



# 2016 Project SEED Program Summary



*Hands-On Research for  
High School Students*







New Jersey Institute of Technology

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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."

# Project SEED

## Executive Summary



Project SEED, a program of the American Chemical Society (ACS), helps economically disadvantaged high school students gain research experience and increase their self-confidence. Since 1968, the program has placed nearly 10,300 students in academic, industrial, and governmental laboratories for 8 to 10 weeks during the summer. This past summer, 435 volunteer scientists and coordinators worked with one or two students at more than 120 institutions in 38 states, the District of Columbia, and Puerto Rico. For their work, students receive a fellowship.

This was another successful year for Project SEED, with a total of 414 students participating in the program, 307 of whom were Summer I students and 107 of whom were Summer II students. To assess the success of the program, the students were asked to respond to a questionnaire. Of the 414 students in the program, 406 responded. The results of the

survey indicate that Project SEED does serve its target population: 82% of the respondents come from low-income families with incomes of \$35,000 or less; 67% of the respondents indicate that because of their experience with Project SEED they decided to pursue a career in science; 97% indicate that Project SEED helped them to develop new skills and abilities; 82% note that Project SEED was successful in improving their self-confidence; and 45% indicate they will become a scientist, engineer, or mathematician.

At the ACS fall national meeting in Philadelphia, 31 Project SEED students presented their summer research at the Sci-Mix poster session. The students represented the Georgia, Maryland, Minnesota, Nebraska, New York, Northeastern, North Jersey, Philadelphia, South Jersey, and Trenton Local Sections. (See pages 31-32.) The ACS Project SEED Endowment, industries, foundations, academic institutions, ACS Local Sections, and ACS friends and members supported total student fellowships of \$1,088,500. (See pages 36-38.) ACS provided student fellowships and paid all administrative costs.

For the academic year 2016-2017, Project SEED awarded 31 college scholarships to Project SEED alumni entering their freshman year in college who are pursuing careers in a chemical science. (See pages 19-24.) The scholarships of up to \$5,000 were funded through the continuing generosity of Alfred and Isabel Bader, the Ashland Inc., the Bayer Foundation, the Russel J. Fosbinder, and the Glenn and Barbara Ullerot Endowments. In addition, three Project SEED college scholars received the Ciba Specialty Chemicals scholarships for three renewable years beginning in their sophomore year. Since 2009, a total of 21 students have received the Ciba scholarships, and 13 of them have graduated with chemical science degrees.

The ACS Project SEED program attributes its 48 years of success to the continued generosity of its many financial supporters, volunteer coordinators, and mentors. Thank you for your support and generosity. We look forward to celebrating the 50<sup>th</sup> anniversary of the program in 2018.

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### ALASKA

#### **University of Alaska-Fairbanks, William Howard**

William Howard

#### Summer II

Taylor Bergan

### ALABAMA

#### **Jacksonville State University, Nixon Mwebi**

Jan Gryko  
Al Nichols  
Nixon Mwebi

#### Summer I

Michael Lee  
Kenneth Livermore  
Francisco Lopez

### ARKANSAS

#### **University of Arkansas, Grant Wangila**

Grant Wangila

#### Summer I

Sadagicous Owens

### CALIFORNIA

#### **California Local Section, ACS, Elaine Yamaguchi**

Brian Adzima Autodesk Inc.

#### Summer I

Derek Li

Chul Kim California State University, East Bay  
Marlin Halim

Alexander Feng  
Emony Hill

Mike Long Chevron Energy and Technology Company  
Ken Nelson, Jonathan Moore  
Toni Miao  
Michael Cheng  
Kaustav Chaudhuri  
Shenghua Li  
Hussein Alboudwarej

Ansoni Carmona  
Joaquin Ejie  
Fabiola Guerrero  
Ngoc Hoang  
James Isidro  
Hams Laeq  
Zehui Li  
Huang Qiying

Alam Hasson Fresno State University  
Qiao-Hong Chen  
Joy Goto

Bryan Cantu  
Aaron Gonzalez  
Alison Phasakda

Jeanine Boskovich Libby Labs  
Gennady Borinshteyn

Carlos Guerreros  
Jose Li

Kenneth Forbes Nexo Solutions, LLC.

Ruth Cervantes

Weiming Wu San Francisco State University  
Zheng-Hui He

Junyi Liu  
Yuegi Yu

Don Tilley, Ryan Witzke University of California, Berkeley

Sohail Haqiqat

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

Patti LiWang Christine Isborn	University of California, Merced	Julissa Garcia Erika Anaya Sanchez
Hrant Hratchian Vincent Tung		Chou Xiong Mai Cheng Thao
Jerry Tsai	University of the Pacific, Stockton	Sarah Mendoza Luis Moreno Christian-John Salmasan Sue Vang Belen Sandoval Martha Valencia
O. David Sparkman Jianhua Ren Andy Franz Liang Xue		Clarissa Ortega Noemi Espana
Jianchi Chen Gary Banuelos	USDA-ARS Water Management Research Lab.	
Jennifer Bragg Madhuvanti Kale Niu Dong, Colleen McMahan Sarah Throne William Hart-Cooper Fatima Alleyne Yong Gu	USDA-ARS Western Regional Research Center	Kelly Flores Chang Kim Andrew Orellana Jonathan Orellana Andy Tran Elexis Webster Kenny Yu
Ken Nelson, Frank Plavac Jonathan Moore	Chevron Oronite Company LLC.	<b>Summer II</b> Itzel Gonzalez
Mike Long	Chevron Products Company	Tenzin Woeser
Kenneth Forbes	Nexeo Solutions, LLC.	Valdemar Roman
Andrew Ichimura HeatherRose Lacy	San Francisco State University	Tao Wang Kwan
Tom Burns, Akiko Carver	University of California, Berkeley	Haowen Liu
Andy LiWang Anand Subramaniam	University of California, Merced	Eboni Bell Luis Garcia Jerry Vue Laivong Thung
Ben Stokes, Qiao-Hong Chen		
O. David Sparkman	University of the Pacific, Stockton	Bonuichey Ha
Spencer Walse Charles Burks	USDA-ARS Water Management Research Lab.	Alexis Garcia Rodolfo Munoz-Pedraza
<b>California State University, Los Angeles, Frank Gomez</b>		<b>Summer I</b> Kate Delgado Samantha Enriquez Julia Rojas Jennifer Reyes
Robert Vellanoweth Frank Gomez		
Michael Hayes		

## Students



# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

Timothy Warren K. Travis Holman Kaveh Jorabchi YuYe Tong	Georgetown University
Amol Kulkarni	Howard University
Fenella France	Library of Congress, Preservation Research and Testing Division
Xueging Song	University of District of Columbia
Zhihong Nie Andrei Vedernikov	University of Maryland, College Park
Marie-Christine Daniel-Onuta	University of Maryland Baltimore County
Akos Vertes	George Washington University
Wes Tew	National Institute of Standards and Technology
Julia Schershligt James Fedchak	Thermodynamic Metrology Group, NIST

## Students

Lea Karan Florence Kyremanteng Meron Legasse Anulichi Okorie
Deadrah Campbell
Nicolas Mbenga
Priscilla Hounkponou Laura Lopez
Tes Osei Zane Haug
Steven Hu
<b>Summer II</b> Jenny Chen
Andrew Almeida
Renard Petiangamba Tojo Rabemananjara

## FLORIDA

<b>Barry University, George Fisher</b> Rajeev Prabhakar	University of Miami
--	---------------------

<b>Summer I</b> Vladimir Civil Andy Armond
--

<b>Florida Gulf Coast University, Board of Trustees, Ju Chou</b> Ju Chou
---

<b>Summer I</b> Shangida Shareen Adriana Amaris
---

<b>University of Miami, Carmen Guzman</b> <b>Co-coordinator – Marc Knecht</b> Roger Leblanc Amy Scott
--

<b>Summer I</b> Jael Baptiste Kirby Gilmore
---

Francisco Raymo Adam Braunschweig
--------------------------------------

Najsha Sweeting William Gilmore
------------------------------------

<b>University of North Florida, Jennifer Williams</b> Christos Lampropoulos Jennifer Williams, Melissa Bush Radha Pyati
--

<b>Summer I</b> Darien Glover  Asya Smith
--

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### GEORGIA

#### **Clark Atlanta University, Ishrat Khan**

Michael Williams  
Ishrat Khan  
James Reed

#### **Summer I**

Camron Berrian  
Michelle Payne  
Dakota Sands

### IDAHO

#### **Idaho State University, Andrew Holland**

#### **Co-coordinator – Joshua Pak**

Rene Rodriguez  
Caryn Evilla  
Joshua Pak

Andrew Holland

#### **Summer I**

Paul Bickelhaupt  
Bianca Cataluna  
Abraham Olvera

#### **Summer II**

Andrew Hale

#### **Snake River Local Section, ACS, Don Warner**

Jeunghoon Lee  
Owen McDougal  
Boise State University

Rajesh Nagarajan  
Kevin Ausman  
Ken Cornell

#### **Summer I**

Andrea Nguyen  
Emily Wade

#### **Summer II**

Noah Collingwood  
Jayde Nielsen  
Anthony Phero

### ILLINOIS

#### **Chicago Local Section, ACS, Raelynn Miller**

James Devery  
Wei-Tsung Lee  
Chad Eichman  
Dali Liu  
Loyola University Chicago

