ACS Chemistry for Life®

American Chemical Society

2015 Project SEED

Program Summary

Hands-On Research for High School Students

University of California, Berkeley

CONTENTS

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

Colorado State University

Project SEED, a program of the American Chemical Society (ACS), helps economically disadvantaged high school students realize their potential and pursue a college education. Since 1968, the program has placed nearly 10,000 students in academic, industrial, and governmental laboratories for 8 to 10 weeks during the summer. For their work students receive a fellowship and the chance to experience college life and increase their self-confidence. This summer, students were mentored by 460 volunteer scientists and coordinators at 126 institutions in 39 states, the District of Columbia, and Puerto Rico. Students received individualized attention as each mentor supervises only one or two students.

This was another successful year for Project SEED, with a total of 423 students participating in the program, 316 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 423 students in the program, 406 responded. The results of the survey indicate that Project SEED does serve its target population: 63% of the respondents come from low-income families with incomes of $25,000 or less. Eighty-one percent of the students validate that Project SEED achieves its goal of stimulating knowledge and interest in science; 97% of the respondents indicate that Project SEED helped them to develop new skills and abilities, 91% note that Project SEED was successful in improving their self-confidence; 64% report that their overall experience helped them decide to pursue a career in science; and 78% of the students expect to complete a college degree in STEM fields. Respondents rated the Project SEED program highly. Students recommended the Project SEED experience to all students.

Twenty Project SEED students representing the Central New York, Indiana, New York, Northeastern, North Jersey, and Trenton Local Sections presented their Project SEED research projects at the Sci-Mix poster session at the ACS fall meeting in Boston (See page 33.). The ACS Project SEED Endowment, industries, foundations, academic institutions, ACS Local Sections, and ACS friends and members supported total student fellowships of $1,109,500. (See pages 36-39.) ACS provided student fellowships and paid all administrative costs.

The Project SEED program awards non-renewable college scholarships to Project SEED students entering their freshman year in college. In 2015, 28 students pursuing careers in a chemical science received this award (See pages 20-24). 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 Ullyot Endowments. In addition, three Project SEED college scholars received the CIBA Specialty Chemicals scholarships for three renewable years beginning in their sophomore year.

On behalf of the ACS, the staff, the Project SEED Committee, and the students, thank you to our volunteer mentors and coordinators, their supporting institutions, our friends and members, and financial supporters. We are grateful for your support and generosity. The success of the students in this program is a testimony to the effective and inspirational time and effort given by their mentors.

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

ALASKA

University of Alaska-Fairbanks, William Howard
William Howard

Summer I
Taylor Bergan

ALABAMA

Jacksonville State University, Nixon Mwebi
Nixon Mwebi

Summer II
Gwendell Thomas

CALIFORNIA

California State University, Los Angeles, Frank Gomez
Frank Gomez

Robert Vellanoweth
Cecilia Zurita-Lopez

Summer I
Judith Cuellar
Alexander Mendizabal
Ethan Ortiz
Genesis Reyes Rivera

California State University, San Bernardino, Dennis Pederson
Jingsong Zhang — University of California, Riverside

Summer I
Luis Enriquez-Contreras
Alexis Vasquez

Chevron, Elaine Yamaguchi

Florence Wu, FeiFei Han	Aemtek, Inc.	Eric Hoang
Michael Cheng Mounita Dutta Tao Wei Toni Miao	Chevron Energy Technology Company	Maricela Hernandez Thang Le Mian Jalal Yao Zong Xu
Ken Nelson, Jonathan Moore Kaustav Chaudhuri Roland Ma	Chevron Oronite Company LLC	Tenzin Lama Mian Shahab Tenzin Woeser
Mike Long	Chevron Products Company	Javier Escalante Itzel Gonzalez
Joy Goto Alam Hasson	Fresno State University	Tarandeep Thamrait Alicia Nam
Gennady Borinshteyn Jeanine Boskovich	Libby Labs	Minh Nguyen
Kenneth Forbes	Nexeo Solutions, LLC	Valdemar Roman
Zheng-Hui He Andrew Ichimura, HeatherRose Lacy	San Francisco State University	Haowen Liu Tao Kwan Chuck Wong
Olaynka Olatunji-Ojo	University of California, Berkeley	Zhen Jie He

