## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>A summary of the 2018 Project SEED Program</td>
<td></td>
</tr>
<tr>
<td>Project SEED Summer Programs</td>
<td>2</td>
</tr>
<tr>
<td>List of institutions, coordinators, mentors, and students</td>
<td></td>
</tr>
<tr>
<td>2018-2019 College Scholarship Recipients</td>
<td>21</td>
</tr>
<tr>
<td>List of sponsors and winners</td>
<td></td>
</tr>
<tr>
<td>Project SEED Student Testimonials</td>
<td>25</td>
</tr>
<tr>
<td>Student testimonials about their SEED experience</td>
<td></td>
</tr>
<tr>
<td>Students Speaking from the Lab</td>
<td>26</td>
</tr>
<tr>
<td>Students’ comments on their research</td>
<td></td>
</tr>
<tr>
<td>Project SEED Students at Sci-Mix</td>
<td>27</td>
</tr>
<tr>
<td>List of student participants at Sci-Mix poster session at the ACS Meeting in Boston</td>
<td></td>
</tr>
<tr>
<td>2018 Student Survey Results</td>
<td>31</td>
</tr>
<tr>
<td>Students’ exit survey results</td>
<td></td>
</tr>
<tr>
<td>Project SEED Major Contributors</td>
<td>34</td>
</tr>
<tr>
<td>Contributors to the 2018 Project SEED</td>
<td></td>
</tr>
<tr>
<td>Project SEED Local Program Contributors</td>
<td>36</td>
</tr>
<tr>
<td>Institutions and individual contributors</td>
<td></td>
</tr>
<tr>
<td>Project SEED Endowment Named</td>
<td>38</td>
</tr>
<tr>
<td>List of sponsors and students</td>
<td></td>
</tr>
<tr>
<td>Project SEED 50th Anniversary Highlights</td>
<td>40</td>
</tr>
<tr>
<td>Highlights</td>
<td></td>
</tr>
<tr>
<td>ACS Committee on Project SEED</td>
<td>43</td>
</tr>
<tr>
<td>Members and associates</td>
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### Project SEED Mission Statement

“To assure that students from economically disadvantaged backgrounds have opportunities to experience the challenges and rewards of chemically-related sciences.”
Executive Summary

This year marked the 50th Anniversary of Project SEED, a program from the American Chemical Society (ACS), which has changed the lives of nearly 11,000 students who have participated since its inception. The program provides high school students from economically disadvantaged families an opportunity to participate in research and learn what it is like to work in science-related fields through a hands-on experience. Students are placed in academic, industrial, and governmental laboratories for 8 to 10 weeks during the summer. This summer, over 400 volunteer scientists and coordinators from more than 156 institutions in 39 states, the District of Columbia, and Puerto Rico mentored a total of 430 students.

Students provided feedback on the success of the program with 417 responding to an end-of-program survey. The results provide information on the background of the students, their educational aspirations, and their assessment of Project SEED.

Fifty-one percent of the respondents indicate that the Project SEED experience helped them to decide to pursue a career in science, and 96% indicate that Project SEED helped them to develop new skills and abilities; 78% note that Project SEED was successful in improving their self-confidence; and 84% indicate that they will become a scientist, engineer, or mathematician. When asked to evaluate their experience with their mentor, 76% agreed that they learned new skills from their mentors, and 94% stated that their SEED mentor assisted them with improving their overall performance and research work. Most of the respondents rated the overall experience with Project SEED as “Excellent”.

Project SEED 50th anniversary was celebrated at the 256th ACS national meeting in Boston, where presidential events included a symposium, “Growing with Project SEED: 50 years and 10,000+ Students”. Former SEED students shared their success stories and explained how the program experience changed their lives and motivated them to pursue chemistry careers. Coordinators and mentors also spoke about the impact of the program in the lives of thousands of students. In addition, Nobel Laureate, Sir Fraser Stoddart and champion for the 50 Forward fundraising campaign delivered remarks about his campaign and praise for the program. ACS President, Peter Dorhout, recognized the hundreds of volunteer mentors, and applauded the achievements of the students. A video featuring important achievements and success of the past 50 years of the program was shown at the 50th Anniversary reception where ACS honored the contributions of more than 400 coordinators and mentors with the presentation of awards. Students had the opportunity to talk to members of the Project SEED Committee and convey their comments about the program at a Student Mixer. In addition, a reception, “A Conversation with Sir Fraser Stoddart – Champion, 50 Forward Campaign” was held with participation of SEED students. Over 150 people attended this milestone anniversary celebration. The celebration concluded with the participation of 60 students representing Central New York, Georgia, Indiana, Maine, Maryland, New York, North Jersey, Philadelphia, Rhode Island, and Trenton local sections at the Sci-Mix research poster event.

The ACS Project SEED Endowment, industries, foundations, academic institutions, ACS Local Sections, and ACS friends and members supported total student fellowships of $1,117,500. ACS provided student fellowships and paid all administrative costs.

Since 1993, more than 670 Project SEED alumni entering their first year in college and pursuing careers in a chemical science have been awarded with a one-year non-renewable Project SEED college scholarship. This academic year, 2018-2019, twenty-eight scholarships were awarded. The Project SEED scholarships were made possible by generous donations from the Alfred and Isabel Bader, Ashland Inc., Bayer Foundation, Russel J. Fosbinder, and Ullyot endowments. In addition, three Project SEED college scholars received the Ciba Specialty Chemicals scholarships for three renewable years beginning in their sophomore year. To date, 15 Ciba SEED alumni have graduated with science degrees.

The American Chemical Society (ACS) thanks once again all of the past and present coordinators and mentors for their dedication, support, and encouragement, given to thousands of Project SEED students during these past fifty years. Thank you to the myriad financial contributors for their generosity. This successful program would not be possible without the support of volunteers like you, your generous support, and your dedication. Thank you!
## 2018 Project SEED Summer I & II Programs

### Institutions/Coordinators/Mentors

<table>
<thead>
<tr>
<th>ALABAMA</th>
<th>Students</th>
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<tr>
<td>Jacksonville State University, Nixon Mwebi</td>
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<td>Nixon Mwebi</td>
<td>Keira Ross</td>
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<td>Grant Wangila</td>
<td>Keyshawn Harris</td>
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<td>Brian Adzima</td>
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<td>Cory Brooks</td>
<td>Grizelda Aguilar</td>
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<td>Les Jackowski</td>
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<td>Toni Miao</td>
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<td>Deanna Quon, Tao Wei</td>
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<td>Rachel Mohler</td>
<td>Steven Ramirez</td>
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<td>Paula Vettel</td>
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<td>Weiming Wu</td>
<td>Wen Yan (Mandy) Huang</td>
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<td>Herbert Muchalski, Kalyani Maitra</td>
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<td>Mike McCallum, Ben Strokes</td>
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<td>Samuel Leiboff</td>
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<td>Joanna Chiu</td>
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<td>Maeli Melotto</td>
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### Institutions/Coordinators/Mentors

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<td>Christine Isborn, University of California, Merced</td>
<td>Yvette Carrillo-Bernal</td>
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<td>Eva de Alba Bastarrechea</td>
<td>Vanessa Arceo</td>
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<td>Leonardo Canchola</td>
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<td>Maycy Lee</td>
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<td>Victor Munoz</td>
<td>Kaneen Muldrow</td>
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<td>Andy Franz University of the Pacific</td>
<td>Samantha Baker</td>
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<td>David Sparkman, Jianhua Ren</td>
<td>Qi Deng</td>
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<td>Ulices Contreras</td>
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<td>Nila Thongthirak</td>
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<td>Yong Gu USDA ARS Water Management Research</td>
<td>Sokobe Chuong</td>
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<tr>
<td>Spencer Walse</td>
<td>Christina Le</td>
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<tr>
<td>Colleen McMahan, Niu Dong USDA Western Regional Laboratory</td>
<td>George Chong</td>
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<td>Ron Haff</td>
<td>Jimmy Wu</td>
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<td>David Obenland USDA-ARS Water Management Res. Lab</td>
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<td>Jennifer Bragg Western Regional Research Center</td>
<td>Christine Tran</td>
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<td>Kalyani Maitra California State University, Fresno</td>
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<td>Marlin Halim California State University, East Bay</td>
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<td>Kenneth Forbes Nexeo Solutions, LLC</td>
<td>Jingjun Zeng</td>
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<tr>
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<tr>
<td>Jianhua Ren University of the Pacific</td>
<td>Cindy (Chui Yi) Ho</td>
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### California State University, Los Angeles, Frank Gomez