#### **Summer I**

Janiel Cortes  
Rocco Molinelli  
Mir Rehman  
Brielle Ross

#### **Milikin University, Anne Rammelsberg**

Anne Rammelsberg

#### **Summer I**

David Bruns  
Connor Dickey

### INDIANA

#### **Indiana Local Section, ACS, Elmer Sanders**

Stanley Polis  
Odilon Campos  
Zhenqi Shi  
David Myers  
Eli Lilly and Company

Mangilal Agarwal  
Amanda Siegel

Indiana University School of Engineering  
and Technology

#### **Summer I**

Emmanuel Atilola  
Justice Vaughn  
Malcolm Wiseman

Clara Reasoner

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

Ann Kimbel-Hill  
Horia Petrache  
Lilian Plotkin  
Steve Presse  
Charlie Dong

Lisa Jones  
Bruce Ray  
Lixin Wang  
Bill Gilhooly

Anthony Borel  
Hsiu-Chiung Yang  
Zhenqi Shi, Jose CIntron  
Tara Chouinard

L. Jack Windsor

Ann Kimbel-Hill

James Marrs  
Christine Picard  
Stephen Wassall

## Purdue Local Section, ACS, Bryan Boudouris

Rajamani Gounder  
Corey Thompson

Bryan Boudouris  
Stephen Beaudoin

## University of Notre Dame, Mary Prorok

### Co-coordinator – Kayode Oshin

William Boggess, Michelle Joyce  
M. Sharon Stack

Holly Goodson  
Amanda Hummon

## IOWA

## Iowa State University, Javier Vela

Jared Anderson  
Vincenzo Venditti  
Emily Smith

Javier Vela

## Students

Brianna Betton  
Samantha England  
Alejandro Marcial  
Emily Perez  
Sakhi Shah

Yonas Araya  
Ahbisak Chin  
Truc Kha  
Ayo-Oluwa Laleye  
Katessia Robertson

### Summer II

Rochelle Adjei  
Anna Martin  
Angelica Murillo  
Cassie Washam

Aundria Liggins

Haben Gebre

Daniel Adeniji  
Grace LeFevre  
Htayni Sui

### Summer I

Joey Mullins  
Brennen Vigar

### Summer II

Veronica Bowling  
Hannah Burnau

### Summer I

Jing Guo  
Lace Hunt

### Summer II

Christian Lemus  
Faith Young

### Summer I

Moises Garcia  
Aracely Miron-Ocampo  
Giovanni Tenikat

### Summer II

Danielle Espinosa-Gonzalez

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### KANSAS

**Wichita State University, Syed Taher**

Syed Taher

**Summer I**

Ashley Romero

**Summer II**

Syed Shamiun

### LOUISIANA

**Louisiana State University-Shreveport, Brian Salvatore**

Brian Salvatore

**Summer II**

La'Brittany Hill

### MARYLAND

**Morgan State University, Louise Hellwig**

Santosh Mandal

**Summer I**

Ariana Jennings

**Summer II**

Jayda Smith

**Summer I**

Montajha Bowen

Cierra Jennesstreet

Aleyah Lewis

### MASSACHUSETTS

**Northeastern University, Patricia Mabrouk**

Patricia Mabrouk

**Summer I**

Maricelys Ramos

**Stonehill College, Cheryl Schnitzer**

Deno Del Sesto

**Summer II**

Cesar Romero

### MICHIGAN

**Calvin College, Mark Muyskens**

Mark Muyskens

Douglas Vander Griend

**Summer II**

Joshua Howard

Adriyanna Jones

**Midland Local Section, ACS, Bernadette Harkness****Co-coordinator – David Karpovich**

Jennifer Chaytor

Saginaw Valley State University

Tami Sivy

**Summer I**

Darla Martinez

Aubrie Tacey

**Summer II**

Evamarie Medendorp

Kailey Zochowski

Anja Mueller

Central Michigan University

Benjamin Swarts

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

### **Eastern Michigan University, Harriet Lindsay**

Harriet Lindsay

Jeff Guthrie

### **Henry Ford Community College, Keith Williams**

Howard Matthew Wayne State University

Matthew Allen  
Wen Li

### **Michigan State University, Chrysoula Vasileiou**

#### **Co-coordinator – Babak Borhan**

Heedeok Hong  
James Jackson, Lisa Jones  
Denis Proshlyakov  
Babak Borhan  
William Wulff  
James Geiger

Robert Maleczka  
Denis Proshlyakov  
Xuefei Huang  
Remi Beaulac

## MINNESOTA

### **Minnesota Local Section, ACS, Sarah Mullins**

Jerry Cohen University of Minnesota  
Romas Kazlauskas  
Wayland Noland

Philippe Buhlmann  
Wayland Noland

## MISSISSIPPI

### **The University of Southern Mississippi, Douglas Masterson**

Joseph Lott  
Song Guo  
Jason Azoulay

## Students

### **Summer I**

Alaya HickS

### **Summer II**

Wilmer Zhinin

### **Summer I**

Suriya Chowdhury  
Ruma Deb  
Fahmida Khaton  
Shaida Nishat

### **Summer I**

Dhan Bhandari  
Dayton Buchanan  
Maryam Ezz  
Joana Lepuri  
Fardowsa Omar  
Jonathan Tuma

### **Summer II**

Maryam Abbas  
Sabrein Ahmed  
Ali Aljazi  
Reeta Shaffo

### **Summer I**

Francisco Balderrama  
Khao Nou Lor  
Tommy Vang

### **Summer II**

Xatziri Viveros Aguilar  
Samsam Dirie  
Kenny Xiong

### **Summer I**

Sumar Beauti  
Clara Ellis  
Jaren Jones

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### MISSOURI

#### Kansas City Local Section, ACS, Michelle Paquette

##### Co-coordinator – Eckhard Hellmuth

Michelle Paquette University of Missouri-Kansas City  
Nathan Oyler  
Keith Buszek

##### Summer I

Derrick Bailey  
Kaleb Rimpson  
Cooper Clements  
Montserrat Santos

#### Saint Louis University, Ryan McCulla

Ryan McCulla

##### Summer I

Patricia Golden

##### Summer II

April Lewis

### MONTANA

#### University of Montana, Earle Adams

Orion Berryman

##### Summer I

John Bowers

### NEBRASKA

#### Creighton University, Sade Kosoko-Lasaki

Devendra Agrawal  
Yaping Tu

##### Summer I

Nancy Chung  
Deisy Reyes

### NEVADA

#### University of Nevada, Reno, Laina Geary

Jason Shearer  
Yiftah Tal-Gan  
Matthew Tucker  
Wesley Chalifous  
Ian Wallace

Laina Geary

##### Summer I

Katrina Arbogast  
Mariah Brito  
BreAnna Cardenas  
Phuc Duong  
Umme Simanto

##### Summer II

Sava Karcher

### NEW HAMPSHIRE

#### Dartmouth College, Ivan Aprahamian

Katherine Mirica

##### Summer II

Nicholas Chambers  
Polina Pivak

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

### NEW JERSEY

#### Academy for Enrichment & Advancement, Union City High School, Amanda Smith

Yang Deng  
Sally Stras

Montclair State University  
Rutgers University, Piscataway

Yang Deng  
Stavroula Sofou

Montclair State University  
Rutgers University, Piscataway

Sally Stras

#### Academy for Enrichment & Advancement, Union City High School, Mina Armani

Ecevit Bilgili

New Jersey Institute of Technology

Sagnik Basuray

#### Academy for Enrichment & Advancement, Union City High School, Judith Barrios

Judith Barrios  
Steven Levison  
Raymond Birge  
Maria Agapito

Academy for Enrichment and Advancement  
New Jersey Rutgers Medical School

Saint Peter's University

Judith Barrios  
Pankaj Lal

Academy for Enrichment and Advancement  
Montclair State University

#### Academy for Enrichment & Advancement, Union City High School, Nadia Makar

Marc Cohen

Beth Israel Medical Center

Vadenska Valens  
Jinshan Gao  
Clement Alo  
Michele Pavanello  
Karina Schafer  
Agostino Pietrangelo  
Stavroula Sofou  
Yufeng Wei  
Philip Leopold

