BASE (Broadening Access to Science Education) Camp for Young Women

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Camp Goal

The program, entitled BASE (Broadening Access to Science Education), has an overall goal to excite and inform female students from local health disparity populations in an effort to increase interest in the pursuit of STEM and health careers after college.

Background

• Exposure to current science content and engagement in scientific inquiry in high school helps to attract students to and retain students in the science course sequence and beyond college.
• Engaging students in science is particularly important for students of health disparity populations in urban areas.
• These locations often have underfunded science curricula and limited access to role models and mentors in STEM and health careers.
• Our neighboring city of Bridgeport, CT is a socioeconomically diverse community where 91% of students are minority status, 95% qualify for the free lunch program, and many health disparity populations traditionally underrepresented in science are found.
• The camp specifically targets young women in this group, based on the disproportional underrepresentation of women in science careers.

Camp Goal

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History of BASE Camp

2007 – First year of camp run as a male and female one-week day camp (funded by Maximilian E. & Marion O. Hoffman Foundation Inc. and The Louis Calder Foundation, $35K total)
2010 – One-week residential camp for female students (funded by Bank of America, $25K and Hoffman Foundation, $10K)
2011 – One-week residential camp for female students (funded by Bank of America, $25K, Fairfield's College of Arts & Sciences, $3.5K, and the Science Institute of the College of Arts & Sciences, $1.5K)
2012 – 2016 – Annual two-week residential camp for 24 rising female juniors and seniors (funded by the National Institute of Health, $382K)

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Sample Research Immersion Projects

• Investigating Marine ‘Invasions’ in Long Island Sound, Biology & Mathematics
• Cognition and the Brain, Psychology
• How Our Oceans Move and Why We Care, Engineering
• Understanding How Genes Work Using Nematodes, Biology
• The Physics of Sports in Slow Motion, Physics
• How Do Fish Swim, Biology

Schedule & Logistics of Camp

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Student Residence Hall</th>
<th>Research &amp; Science Experience</th>
<th>Research &amp; Science Experience</th>
<th>Research &amp; Science Experience</th>
<th>Research &amp; Science Experience</th>
<th>Check-out 4:00-5:00pm</th>
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</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>Monday</td>
<td>Tuesday</td>
<td>Wednesday</td>
<td>Thursday</td>
<td>Friday</td>
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<td>Arrival &amp; Orientation</td>
<td>Research &amp; Science Experience</td>
<td>Research &amp; Science Experience</td>
<td>Research &amp; Science Experience</td>
<td>Research &amp; Science Experience</td>
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<td>Week 2</td>
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There are many important pieces to running the camp not apparent from camper’s perspective. For instance,
• College of AFAS provides course release for camp director in spring semester and semester-approval for additional faculty and staff
• Recruited BASE administrative assistant makes all reservations, coordinates paper work, and places supply and food orders.
• State required assistant director and first aid director live in the dorm with the girls for the camp duration.
• Camp follows all state regulations for your camps such as renewing state license every year, obtaining up-to-date staff and camper medical records, and preparing for surprise state inspection.

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Three Key Camp Components

1. Research Immersion Experience

• Fairfield female faculty members lead 4-5 camps each in week-long research projects assisted by female Fairfield undergraduate science majors.
• Projects based on research expertise of faculty member and span the fields of biology, chemistry, biochemistry, neuroscience, psychology, mathematics, and engineering.
• Campers gain hands-on experience in ‘real’ research, with exposure to scientific methodology and data analysis.
• Female scientist role models at both the faculty and undergraduate level mentor the individual campers.
• In the second week, students tie together what they have learned by producing a PowerPoint presentation presented to campers orally and then to parents in poster format on the last day.

2. Science & Health Careers Exploration

• Students participate in interactive presentations by professionals in healthcare careers (pharmacy, public health, physical therapy, speech therapy, radiology, dentistry) organized by the Southwestern Connecticut Area Health Education Center.
• Professionals provide mentorship on undergraduate majors, courses, skill sets, and other experiences that can support students in career pursuits.
• Professionals discuss local and national organizations that promote women and minorities in science.
• During the 2013 camp, one evening will involve a panel of scientists discussing careers outside of the healthcare industry (genomic sciences, high school science teacher, lab technician, PhD scientist in marketing).
• In 2012, campers took a field trip to the University of Connecticut Health Center in Farmington, CT and in 2013 campers will take a field trip to Boxborough Ingham Pharmaceuticals in Ridgefield, CT.

3. College Admissions Counseling

• A two-day set of activities that follows the career exploration component in the second week.
• In association with the Fairfield University, Office of Undergraduate Admissions including:
  • Educate students about the process and requirements for admission to college.
  • Inform students about financial aid opportunities including our Bridgeport Tuition Grant.
  • Engage students in mock interviews and essay writing required for college.
  • Provide a student/parent information session one evening, to inform parents and integrate them into the process.

Camper Survey Results

Average Score (out of 5)

<table>
<thead>
<tr>
<th>Camper Survey Responses 2012</th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
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<tr>
<td>Enjoyed Camp</td>
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<tr>
<td>Gained Much</td>
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<td>Scientific Knowledge</td>
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<td>Adequate HS Prep</td>
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<tr>
<td>Helpfulness of UConn Trip</td>
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<tr>
<td>Helpfulness of Health Careers Component</td>
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<td>Helpfulness of College Admissions Counseling</td>
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Acknowledgements

• The National Institute for Minority Health and Health Disparity Populations (NIMHD), part of the National Institutes of Health (NIH)
• The Louis Calder Foundation
• Fairfield University’s College of Arts & Sciences
• The Science Institute of the College of Arts & Sciences

Overall, campers enjoy BASE Camp in all area college and study science.

Addition of health science and college admissions component has been a huge success, with campers indicating the largest positive gain in post-camp change in interest for survey questions related to these events.

This program is a model for the scientific content and enrichment as one of the most important characteristics of a camp to meaningful camp experience.

Results are from a recent follow-up survey of former BASE campers, data 14-17 of which show 19 out of 22 counselors over the past two years rated enthusiasm as one of the most important characteristics of a camp to meaningful camp experience.

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