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<tr>
<th>California State University, Los Angeles, Frank Gomez</th>
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<tbody>
<tr>
<td>Robert Vellanoweth</td>
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<td>Ruby Navarro</td>
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<td>Stephany Perez</td>
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### California State University, San Bernardino, Dennis Pederson

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<td>Jingsong Zhang University of California, Riverside</td>
<td>Manny Medrano</td>
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<tr>
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</tbody>
</table>
2018 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

San Diego Local Section, ACS, Valerie Kuck
Jing Gu  San Diego State University
Manal Swairo
Erica Forsberg

Stanford University, Maiken Bruhis
Junzhe Lou
Matteo Cargnello

University of California, Davis, Shota Atsumi
Xi Chen
Louise Berben

University of San Diego, Jessica Bell
Anthony Bell

COLORADO

Colorado State University – Pueblo, David Dillon
Matthew Cranswich
Sandra Bonetti

CONNECTICUT

University of Connecticut, Alfredo Angeles-Boza
Alfredo Angeles-Boza

DISTRICT OF COLUMBIA

Chemical Society of Washington, Wesley Farrell
Alexander Zestos  American University
Kaveh Jorabchi  Georgetown University

Students

Summer I
San Diego Local Section, ACS, Valerie Kuck
Hamsa Ali  San Diego State University
Aliyah Armstrong
Anthony Herfi

Summer I
Stanford University, Maiken Bruhis
Jacquelyne Nguyen
Serey Nouth

Summer II
University of California, Davis, Shota Atsumi
Thanh Luong

Summer I
University of San Diego, Jessica Bell
Ihuoma Ihejirika
Anh Vo

Summer II
Colorado State University – Pueblo, David Dillon
Jacinto Lepe-Banales
Long Nguyen

Summer I
DISTRICT OF COLUMBIA

Chemical Society of Washington, Wesley Farrell
Nathan Dagado

Eldana Tadesse
# 2018 Project SEED Summer I & II Programs

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<table>
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</tr>
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<tr>
<td>Akos Vertes</td>
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<td>Mussa Abbo</td>
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<td>Andrew Davis</td>
<td>Ashli Chicks</td>
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<td>Library of Congress, Preservation Research and Testing Division</td>
<td>Christine Folivi</td>
</tr>
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<td>Xueging Song</td>
<td>Darlin Paredes Hernandez</td>
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<td>Erick Cardenas</td>
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<td>James Fedchak</td>
<td>Kevin Hu</td>
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<tr>
<td>Thermodynamic Metrology Group, NIST</td>
<td>Cylah Bailey</td>
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## FLORIDA

### Barry University, George Fisher

- Rajeev Prabhakar - University of Miami

## GEORGIA

### Clark Atlanta University, Ishrat Khan, James Reed

- Shirnece Brown, Amal Al-Abdulrahman.
- Michael Williams
- James Reed

### Georgia College and State University, Catrena Higginbotham

- Catrena Lisse - Georgia College & State University

### Georgia Gwinnett College, Ajay Mallia

- David Pursell
- Thomas Gluick
- Neville Forlemu
- Ajay Mallia

### Idaho State University, Andrew Holland

- Joshua Pak

## IDAHO

### Idaho State University, Andrew Holland

- Andrew Holland
- Lisa Goss
- Caryn Evilia

## Summer I

- Barry University, George Fisher
- Clark Atlanta University, Ishrat Khan, James Reed
- Georgia College and State University, Catrena Higginbotham
- Georgia Gwinnett College, Ajay Mallia
- Idaho State University, Andrew Holland

## Summer II

- Barry University, George Fisher
- Clark Atlanta University, Ishrat Khan, James Reed
- Georgia College and State University, Catrena Higginbotham
- Georgia Gwinnett College, Ajay Mallia
- Idaho State University, Andrew Holland
2018 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

Rene Rodriguez

Snake River Local Section, ACS, Don Warner
Jeunghoon Lee Boise State University
Kevin Ausman
Hui Xiong
Scott Phillips

Students

Summer II
Andrew Perry

Summer I
Maura Dresner-Pfau Calvin Nguyen Eric Storch Sydney Walker

ILLINOIS

Chicago Local Section, ACS, Raelynn Miller
Wei-Tsung Lee Loyola University of Chicago
Hee Yeon Cho

Summer I
Kristine Hwang Megan Lay

Illinois-Heartland Local Section, ACS, Kervin Evans
Dean Campbell Bradley University
Rebecca Roesner Illinois Wesleyan University
Susan McCormick USDA

Summer I
Malaya Williams Dyquarius Gilbert LaShae Nelson

INDIANA

Indiana Local Section, ACS, Elmer Sanders
Jeffrey Hansen DePauw University
Patrick Barber Earham College

Summer I
Corinne Buchanan Freya Beinart Dylan Selby

Stanley Kolis Eli Lilly and Company
Anthony Borel

Grace Alvarez Rosario Terrianna Lyles

Gabriel Chu Indiana University School of Dentistry
Teresita Bellido Indiana University School of Medicine
Charlie Dong

Roberto Rico Alondra Salazar

Bruce Ray Indiana University-Purdue University Indianapolis

Graciela Avila Sung Tin Par Run Rem Sang Baui Aron Gebre

Stephen Wasall L. Jack Windsor

Hiroki Yokota IUPUI School of Engineering and Technology
Jing Zhang
Mangilal Agarwal

Nikki Dodd Alexander Gordon Dionsia Hayes

Lilian Plotki IUPUI School of Medicine

Giancarlo Irizarry Daniel Ogunmoyero
## Institutions/Coordinators/Mentors

<table>
<thead>
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<th>Institutions/Coordinators/Mentors</th>
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<tr>
<td>Rajesh Sardar, IUPUI School of Science</td>
<td>Jessica Avila</td>
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<td>Horia Petrache, Lixin Wang</td>
<td>Ismail Siddeeq</td>
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<td>Christine Picard, A.J. Baucum, Frederique Deiss</td>
<td>Solomon Biak</td>
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<td>John Goodpaster, Bill Gilhooly</td>
<td>Khadijah Jallow</td>
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<td>Bawi Sung</td>
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<td>Ann Kimble-Hill, Uma Sankar, IUPUI School of Medicine</td>
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<td>Bill Gilhooly, James Marrs, IUPUI School of Science</td>
<td>Feven Araya</td>
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<td>Sarah Nawar</td>
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### IOWA

**Purdue University, Corey Thompson**
Corey Thompson

**University of Notre Dame, Mary Prorok**
Merlin Bruening

### KANSAS

**Wichita State University, Syed Taher**
Syed Taher

### MAINE

**University of Maine, Mitchell Bruce**
Mitchell Bruce
## Institutions/Coordinators/Mentors

### Maryland

<table>
<thead>
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<th>Institution</th>
<th>Coordinator(s)</th>
<th>Summer Program(s)</th>
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<tr>
<td>John Hopkins University, Takashi Tsukamoto</td>
<td>Takashi Tsukamoto</td>
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<td>Morgan State University, Louise Hellwig</td>
<td>Fasil Abebe</td>
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<td>University of Maryland Eastern Shore, Victoria Volkis</td>
<td>Deborah Sauder</td>
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<td>Hamza Mazen</td>
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### Massachusetts

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<td>Broad Institute, Joshua Sacher</td>
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<td>Northeastern University, Penny Beuning</td>
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<td>Stonehill College, Cheryl Schnitzer</td>
<td>Louis Liotta</td>
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### Michigan

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<td>Mirran Salem</td>
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2018 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

Robert Maleczka  
Remi Beaulac  
Babak Borhan  
James Jackson  
James Geiger

MINNESOTA

3M Company, Sarah Mullins
Phillippe Buhlmann  
University of Minnesota

Romas Kazlauskas  
Jerry Cohen  
Lee Penn  
Mark Distefano

Gustavus Adolphus College, Megan Berglund
Dwight Stoll

MISSOURI

Kansas City Local Section, ACS, Michelle Paquette
Shin Moteki  
University of Missouri-Kansas City