Fairleigh Dickinson University  
Montclair State University

Rutgers University, Newark

Seton Hall University  
Stevens Institute of Technology

Stefan Strauf

## Students

### Summer I

Giovanni Cruz  
Valerie Zapata

### Summer II

Keileen Alvarez  
Katherine Fernandez  
Tracey Simon  
Emily Tumbaco

### Summer I

Mario Banos

### Summer II

Isaac Ortega

### Summer I

Miguel Castro  
Nathalee Martinez  
Amada Ponce  
Melanie Moncayo

### Summer II

Anakarla Gonzalez  
Gilda Lovera  
Katherine Mendoza

### Summer I

Rebecca Amador  
Taysha Campara  
Anna Yactayo  
Thairy Garcia  
Kiara Martinez  
Gabriela Ale  
Giselle Guaman  
Jennifer Hernandez  
Pedro Perez  
Nicole Ceballos  
Kamila Amador  
Ingrid Quintanilla  
Aldair Medrano

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

Gerard Parkin  
Kenneth Yamaguchi  
Flaminia Marrucci  
Hongjun Wang

Columbia University  
New Jersey City University  
New York University  
Stevens Institute of Technology

### **Bayonne High School, Marie Aloia**

Rajesh Dave  
New Jersey Institute of Technology

Maria Aloia

### **Fairleigh Dickinson University, Marion McClary**

James Vachio  
Ratna Vadlamudi

Marion McClary

### **New Brunswick Health Sciences Technology High School, Joanne Ciezak**

Marshall Bergen  
Rutgers University

### **New Jersey City University, Kenneth Yamaguchi**

Miriem Bendaoud  
Yufeng Wei  
Kenneth Yamaguchi

Reed Carroll

Robert Aslanian  
Terry Kamps

### **New Jersey Institute of Technology, Reginald Tomkins**

El Jabiri

Alexei Khalizov  
Liang Chen  
Roman Voronov

### **New Jersey Institute of Technology, Leslie Williams**

Ravindra Nuggehalli

### **North Jersey Local Section, ACS, Bobbi Gorman**

James White  
Rutgers University

## Students

### Summer II

Joan Martinez  
Jessica Alvrites  
Ying Qi Lin  
Jose Perez

### Summer I

Nada Wahba

### Summer II

Nardeen Khella

### Summer I

Salimata Fall  
Ashley Gordillo

### Summer II

Michelle Sining

### Summer I

Rosa Veliz

### Summer I

Aswin Aguinaga  
John Carvajal  
David Herrera  
Prasami Rajapakse  
Mirka Ortiz  
Henry Velasquez

### Summer II

Efstathois Leontaris  
Jacqueline Suarez

### Summer I

Kevin Hernandez  
Marcelo Munoz  
Jaime Mendoza  
Isaiah Moreta  
Camila Sierra

### Summer I

Gladys Adarkwah

### Summer I

Jonathan Reynolds

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

### Rider University, Danielle Jacobs

David Laviska  
Danielle Jacobs  
Jamie Ludwig

### South Jersey Local Section, ACS, Gregory Caputo

Timothy Vaden, Lei Yu      Rowan University  
Lark Perez

### Rutgers University, Piscataway, Shaneika Nelson

Daniel Seidel      Rutgers, the State University of New Jersey

### Rutgers University-Camden, David Salas-de la Cruz

David Salas-de la Cruz

### Rutgers, The State University of New Jersey, Johan Guerra

Frieder Jaekle      Rutgers University, Newark

Huixin He

### Rutgers, The State University of New Jersey, Deborah Stalling

Nanjo Suh      Rutgers, the State University of New Jersey

Suzie Chen

### Science Park High School, Andre Bridgett

N. M. Ravindra      New Jersey Institute of Technology

Alexis Rodriguez      Rutgers University, Newark

### Seton Hall University, Gerald Buonopane

David Sabatino  
Gerald Buonopane

Cosimo Antonacci  
Sulie Chang

Rhonda Quinn

Maria Barca

## Students

### Summer I

Shawn Bailey  
Jibri Grigger-Muse  
Bianca Swidler

### Summer I

Omar Cruz Garcia  
Citlalli Jimenez

### Summer II

Jose Hernandez-Morales

### Summer I

Erika Garro  
Echefalachi Nwaemo

### Summer I

Mary-Jane Igwagu  
Jamila Osborne

### Summer II

Nicole Taylor

### Summer I

Chantal Chacho

### Summer II

Bianca Sanchez

### Summer I

Liandra Gutierrez-Stephens  
Edith Cordova-Zeas  
Josephine Arewa

### Summer I

Deborah Afotey  
Oscar Cosme  
Leonsteen Sterling  
Amrita Singh  
Joyce Jimenez  
Ashley Reid  
Chideya Waddell  
Allizea Kennedy

### Summer II

Adjeilyne Akrong  
Claudia Bonheur

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### NEW MEXICO

#### **Sandia National Laboratories, Bernadette Hernandez-Sanchez**

##### **Co-coordinator – Amy Tapia**

Bernadette Hernandez-Sanchez

Timothy Boyle

##### **Summer I**

Rayna Bandy

Fernando Guerrero

### NEW YORK

#### **Rochester Institute of Technology, Lea Vacca Michel**

Callie Babbitt, Christy Tyler   Rochester Institute of Technology

Andre Hudson

Daniel Weix

Anju Gupta

Gabrielle Gaustad

##### **Summer I**

Truc-Nhi Do

Kaysha Reed

Jared Rodriguez

Daimonique Singleton

Ahmere Spires

### NORTH CAROLINA

#### **North Carolina University, Laura Sremanik**

Alan Tonelli

North Carolina State University

Elena Jakubikova

##### **Summer I**

Aamenah Jordan

Kylah Liftin

Michael Fitzgerald

Kathleen Donohue

Felix Castellano

Melissa Pasquinelli

Duke University

North Carolina State University

##### **Summer II**

Betelihem Mebrahtu

Benhor Samson

Chidubem Nwakuche

Samuel Ndukwe

#### **University of North Carolina, Charlotte, Thomas Schmedake**

Michael Walter

Daniel Rabinovich

Thomas Schmedake

Kirill Afonin

##### **Summer I**

Brandon Miller

Liliana Moranel

Jacqueline Sandoval

Beamiak Worku

### OHIO

#### **Akron Local Section, ACS, Tama Drenski**

Chrys Wesdemiotis

University of Akron

Kevin Cavicchi

Steven Chuang

David Modarelli

Christopher Ziegler

Ali Dhinojwala, Diane Gorse

##### **Summer I**

Dalal Abdelqader

Tommy Alvarado

Juanese Franklin

Brandon Griffith

Adwoa Odoom

Maxwell Rankin

Jia Li

Abraham Joy

##### **Summer II**

Tabitha Graves

Sean Jeffreys

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

### **Case Western Reserve University, Carlos Crespo-Hernandez**

Sichun Yang  
Clemens Burda  
Anna Samia  
Chris Dealwis  
Rajesh Viswanathan  
Daniel Scherson  
John Protasiewicz  
Carlos Crespo-Hernandez  
Genevieve Sauve  
Emily Pentzer

Carlos Crespo-Hernandez  
Rohan Akolkar, Alfred Anderson

### **University of Cincinnati, Anna Gudmundsdottir**

James Mack

Anna Gudmundsdottir  
Laura Sagle

### **University of Toledo, Andy Jorgensen**

Cora Lind-Kovacs

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

Sherri Lovelace-Cameron  
Tom Oder

Sherri Lovelace-Cameron

## OREGON

### **Eastern Oregon University, Anna Cavinato**

Anna Cavinato

### **Portland Local Section, ACS, Angela Hoffman**

Theresa McCormick  
Marilyn Mackiewicz

Portland State University

## PENNSYLVANIA

### **Covestro LLC, Irene McGee**

Robyn Francis, Marie Urick

## Students

### **Summer I**

Abdel-Raheem Abed  
Jade Britton  
Sierra Jones  
Amanda Kong  
Destini McCrory  
Ali Moukdad  
Youssaf Rouha  
Daisha Taylor  
Yonles Webb  
Jaylen Williams