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
Patti LiWang Anand Subramaniam Andy LiWang Vincent Tung Ryan Baxter	University of California, Merced	Eboni Bell Luis Garcia Jeanette Moua Lai Thung Jerry Vue
Miki Park Andy Franz Qinliang Zhao Jerry Tsai William Chan	University of the Pacific, Stockton	Nuvia Cervantes Ordaz Matteo Danforth Bonvichey Ha Anthony Nguyen Sierra Turrieta Araceli Valencia
Gary Banuelos Chris Wallis Charles Burks	USDA-ARS Water Management Research Lab.	Midori Fujioka Alexis Garcia Maria Medina Rodolfo Muños-Pedraza Mario Salinas
Niu Dong, Colleen McMahan Gerard Lazo Yuzhu Zhang Sarah Throne Ron Haff	USDA-ARS Western Research Center	Aelafe Kebede Richard Kimball Jason Tang Dahlia Shahin Lawrence Wong
		Summer II
Florence Wu, FeiFei Han	Aemtek, Inc.	Duong Huynh
Brian Adzima	Autodesk Inc.	Jia Yu
Chul Kim Marlin Halim	California State University, East Bay	Jennifer Law Josue Chaves Montes
Weiming Wu Teaster Baird	San Francisco State University	Brandon Chan Lily Laili Xie
Tom Burns, Akiko Carver	University of California, Berkeley	Thao Pham-Vu
Hrant Hratchian Erik Menke	University of California, Merced	Leonor Alcaraz-Guzman Mary Xiong
O. David Sparkman	University of the Pacific, Stockton	Sereena Nand
Spencer Walse	USDA-ARS Water Management Research Lab.	Alfredo Alvarez
Stanford University, Kaye Storm **Co-coordinator – Nadia Shapiro** Kim Parker Sara Kokkila Schumaher		**Summer I** Serena Chen James Delgado

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

Students

The Scripps Research Institute, Dawn Eastmond

Kurt Wuthrich, Pedro Serrano-Navarro
Floyd Romesberg, Jorg Zimmermann

Summer I
Maria Ospina
Jose Santiago

University of California, Davis, Shota Atsumi

Alexei Stuchebrukhov
Shota Atsumi

Summer I
Daniel Leung
Joseph Johnston

Summer II

Louise Berben
Kirill Kovnir, Susan Kauzlarich

Carolina Lepe Banales
Ali Keyani

University of San Diego, Jessica Bell

Christopher Daley

Summer I
Franco Faucher

COLORADO

Colorado State University, Pueblo, David Dillon

David Dillon
Sandra Bonetti

Summer I
Aileen Ojeda
Morgan Zardel-Casarez

Summer II

Sandra Bonetti

Mario Cruz

CONNECTICUT

University of Connecticut, Amy Howell

Jose Gascon

Jing Zhao
Alfredo Angeles-Boza

Summer I
Austin Korczynski
Lauren Rosado
Taina Quiles
Kevin Seda

DELAWARE

DuPont Central Research & Development, Sharon Haynie

Sharon Haynie

Summer I
Edizah Tucker

DISTRICT OF COLUMBIA

Chemical Society of Washington, Ajay Mallia

Michael Massiah — George Washington University

Akos Vertes
Hanning Chen

David Yang — Georgetown University

Timothy Warren

Summer I
Aisha Abdulkarimu
Raubie Raiford
Jenny Chen
Alexis Mosby

John Arcibal
Jennifer Song
Jasmine James

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
K. Travis Holman YuYe Tong	Georgetown University	Monae Richardson Leul Tesfaye
Zeeshan Ahmad	National Institute of Standards	Tobo Rabemananjara
James Fedchak Michal Chojnack Julia Scherschligt	Thermodynamic Metrology Group	Andrew Almeida Joe Amaya Renard Petiangamba
Zhihong Nie Mari-Christine Daniel-Onuta	University of Maryland, College Park University of Maryland, Baltimore County	Enjolique Chandler Harrison Razanajatovo
		Summer II
Kaveh Jorabchi	Georgetown University	Feven Gezahegn
Nicole LaRonde-LeBlanc Jeffrey Davis	University of Maryland, College Park	Ariane Chandler Sindy Rosales-Rivera

FLORIDA

Barry University, George Fisher

Rajeev Prabhakar	University of Miami	**Summer I** Arian Mansur Samar Shaqour
		Summer II
John Berry	Florida International University Biscayne Bay Campus	Marsha Edwards

University of Miami, Paul Natland
Co-coordinator – Adam Braunschweig

Amy Scott Adam Braunschweig Francisco Raymo Roger Leblanc	**Summer I** Faillon Emmanuel William Gilmore Gabriel Muro Najsha Sweeting
	Summer II
Marc Knecht, Randy Lawrence	Kyle Hippalyte-Wade

GEORGIA

Clark Atlanta University, Ishrat Khan

Michael Williams Ishrat Khan, Guangchang Zhou James Reed	**Summer I** Paresha Bowman Tyquavious Kelley Catherine Myrick