Leonard Dobens  
Michelle Paquette  
Paul Rulis

Metropolitan Community College, Penn Valley, Mercy Anyika
Mercy Anyika

Saint Louis University, Ryan McCulla
Ryan McCulla

MISSISSIPPI

The University of Southern Mississippi, Douglas Masterson
Julie Pigza  
Matthew Donahue  
Jacques Kessl

Students

Summer II
Nagham Al-Masraf  
Vivian Ho  
Ruth Horta  
Mohamed Salem  
Kamisha Tuma

Summer I
Fatima Abdihoosh  
Chitra Xiong  
Houadraa Lee  
Meena Sae-Chao  
Brian Saldana Almaraz  
Qeng Xiong

Summer I
Hope Dewes

Summer I
Ayan Farah  
Mary Ghebreselassie  
Riley Keyes  
Aseyaa Siddiqua

Summer I
Dominic Torre

Summer I
Kaleb Coleman  
Mercedes Ramires

Summer I
Skylia Bell  
Chenlan Lan  
Kimberlynn Mai
# 2018 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

<table>
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<tr>
<th>State</th>
<th>Institution</th>
<th>Coordinator/Contact</th>
<th>Students</th>
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<tr>
<td><strong>Montana</strong></td>
<td>Helena College University of Montana, John Hartman</td>
<td>John Hartman</td>
<td><strong>Summer I</strong> Abigayle Bibeau</td>
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<td><strong>Nebraska</strong></td>
<td>Creighton University, Sade Kosoko-Lasaki</td>
<td>Yaping Tu, Devendra Agrawal</td>
<td><strong>Summer I</strong> Jude Kouassi, Marco Pena</td>
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<td><strong>Nevada</strong></td>
<td>University of Nevada, Reno, Laina Geary</td>
<td>Christopher Barile, Sage Hiibel</td>
<td><strong>Summer I</strong> Olivia Hall, Muskan Kapila</td>
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<td><strong>New Jersey</strong></td>
<td>Academy for Enrichment &amp; Advancement, Union City High School, Amanda Smith</td>
<td>Jinshan Gao, Yang Deng</td>
<td><strong>Summer I</strong> Alexa Hernandez, Yeimi Mendoza</td>
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<td>Kevin Olsen, Paul Bologna, Yang Deng, Peter Drozd</td>
<td>Montclair State University, <strong>Summer II</strong> Jennifer Aguilar, Denia Diaz, Emily Urbina, Brandon Moran</td>
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<td>Academy for Enrichment &amp; Advancement, Union City High School, Mina Armani</td>
<td><strong>Summer I</strong> Manuel Guzman, Allen Hernandez, Zihan Lin</td>
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<td>Roman Voronov, Sagnik Basuray</td>
<td><strong>Summer II</strong> Emanuel Diaz</td>
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<td>New Jersey Institute of Technology</td>
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<td>Academy for Enrichment &amp; Advancement, Union City High School, Judith Barrios</td>
<td><strong>Summer I</strong> Frederick Martinez, Taysa Martinez, Ann Marie Mejia, Monica Salgado</td>
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<td>Jennifer Donnelly, Johana Moreno</td>
<td>Academy for Enrichment and Advancement</td>
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2018 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

Judith Barrios
Amanda Smith
Hosam Mansour
Nadia Makar
Mina Armani

Judith Barrios
Michele Pavanello
Nadia Makar

Academy for Enrichment & Advancement,
Union City High School, Nadia Makar
Marc Cohen
Gerard Parkin
Natalia Coleman
Kathleen McEnnis
Treena Arinzeh
Elaine Gomez
Treena Arinzeh
Marc Walters
Michele Pavanello
Christian Traba

Fairleigh Dickinson University, Marion McClary
Catherine Daugherty
Marion McClary

Students

Summer II
Joan Almendarez
Raquenel Abreu
Ranol Handapangoda
Verenice Bonilla
Allyson Perero

Summer I
Victoria Gonzales
Johan Ayala
William Estrada
Jizhady Paez
Gonzalo Alarcon
David Felix
Victoria Rodriguez

Summer II
Leilani Garcia
Michael Yanqui
Jeff Chen
Alyssa Vargas
Chelsea Castillo

Summer I
Johnny Lazo
Mina Youssef

Summer II
Stephanie Caballero-Vega
Youstina Youssef
## Institutions/Coordinators/Mentors

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<tr>
<th>Institution/Mentor</th>
<th>High Tech High School, Nina Lavlinskaia</th>
<th>Kean University, Michael Tocci</th>
<th>New Jersey City University, Robert Aslanian</th>
<th>North Jersey Local Section, ACS, Bobbi Gorman</th>
<th>Ramapo College of New Jersey, Carol Frishberg</th>
<th>Rider University, Jamie Ludwig</th>
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<tr>
<td>Mentor</td>
<td>Simon Podkolzin</td>
<td>Marshall Hayes</td>
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#### Students

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<tr>
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<td>Tatyana Lazareva</td>
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<td>Aysha Zaher</td>
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<td>Ci’Anee Campbell</td>
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<td>Mayada Farraj</td>
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<td>Geraldina Velez</td>
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</table>
2018 Project SEED Summer I & II Programs

**Institutions/Coordinators/Mentors**

**Rowan University, Gregory Caputo**  
Lei Yu

Gustavo Moura-Letts

**Rutgers University, Piscataway, Shaneika Nelson**  
Robert Hayes

**NEW MEXICO**

**Sandia National Laboratories, Bernadette Hernandez-Sanchez**  
Timothy Boyle  
Bernadette Hernandez-Sanchez

**NEW YORK**

**Advanced Science Research Center, Adam Braunschweig**  
Rein Ulijn  
City University of New York

Adam Braunschweig  
Xi Chen

**Columbia University Medical Center, Jianwen Que**  
Jianwen Que

**Eastern New York Local Section, ACS, William Kennerly**  
Madushi Raththagala  
Skidmore College

Zhang Wang  
University at Albany

K.V. Lakshmi  
Rensselaer Polytechnic Institute

Thomas Hughes  
Siena College

**Ellis Preparatory Academy, Jeremy Heyman**  
Daniel Esposito  
Columbia University

Allie Obermeyer  
Columbia University, School of Engineering and Applied Science

Karen Kasza  
Roberto Ketson  
Marisol Herrera-Perez

**Rochester Institute of Technology, Lea Vacca Michel**  
Hans Schmutzhenner  
Rochester Institute of Technology

Anju Gupta  
Gabrielle Gaustad  
Gerald Takacs

**Students**

**Summer I**  
Sarymar Perez Carrero

**Summer II**  
Melissa Hernandez-Reyes

**Summer I**  
Anton Krotenok  
Philip Krotenok

**Summer I**  
Gabriella Atencio  
Faith Lopez

**Summer I**  
Yaa Obeng

**Summer I**  
Rebecca Garcia  
Luca Gabriele  
Masson Lampron  
Bethany Matala

**Summer I**  
Fatouma Doucoure  
Luciana Gil Rosario  
El-Hossin Salem  
Dauris Rodriguez  
Samiratou Sanga  
Nabil Titikpina

**Summer I**  
Faduma Abdi  
Philip Davis, Jr  
Nyelah O’Meally  
Tyshawn Roundtree
## Institutions/Coordinators/Mentors

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<tr>
<th>Institutions</th>
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<tr>
<td>Carley Reed</td>
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<td>Alicia Gonzalez</td>
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<td>Rachel Kelly</td>
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<td>Callie Babbitt</td>
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<td>Raia Weathers</td>
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<td>Syracuse University, Miriam Gillett-Kunnath</td>
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<td>Summer II Ahlam Zokari</td>
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<td>Miriam Gillett-Kunnath</td>
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### NORTH CAROLINA