### **Summer II**

Frankie Santiago-Perez  
Michael Sebring

### **Summer I**

Carl Williams

### **Summer II**

Khadyjah Diaw  
Isaiah Howard

### **Summer I**

Lich Do

### **Summer I**

Ali Mujahed  
Marckese Williams

### **Summer II**

David Polonus

### **Summer I**

Gabriella Rodriguez

### **Summer I**

Julia Dayton  
Nicole Zhen

### **Summer II**

Brian Foster  
Onyan Sheely



# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

### Middle Tennessee State University, Paul Gregory Van Patten

Paul Gregory Van Patten

## TEXAS

### Greater Houston Local Section, ACS, Carolyn Burnley

#### Co-coordinator – Oluwatoyin Asojo

Kjersti Aagaard-Tillery Baylor College of Medicine

Oluwatoyin Asojo

Bin Zhan

Bert O'Malley

Rojelio Mejia

Job Lopez

Yingchun Li

Hua-Jun Fan

Prairie View University

Max Fontus

Gururaj Neelgund

Nathaniel Soboyejo

Jakoah Brgoc

University of Houston

Lars Grabow

B. Montgomery Pettitt

University of Texas Medical Branch

Kjersti Aagaard

Sam Houston State University

### San Antonio Local Section, ACS, E. Robert Fanick

Maoqi Feng Southwest Research Institute

Tian Tian Trinity University

John Zhao University of Texas at San Antonio

George Negrete, Andrew Tsin

Lorenzo Brancaleon

Zachary Tonzetich

Doug Frantz

Kelly Nash

Carol Ellis-Terrell

Vasiliki Poenitzsch

Stanton McHardy

Kelly Nash

Southwest Research Institute

University of Texas at San Antonio

### Texas Wesleyan University, Terrence Neumann

Terrence Neumann

## Students

#### Summer I

Helene Hamo

Edgar Lozano

#### Summer I

Alexia Harvey

Paige Moore

Chiagozie Ndukwe

Alberto Partida

Nazaria Ramirez

Shanii Tabb

Reginald Collins

Adesuwa Ehioghae

Babur Naimi

Kenia Ginyard

Owais Raza

Deshaun Miller

Hotam Yusupov

Alma Harris

Cindy Mai

Yenifer Gil

#### Summer II

Samantha Clem

#### Summer I

Sebastien Aguilar

Claudia Zamarripa

Elysha Garcia

Emily Infante

Santiago Lelia

Miguel Loredo

Andrew Martinez

Tristin Zamora

#### Summer II

Raul Carreon

Sandra Figueroa

Jamie Turcios-Villatta

#### Summer I

Bennie Tarrant

Emilio Zaragoza

# 2016 Project SEED Summer I & II Programs

## Institutions/Coordinators/Mentors

## Students

### UTAH

#### University of Utah, Sophie Caron

Sophie Caron

#### Summer II

Asma Rokhaneevna

### VERMONT

#### University of Vermont, Rory Waterman

Rory Waterman

#### Summer I

Hibo Jafar

#### Summer II

Kevin Huang

### WEST VIRGINIA

#### Marshall University, Derrick Kolling

Michael Norton

#### Summer I

Amber Stone

### WISCONSIN

#### Medical College of Wisconsin, Michael Mathias

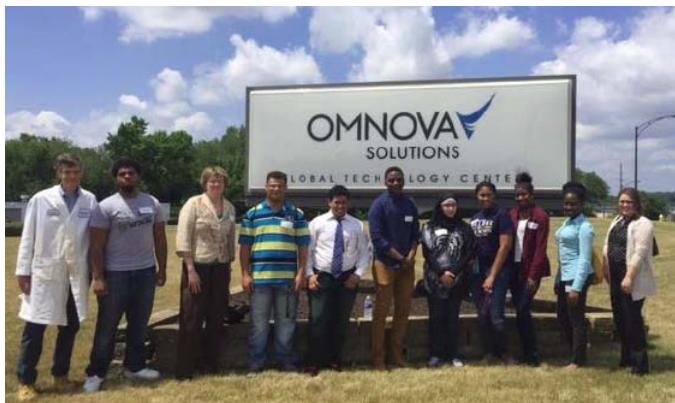
Matthew Scaglione

John Corbett

#### Summer I

A'voin Solis-McKinney

Sokhna Wyatt-Ngoml



Akron Local Section, ACS

# 2016–2017 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 2016, 31 students who have demonstrated a high potential to succeed in chemistry were awarded the college scholarships for the 2016-2017 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.

## 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 have since 1997 supported the Project SEED college scholarships.



Alicia Ball



Idris Barakat



Chrisa-Kay Clarke



Graciela Gautier



Caleb Colon Jimenez



Shally Lin



Yingqi (Linda) Li



Jose Martinez Hernandez



Tszi Yan Ng



Jayde Nielsen



Oliver Peguero



Onyah Sheely



Crystal Vejar

# 2016–2017 College Scholarship Recipients

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## Alicia Ball

High School: Garber High School, Essexville, Mich.  
SEED Institution: Saginaw Valley State University, Mich.  
SEED Mentor: Adam Warhausen  
Michigan Technology University, Houghton  
Major: Biomedical Engineering

## Idris Barakat

High School: Parkside High School, Salisbury, Md.  
SEED Institution: University of Maryland Eastern Shore  
SEED Mentor: Byungrok Min  
Salisbury University, Salisbury, Md.  
Major: Biochemistry

## Max Chee Garza

High School: The Griffin School, Austin, Tex.  
SEED Institution: University of Texas at San Antonio  
SEED Mentor: Zachary Tozetic  
Seattle University, Seattle, Wash.  
Major: Biochemistry

## Chrissa-Kay Clarke

High School: Cypress Springs High School, Cypress, Tex.  
SEED Institution: Prairie View A&M University, Tex.  
SEED Mentor: Gururaj Neelgund  
Prairie View A&M University  
Major: Chemistry

## Morgan Fabber

High School: Blackman High School, Murfreesboro, Tenn.  
SEED Institution: Middle Tennessee State University, Murfreesboro  
SEED Mentor: Greg Van Patten  
Vanderbilt University, Nashville, Tenn.  
Major: Chemistry

## Graciela Gautier

High School: Carmen Belen Veiga High School, Juana Diaz, P.R.  
SEED Institution: University of Puerto Rico, Rio Piedras  
SEED Mentor: Jose Lasalde  
Iowa State University, Ames  
Major: Biochemistry

## Kevin Huang

High School: Burlington High School, Burlington, Vt.  
SEED Institution: The University of Vermont, Burlington  
SEED Mentor: Matthias Brewer  
University of Vermont  
Major: Chemistry

## Caleb Colon Jimenez

High School: University Gardens High School, San Juan, P. R.  
SEED Institution: University of Puerto Rico, San Juan, P. R.  
SEED Mentor: Eduardo Nicolau  
University of Puerto Rico, Mayaguez Campus  
Major: Chemical Engineering

## Aimen Lateef

High School: Niles West High School, Skokie, Ill.  
SEED Institution: Loyola University, Chicago, Ill.  
SEED Mentor: Kathy Mortell, Miguel Ballicora  
Dominican University, River Forest, Ill.  
Major: Biochemistry

## Shally Lin

High School: Pittsford Mencoln High School, Pittsford, N.Y.  
SEED Institution: Rochester Institute of Technology, N.Y.  
SEED Mentor: Callie Babbit  
University of Buffalo, N.Y.  
Major: Biochemistry

## Yingqi (Linda) Lin

High School: Hunter College High School, N.Y.  
SEED Institution: New York University  
SEED Mentor: Tianning Diao  
Swarthmore College, Swarthmore, N.Y.  
Major: Biochemistry

## Jose Martinez Fernandez

High School: Cane Ridge High School, Antioch, Tenn.  
SEED Institution: Middle Tennessee State University, Murfreesboro  
SEED Mentor: Greg Van Patten  
Harvard University, Cambridge, Mass.  
Major: Chemistry

## Tsz Yan Ng

High School: Southview High School, Sylvania, Ohio  
SEED Institution: The University of Toledo, Ohio  
SEED Mentor: Jianglong Zhu  
The University of Toledo  
Major: Chemical Engineering

## Thao Nguyen

High School: Volcano Vista High School, Albuquerque, N. Mex.  
SEED Institution: Advanced Materials Laboratory, Albuquerque, N. Mex.  
SEED Mentor: Bernadette Hernandez Sanchez  
University of New Mexico, Albuquerque  
Major: Chemistry

# 2016–2017 College Scholarship Recipients

## Jayde Nielsen

High School: Middleton High School, Middleton, Idaho  
SEED Institution: Boise State University Idaho  
SEED Mentor: Kevin Ausman  
Brigham Young University, Provo, Utah  
Major: Chemical Engineering

## Aisha Patel

High School: Niles West High School, Skokie, Ill.  
SEED Institution: Loyola University, Chicago, Ill.  
SEED Mentor: Chad Eichman  
DePaul University, Chicago, Ill.  
Major: Biochemistry

## Anthony Phero

High School: Centennial High School, Boise, Idaho  
SEED Institution: Boise State University, Idaho  
SEED Mentor: Ken Cornell  
University of Utah, Salt Lake City  
Major: Biochemistry

## Oliver Pichardo Peguero

High School: Escuela Especializada Bilingue Padre Rufo, San Juan, P.R.  
SEED Institution: University of Puerto Rico, Rio Piedras  
SEED Mentor: Dalice Pinero  
University of Puerto Rico, Rio Piedras  
Major: Chemistry

## Onyah Sheely

High School: Imani Christian Academy, Pittsburgh, Pa.  
SEED Institution: Covestro LLC, Pittsburgh, Pa.  
SEED Mentor: Robyn Francis  
Howard University, Washington, D.C.  
Major: Chemistry

## Crystal Vejar

High School: InTech Collegiate High School, North Logan, Utah  
SEED Institution: Utah State University, Logan  
SEED Mentor: Nicholas Dickenson  
Rensselaer Polytechnic Institution, Troy, N.Y.  
Major: Biochemistry