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

HAWAII

Hawaii Local Section, ACS, David Cunningham

Tara Holitzki — University of Hawaii at Hilo Core Genomics Facility
Anne Veillet

Summer I
Marybeth DeRego
Jaynah Dias

IDAHO

Idaho State University, Andrew Holland
Co-coordinator – Joshua Pak

Andrew Holland
Joshua Pak

Summer I
Andrew Hale
Nikiyah Melton

Summer II
Lisa Goss
Rene Rodriguez
Caryn Evilia

Christopher Brisco
Mateo Gonzalez
Kristen Stucki

Snake River Local Section, ACS, Don Warner

Eric Brown — Boise State University
Jeunghoon Lee
Kevin Ausman
Ken Cornell

Summer I
Noah Collingwood
Meliha Grbic
Jayde Nielsen
Anthony Phero

ILLINOIS

Chicago Local Section, ACS, Kathleen Mortell

Wei-Tsung Lee — Loyola University Chicago
Dali Liu, Miguel Ballicora

Summer I
Jerrod Shaffer
Liam Darrah
Aimen Lateef

Summer II
Wei-Tsung Lee, Chad Eichman
Aisha Patel

Milikin University, Anne Rammelsberg

Paris Barnes
Anne Rammelsberg

Summer I
Precious Dixon
Perri Grimes
Allison Harris

INDIANA

Indiana Local Section, ACS, Elmer Sanders
Co-coordinator – Joshua Taylor

Kjell Svensson — Eli Lilly and Company
Torian Stinnette
Michael Statnick, Susan Gackenheimer
Jose Cintron
Hsiu-Chiung Yang

Summer I
Rochelle Adjei

Katherine Lindsay
Angelica Murillo
Anna Martin

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
Michael Chouinard	Eli Lilly and Company	Cassie Washam
L. Jack Windsor	Indiana University Purdue University (IUPUI) School of Dentistry	Aundria Liggins
Charlie Dong Alexander Robling Ann Kimbel-Hill Lilian Plotkin	IUPUI School of Medicine	Mayesha Awal Joshua Bitandaro Haben Gebre Zuleima Sanchez
James Marrs Christine Picard Lisa Jones Stephen Wassall Horia Petrache	IUPUI School of Science	Daniel Adeniji Grace LeFevre Vishaal Mali Htayni Sui Daniel Thangs
		Summer II
Anthony Borel Tamer Coskun, Libbey O'Farrell Zhenqi Shi	Eli Lilly and Company	Aishat-Carolyn Audu Ernesto Cabrera Sarah Law
A.J. Baucum Horia Petrache Nathaniel Milton Lixin Wang Michael McLeish Bruce Ray	IUPUI School of Science	Amanuel Araya Roger Biak Krystiauna Cole Lara Martinez Elly Mawi Sui Tial
Purdue University, Bryan Boudouris		**Summer I**
Julie Liu Suzanne Bart Bryan Boudouris Stephen Beaudoin Jeffrey Greeley		Ashdyne Bailey Ashton Bitters Veronica Bowling Hannah Burnau Hayden Smith
		Summer II
Rajamani Gounder		Anahi Rostro
University of Notre Dame, Mary Prorok **Co-coordinator – Kayode Oshin**		**Summer I**
Alex Kandel Holly Goodson Amanda Hummon		Joseph Coman Christian Lemus Faith Young
		Summer II
Marya Lieberman William Boggess, Michelle Joyce		Myracle Newsome Lydia Thomas

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors	Students
IOWA	
Iowa State University, Javier Vela	**Summer I**
Wenyu Huang	Abbigail Espinosa-Gonzalez
Emily Smith	Omar Medina
	Summer II
Levi Stanley	Abdisalan Omar
KANSAS	
Wichita State University, Syed Taher	**Summer I**
Syed Taher	Syed Shamiun
	Summer II
	Syed Shafuan
LOUISIANA	
Louisiana State University-Shreveport, Brian Salvatore	**Summer I**
Elahe Mahdavian	Shacarria Calloway
Brian Salvatore	La'Brittany Hill
McNeese State University, Omar Christian	**Summer I**
Christos Douvris	Naya Slaughter
	Summer II
Omar Christian	Aaliyah Ardoin
	DeMisha Brown
MARYLAND	
Morgan State University, Louise Hellwig	**Summer I**
Pumtiwitt McCarthy	Jayda Smith
University of Maryland Eastern Shore, Victoria Volkis	
Co-coordinator – Uche Udeochu	**Summer I**
Byungrok Min	Idris Barakat
Victoria Volkis	Danaisa Green
MASSACHUSETTS	
Stonehill College, Cheryl Schnitzer	**Summer I**
Deno Del Sesto	Daem Celestin
	Cesar Romero
	Summer II
Louis Liotta	Jessica Antoine
	Jonathan Jironvil