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<td>High Point University, Comfort Boateng</td>
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<td>Ruta Tekle</td>
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<td>North Carolina Local Section, ACS, J. Stewart Witzeman</td>
<td>Wei Tao Yang, Jie Liu</td>
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<td>Elena Jakubikova</td>
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<td>Jeffrey Dick</td>
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<td>Masita Wicaksana</td>
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<td>Kathleen Donohue</td>
<td>Duke University</td>
<td>Yiu Ho Tung</td>
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<td>University of North Carolina-Charlotte, Michael Walter</td>
<td>Kirill Afonin, Christopher Bejger</td>
<td>Abel Maasho</td>
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### OHIO

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<tr>
<td>Case Western Reserve University, Carlos Crespo-Hernandez, Laura Bruckman</td>
<td>Genevieve Sauve, Laura Bruckman</td>
<td>Summer I George Andrade</td>
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<td>Rayele Malone</td>
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Institutions/Coordinators/Mentors

Daniel Scherson
Anna Samia

Emily Pentzer
Chris Dealwis
Carlos Crespo-Hernandez

Akron Local Section, ACS

Hiram College, Carol Shreiner
Yorong Zheng Kent State University
Jeffrey Mighion
Hanbin Mao
Chrys Wesdemiotis University of Akron
David Modarelli Li Jia Shi-Qing Wang Kevin Cavicchi Michael Konopka

University of Cincinnati, Anna Gudmundsdottir
Ryan White James Mack
Anna Gudmundsdottir Edward Merino

University of Toledo, Ajith Karunarathne
Weil Li Cora Lind-Kovacs Ajith Karunarathne Emanuela Gionfriddo

Youngstown State University, Sherri Lovelace-Cameron
Sherri Lovelace-Cameron

Students

Mays Moukdad
Christina Smith

Summer II
RhayAuna Dent
Nickie Lam Dawn Luong

Summer I
Kristina Dyshko Cole Strekal Mariama Kamara Maggie Paul
Fatimatou Diane Alana Hopson Daphnie Kennedy Anthony McCants Emmanuel Myers Daechanea Williams

Summer II
Alexis Mack Eva Mazzola Olivia Reblando

Summer I
Joseph Do Italia Fernandez Claire Gray Elijah Long

Summer II
Kayala Goolsby Doyun Kim

Summer I
Preston Bosley Sarah Welsh
## Institutions/Coordinators/Mentors

### OREGON

**Portland Local Section, ACS, Angela Hoffman**
- Marilyn Mackiewicz, Portland State University
- Angela Hoffman, University of Portland

### PENNSYLVANIA

- **Covestro LLC, Irene McGee**
  - Douglas Powell

- **Philadelphia Water Department, Adam Eyring**
  - Adam Eyring

- **Slippery Rock University, Donald Zapien**
  - Donald Zapien

- **Solvay, Tiffany Chen**
  - Tiffany Chen

### PUERTO RICO

**University of Puerto Rico, Rio Piedras, Ingrid Montes**
- Marvin Bayro
- Jose Rodriguez
- Jose Lasalde
- Dalice Pijero-Cruz
- Eduardo Nicolau
- Arthur Tinoco
- Carlos Cabrera
- Jorge Colon
- Marvin Bayro

### RHODE ISLAND

**Brown University, Brenda Rubenstein, Mindy Levine, Seann Mulcahy, Jerome Robinson**
- Jerome Robinson, Brown University
- Brenda Rubenstein

## Students

### Portland Local Section, ACS, Angela Hoffman
- Summer I
  - Citlali Nieves Lira
  - Emily Boyce
  - Traven Johnson

### Covestro LLC, Irene McGee
- Summer I
  - Savion Jemison

### Philadelphia Water Department, Adam Eyring
- Summer I
  - Krystal Roche

### Slippery Rock University, Donald Zapien
- Summer I
  - Jade Bodie
  - Morgan Daily

### Solvay, Tiffany Chen
- Summer II
  - Kristen Gilmore

### University of Puerto Rico, Rio Piedras, Ingrid Montes
- Summer I
  - Delaney Alejandro Negron
  - Dereanise Garcia Almedina
  - Camille Collazo
  - Rafael Luna
  - Grace Sastre Ramos
  - Juan Rodriguez
  - Ivanelis Marie Rodriguez Vega
  - Sylvette Pagan

- Summer II
  - Alianys Rosario Colon
  - Danitza Vazquez

### Brown University, Brenda Rubenstein, Mindy Levine, Seann Mulcahy, Jerome Robinson
- Summer I
  - Robin Fidel
  - Sandy Lastor
  - Omar Martinez
2018 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

John Breen
Seann Mulcahy
Providence College

Jason Dwyer
Jiyeon Kim
University of Rhode Island

Students

Delissy Garay
Aminah Islam

Anna Khabaeva
Aditi Patel

SOUTH CAROLINA

University of South Carolina, Chuanbing Tang
Morgan Stefik

Aaron Vannucci
Linda Shinizu
Dmirty Peryshkov
Chuanbing Tang
Thomas Makris

Summer I
Dylan Kier

Summer II
Aujaunae Brown
Jassamine Green
Presious Breeland
Samuel Hankinson
Veda Lightfoot

TENNESSEE

LeMoyne-Owen College, Yahia Hamada
Yahia Hamada

Sherry Painter

Summer I
Ayat Ayesh

Summer II
Khadijah Darboe
Sarah Shotwell

Middle Tennessee State University, Paul Gregory Van Patten
Keying Ding

Summer I
Jessica Bullock

TEXAS

Baylor College of Medicine, Laura Perry
Xander Wehrens
Oluwatoyin Asojo
Brendan Lee
Jin Wang, Imani Bijou, Abiodun Adeosun, Xiaoli Qi
Chris Dinh
Adam Kuspa

James Phillips
Kjersti Aagaard-Tillery

Summer I
Maria Gelves
Marcus Henriquez
Jessica Hernandez
BaoChau Le
Josue Herrera Rivera
Anthony Smith

Summer II
Carlos Gerardo Fuentes
Miguel Velasquez
# 2018 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

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<th>Greater Houston Local Section, ACS, Carolyn Burnley</th>
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<td>Mehmet Orman University of Houston</td>
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<td>B. Montgomery Pettitt University of Texas Medical Branch</td>
<td>Emiliano Perez Gomez</td>
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<td>Kenya Soto</td>
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<table>
<thead>
<tr>
<th>San Antonio Local Section, ACS, E. Robert Fanick, Maritza Quintero</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paulo Carvalho University of the Incarnate Word</td>
<td><strong>Summer I</strong> Alyssa Arizola</td>
</tr>
<tr>
<td>Gary Jacobs University of Texas at San Antonio</td>
<td>Jonathan Castro</td>
</tr>
<tr>
<td>Zachary Tonzetich</td>
<td>Cheyenne Fields</td>
</tr>
<tr>
<td>Gary Jacobs</td>
<td>Ayanna Fisher</td>
</tr>
<tr>
<td>Heather Bonduris</td>
<td>Savannah Rios</td>
</tr>
<tr>
<td>Stephen Bach</td>
<td>Michael Trimble</td>
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<tr>
<td>Paulo Carvalho University of the Incarnate Word</td>
<td><strong>Summer I</strong> Robert Castillo</td>
</tr>
<tr>
<td>Kathryn Mayer University of Texas at San Antonio</td>
<td>Bryan Valdivia</td>
</tr>
</tbody>
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## UTAH

<table>
<thead>
<tr>
<th>University of Utah, Shelley Minteer</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry White</td>
<td><strong>Summer I</strong> DeSange Kuenhiria</td>
</tr>
</tbody>
</table>
## 2018 Project SEED Summer I & II Programs