## Cassie Washam

High School: Western Boone Jr./Sr. High School, Thorntown, Ind.  
SEED Institution: Eli Lilly and Company, Indianapolis, Ind.  
SEED Mentor: Tara Chouinard  
DePauw University, Greencastle, Ind.  
Major: Biochemistry



## Katherine Lindsay

High School: Guerin Catholic High School, Noblesville, Ind.  
SEED Institution: Eli Lilly and Company, Indianapolis, Ind.  
SEED Mentor: Michael Stanick, Susan Gackenheimer  
Denison University, Grandville, Ohio  
Major: Biochemistry



## Demi Reed

High School: Firestone High School, Akron, Ohio  
SEED Institution: University of Akron  
SEED Mentor: Charles Moorefield  
Ohio University, Athens  
Major: Forensic Chemistry

# 2016–2017 College Scholarship Recipients

## 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.



### Mayesha Awal

High School: Lawrence North High School, Indianapolis, Ind.  
SEED Institution: Indiana University School of Medicine  
SEED Mentor: X. Charlie Dong  
Georgetown University, Washington, D.C.  
Major: Biochemistry



### Stefannie Morales

High School: University Gardens High School, San Juan, P.R.  
SEED Institution: University of Puerto Rico Rio, Piedras  
SEED Mentor: Eduardo Nicolau  
Universidad de Puerto Rico en Bayamoin  
Major: Chemical Engineering

### Jose Ayala

High School: Passaic County Technical Institute, N.J.  
SEED Institution: Rutgers University, Newark, N.J.  
SEED Mentor: Karina Schafer  
Rutgers University, New Brunswick, N.J.  
Major: Chemistry

## 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.

### Mary Martinez

High School: The Metropolitan Soundview High School, Bronx, N.Y.  
SEED Institution: University of Puerto Rico, Rio Piedras  
SEED Mentor: Arthur Tinoco  
Bronx Community College, Bronx, N.Y.  
Major: Biochemistry



### Leul Tesfaye

High School: Wheaton High School, Wheaton, Md.  
SEED Institution: University of Maryland, College Park  
Mentor: Andrei Vedernikov  
Cornell University, Ithaca, N.Y.  
Major: Chemical Engineering

## Uillyot Scholars

**Glenn and Barbara Uillyot.** Glenn Uillyot worked for Smith, Kline & French Laboratories. He was a major contributor to the discovery and manufacture of new drugs to the medical world. Barbara Uillyot had a management career at ACS and was a valuable member. Glenn and Barbara provided college scholarships to Project SEED students over their lifetime.

### Jessica Chung

High School: Valley Catholic High School, Beaverton, Oreg.  
SEED Institution: University of Portland, Oreg.  
SEED Mentor: Angela Hoffman  
Harvard University, Cambridge, Mass.  
Major: Biochemistry



# 2016–2017 College Scholarship Recipients

## 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.



### Medinat Akindele

Attending the University of Minnesota-Twin Cities, Minneapolis  
Major: Chemistry



### SangHo Jee

Attending the University of Maryland, College Park  
Major: Biochemistry



### Brooklyn Trujillo

Attending Colorado State University Pueblo  
Major: Chemistry

## ACS Project SEED Scholars



### Cindy Gnawa

High School: Wheaton High School, Silver Spring, Md.  
SEED Institution: Georgetown University, Washington, D.C.  
SEED Mentor: Richard Weiss  
University of Maryland, College Park  
Major: Biochemistry

### Lia Thung

High School: Golden Valley High School, Merced, Calif.  
SEED Institution: University of California, Merced  
SEED Mentor: Vincent Tung  
University of California, Berkeley  
Major: Chemistry

## 2016 Project SEED Students Testimonials



Bader Scholar: **Mayesha Awal**, Lawrence North High School, Indianapolis, IN

Mentor: X. Charlie Dong

SEED Institution: Indiana University School of Medicine

Research Title: Search for Small Molecules to Improve Health and Longevity

In the summer of 2015, I was exhilarated when I was selected to intern with Project SEED. After Project SEED, I am enamored by research as it challenges me to think, explore, and create without any boundaries set upon me. I've always had an affinity for science, and with research I like the idea of creative engagement as I am able to test my ideas not only to benefit society, but also to watch the evolution of a small idea catered universally.

During my internship, I was only able to run two trial runs because of my limited time of 8 weeks. However, I acquired skills and techniques that I will benefit from for the rest of my life. For instance, patience and perseverance are vital in maintaining a healthy lab setting because I had to wait for days in order to lyse cells, and wait days to grow bacteria. I also learned how to embrace failure because in the field of science, failure is pivotal in order to learn the weaknesses of an experiment. Before, failure was a hard concept for me to accept as I was accustomed to the idea of perfection. This altered my perspective as I realized that imperfection is perfection not only in research but also in my life. In addition, the information I acquired about Sirtuin-6 and molecular biology exceeded any of the science material I was taught in high school as it was profound, thought-provoking, and engaging. Project SEED influenced and even changed me as I am now more open-minded, optimistic, and patient. *"From my experience, I aspire to be a chemist, neurologist, or a researcher in the future. Project SEED has motivated me to consider research as a career option for me in the future as Project SEED was a fruitful and fascinating experience. The ability to impact my world by changing not only the health of my community but also the health of the entire world in a small laboratory is amazing, and in the future, I would like to have the opportunity to change the world for humanity. Project SEED was truly an invigorating program for me as it has significantly impacted my learning, changed me as a person and as a scientist, and has directed me to other possible career choices."*

Bader Scholar: **Idris Barakat**, Parkside High School, Salisbury, MD

Mentor: Byungrok Min

SEED Institution: University of Maryland, Eastern Shore

Research Title: Antioxidants Capacity in Fruits



It was a great honor to stand among the few proficient applicants who were considered for the Project SEED program. This experience introduced me into the world of biochemistry which was utterly unfamiliar to me before this internship. This project was a life changing experience in terms of scholastic and character development. Words cannot begin to articulate the extent of knowledge I gained from this experience. From this project, I was able to enhance my practical and technical skills. Moreover, it also allowed me to gain confidence in my abilities and think critically to solve problems. I have made a considerable amount of progress since the day I started working on my research project. Of course, I struggled a bit with the work load that followed writing my final lab report, since I was accustomed to writing generic high school lab report; however, I managed to pull through and stay on task. Every day of work played a crucial role in acquainting me with biochemistry. And also, instilled confidence that biochemistry is a good career choice. My frequent interaction with my mentor and his assistants made me recognize the importance of Biochemist in our world and the role they play to improve our quality of life.

*"Upon completion of my project, I realized the true essence of research and the new discoveries it brings to light. Conducting research in the world of chemistry is like exploring a new land. And in this case, I want to be the explorer. I believe any person can be a catalyst for new discoveries."*

## 2016 Project SEED Students Testimonials

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Bader Scholar: **Chrisan-Kay Clarke**, Cypress Springs High School, Cypress, TX

Mentor: Gururaj Neelgund

SEED Institution: Prairie View A&M University, Prairie, TX

Research Title: Preparation of CuZnS (Copper Zinc Sulfide)

My experience with Project SEED has inspired me to pursue a career in chemistry. This program was a great way for me to become more involved in science and it allowed me to be more aware of new and different margins in chemistry. I was introduced to many equipment and chemicals in the lab that I was not familiar with. *"The opportunity of being a part of Project SEED for two summers, opened my eyes to a whole new world of science. I am looking forward to utilizing the skills I have acquired during both internships, knowing that one day I will be able to incorporate the skills I have obtained and eventually introduce them younger generations and future scientists of the world."* One way I intend to make a difference is by starting a "Young Science Initiative Program", specifically for young students of similar demographic backgrounds as the students that participates in Project SEED. Like, Project SEED, I hope I can teach other students compelling teamwork, leadership and collaboration skills to help build a sense of hard work and confidence in each individual.



