ballroom
Sunday, July 31, 2016 from 12:00pm – 3:00pm

Certificates of Participation

All Participants of RAP & Ag Discovery

Outstanding Team – Plant Biotechnology Team

**Plant Biotechnology Team**

**Sponsored by DuPont Pioneer and Monsanto Company**

**Wendy White, Team Leader, Crop Sciences**

**Taylor Wilkinson, Team Leader, Crop Sciences**

Gwendoline Balto- Chicago High School for Agricultural Sciences
Amyah Cardine- Curie Metropolitan High School
Juliana Lin- Curie Metropolitan High School
Alexander Roman- Kenwood Academy High School
Liliana Wang- Normal Community High School

Outstanding Team – Environmental Sciences Team

**Environmental Science Team**

**Eric Green, Team Leader, Natural Resources and Environmental Sciences**

Alexandra Gonzalez- Centennial High School
Henal Patel- Dundee Crown High School
Jonathan Poole- Chicago High School for Agricultural Sciences
Diana Velazquez- Lincoln Park High School

Outstanding Team - Engineering and Technology Team

**Engineering and Technology Team**

**Sponsored by John Deere Company and Caterpillar, Inc.**

**Grace Chen, Team Leader, Agricultural and Biological Engineering**

Ahmed Abbas- Von Steuben Metropolitan Science Center
Ashley Arroyo- Lincoln Park High School
Briana Green- Collierville High School, (TN)
Erinn Thomas- Lindblom Math and Science Academy

Directors Scholarship Awards

- Jennifer Ventura- Chicago High School for Agricultural Sciences
- Hugo Calderon- John F. Kennedy High School
- Briana Green- Collierville High School
- Melanie Range-Oak Park River Forest High School
**Team Leader’s Awards**

**Ag Discovery Team**  
- Dakota Basham- Clifton Central High School  
- Isabelle Hernandez- Addison Trail High School  
- Amanda Robles- Lane Tech College Prep

**Animal Technology Team**  
- Tatiana Linares- Carvin School, Inc.

**Environmental Science Team**  
- Henal Patel- Dundee Crown High School

**Engineering/Technology Team**  
- Ahmed Abbas- Von Steuben Metropolitan Science Center

**Communications Team**  
- Amelia Barboza- Infinity Math Science & Tech High School

**Human Professions Team**  
- Izma Ahmed- UNSN Garcia

**Ag Business and Marketing Team**  
- Kabir Fakoya- Mundelein High School

**Food Industry Team**  
- Jennifer Ventura- Chicago High School for Agricultural Sciences

**Plant Biotechnology Team**  
- Liliana Wang- Normal Community High School

**Teacher’s Awards**

**Math Teacher Award**  
- Treyonous Burnett- Chicago Vocational Career Academy

**Writing Teacher Award**  
- Ahmed Abbas- Von Steuben Metropolitan Science Center

**Biology Teacher Award**  
- Jennifer Ventura- Chicago High School for Agricultural Sciences

**Laboratory Research Group Recognition Plaques**

- Stephanie Booker- Gwendolyn Brooks College Preparatory Academy  
- Kaitlyn Crook- Mother McAuley Liberal Arts High School  
- Audrey James- Jones College Prep  
- Emily Neeson- Chicago High School for Agricultural Sciences
Kenneth E. Johnson (Ken)

Director, Office of Civil Rights, Diversity and Inclusion (OCRDI)

Mr. Johnson is responsible for providing leadership, direction, coordination, evaluation and support to the APHIS: Formal and Informal Complaint Programs; Cultural Transformation and Diversity and Inclusion Programs; Tribal Consultation and Outreach Programs; Civil Rights Compliance Program; and Minority Outreach and Special Emphasis Programs.

During his 37-year Federal Career, Ken spent 10 years with the Agricultural Marketing Service, 2-years with the Office of the Assistant Secretary for Civil Rights, and 25 years with the Animal and Plant Health Inspection Service. He has held positions such as Special Programs Consultant to the Administrator; Acting Director, USDA Center for Minority Farmers; Director Emergency Planning and Response Division; Director of the Riverdale/Washington Business Site; Director Resource Management, Wildlife Services; Branch Chief, Procurement Policy and Safety Management; Budget Analyst; Administrative Officer; and Agricultural Marketing Specialist.

In addition to his Federal service, Ken served 9 years as an elected member of the Prince George's County Maryland Board of Education. During his tenure on the Board, Ken's colleagues elected him Chairman of the Board three times.
IX. **ACES Pre-College Summer Programs**

**Program Director**
Dr. Jesse Thompson  
Assistant Dean and Coordinator, Diversity and Outreach  
ACES Academic Programs

**Assistant Program Director**
Diana Rodriguez  
Coordinator, Urban Agricultural Education, Chicago  
ACES Academic Programs

**Program Support**
Ms. Rachael Sanders  
Office Associate to Assistant Dean, for Diversity and Outreach

**Residence Hall Staff**
Kristin Boone, Math Education (B.S. Degree)  
Tashay Walker-Burns, Agricultural Consumer Economics  
Marianna Martinez, Human Development and Family Studies (B.S. Degree)  
Allison Nowak, Agricultural Biological Engineering  
Starr'Retiece Gibson, Food Science and Human Nutrition

**Teaching Staff**
Kristin Boone (Math), Math Education (B.S. Degree)  
Sana Khadri (Writing), English  
Stanford Oglesby (Biology), Instructor Danville Area Community College  
Mioy Huyn (Chemistry), Chemistry

**Mentoring/Research Staff**

**RAP Team Leaders**
Ashley Nagele, Animal Sciences (Ag Discovery Team)  
Brandon Klehm, Animal Sciences (Animal Technology Team)  
Eric Green, Natural Resources & Environmental Sciences (Environmental Science Team)  
Grace Chen, Ag and Biological Engineering (Engineering/Technology Team)  
John Andress, Agricultural Education (Ag Discovery Team)  
Leia Flure, Staff, Ag Communications (Communications Team)  
Lorraine Munoz, Human Development and Family Studies (Human Professions Team)  
Patrese Anderson, Agricultural and Consumer Economics (Ag Business and Marketing Team)  
Paul Jung, Food Science & Human Nutrition (Food Industry Team)  
Taylor Wilkerson, Crop Sciences (Plant Biotechnology Team)  
Wendy White, Staff, Crop Sciences (Plant Biotechnology Team)  
Hannah Dougherty, RAP Team Support

**RAP Laboratory Graduate Student Research Mentors**
Adam Kriska, Food Science and Human Nutrition  
Luis Vargas Lopez, Food Science and Human Nutrition