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors

Students

MICHIGAN

Calvin College, Mark Muyskens

Mark Muyskens
Douglas Vander Griend
Eric Arnoys
Brendan Looyenga

Summer I
Joshua Howard
Adriyanna Jones
Ana Kim
Kara Minderhoud

Delta College, Bernadette Harkness
Co-coordinator – David Karpovich

Anja Mueller — Central Michigan University
Benjamin Swarts

Summer I
Evamarie Medendorp
Kailey Zochowski

Summer II
Katelynn Curry
Justin Martin

Anja Mueller
David Karpovich — Saginaw Valley State University

Eastern Michigan University, Harriet Lindsay

Harriet Lindsay, Gregg Wilmes
Hedeel Evans, Jeff Guthrie

Summer I
Alaya Hicks
Wilmer Zhinin

Henry Ford Community College, Keith Williams

G. Andres Cisneros — Wayne State University
Matthew Allen

Summer II
Fahmida Ahmed
Hamidul Islam

Kalamazoo Local Section, ACS, Donald Schreiber

Blair Szymcznya — Western Michigan University

Summer I
Jacob Wasyliw

Summer II
Kathyrn Way

Ramakrishna Guda

Michigan State University, Chrysoula Vasileiou
Co-coordinator – Babak Borhan

Robert Maleceka
J. W. Frost
Denis Proshlyakov

Babak Borhan
James Geiger
William Wulff

Summer I
Maryam Abbas
Marwah Abdulhadi
Sabrein Ahmed
Leon Kay
Ali Aljazi
Gadir Mohamed
Bukhari Sheikh-Omar

Merlin Beuering
James Geiger
Xuefei Huang

Summer II
Sara Aljazi
Mulki Sheikh Omar
Bhakti Pokhrel

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

MINNESOTA

University of Minnesota, Paul Boswell
Co-coordinator –Sarah Mullins

	Summer I
Lee Penn	Xatziri Viveros Aguilar
Paul Boswell	Samsam Dirie
Paul Fiesel, Jerry Cohen	Jinci Lu
Romas Kazlauskas	Gloria Wang
Christy Haynes	Ka Xiong
Wayland Noland, Mathew Huisenga	Kenny Xiong
	Summer II
Rebecca Cuellar	Medinat Akindele
Philippe Buhlmann	Kieu Ho
Paul Boswell	Peter Yang

MISSOURI

Kansas City Local Section, ACS, Eckhard Hellmuth
Co-coordinators – Lincoln Maina, Thuong Dang Nguyen

		Summer I
Michelle Paquette	University of Missouri-Kansas City	Chardonae Pendleton
James Durig		Charese Tinsley
		Summer II
Keith Buszek, Anusha Bade		Melissa McNearney
Keith Buszek		Maria De La Torre Romo

Saint Louis University, Ryan McCulla

	Summer I
Ryan McCulla	April Lewis
	Todd Welch

University of Missouri, Saint Louis, Keith Stine

	Summer I
Eike Bauer	Michael Gorges

MISSISSIPPI

The University of Southern Mississippi, Douglas Masterson

	Summer I
Song Guo	Elisha Acres
Julie Pigza	Fredeneshia Parker
Douglas Masterson	Caleb Stanford

NEBRASKA

Doane College, Sharmin Sikich

	Summer II
Sharmin Sikich	Samantha Vogel

University of Nebraska-Lincoln, Mark Griep

	Summer I
Barry Cheung	Yousif Ibrahim
Marilyne Stains	Elizabeth Otto

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

NEVADA

University of Nevada, Reno, Laina Geary

Summer I

Christopher Jeffrey — Denise Flores-Frazier
Laina Geary — Sava Karcher

Matthew Tucker — Gerald Roscom
Ana de Bettencourt-Dias — Brittney Thomas

NEW HAMPSHIRE

Dartmouth College, Ivan Aprahamian

Summer I

Ivan Aprahamian — Nicholas Chambers
Katherine Mirica — Polina Pivak

NEW JERSEY

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

Summer II

Philip Leopold	Stevens Institute of Technology	Josie Martinez
Kevin Olsen	Montclair State University	Justin Quezada

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

		Summer I
Rajesh Dave	New Jersey Institute of Technology	Camila Davila
		Tatiana Ramirez
Ecevit Bilgili		Isaac Ortega
Michele Pavanello	Rutgers University, Newark	Angel Rodriguez
		Summer II
Clemont Alo	Montclair State University	Allison Guajala

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

		Summer I
Judith Barrios	Academy for Enrichment and Advancement	Anakarla Gonzalez
Marc Cohen	Beth Israel Medical Center	Emmanuella Adarkwa-Aduasah
		Chithma Gunawardana
Gerard Parkin	Columbia University	Joan Martinez
Robert Prezant	Montclair State University	Brianna Abreu
		Keileen Alvarez
Yang Deng		Mariela Garcia
Amir Golnabi		Julissa Hernandez
		Gilda Lovera
Pankaj Lal		Laura Leon
Dibyendu Sarkar		Katherine Mendoza