Bader Scholar: **Stefannie Morales**, University Gardens High School, San Juan, PR

Mentor: Eduardo Nicolau

SEED Institution: University of Puerto Rico, San Juan

Research Title: Evaluation of Synthesized Nanocrystalline Hydroxyapatite-based Coatings for Applications in Bone Tissue Engineering

The American Chemical Society (ACS) Project SEED I Program was the greatest opportunity I could ever have had to develop my curiosity and interest in scientific research. It was a tool that helped me understand my weaknesses and strengthen my previous skills and create new ideas towards Science, especially Chemistry field. The research area was a difficult challenge for me because I had to test my own mind and show the potential to do critical thinking and find solutions to problems. Through this amazing trial I was endowed to go beyond the apparent circumstances and reason all the possible causes of an issue which gave me the ability to adapt to changes. This was a prodigious experience where I learned how to manage expensive equipment that required training, work as a team member, improve techniques to facilitate the experimentation process and have communication skills. I gained confidence, motivation, practical experience and work habits in a professional environment by applying methods and concepts learned in classes. Also, I was be able to meet and create a network of personal contacts and resources that might help me to get a full-time job after college. During this Internship, I was able to ponder and determine the career I want to pursuit as a professional. I decided that I want to obtain a Bachelor's degree in Chemical Engineering at Stanford University to continue graduate studies and get a PhD degree at Massachusetts Institute of Technology (MIT). I definitely obtained a real perspective on an occupation and know that my highest ambition is to be an active and recognized participant on investigations that can produce a meaningful step in our understanding of the universe matter and its behavior. *"This was an important stride to accomplish my future goals since I know it will give me some advantages and qualities that are fundamental to create a prominent scientist desirable in any university or industry. I am very grateful to this Program because putting hands on a real research changed my life and made me realize that truly "Chemistry is life".*

# 2016 Project SEED Students Testimonials

Bader Scholar: **(Linda) Yingqi Lin**, Hunter College High School, NY  
Mentor: Tianning Diao  
SEED Institution: New York University  
Research Title: Synthesis of 1,9-Bisformyldipyrrolyl Methane



Ever since freshman year, I'd been intrigued by scientific research. However, I didn't know it was possible for ordinary high school students to conduct research. I didn't have any of the connections that my classmates had obtained their research positions through, so although it sounded very interesting, I assumed that high school research was an inaccessible opportunity for me and contented myself by reading interesting scientific articles online in my spare time. Project SEED helped me grow both as a person and as a scientist by providing me with the amazing opportunity to join a laboratory and to experience scientific research firsthand. It was quite a change for me to go from a classroom of fellow teenagers where we learned about long-established scientific facts and theories to a laboratory where novel experiments were being done in hopes of making new scientific discoveries. Through this experience, I've gained a new appreciation for science and saw an aspect of the field that I'm not usually able to see in the classroom. From working in a lab, I've learned how to adapt quickly to a new environment, and also be more responsible and independent in my work, as I often ran steps of the reactions and the purification process by myself. Meanwhile, being suddenly exposed to the field of organic chemistry has taught me to not be intimidated by new topics, but rather to be curious and to aspire to learn more about them. It has led me to take an organic chemistry class at my school this year, in addition to a few other science classes, as I now know that I definitely want to study science in the future and possibly pursue it as a career. *"Project SEED also exposed me to a very academic college environment, and now I'm even more excited to hopefully attend college next year as a first generation college student majoring in biochemistry. After getting a glimpse of scientific research, and organic synthesis specifically, through Project SEED this summer, my career goal is now to become a scientific researcher who designs and synthesizes new drugs to aid disease treatment and prevention."*



Bayer Scholar: **Caleb Colon Jimenez**, University Gardens High School, San Juan, PR  
Mentor: Eduardo Nicolau  
SEED Institution: Molecular Science Research Center of the University of Puerto Rico  
Research Title: The Effect of Different Concentration Ratios of Sodium Hypochlorite (NaClO) on the Tempo Mediated Oxidation of Cellulose Nanocrystals

The overall experience while participating in Project SEED was really amazing. I met and shared with many people, especially with my lab team and the professor. They even showed me facilities and machinery I never thought I would see in my current age. I learned a lot of things in those two months that I participated in the project, because to understand what we were going to investigate I had to read a lot of scientific papers, ask many questions and listen to the advises each of my mentors said. The greatest thing about the experience is that I know I took a huge step to the future when I decided to participate in this project and I don't regret it; I know that the knowledge that I obtained during the running time of the program will help me in future investigations that I will realize as a chemical engineer. *"By learning how to use some advance characterization machines and how to interpret and tabulate the data in specialized programs, I now possess a unique knowledge that not all people that have my same age have. I know that with this new knowledge I will be able to obtain even more and when the time comes I will lead great investigations. The program also showed me the vast areas in chemistry and now I have interest in researching in the areas of bionanotechnology, renewable energy resources, catalytic reactions and chemical applications on material sciences. I hope that in the near future I can concentrate in investigating these areas. With this being said, I fill confident that new opportunities will come my way thanks to the paths that this project has opened for me."*

## 2016 Project SEED Students Testimonials

Bader Scholar: **Aisha Patel**, Niles West High School, Skokie, IL

Mentor: Chad Eichman

SEED Institution: Loyola University, Chicago, IL

Research Title: Iron-catalyzed Arene Prenylation for the Undergraduate Laboratory



Project SEED has not only greatly influenced my education and career choices, but has also helped me grow as a scientist. To begin with, I have participated in this project for two summers. Undertaking these research initiatives has allowed me to expand my knowledge in the area of chemical engineering. Expanding my knowledge in chemical science is quite useful given that I aspire to pursue research in chemistry with the ultimate goal of becoming a chemical engineer. This research opportunity has led me a step closer in reaching my dream. Moreover, this research experience has taught me quite a bit regarding patience because it takes many failed trials before you succeed. Project SEED has greatly helped me grow as a scientist by teaching me that anything in life is possible. I have successfully carried out new experiments that have never been done before and will be published in the Journal of American Chemical Society. In addition, this research experience has contributed to my growth as a scientist because it has enabled me to improve my understanding regarding the environment around me. Lastly, I have learned the importance of teamwork as a scientist.

*“During my research, I worked in team consisting of one undergraduate, three graduate students, and one post-graduate student. Each member offered their unique input on the research which eventually allowed me to be successful. Through this team, I learned that scientists need to work as a team in order to successfully complete their experiments. This is because each of the group members offers a different perspective to an experiment.”*



Ashland Scholar: **Katherine Lindsay**, Guerin Catholic High School, Noblesville, IN

Mentor: Michael Statnick, Susan Gackenheimer

SEED Institution: Eli Lilly and Company, Indianapolis, IN

Research Title: GPR120 Mediated Effects on ACTH secretion in AtT-20 cells

Research is a never ending puzzle. One piece of information will lead you to another, sometimes each part of the process can seem meaningless and insignificant, but as a whole, the work I complete can lead to a life-changing drug. I really enjoyed the small discoveries I made during the summer because most of it had yet to be studied. I got a first-hand experience in the drug development process as a high school student and I know that experience is priceless. After Project SEED, I have a greater interest in research and I would like to continue research in college. In addition, working at Lily has taught me the importance of networking and fostering positive relationships outside of the lab.

*“Overall, I was fortunate to have this experience as it has set a good foundation for finding your passion in careers in science.”*

Bader Scholar: **Jayde Nielsen**, Middleton High School, Middleton, ID

Mentor: Kevin Ausman

SEED Institution: Boise State University, Boise, ID

Research Title: Creating a Better Dispersion of Single Walled Carbon Nanotubes (SWNT) in sodium Dodecyl Sulfate (SDS)



Looking back on my high school career there were many different career paths that I could see myself in: nursing, biology, English, engineering, math, science, history. My world was a clean slate. My first plan was to become an English major, but after taking several science courses I found a love of sciences that I didn't know that I possessed. My first science class, biology, introduced me to the big picture of how life interacts with itself, but I never felt like it got in depth enough to satisfy my crave for knowledge. Finally after taking human anatomy, physiology, and chemistry, my understanding of how our world works was finally abated. My new dream is to create something that could help change the world. After taking chemistry I had the opportunity to participate in Project SEED a program that let high school students help in the research labs. Day after day in the

## 2016 Project SEED Students Testimonials

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lab, I would find something exciting that helped further the research we were performing. Being able to help in the lab opened my eyes to how research really works. I know exactly what I want to go into now because I had the opportunity to get my hands into research of my own. *“My favorite part about doing this internship was the opportunity to see what the world of science is doing to better the world. These scientists are literally changing the world. Some are doing it by researching cancer, Parkinson’s disease, animal diseases, security protocols, education in Idaho, and even studying the prime distribution of single walled carbon nanotubes (SWNT), etc. I want to be a part of this change by creating a new material that could completely alter the way that the world functions.”*



Bader Scholar: **Jose Ayala**, Passaic County Technical institute, Wayne, NJ  
Mentor: Karina Schafer  
SEED Institution: Rutgers University, Newark, N.J.  
Research Title: Carbon Allocation in Wetland Grasses

In order to accurately predict the future we must take what we have today and make educated guesses based on that. Project SEED has taught me many things that will surely help me with the future. This program taught me how to write a well written essay with the guidance of my mentor on a college level. This experience exposed me to how some scientist work in the field whether it was rain or sunshine. Obtaining measurements in the midst of mud and water was a task that made me stronger and more tolerant towards climate disturbances. *“Project SEED showed me the other side of science. It showed the difference scientist can make when they make discoveries and how passionate someone can be when speaking about their field of expertise. It was after Project SEED that I truly considered majoring in chemistry because I wanted to gain further knowledge of how the environment around grows and changes and what I can do about it.”*

SEED Scholar: **Cindy Gnawa**, East Orange STEM Academy High School, East Orange, N.J.  
Mentor: Frieder Jaekle  
SEED Institution: Rutgers University, Newark, NJ  
Research Title: Synthesis of Macrocycles



The American Chemical Society Project SEED summer research program gives students the chance to work alongside scientists on research projects and experience the work of chemists. When I first learned about ACS Project SEED, I seized the opportunity because I am interested in this career path. On my first day, I realized this internship was a challenge, it seemed impossible. I had never heard of organic chemistry and was unfamiliar with everything involving the project. I had to boost my work ethics in order to maneuver through the internship successful. I studied countless organic chemistry articles, watched dozens of videos on Khan Academy and researched every piece of equipment that I had to work with to fully understand its function. As time progressed, so did my expertise. *“My tedious job was rewarding. I attained invaluable knowledge about myself and my future aspiration. I learned in the best and hardest way that I have the potential to be a future chemist. Thanks to Project SEED, I challenged my work ethics and grew as a scholar who is ready for any future trials.”*

# Students Speaking from the Lab



"Project SEED was an amazing opportunity and I am very thankful to have participated in such a fun and educational program. It has helped me so much in terms of future plans and developing skills. It was great working beside my mentor, undergrads, grads, etc. I also thank my PI for all the support and influence that she has given me. Thank you all!"