### Institutions/Coordinators/Mentors

<table>
<thead>
<tr>
<th>Institutions/Coordinators/Mentors</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VERMONT</strong></td>
<td></td>
</tr>
<tr>
<td>University of Vermont, Rory Waterman</td>
<td>Summer I</td>
</tr>
<tr>
<td>Mathew Liptak</td>
<td>Hope Petrano</td>
</tr>
<tr>
<td>Rory Waterman</td>
<td>Hessain Tamang</td>
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<tr>
<td>Matthias Brewer</td>
<td>Zachary Taylor</td>
</tr>
<tr>
<td><strong>VIRGINIA</strong></td>
<td></td>
</tr>
<tr>
<td>Christopher Newport University, Steven Harris</td>
<td>Summer I</td>
</tr>
<tr>
<td>Kathryn Cole-McNamara</td>
<td>Beom Hem</td>
</tr>
<tr>
<td>Joshua Patterson</td>
<td>Zaaheem McCall</td>
</tr>
<tr>
<td>George Mason University, Rocío Caballero-Gill</td>
<td>Summer I</td>
</tr>
<tr>
<td>Rocío Caballero-Gill</td>
<td>Maya Parada</td>
</tr>
<tr>
<td>Virginia Commonwealth University, Michael Hunnicutt, Mychal Smith</td>
<td>Summer I</td>
</tr>
<tr>
<td>Hani EL-Kaderi</td>
<td>Milan Marsh</td>
</tr>
<tr>
<td>Katherine Tibbetts</td>
<td>Amazin Bullock</td>
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<tr>
<td><strong>WASHINGTON</strong></td>
<td></td>
</tr>
<tr>
<td>Richland Local Section, ACS, Anna Cavinato</td>
<td>Summer I</td>
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<tr>
<td>Anna Cavinato</td>
<td>America Sevilla</td>
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<tr>
<td>Pacific Northwest National Lab., WA</td>
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<tr>
<td>Washington State University, Su Ha</td>
<td>Summer II</td>
</tr>
<tr>
<td>Jake Gray</td>
<td>Hongyeoul Park</td>
</tr>
<tr>
<td><strong>WEST VIRGINIA</strong></td>
<td></td>
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<tr>
<td>Marshall University, Derrick Kolling</td>
<td>Summer I</td>
</tr>
<tr>
<td>Michael Norton</td>
<td>Carrie Floyd</td>
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<tr>
<td>West Virginia State University, Michael Fultz</td>
<td>Summer I</td>
</tr>
<tr>
<td>Michael Fultz</td>
<td>Kasey Blankenship</td>
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<tr>
<td></td>
<td>Madison Mallory</td>
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<tr>
<td><strong>WISCONSIN</strong></td>
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<tr>
<td>Medical College of Wisconsin, Elsa Knysak</td>
<td>Summer I</td>
</tr>
<tr>
<td>John Corbett</td>
<td>Shelley Feil</td>
</tr>
<tr>
<td>Blake Hill</td>
<td>Oluwapelumi Oguntade</td>
</tr>
</tbody>
</table>
2018 Project SEED Summer I & II Programs

Courtesy, Chemical Society of Washington, ACS

Courtesy, University of Puerto Rico, Rio Piedras
2018-2019 College Scholarship Recipients

The Project SEED College Scholarship is a first-year nonrenewable scholarship for Project SEED participants entering their freshman year majoring in a chemical science field. In 2018, 28 students who have demonstrated a high potential to succeed in chemistry were awarded the college scholarships for the 2018-2019 academic year. Additionally, three SEED alumni were awarded a three-year renewable college scholarship for the 2018-2020 academic year. Congratulations to the recipients of the College Scholarships; the ACS Committee on Project SEED wishes all students continued success in their future studies.

**Ciba Specialty Chemicals Scholars**

Ciba Specialty Chemicals was a leading global chemical company acquired by BASF in 2008. The Ciba Foundation made a generous legacy gift to the American Chemical Society to establish the Ciba Specialty Chemicals Scholars Endowment, a new component added to the Project SEED college scholarship program, which expanded the one-year Project SEED college scholarships to a three-year renewable scholarship. As of today, 13 of the 21 awardees have graduated in the chemical sciences.

- **Rayna Bandy** is attending New Mexico Institute of Mining & Technology, majoring in Chemistry.
  
  Career goals: Rayna’s goal is to finish her undergraduate degree as well as her Master’s in Chemistry, and to ultimately obtain a doctorate degree in Medicinal Chemistry.

- **Belil Huang** is attending the University of California, Davis, majoring in Chemical Engineering.
  
  Career goals: Belil’s goal is to pursue a Chemical Engineering degree and continue research in medicine.

- **Nicole Taylor** is attending Rensselaer Polytechnic Institute, NY, majoring in Chemistry.
  
  Career goals: Nicole sees herself as a Chemical Physicist, synthesizing nanostructured materials while focusing on graphene/graphite materials.

**Alfred and Isabel Bader Scholars**

Alfred Bader is one of the founders of the Sigma-Aldrich Company, today Sigma-Aldrich Co. Alfred and Isabel Bader have generously contributed to Project SEED over the years. In 1992 their support started the Summer II program and since 1997, supported the Project SEED college scholarships.

**Ashland Scholars**

Ashland Inc. is a leading global company which provides specialty chemicals, technologies and expertise to customers worldwide. Since 2011, Ashland Inc. has sponsored Project SEED alumni.

**Bayer Scholars**

The Bayer Foundation contributed to the Project SEED Endowment. Bayer is a research-based company with major businesses in health care and life sciences as well as chemicals and imaging technologies. Since 1993, Bayer has supported Project SEED alumni.

**Fosbinder Scholars**

The Estate of Elizabeth Ernest Fosbinder, wife of late ACS member, Dr. Russel J. Fosbinder stipulated the establishment of an endowment in honor of Dr. Fosbinder to fund college scholarships for graduates of Project SEED. Since 2004, the endowment has supported Project SEED alumni.
2018-2019 College Scholarship Recipients

ALFRED & ISABEL BADER SCHOLARS

**John Carvajal** is a graduate of Union City High School, N.J. Under the guidance of Robert Aslanian at the New Jersey Institute of Technology, John worked on a research project titled: “Conducting N-Arylation of Sulfonamides with Boronic Acids using a New Method.” John is majoring in Chemical Engineering at the New Jersey Institute of Technology.

**Ruth Cervantes** is a graduate of Armijo High School, Calif. At Nexeo Solutions, Calif., under the direction of Ken Forbes, she worked on a research project titled: “Contamination in a Chemical Distribution Plant.” Ruth will attend Solano Community College, Calif., majoring in Analytical Chemistry.

**Jeff Chen** graduated from John F. Union City High School, N.J. Under the guidance of Daniel Torres at the New Jersey Institute of Technology, he worked on research titled: “Computational Insight into Materials for Energy: Electronic Structure of Co-Cu Alloy Surfaces by First Principle.” Jeff is majoring in Chemical Engineering at the institute where he did his summer research.

**Ishmam Chowdhury** graduated from John F. Kennedy Educational Complex (STEM) Academy, N.J. Under the direction of Catalin Martin, Ramapo College of New Jersey where she worked on a research project titled: “Infrared Spectroscopy of BiTeCl Crystal.” Ishmam will major in Chemical Engineering at Rutgers University, N.J.

**Leslie Coronado** is a graduate of Amos Alonzo Stagg High School, Calif. Leslie worked with Jerry Tsai at the University of California, Davis on research titled: “Effects of Protein Sequence on Protein Structure Through Modern Molecular Biology Techniques.” She is majoring in Biochemistry at the University of California, Davis.

**Kristen Gilmore** graduated from Bristol High School, Pa. At Solvay, Pa., under the direction of Julie Tanavade she worked on a research project titled: “Developing Mild Body Wash Using Zein Assay and DFA 100 Dynamic Foam Analyzer.” Kristen is majoring in Chemistry at the University of the Sciences, Pa.

**Meilu Huang** is a graduate of Galileo Academy of Science and Technology High School, Calif. At Libby Laboratories, Calif. under the guidance of Gennady Borinshteyn, Meilu worked on a research project titled: “Chemical and Microbial Analysis of Cosmetics.” She is majoring in Biochemistry/Chemistry at Pepperdine University, Calif.

**Ifeoluwa Kehinde** graduated from Grand Prairie High School, Tex. Under the direction of Phillip Pelprey at Texas Wesleyan University, Ifeoluwa worked on research titled: “Synthesis of Small-Molecule Compounds as Potential Antibiotics.” She will attend University of Texas at A&M majoring in Biochemistry.

**Long Nguyen** is a graduate of Florin High School, Calif. Long worked at the University of California, Davis under the guidance of Shota Atsumi on a research project titled: “Biological Production of Valuable Chemicals.” Long will major in Biochemistry at Cosumnes River College, Calif.