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
Tianning Diao	New York University	Ying Qi Lin
Karina Schafer	Rutgers University, Newark	Jose Ayala
Agostino Pietrangelo		Jose Perez
Stefan Strauf	Stevens Institute of Technology	Sofia Dominguez
Robert Weider	University of Medicine and Dentistry of New Jersey (UMDNJ)	Jessica Alvitres
		Emily Tumbaco
		Summer II
N.M. Ravindra	New Jersey Institute of Technology	Ayleen Pittar-Flores
Gregory Herzog	Rutgers University, Piscataway	Josue Sanchez
Bayonne High School, Marie Aloia		**Summer I**
Marie Aloia	New Jersey Institute of Technology	Monika Fanous
Lu Zhang		Nardeen Khella
		Summer II
Maria Aloia, Lu Zhang		Isadora Faris
Fairleigh Dickinson University, Marion McClary		**Summer I**
Marion McClary		Michelle Sinning
Fordham University, Susan Fahrenholtz		**Summer II**
Nicholas Snow	Seton University	Danielson Joseph
High Tech High School, Nina Lavlinskaia		**Summer I**
Kenneth Yamaguchi	New Jersey City University	Valerie Gomez
Hongiun Wang	Stevens Institute of Technology	Anne Lim
New Brunswick Health Sciences Technology High School, Joanne Ciezak		**Summer I**
Don Schaffner	Food Risk Analysis, Rutgers University	Andrez Hernandez
New Jersey City University, Kenneth Yamaguchi		**Summer I**
Robert Aslanian		Efstathois Leontaris
Terry Kamps		Jacqueline Suarez
Reed Carroll		Charles Ta
		Summer II
Nurdan Aydin, Reed Carroll		Aiman Awan
New Jersey Institute of Technology, Reginald Tomkins		**Summer I**
Xiaoyang Xu		Vivian Andrade
Treena Arenzeh		Vanessa Martinez
Alexei Khalizov		Neida Rios

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
New Jersey Institute of Technology, Leslie Williams		**Summer I**
N. M. Ravindra		Manuella Agyei
		Keia Smith
Rider University, Danielle Jacobs		**Summer I**
Danielle Jacobs		Mideum Park
		Haniyyah Sardar
Rowan University, Gregory Caputo		**Summer I**
Lark Perez		Jaylene Hernandez
Timothy Vaden		Davina Thompson
Rutgers University, Piscataway, Shaneika Nelson		**Summer I**
Daniel Seidel		Jose Hernandez-Morales
Alan Goldman		Ashley Lopez
		Summer II
Ralph Warmuth		Shaquille Nelson
Rutgers University-Camden, David Salas-de la Cruz		**Summer I**
David Salas-de la Cruz		Abneris Morales Melendez
Rutgers, The State University of New Jersey, Yanett Bagce		**Summer I**
Frieder Jaekle	Rutgers University, Newark	Cindy Gnawa
Huixin He		Nicole Taylor
Rutgers, The State University of New Jersey, Deborah Stalling		**Summer I**
Nanjoo Suh	Rutgers University, Piscataway	Jisell Rosario
Suzie Chen	The State University of New Jersey	Bianca Sanchez
Rutgers – SHRP Health Science Program, Kimberly Moreno		**Summer I**
Stavroula Sofou	Rutgers University, Piscataway	Katherine Fernandez
		Tracey Simon
		Summer II
Virgil Muresan	Rutgers, the State University of New Jersey, New Jersey Medical School	Emily Aguirre-Mora
		Johanna Riera
Seton Hall University, Cecilia Marzabadi		
Co-coordinator – Gerald Buonopane		**Summer I**
Rhonda Quinn		Adjeilyne Akrong
		Claudia Bonheur
Nicholas Snow		Badjessa Bahoumda
Gerald Buonopane		Cody Cross
		Kamita Singh
Monika Raj		Chris Ibraheem

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
		Summer II
Monika Raj	Seton Hall University	Batch Clerizier
Cecilia Marzabadi		Vivian Igwagu

NEW MEXICO

New Mexico Highlands University, Carol Linder		**Summer I**
Carol Linder		Ulisses Villalobos
Sandia National Laboratories, Bernadette Hernandez-Sanchez Co-coordinator – Amy Tapia		**Summer II**
Bernadette Hernandez-Sanchez		Thao Nguyen
Timothy Boyle		Selena Tran-Jurado

NEW YORK

Ellis Preparatory Academy, Jeremy Heyman		**Summer I**
Luis Campos	Columbia University	Abir Andullah
Kristin Myers		Ayele Ayih
		Raushan Rupa
Bart Kahr	New York University	Katherine Garcia Gil
Rochester Institute of Technology, Lea Vacca Michel		**Summer I**
John-David Rocha	Rochester Institute of Technology	Austin Hammond
Callie Babbitt		Shally Lin
Gabrielle Gaustad		James Weathers
Syracuse Minoa High School, Sally Mitchell		**Summer II**
Nancy Totah	Syracuse University	Jackson Hernandez