**Jaylen Williams, OH**  
**Summer I**

"I am a truly thankful and fortunate person to have had this wonderful opportunity. This experience has taught me many new things and has encouraged me to have a science related career in the near future. This program challenged me and taught me that anything is possible as long as you put your mind to it. I will never forget this, all of the new knowledge that I have obtained will always stay in my brain and the experience in my heart. Once again, Thank You!"

**Aracely Miron-Ocampo, IA**  
**Summer I**

"Not only did Project SEED further my interest in research, but the program also provided a way for me to meet kids my age who are also interested in science and research. Prior to this experience, none of my friends understood my love for science and math. Project SEED allowed me to connect with other high students with similar interests."

**Clara Reasoner, IN**  
**Summer I**

"I'm really thankful for this amazing opportunity thanks to the American Chemical Society and Dr. Elaine Yamaguchi. I took advantage of this opportunity the best I could because in small towns like Parlier, CA, it's rare to find great opportunities that I will benefit us the way Project SEED did for me and the other SEED students. I learned many different new things like how to work in a real lab with a real scientist, how cool can that be. This program has made me more excited for college and my future as a future scientists, already being a step ahead of everyone else. Not only did I learn to do scientific lab work, but I also learned how to work as a team with others who helped me along the way and supported me in everything like Anna, Teagan, Victoria, and Jackie. I can't wait to go back to Parlier High School and tell my friends and teachers about my experience with the USDA Department Water Management in Parlier, CA with Dr. Buñuelo's. Truly thankful and I couldn't be any happier with my experiment and experience, this is definitely one of the best experiences I have had."

**Noemi Espana, CA**  
**Summer I**

"Project SEED is one of the best experiences I have had in learning and in branching out my interest of pursuing science as a major in the future. The relationship created with other people, the constant learning being done, and the overall achievement of making everyone feel equal, regardless of financial background is the highlight of accomplishment done by Project SEED. The past two summers could not have been better without Project SEED."

**Cesar Romero, MA**  
**Summer II**

"Project SEED was such a great program! I learned so much more through this project in two months than I did in a school year! I really got a behind the scene view of what research is like and the trial and errors that researchers have to go through. It was an enlightening experience."

**Andrea Nguyen, ID**  
**Summer II**

# Students Speaking from the Lab

"Thank you so much for this opportunity! I used to think that I would never have the chance to work in a lab until I was well into my college career, but thanks to the SEED program, I was able to learn more about the environment in a lab, how to present my findings correctly, and generally more about myself. Thank you so much for setting me on the path to earning a Ph.D.!"

**Julia Dayton, OR**  
**Summer I**

"Thank you for the opportunity to become more educated this summer with this wonderful internship. It was an awesome experience. I was able to meet college students, work in a lab on research that will hopefully someday change the way we treat and cure certain diseases. Something like that changes people, families and gives people a longer life. That is priceless in itself."

**Tristin Zamora, TX**  
**Summer I**

"Project SEED is an amazing experience where one meets many great people, learns about an university campus, acquires advanced knowledge, and has an unforgettable summer."

**Oliver Pichardo Peguero, PR**  
**Summer II**

"Project SEED is a wonderful hands on experience during the summer. Not many opportunities come like this where you get to work with a professor in a lab and see what there day to day consists of. Also, you get to experience new topics that people are working on such as how to cure cancer and etc."

**Suraiya Chowdhury, MI**  
**Summer I**



"Coming from a developing country where we don't always have the means to equip the laboratories, it gives me a certain aspect of what it looks like collecting my own data, observing the living things. I learn to have an attention for details and develop my skills. Thanks to Project SEED, I carry to the highest point my desire for science and wish to pursue my education in the scientific or medical field. Thank you for this great opportunity!"

**Salimata Fall, NJ**  
**Summer I**

"ACS Project SEED made me have the best summer. I learned so much and I am very grateful to my mentor and the program coordinator at the University of Missouri -Kansas city. I am going to dearly miss being part of the ACS Project SEED program and I will forever treasure the educational experience it gave me."

**Montserrat Santos, MO**  
**Summer I**



"Thank you so much for everything, Project SEED! This program gave me an opportunity to pursue research that so few students have and which I certainly never thought I could have this early in my life, and I am so grateful for it. Project SEED allowed me to have a glimpse of what scientists/chemists do every day, as well as higher education in general. It really solidified my interest in science and gave me more confidence in my abilities as a (chemistry) student that I will definitely take with me into college. I really appreciate all the people that I've met through this program, from my PI and my mentor to my lab group members and my local coordinators, who have all helped me in some way or another and have given me really helpful advice for the future. Thank you so much!"

**Yingqi Lin, NY**  
**Summer II**

"I think Project SEED was a great, once in a lifetime opportunity for a high school student to experience. It expanded my love for science even more and I learned a lot from it!"

**Helene Hamo, TN**  
**Summer II**

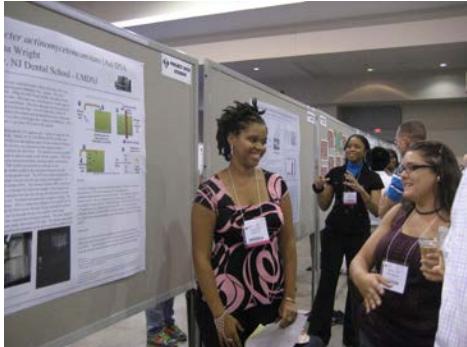
"I enjoyed this program because it helped me expand my horizons for the scientific research field and it gave me a head start for what is yet to come for colleges."

**Chrisitan Lemus, IN**  
**Summer II**

"Everyone given the opportunity to try the SEED program definitely should do so! It is an amazing experience you will never forget and could help decide what one would like to do in life!"

**Henry Velasquez, NJ**  
**Summer I**

# Project SEED Students at Sci-Mix



## New York Local Section Continued:

- |                   |  |
|-------------------|--|
| Michelle Sinning  | Stimulation of Feeding behavior: The Effect Towards Both Genders of <i>Procambarus clarkii</i> in Contaminated Water   |
| Jacqueline Suarez | Testing Antimicrobial Effectiveness of Hydroxamic Acid: The Effects of Hydroxamic Acids on <i>Escherichia coli</i> HB101, <i>Salmonella typhimurium</i> TA1538, and <i>Staphylococcus aureus</i> at Different Time Intervals |
| Emily Tumbaco     | Creation of Liposomes for Therapeutic Uses in Metastatic in MCF-7 Breast Cancer Cell Line  |

## Northeastern Local Section: Coordinator, Ivan Aprahamian

- |              |  |
|--------------|--|
| Polina Pivak | Drawing Chemiresistive Sensors on Shrinkable Polymeric Films: A Laboratory Experiment for High School and Undergraduate Students |
|--------------|--|

## North Jersey Local Section: Coordinators, Gerald Buonopane, Deborah Stalling

- |   |  |
|---|--|
| Adjeilyne Akrong/<br>Claudia Bonheur<br>Joyce Jimenez/<br>Ashley Reid<br>Bianca Sanchez | Modern African Savanna Ecosystem: Stable Carbon Isotope Evidence for Diet and Habitat<br>The Effects of Ethanol on the Growth of HL-60 Human Promyelocytic Leukemia Cells<br>Identifying Changes in Exosomes Numbers Between Treated and Untreated Animals |
| Chideya Waddell   | The Human Evolution: Reconstructing Past Ecosystems or Soil Vegetation Using Carbon Isotopes of Pedogenic Carbonate  |

## Philadelphia Local Section: Coordinator, David Salas-de La Cruz

- |                                    |   |
|------------------------------------|---|
| Echefalachi Nwaemo/<br>Erika Garro | Comparative Study of Cellulose Silk-Blended Films as a Function of Solvent Type |
|------------------------------------|---|