Richard Nwakamma is a graduate of Arabia Mountain, Ga. Richard worked at Clark Atlanta University, Ga., under the direction of Ishrat Khan on research titled “Self-assembly of Hairy Nanoparticles: Bottom-up Preparation of Hierarchical Suprastructures.” Richard will be attending Oxford College, Ga., majoring in Biochemistry.

Mirka Ortiz graduated from Union City High School, N.J. Under the guidance of Robert Aslanian at New Jersey City University, Mirka worked on research titled “Synthesis and Evaluation of a Mutual Prodrug.” Mirka Ortiz is majoring in Chemical Engineering at New Jersey City University.

Armen Phelps is a graduate of Encinal High School, Calif. Armen worked under the direction of Akiko Carver at the University of California, Berkeley on research titled “Genetic Regulation of Metabolism in Post-Fire Fungi.” At the University of California, Berkeley, Armen will major in Chemical Engineering.


Anna and John Rezk are graduates of High Tech High School, N.J. Both Anna and John worked during the summer at Steven’s Institute of Technology, N.J. Under the direction of Woo Lee, Anna worked on research titled “Comparing Adhesion of Multiple Myeloma Cell Line to Different Cell Tissues.” And, under the direction of Simon Podkolzin, John worked on research titled “Conversion of Acetic Acid to Gaseous Products Over Bimetallic Catalysts.” Anna is majoring in Biochemistry at Brown University, R.I. and John is majoring in Chemical Engineering at Princeton University, N.J.

Brandon Ugbesia graduated from Brockton High School, Mass. Under the direction of Louis Liotta at Stonehill University, Mass., Brandon’s research was “The Synthesis of Iminosugars.” Brandon attends the University of Massachusetts, Amherst majoring in Chemical Engineering.

Muhammad Umar graduated from High Tech High School, N.J. At Stevens Institute of Technology, N.J., he worked under the guidance of Woo Lee on a research project titled “The Effect of Various Neurotransmitters on the Behavior of Mus musculus.” Muhammad is majoring in Chemistry/Biochemistry at Princeton University, N.J.

Emily Wade was a graduate of Ridgevue High School, Idaho. At Boise State University under the direction of Don Warner, she worked on a research project titled “Cancer Cell-Killing Properties and Mechanism of Aziridinomitosene Analogs.” Emily is majoring in Chemistry/Biochemistry at Northwest Nazarene University, Idaho.

Sommer Gomez Gonzalez graduated from Union City High School, N.J. Under the guidance of Luca Cartegni at Ernest Mario School of Pharmacy, Rutgers University, N.J., she worked on research titled “Identification of Natural Isoforms of the AXL Gene by RT-PCR.” Sommer attends New Jersey City University majoring in Chemistry/Biochemistry.

Deka Ismail graduated from Will C. Crawford High School, Calif. At The Scripps Research Institute, Calif., Deka worked under the direction of Rachel Botham, on a research project titled “Development of a High-Content Imagining Assay for the Discovery of Novel Autophagy Activators.” Deka is majoring in Chemistry at the University of San Diego, Calif.
2018-2019 College Scholarship Recipients

**BAYER SCHOLARS**

Geordelle Maxwell is a graduate of Trenton Central High School, N.J. At Rider University, N.J., she worked under the guidance of Daniel Druckenbrod on research titled “What Causes Gum Spots on Black Cherry Trees at Fernow, WV?” Geordelle attends Mercer County Community College, N.J. majoring in Chemistry/Biology.

Erika Bello Ramirez graduated from Pike High School, Ind. Under the direction of Hiroki Yokota at Indiana University-Purdue University Indianapolis, she worked on research titled “Development of a Microfluidic Device for Breast Cancer Diagnosis. Erika is majoring in Chemistry.”

Vicky Pai is a graduate of Southport High School, Ind. Vicky worked at Indiana University-Purdue University Indianapolis under the guidance of John Vincent Goodpaster. Vicky’s research was “Automated Derivatization and Identification of Controlled Substances Using Solid Phase Microextraction (SPME).” Vicky attends Indiana University, Bloomington majoring in Biochemistry.

**FOSBINDER SCHOLARS**

Aya Adel Fattah graduated from East Lansing High School, Mich. Under the direction of Greg Swain at Michigan State University, he worked on research titled “Nanostructured Diamond Powders for Electrochemistry.” Aya is majoring in Chemical Engineering at the University of Michigan.

Doyun Kim graduated from Emmanuel Christian School, Ohio. Doyun worked at The University of Toledo, Ohio, under the direction of Ajith Karunaratne on research titled “Examination Retinal Isomerization and Photodegradation.” Doyun attends the University of Michigan majoring in Biochemistry.

**ULLYOT SCHOLAR**

Hasan Hamada graduated from Bolton High School, Tenn. Under the direction of Yahia Hamada at LeMoyne-Owen College, Tenn., he worked on research titled “UV-Vis, IR, and Potentiometry of Zn2+ with Glycine.” Hasan Hamada is majoring in Chemistry at Rhodes College, Tenn.

**Congratulations!**

2018-2019 Project SEED College Scholarship Recipients
2018-2019 College Student Testimonials

Armen Phelps
University of California, Berkeley

“Project SEED gave me a valuable experience that confirmed both my passion for chemical engineering and my interest in working in a lab. I was fascinated with everything from RNases to phenol:chloroform. Project SEED showed me what a career as a biochemical researcher looks like. While I chose chemical engineering over biochemistry, I walked away from Project SEED having a much clearer idea about my future career.”

Kristen Gilmore
University of the Sciences, Pa.

“My patience was tested in ways never before, but this internship sparked my interest in becoming an industrial chemist and allowed me to get experience working in a lab. Anytime I spent in the lab felt too short. Working at Solvay made me realize that I could help people through science. Project SEED made me a more confident student and chemist.”

Long Nguyen
Cosumnes River College, Calif.

“After my first year in Project SEED, I was able to work harder in school with a goal to achieve my major’s career. Taking 7 advanced courses in school. Learning from the presentation to mentors, doctors, and guests, I was able to be stronger in public speaking. This trait allowed me to lead big group projects, host meetings for hundreds of students in school, mature mentally, and improve my time management. I cannot wait to return to the 2nd year of Project SEED.”

Meilu Huang
Pepperdine University, Calif.

“I found huge differences between going to school and working in a real laboratory. I just learned the pH will affect the bacteria in school, but I was able to see how this happened when I was working in the lab. After I finished my internship, I had a sense how now real lab environment was and how the scientists worked. I clearly know that I like the science phenomenon, I was able to know more about the world every day through science study.”

Anna Rezk
Brown University, R.I.

“Before Project SEED, I never considered a career as a researcher, but now, as I make my college choices, I know that research has become a part of my future. My second summer as a SEED researcher only cemented my passion for research. It solidified research as an art that allowed me to explore undeterred and understand the world around me with my own hands.”

Ifeoluwa Kehinde
University of Texas at A&M

“Project SEED had exposed me to firsthand college lab experience, it has also taught me the importance of trying, failing, and developing grit as a scientist and as an individual. Being a part of Project SEED has helped me develop a sense of responsibility and accountability especially as a student.”
Students Speaking from the Lab

Victoria E. Chaparro, Mass. Summer I
“My experience this summer working in Professor Beaning's lab was inspirational to say the least. I learned techniques after techniques and nothing felt better than challenging myself at something I enjoyed. This summer my desire to go to college and major in science only grew and now I cannot wait to begin. In the lab, I completely forgot I was only a high school student because everyone was so welcoming and I was working on real projects. I would’ve never thought I would learn so much in only 8 weeks, and I’m so glad I was able to become a part of such a great team.”

Rania H. Ousman, Ind. Summer II
“This opportunity has provided me with a list of advantages and a network that has become an asset for my future breakthroughs as a student. Additionally, I enjoyed the chance to meet students from different backgrounds as myself and being able to share common interests where it can sometimes be hard to meet students with interests as yours. I also enjoyed being able to work with the grad students and listening to their theories on simple life lessons.”

Emily Roman, Calif. Summer II
“I would like to thank the American Chemical Society for giving me two summers that I will forever remember.”

Beom Hee Han, Va. Summer I
“This project is probably one of the greatest experiences of my life. College may possibly be similar to this research, but to be able to deal with these types of researches within an actual lab, for the first time, at this age, was amazing.”