NORTH CAROLINA

North Carolina University, Laura Sremaniak		**Summer I**
Micheal Fitzgerald	Duke University	Betelihem Mebrahtu
Weitao Yang		Donovan Miller
Benjamin Wiley		Benhor Samson
Gavin Williams	North Carolina State University	Chidubem Nwakuche
Melissa Pasquinelli		Samuel Ndukwe
Jillian Dempsey	University of North Carolina-Chapel Hill	Cyrus Lett
James Cahoon		Joshua Zhou
		Summer II
Alan Tonelli	North Carolina State University	Abbott Ndukwe
Joshua Pierce		Jackline Omweno

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

University of North Carolina, Charlotte, Thomas Schmedake

Daniel Rabinovich
Michael Walter

Summer I
Julio Casanova
Pokyes Kromtit

NORTH DAKOTA

North Dakota State University, Seth Rasmussen

Seth Rasmussen

Summer I
Katlyn Benedict

OHIO

Akron Local Section, ACS, Tama Drenski

Chris Ziegler — University of Akron
Ali Djinowala
Jia Li
Abraham Joy
Yu Zhu
Thomas Leeper

Summer I
Tailon Burrell
Muqadas Diab
Tabitha Graves
Sean Jeffreys
Tyrice Pace
Annjellah Vang

Kevin Cavicchi
Chrys Wesdemiotis
Charles Moorefield, George Newkome
Machael Konopka

Summer II
Spencer Lewis
Ryan Prickler
Demi Reed
Destiny West

Case Western Reserve University, Carlos Crespo-Hernandez
Co-coordinator – Kathryn Howard

Daniel Scherson
Chris Dealwis
Rajesh Viswanathan
Carlos Crespo-Hernandez
Rohan Akolkar
Emily Pentzer

Summer I
Ikechukwu Chukwukere
Antonio Colon
Rayne Elder
Frankie Santiago-Perez
Michael Sebring
Stasha Vaden

Emily Pentzer
Clemens Burda
Carlos Crespo-Hernandez
Blanton Tolbert

Summer II
Daphney Bonner
Anson Hiew
Erica Truong
Tiarra Yarber

University of Cincinnati, Eddie Merino

James Mack
Anna Gudmundsdottir
Laura Sagle

Summer I
Derek Blankenship
Khadyjah Diaw
Isaiah Howard

University of Toledo, Andy Jorgensen

Jianglong Zhu
W. Ajith Karunarathne

Summer I
Sabrine Ayoub
Sabrina Cereceres

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
		Summer II
Amanda Bryant-Friedrich	University of Toledo	Samar Ayoub
Jared Anderson		Harmonie Christian-Ulmer
Cora Lind-Kovacs		Tamia Reditt
Youngstown State University, Sherri Lovelace-Cameron		**Summer I**
Tom Oder		Christian Peck
Sherri Lovelace-Cameron		David Polonus
		Summer II
Sherri Lovelace-Cameron		Alyssa Blosser
OREGON		
Portland Local Section, ACS, Angela Hoffman		**Summer I**
Angela Hoffman	Portland State University	Jessica Chung
Theresa McCormick		Helen Vasquez-Sanchez
PENNSYLVANIA		
Bayer MaterialScience LLC, Irene McGee		**Summer I**
Robyn Francis		Brian Foster
		Onyan Sheely
		Summer II
Eric Rexrode		Tyler Coleman
Duquesne University, Jennifer Aitken		**Summer I**
David Seybert		Amadou Diallo
Partha Basu, Sara Dille		Jeramiah Jones
		Sarine McKenzie
Michael Van Stipdonk, Khiry Patterson		Jordan Pestok
Stephanie Wetzel		Angel Williamson-Wheat
		Summer II
Ellen Gawalt		Nadeja Kodjo
Jennifer Aitken		Amber Latona
Jeffry Madura, Bernandie Jean		Stephen Lau
Michael Cascio, Elizabeth Perez		Cheyeanne Perez
The Forensics Sciences Mentoring Institute, Barry Logan		**Summer I**
Kimberlee Moran, Keith Temporal		Ibrahim Alhassan
Mandi Mohr		Mandisa Bostwick
		Joshua Bryan-Brown
Amanda Haggerty		Margeshay Tomlinson
		Summer II
Kimberlee Moran		Alonzo Elias
Keith Temporal		

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors — Students

PUERTO RICO

Puerto Rico Local Section, ACS, Ingrid Montes

Carlos Gonzalez	University of Puerto Rico, Rio Piedras	**Summer I**
Eduardo Nicolau		Sernelies Arroyo
		Caleb Colon
		Stefannie Morales
Jose Lasalde		Graciela Gautier
Arthur Tinoco		Mary Martinez
Dalice Piñero-Cruz		Oliver Pichardo
		Summer II
Carlos Cabrera		Carlos Huang-Zhu
Arthur Tinoco		Nicole Zambrana