## South Jersey Local Section: Coordinator, Gregory Caputo

- |                                      |  |
|--------------------------------------|--|
| Omar Cruz Garcia<br>Citlalli Jimenez | Calorimetry using PvrTFSI and MSA<br>Novel Synthesis of Benizimidazole |
|--------------------------------------|--|

## Trenton Local Section: Coordinator, Danielle Jacobs

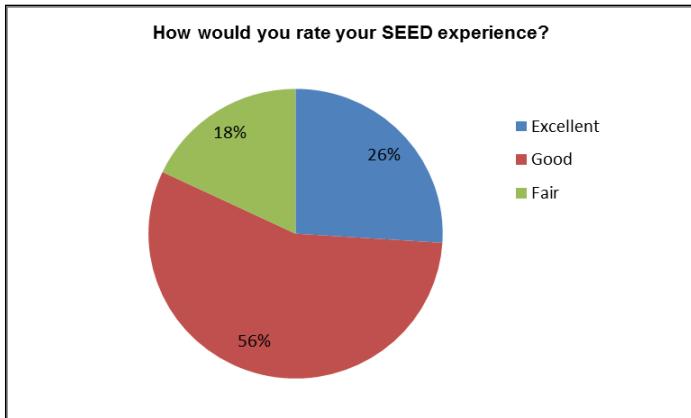
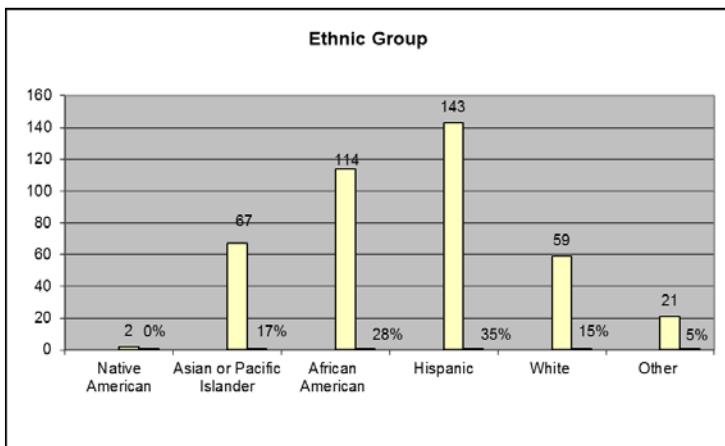
- |  |  |
|--|--|
| Shawn Bailey/<br>Jibri Gigger-Muse<br>Bianca Swidler | Development of a Polymer Lab for Organic Chemistry II Students<br>From Grain to Glass: Developing an Undergraduate Laboratory That Explores the Biochemistry in Alcohol Fermentation |
|--|--|

# 2016 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 414 students in the program, 406 students responded.

Student Gender	Summer I	Summer II	Total %
Male	116	43	39%
Female	183	64	61%
TOTAL	299	107	100%

Family Income Level	Summer I	Summer II	Total %
\$6,999 or Less	43	16	15%
\$7,000 to \$16,000	51	18	17%
\$17,000 to \$25,000	89	21	27%
\$26,000 to \$35,000	65	28	23%
\$36,000 or more	51	24	18%
TOTAL	299	107	100%



Demographics by State	Summer I	Summer II
Alabama	3	0
Arkansas	1	0
Alaska	0	1
California	53	14
Connecticut	4	0
Delaware	3	0
District of Columbia	16	4
Florida	8	2
Georgia	3	0
Hawaii	0	0
Idaho	5	4
Illinois	6	0
Indiana	18	13
Iowa	3	1
Kansas	1	1
Louisiana	0	1
Maryland	4	1
Massachusetts	1	1
Michigan	13	9
Minnesota	3	3
Mississippi	3	0
Missouri	5	1
Montana	1	0
Nebraska	2	0
Nevada	5	1
New Hampshire	0	2
New Jersey	58	21
New Mexico	2	0
New York	5	0
North Carolina	6	4
North Dakota	0	0
Ohio	20	7
Oregon	3	0
Pennsylvania	6	6
Puerto Rico	12	2
South Carolina	0	1
Tennessee	4	1
Texas	26	4
Utah	0	1
Virginia	0	0
Vermont	1	1
West Virginia	1	0
Wisconsin	2	0
<b>TOTAL</b>	<b>307</b>	<b>107</b>

# 2016 Student Survey Results

What is the highest level of education you expect to complete?	Summer I	Summer II	Total %
High School	4	0	1.0%
Vocational, Trade, Business	2	0	0.5%
Some College	0	3	0.7%
2-year College Graduate	3	1	1.0%
4-year College Graduate	77	33	27.1%
Graduate/Professional School	213	70	69.7%

Student Research Sites	Summer I	Summer II	Total %
Academic Laboratory	209	77	70%
Government Laboratory	16	6	5%
Industrial Laboratory	41	14	14%
Medical Laboratory	33	10	11%

Students Agreed that Project SEED Helped:	Summer I	Summer II	Total %
Develop Skills and abilities	289	105	97%
Develop self-confidence	239	95	82%
Develop responsibility	279	103	94%
Understand the ethical behavior of scientists	270	100	91%
Develop better study habits	177	77	63%
Learn what advance study is like	276	101	93%
Decide to continue my education after high school	261	99	89%
Choose a college major	151	73	55%
Decide to pursue a career in science	192	78	67%
Develop greater interest in scientific/technical areas	249	74	80%

College Majors	Summer I First Choice	Summer II First Choice
Agriculture	1%	1%
Architecture	0%	2%
Astronomy	1%	3%
Biology & Life Sciences	17%	17%
Business & Commerce	3%	3%
Chemistry	23%	19%
Communications	0%	0%
Computer Sciences	6%	4%
Earth Sciences	0%	0%
Education	2%	5%
Engineering	12%	10%
Foreign Languages	0%	0%
Health Professions	17%	12%
Home Economics	0%	0%
Language & Literature	0%	1%
Library Science	0%	0%
Mathematics	1%	0%
Military Sciences	1%	0%
Pharmacy Sciences	3%	2%
Philosophy	0%	0%
Physics	2%	3%
Social Sciences	0%	2%
Technical & Vocational	1%	2%
Other	10%	16%

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

	Summer I	Summer II	Total %
Excellent	126	58	45%
Good	52	30	35%
Fair	112	17	17%
Poor	9	2	3%

# 2016 Student Survey Results

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In the following statements, students were asked to evaluate their experience with their mentor.	Strongly Agree or Agree	Neutral	Disagree or Strongly Disagree	No Response
I learned new skills from my SEED mentor	86%	6%	3%	5%
It is easy to talk to my SEED mentor	83%	6%	4%	5%
My SEED mentor assisted me with improving my overall performance and SEED research work	85%	6%	4%	5%
My SEED mentor discussed career paths (including education) in chemistry and related sciences with me	70%	15%	10%	5%

Student/Mentor Relationship	Total%
Very Good	69%
Good	20%
Fair	5%
Poor	1%
No Response	5%
Total	100%

# 2016 Project SEED Major Contributors

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Alfred and Isabel Bader

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The T. Rowe Price Program for Charitable Giving  
Recommendation of William Dempsey Moore  
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Morgan Stanley Global Impact Funding Trust  
Recommendation of Till and Bernice Peters  
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Recommendation of K. Barry and Jan Sharpless  
Donald and Virginia Songstad  
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## ACKNOWLEDGEMENT

**On behalf of the ACS, the staff, and the Project SEED Committee, thank you to our members, friends, foundations, and corporate donors. We are grateful for your generosity and commitment to helping in the success of our high school students.**

**We truly appreciate your continued generosity!**

\*Gifts made in December 2015



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Rutgers University Startup Package
- Seton Hall University, N.J.  
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- Science Park High School, N.J.  
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- Sandia National Laboratories, N. Mex.
- Rochester Institute of Technology, N.Y.  
Gleason Startup Fund, Laura Tubbs,  
National Institute of Health, National Science  
Foundation, National Science Foundation  
CBET Award
- Duke University, N.C.  
National Science Foundation Grant  
Kathleen Donohue  
Michael Fitzgerald
- North Carolina State University  
National Science Foundation Grant
- Felix Castellano, Kathleen Donohue, Michael  
Fitzgerald, Elena Jakubikova  
Golden Corral Charitable Fund
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Students supported through individual and corporate contributions to the ACS Project SEED Endowment.

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Bayer MaterialScience, LLC  
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## **Staff**

Cecilia Hernandez  
Staff Liaison

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## American Chemical Society Project SEED Program

1155 Sixteenth Street, NW Washington, DC 20036  
[projectseed@acs.org](mailto:projectseed@acs.org)  
1-800-227-5558 ext. 4380  
[www.acs.org/projectseed](http://www.acs.org/projectseed)