Maggie Paul, Ohio Summer I
“I am beyond blessed to have received the opportunity to participate in Project SEED. I learned so much in such a short time and I feel more prepared than ever for my continuing education.”

Rafael E. Luna Santos, P.R. Summer I
“Thank you for lending me the opportunity to participate in such an amazing program. It has been one of the best experiences of my life. I would even like to participate in a SEED II summer program, if possible.”

Mason Lampron, N.Y. Summer I
“Project SEED was an amazing experience that greatly expanded my knowledge and love for science. It was an amazing decision to take part in this internship. The work I did and the memories I made will forever stick with me.”

Alexis Roberson, Ga. Summer II
“The Project SEED I experience last year changed my perspective about chemistry but the Project SEED II experience this summer changed my life. I never thought I was good enough to go to college. My goal was to finish high-school but now I plan to go to college. I want to get a PhD like my mentor, Dr. Catrena Lisse, and hopefully be a support system for someone else like she has for me. Thank you ACS and Georgia College especially Dr. Lisse for this amazing opportunity!”
Project SEED Students at Sci-Mix

Project SEED students from the Central New York, Georgia, Indiana, Maine, Maryland, New York, North Jersey, Philadelphia, Rhode Island and Trenton local sections presented posters of their research at the Sci-Mix poster session at the 256th ACS Fall National Meeting in Boston, MA.

Central New York Local Section: Coordinator: Miriam Gillett-Kunnath
Zau Tawing N-Hkum  Structural Studies of Novel Group I and Bismuth Heterobimetallic Fluoroalkoxides
Ahlam Zokari  Synthesis and Characterization of Novel Alkaline Earth/Rare-Earth Metal and Bismuth Heterobimetallic Compounds

Georgia Local Section: Coordinators: Ishrat Khan, Ajay Mallia
Alexis Grady/Anthony Walker  Effect of PEO Properties through Van der Waals Interactions with Molybdenum Disulfide?
Da'Miah Johnson  High Performance Poly(vinyl pyrrolidone)/Molybdenum Disulfide Nanocomposite Films: Augmentational Properties
Jennifer Kim/Joel Suazo  Design and Studies of Deep Eutectic Solvents (DESs)

Indiana Local Section: Coordinator: Elmer Sanders
Giancarlo Irizarry  Critical Role of Osteocytic Pannexin1 on Bone
Grace King  Retinal Gene Variation in Different Species of Blow Flies
Sherlyn Lopez-Contreras  Behavioral Effects of Ethanol on Zebrafish embryos
Mohamed Naji  Electrochemical Paper and Tape Devices for Biological and Chemical Analyses
Alondra Salazar  In search of a cure to fatty liver disease
Feven Welde  The Purification of Heterologously Expressed NapA from Campylobacter jejuni

Maine Local Section: Coordinator: Mitchell Bruce
Marina Mohawass  Studies of Co, Cr, Cu, Fe, Mn, VO Complexes of the Acetylacetonate Ion

Maryland Local Section: Coordinator: Victoria Volkis
Emily Cable  Isolation and Hydrolysis of Chitin from Local Waste of Seafood Industry
New York Local Section: Coordinators: Mina Armani, Robert Aslanian, Judith Barrios, Marion McClary, Nadia Makar, Jianwen Que, Amanda Smith

Raquenel Abreu
Study of the Chemical Properties of Green Fluorescence of the Clinging Jellyfish

Johana Aguilar
Biogeochemical cycling of nutrients and heavy metals: Evaluation of the Sediments in the Urban Estuary of the Northern NJ for the Removal of Hexavalent Chromium

Joan Almendarez
Sustained Antimicrobial Properties of Diluted Essential Oils

Ashley Armengolt
Comparing Zinc Air Battery and Lithium-ion Battery in Fuel Cells

Daniella Blanco
Rapid Procedure for the Preparation of Cyclic Anhydrides: Application to the Synthesis of Vorinostat and Analogs

Verenice Bonilla
Aluminum Contamination of Water

Stephanie Caballero-Vega
Ocean Acidification Effects on the Adhesive Properties of Starfish

Chelsea Castillo
Testing Acrylic Acid Polymerization on a Biomaterial Surface

Jeff Chen
Biosensors used in Research: Migration of Bacteria in Soil-less Aggregates for Optimized VOC Uptake

Denia Diaz
Invasive Clinging Jelly Fish in New Jersey: Examination of Predation and Food Behavior on Non-Native Gonionemus vertens

Emanuel Diaz
Electrical Impedance Spectroscopy of Carbon Nanotube Micro-electrodes

Leilani Garcia
Exploring alkali promotion for CO2 Activation and Catalyst Coke Suppression

Sommer Gomez Gonzalez
Testing New Designed Analogs: Unknown Bacteria Anti-biofilm from Ecuador

Victoria Gonzales
The Effects of Drugs on Cholesterol Patients

Alina Guerrero
Antifungal Effects of Essential Oils

Elizabeth Guerrero
Testing Newly Designed Hydroxamic Analogs for Antibacterial Activity: Unknown Bacteria Antibiofilm from Ecuador

Vanessa Hernandez
Regulation of CaMK2 at Inhibitory Synapses: Analyzing Toxicity in Antibiotics

Frederick Martin
Dilution of Essential Oils As Aerosols

Taisha Martinez
Antimicrobial Activities of Soaps and Detergents

Ann Marie Mejia
Essential Oils as Pesticides

Yaa Obeng
CC10 Expression in Blomycin-Induced Lung Injury

Jenifer Perez Reyes
Chemical Contaminants in Grey Water

Allyson Perero
Structure of Liposome containing Polypeptides

Monica Salgado
Natural Oils Used as Pesticides

Angie Tamayo
Mobile Phone-based Fluorescence Detection

Emely Urbina
Storm Water Management: Molecular Dynamics Simulations of Urea-based Organic Crystals
Project SEED Students at Sci-Mix

North Jersey Local Section: Coordinator: Bobbi Gorman
Claire Fabito  
Testing of Survival and Cross-contamination of Bacteria and Viruses of MS2 and Enterobacter aerogenes on Stainless Steel
Kimberly Glenn  
Synthesis of Borinic Acid Polymers and Their Use as a Catalyst In Peptide Bond Formation
Stacia Gray  
Transformation of An Antinutrient Compound To A Novel Electrochemical Catalyst for CO2 Reduction
Ernesto De Jesus Martinez  
Testing of Survival and Cross-contamination of Bacteria and Viruses of MS2 and Enterobacter aerogenes on Stainless Steel
Abieyuwa Osayande  
δO¹⁸ and ⁸⁷Sr/⁸⁶Sr Correlates of Lake Level and Source Waters in the Turkana Basin, Kenya
Frank Peprah  
Fabrication of Phosphorene Holey Graphene Hybrid for Photocatalytic Water Splitting
Hiroshi Onyinah Poku  
Prehistoric Diet on Mangaia, Cook Islands and Stable Isotopic Evidence
Christy Zheng  
Thermodynamic Properties of Fluorinated Carboxylic Acids Through Isodesmic Reactions
Ci’Anee Campbell  
Comparison of Indirect Immunofluorescence and HE Staining

Philadelphia Local Section: Coordinator: Tiffany Chen
Kristen Gilmore  
Benchmark Study of Surfactants

Rhode Island Local Section: Coordinator: Brenda Rubenstein
Robin Fidel  
Towards Sustainable Energy Carriers - Lewis Acid Promoted Oxygen Reduction Catalysis in Water
Sandy Lastor  
Computational Investigations of Iron Halide Complexes
Omar Martinez  
Classifying Ugi Molecules Using K-Means Clustering
Aditi Patel  
Synthesis of Coumarin Functionalized Cyclodextrin MOFs and their Application

Trenton Local Section: Coordinator: Jamie Ludwig
Mayada Farraj  
Chemistry in the Kitchen
Tyanna Spalding  
Quantifying the Concentration of Malic Acid in Foods
Geraldine Velez  
Measuring Malic Acid Concentration: A Biochemical Assay
2018 Student Survey Results

The survey is designed to assess the success of the program. The results of the survey provide information on the background of the students, their educational aspirations, and their assessment about Project SEED. This information is useful in determining whether ACS Project SEED is serving its target population and if it is achieving its goals. Of the 430 students in the program, 417 students responded.