SOUTH CAROLINA

University of South Carolina, Chuanbing Tang

Hui Wang	**Summer I**
Brian Benicewicz	Jason Lee
Aaron Vannucci	Nia Livingson
	Zana Mack
	Summer II
Andrew Greytak	Ke'Shawna Brown
Nadee Lokupitiya	Alexis Jones
Thomas Makris	Maria Maechtle
Maksymilian Chruszcz	Linda Taylor

TENNESSEE

LeMoyne-Owen College, Yahia Hamada

Yahia Hamada	**Summer I**
	Hajja-Aishah Darboe

Middle Tennessee State University, Paul Gregory Van Patten

Paul Gregory Van Patten	**Summer I**
	Morgan Fabber
	Jose Luis Martinez Fernandez

TEXAS

Greater Houston Local Section, ACS, Carolyn Burnley
Co-coordinator – Oluwatoyin Asojo

David Thompson	Sam Houston State University	**Summer I**
		Samantha Clem
Francesco DeMayo	Baylor College of Medicine	Shelsea Portillo
B. Montgomery Pettitt	University of Texas Medical Branch	Saralene Nunley
		Summer II
Kjersti Aagaard	Baylor College of Medicine	Cristian Cachado
Oluwatoyin Asojo		Ngoc Minh Pham

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
Gururaj Neelgund	Prairie View University	Chrisan-Kay Clarke
Gina Chiarella		Richard Qian
Hua-Jun Fan		Victoria Taylor
Yingchun Li		Zuriel Hodge
Sarah Shereen Ghaoui	University of St. Thomas	Ryann Cartwright
San Antonio Local Section, ACS, E. Robert Fanick		**Summer I**
Vasiliki Poenitzsch	Southwest Research Institute	Ashlyn Bain
Carol Ellis-Terrelll		
Maoqi Feng		Briana Ramos
John Zhao	University of Texas at San Antonio	Raul Carreon
Zachary Tonzetich		Max Chee-Garcia
Michael Doyle		Sandra Figueroa
George Negrete		Lynee Massey
Kelly Nash		Ramiro Nava
Ratna Vadlamudi		Jamie Turcios-Villalta
Lorenzo Brancaleon		Victor Villanueva
		Summer II
Sushma Ramsinghani	Feik School of Pharmacy	Samantha Alderete
Texas Wesleyan University, Terrence Neumann		**Summer I**
Terrence Neumann		Sara Cuellar
		Davion Oliver
University of Texas at Tyler, Neil Gray		**Summer I**
Dustin Patterson		Paulo Flores
Tanya Shtoyko		Gabriella Martinez
Neil Patterson		Marisol Suarez
UTAH		
University of Utah, Luisa Whittaker-Brooks		**Summer I**
Luisa Whittaker-Brooks		Nina Filippova
		Asma Rokhaneevna
Utah State University, Nicholas Dickenson		**Summer I**
Tom Chang		Courtney Christensen
Yujie Sun		Margaret Winona Bhushan
Nicholas Dickenson		Crystal Vejar
VERMONT		
University of Vermont, Rory Waterman		**Summer I**
Matthias Brewer		Kevin Huang
Matthew Liptak		Pabitra Sharma

2015 Project SEED Summer I & II Programs

Institutions/Coordinators/Mentors		Students
		Summer II
Rory Waterman	University of Vermont	Musweki Antoinette Mutume

WISCONSIN

Medical College of Wisconsin, Michael Mathias
John Corbett

Summer I
Amina Wyatt-Ngoml

University of Wisconsin, Milwaukee, A. Andrew Pacheco
A. Andrew Pacheco

Summer I
Jewel Morris

WEST VIRGINIA

Marshall University, Derrick Kolling
John Rakus
Michael Norton

Summer I
Brittany Ross
Scarlett Scarberry

West Virginia State University, Michael Fultz
Michael Fultz

Summer I
Katelyn Damron
George Wilkinson

The Forensic Sciences Mentoring Institute, Pa.

2015–2016 College Scholarship Recipients

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.

Medinat Akindele
High School: Harding High School, St. Paul, Minn.
SEED Institution: University of Minnesota, St. Paul
SEED Mentor: Molly Kreiser
University of Minnesota, Twin Cities, St. Paul
Major: Chemistry


Akindele

Aaliyah Ardoin
High School: Washington Marion Magnet High School, Lake Charles, La.
SEED Institution: McNeese State University, Lake Charles, La.
SEED Mentor: Ron Darbeau
McNeese State University, Lake Charles, La.
Major: Chemistry

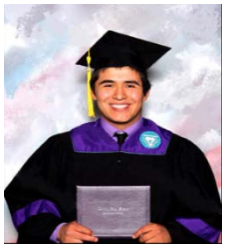

Ardoin

Maria De LaTorre
High School: East High School, Kansas, Mo.
SEED Institution: University of Missouri – Kansas City, Mo.
SEED Mentor: James Durig
Kansas State University, Manhattan, Kans.
Major: Chemical Engineering

