Impact of a Summer STEM Program in Enhancing Understanding of Agriculture and Related Sciences for Pre-College Students

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Challenges

• Competing with other STEM disciplines
• Families and culture – image of the food and agricultural industry
• Understanding the Ag Sciences as STEM
• Professional images of the food and agricultural sciences among counselors and science teachers
Creating the Pipeline

- High School math and science courses
- Pre-college summer STEM experiences In ACES
- ACES College Transition Experiences
- The Enhance College Experience
- Graduation and Career Placement
Pre-College STEM education

• Hands-on learning with real projects and experiments
• Has math and science learning as its core
• Is technology driven
Pre-College STEM education

- Emphasizes Mentoring
- Promotes creativity and inspires critical thinking
- Promotes STEM careers
Enhancing presentation skills
Building writing skills
Pre-College Summer STEM Experiences in ACES

- A week at ACES Experience
- Research Apprentice Program (I) and Ag Discovery Program
- Research Apprentice Program (II)
- Young Scholars Program (college transition)
Research Apprentice Program

- Math and Science Based
- Team-Based Approach
- Project-Based Learning
Business and Industry Based
Recruitment of Applicants

• High School Sophomores and Juniors
• Underrepresented and urban-based
• Email announcements and posters
• Apply via secure website
• Application: Basic information, essay, transcript, recommendation forms
Evaluation of Applicants

- Top 15 percent of high school class
- B grades in all core subjects: Math, Science and English
- 3.0/4.0 overall grades
- Recommendation from math/science teacher and counselor
- STEM based essay
Selection of Participants

- Invitation to Interview based on Essay related to Areas Offered and/or Specific Project
- Personal Interviews to Match
- Offer Based on Program/Project Match
- Acceptance to Specific Area
Stage 1: Academic Assessment

• Two weeks of skill assessment and enrichment activities
• Math Skills: On-line Program Review
• Science Skills: Teaching Advanced Biology Skills
• Communication Skills: Writing and Research Assessment
Stage 2: Application of Math and Science through lab projects
Stage 3: Application of Math and Science through industry field trips
Stage 4: Presentation of Team Projects
Getting ready for the Presentation
Important Topic!!!

WHO ARE THEY?

- Invasive Species
- Helps out with the Algae problem
- Floods allow them to escape to IL River

This is the Sliver Carp!

This is the Bighead Carp!
Impact and Outcomes
2006 - 2015
GENDER OF RAP PARTICIPANTS

Female, 77%
RAP Place of Residence

Chart Title

- Illinois Non-Resident
- Outside Metro Area
- Metro Chicago/East Louis
<table>
<thead>
<tr>
<th>ACES Dept</th>
<th>Dept Participation</th>
<th>Enrolled UIUC</th>
<th>Enrolled in RAP Dept</th>
<th>% Graduated same major</th>
<th>% Graduated ACES</th>
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</thead>
<tbody>
<tr>
<td>Ag and Biological Eng</td>
<td>50</td>
<td>28</td>
<td>17</td>
<td>58%</td>
<td>75%</td>
</tr>
<tr>
<td>Ag &amp; Consumer Economics</td>
<td>55</td>
<td>30</td>
<td>20</td>
<td>64%</td>
<td>80%</td>
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<tr>
<td>Animal Sciences</td>
<td>100</td>
<td>70</td>
<td>60</td>
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<td>90%</td>
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<tr>
<td>Crop Sciences</td>
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<td>21</td>
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<tr>
<td>Food Science &amp; Human Nutrition</td>
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<tr>
<td>Human Development &amp; Family Studies</td>
<td>55</td>
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<td>20</td>
<td>50%</td>
<td>80%</td>
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<tr>
<td>ACES Total</td>
<td>435</td>
<td>270</td>
<td>207</td>
<td>64%</td>
<td>80%</td>
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# RAP II Participants 2006-2015

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<td>19</td>
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<tr>
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<td>48</td>
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<tr>
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<td>Food Science &amp; Human Nutrition</td>
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<td>ACES Total</td>
<td>277</td>
<td>195</td>
<td>159</td>
<td>74%</td>
<td>89%</td>
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</table>
End Goal

- Over 1300 RAP Alumni College Graduates
- 65% pursuing careers in Food, Ag and Environmental Sciences
- 37% of RAP Alumni received/pursuing graduate/professional degree