### Student Gender

<table>
<thead>
<tr>
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<th>Summer I</th>
<th>Summer II</th>
<th>Total %</th>
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<tbody>
<tr>
<td>Female</td>
<td>225</td>
<td>57</td>
<td>68%</td>
</tr>
<tr>
<td>Male</td>
<td>109</td>
<td>26</td>
<td>32%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>334</td>
<td>83</td>
<td>100%</td>
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### Family Income Level

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<th>Summer I</th>
<th>Summer II</th>
<th>Total %</th>
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<tbody>
<tr>
<td>$6,999 or Less</td>
<td>45</td>
<td>8</td>
<td>13%</td>
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<tr>
<td>$7,000 to $16,000</td>
<td>58</td>
<td>25</td>
<td>20%</td>
</tr>
<tr>
<td>$17,000 to $25,000</td>
<td>67</td>
<td>14</td>
<td>19%</td>
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<tr>
<td>$26,000 to $35,000</td>
<td>89</td>
<td>14</td>
<td>25%</td>
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<tr>
<td>$36,000 or more</td>
<td>75</td>
<td>22</td>
<td>23%</td>
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<tr>
<td>TOTAL</td>
<td>334</td>
<td>83</td>
<td>100%</td>
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</table>

### Demographics by State

<table>
<thead>
<tr>
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<th>Summer I</th>
<th>Summer II</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1</td>
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<tr>
<td>Arkansas</td>
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<tr>
<td>California</td>
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<td>Massachusetts</td>
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<td>Michigan</td>
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<td>Nebraska</td>
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<td>Nevada</td>
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<td>New Jersey</td>
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<td>New York</td>
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<tr>
<td>North Carolina</td>
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<td>3</td>
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<tr>
<td>Ohio</td>
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<td>Oregon</td>
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<td>Pennsylvania</td>
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<td>Puerto Rico</td>
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<td>Utah</td>
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<tr>
<td>Virginia</td>
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</tr>
<tr>
<td>Vermont</td>
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<td>0</td>
</tr>
<tr>
<td>Washington</td>
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<td>7</td>
</tr>
<tr>
<td>West Virginia</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>345</td>
<td>85</td>
</tr>
</tbody>
</table>
## 2018 Student Survey Results

### What is the highest level of education you expect to complete?

<table>
<thead>
<tr>
<th>Level</th>
<th>Summer I</th>
<th>Summer II</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>5</td>
<td>0</td>
<td>1.2%</td>
</tr>
<tr>
<td>Vocational, Trade, Business</td>
<td>1</td>
<td>0</td>
<td>.2%</td>
</tr>
<tr>
<td>Some College</td>
<td>2</td>
<td>0</td>
<td>.5%</td>
</tr>
<tr>
<td>2-year College Graduate</td>
<td>2</td>
<td>0</td>
<td>.5%</td>
</tr>
<tr>
<td>4-year College Graduate</td>
<td>109</td>
<td>21</td>
<td>31.2%</td>
</tr>
<tr>
<td>Graduate/Professional School</td>
<td>215</td>
<td>62</td>
<td>66.4%</td>
</tr>
</tbody>
</table>

### College Majors

<table>
<thead>
<tr>
<th>Major</th>
<th>Summer I First Choice</th>
<th>Summer II First Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Architecture</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Astronomy</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Biology &amp; Life Sciences</td>
<td>49</td>
<td>7</td>
</tr>
<tr>
<td>Business &amp; Commerce</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>75</td>
<td>29</td>
</tr>
<tr>
<td>Communications</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Computer Sciences</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Engineering</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Health Professions</td>
<td>47</td>
<td>11</td>
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<tr>
<td>Home Economics</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Language &amp; Literature</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Library Science</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Mathematics</td>
<td>8</td>
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<tr>
<td>Military Sciences</td>
<td>1</td>
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<tr>
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<td>9</td>
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</tr>
<tr>
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<td>Social Sciences</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>58</td>
<td>13</td>
</tr>
<tr>
<td>N/A</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

### Student Research Sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Summer I</th>
<th>Summer II</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Laboratory</td>
<td>261</td>
<td>64</td>
<td>78%</td>
</tr>
<tr>
<td>Government Laboratory</td>
<td>17</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>Industrial Laboratory</td>
<td>27</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Medical Laboratory</td>
<td>29</td>
<td>9</td>
<td>9%</td>
</tr>
</tbody>
</table>

### Students Agreed that Project SEED Helped:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Summer I</th>
<th>Summer II</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop Skills and abilities</td>
<td>319</td>
<td>83</td>
<td>96%</td>
</tr>
<tr>
<td>Develop self-confidence</td>
<td>256</td>
<td>68</td>
<td>78%</td>
</tr>
<tr>
<td>Develop responsibility</td>
<td>313</td>
<td>80</td>
<td>94%</td>
</tr>
<tr>
<td>Understand the ethical behavior of scientists</td>
<td>306</td>
<td>82</td>
<td>93%</td>
</tr>
<tr>
<td>Develop better study habits</td>
<td>213</td>
<td>54</td>
<td>64%</td>
</tr>
<tr>
<td>Learn what advance study is like</td>
<td>309</td>
<td>75</td>
<td>92%</td>
</tr>
<tr>
<td>Decide to continue my education after high school</td>
<td>284</td>
<td>78</td>
<td>87%</td>
</tr>
<tr>
<td>Choose a college major</td>
<td>250</td>
<td>54</td>
<td>73%</td>
</tr>
<tr>
<td>Decide to pursue a career in science</td>
<td>212</td>
<td>71</td>
<td>51%</td>
</tr>
<tr>
<td>Develop greater interest in scientific/technical areas</td>
<td>289</td>
<td>72</td>
<td>87%</td>
</tr>
</tbody>
</table>

### What are the chances that you will become a scientist, engineer, or mathematician in the future?

<table>
<thead>
<tr>
<th>Chance</th>
<th>Summer I</th>
<th>Summer II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>161</td>
<td>42</td>
<td>49%</td>
</tr>
<tr>
<td>Good</td>
<td>117</td>
<td>29</td>
<td>35%</td>
</tr>
<tr>
<td>Fair</td>
<td>50</td>
<td>10</td>
<td>15%</td>
</tr>
<tr>
<td>Poor</td>
<td>6</td>
<td>2</td>
<td>2%</td>
</tr>
</tbody>
</table>
2018 Student Survey Results

In the following statements, students were asked to evaluate their experience with their mentor.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree or Agree</th>
<th>Disagree or Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learned new skills from my SEED mentor</td>
<td>76%</td>
<td>7%</td>
</tr>
<tr>
<td>It is easy to talk to my SEED mentor</td>
<td>89%</td>
<td>10%</td>
</tr>
<tr>
<td>My SEED mentor assisted me with improving my overall performance and SEED research work</td>
<td>94%</td>
<td>2%</td>
</tr>
<tr>
<td>My SEED mentor discussed career paths (including education) in chemistry and related sciences with me</td>
<td>82%</td>
<td>18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student/Mentor Relationship</th>
<th>Total%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Good</td>
<td>73%</td>
</tr>
<tr>
<td>Good</td>
<td>20%</td>
</tr>
<tr>
<td>Fair</td>
<td>6%</td>
</tr>
<tr>
<td>Poor</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
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Highlights of the 50th Anniversary Celebration of Project SEED

50th Anniversary Symposium: Growing with Project SEED: 50 years and 10,000+

L to R: Madeleine Jacobs, Rocio Aviles-Mercado, Teni Quinn-Gray, Arold Norelus, Kevin Hunt, Richa Sharma, Don Warner, Sir Frasier Stoddart, David Chavez, Cecilia Hernandez

Teri-Quinn Gray – Project SEED 1981

Kevin W. Hunt – Project SEED 1989
Highlights of the 50th Anniversary Celebration of Project SEED

Reception: A Conversation with Sir Fraser Stoddart – Champion, 50 Forward Campaign

Tom Connelly, ACS CEO & Executive Director, Isabel Bader, Sir Fraser Stoddart
Highlights of the 50th Anniversary Celebration of Project SEED

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