Jael Estrada
High School: Union City High School, Union City, N.J.
SEED Institution: Drew University, Madison, N.J.
SEED Mentor: Ryan Hinrich
Drew University, Madison, N.J.
Major: Environmental Studies & Sustainablilty


Estrada

Mateo Gonzalez
High School: Century High School, Pocatello, Idaho
SEED Institution: Idaho State University, Pocatello, Idaho
SEED Mentor: Rene Rodriguez
Idaho State University, Pocatello
Major: Chemistry


Gonzalez

Calley Hickman
High School: Morris Area High School, Morris, Minn.
SEED Institution:University of Minnesota, Morris
SEED Mentor: Ted Pappenfus
University of Minnesota, Morris
Major: Chemistry


Hickman

2015–2016 College Scholarship Recipients

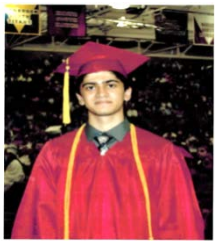
Carlos Huang
High School: Academia Bautista de Puerto Nuevo, PR
SEED Institution: University of Puerto Rico, Río Piedras, PR
SEED Mentor: Jose Prieto
University of Puerto Rico, Mayaguez, PR
Major: Chemical Engineering

Huang

SangHo Jee
High School: Old Mill High School, Millersville, Md.
SEED Institution: University of Maryland, College Park, Md.
SEED Mentor: Zhihong Nie
University of Maryland, College Park, Md.
Major: Biochemistry

Jee

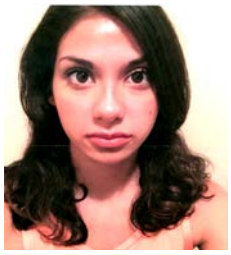
Imran Khan
High School: Niles West High School, Skokie, Ill.
SEED Institution: Loyola University, Chicago, Ill.
SEED Mentor: Rick Holz
Northwestern University, Evanston, Ill.
Major: Integrated Science



Khan

Carisa Medina-Abrajan
High School: East High School, Pueblo, Colo.
SEED Institution: Colorado State University, Pueblo
SEED Mentor: Sandra Bonetti
Colorado State University, Pueblo
Major: Biochemistry

Camila Morocho
High School: Science Park High School, Newark, N.J.
SEED Institution: Public Health Research Institute Center of Rutgers, Newark, N.J.
SEED Mentor: Yaakov Saturen & Eliseo Eugenin
New York University
Major: Chemical & Biomolecular Engineering



Medina-Abrajan

Sereena Nand
High School: Stagg High School, Stockton, Calif.
SEED Institution: University of the Pacific, Stockton, Calif.
SEED Mentor: Roshanak Rahimian
University of California, Los Angeles
Major: Biochemistry

Morocho

Faith Ogbennaya
High School: Saint Vincent Academy, Newark, N.J.
SEED Institution: The Public Health Research Institute at ICPH, Newark, N.J.
SEED Mentor: John Mavrianos
Drew University, Madison, N.J.
Major: Biochemistry

Ngoc Pham
High School: Westbury Senior High School, Houston, Tex.
SEED Institution: Shell Global Solutions, Houston, Tex.
SEED Mentor: Pierre Tutunjian,Pat Killough, Dave Denley
Houston Baptist University, Houston, Tex.
Major: Chemistry

Nand

2015–2016 College Scholarship Recipients

Nina Raymundo
High School: Lawrence North High School, Indianapolis, Ind.
SEED Institution: Methodist Res. Institute, Indianapolis, Ind.
SEED Mentor: Maria Teresa Rizzo
Indiana University, Bloomington, Ind.
Major: Biochemistry

Raymundo

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

Reno

Jamarii Robinson
High School: Mississippi School for Mathematics and Science, Columbus, Miss.
SEED Institution: University of Southern Mississippi, Hattiesburg, Miss.
SEED Mentor: Douglas Masterson
Mississippi State University
Major: Chemical Engineering

Robinson

Claudia Torres
High School: Kent Place School, Summit, N.J.
SEED Institution: Rutgers University, Newark, N.J.
SEED Mentor: Huixin He
Yale University,New Haven, Conn.
Major: Molecular Biochemistry

Brooklynn Trujillo
High School: South High School, Denver, Colo.
SEED Institution: Colorado State University, Pueblo
SEED Mentor: Matthew Cranswick
Colorado State University, Pueblo
Major: Chemistry

Torres

Jade Tso
High School: Franklin High School, Elk Grove, Calif.
SEED Institution: USDA Western Human Nutrition Research Center, Davis, Calif.
SEED Mentor: Betty J Burri
Duke University, Durham, N.C.
Major: Chemistry

Trujillo

Tso

2015–2016 College Scholarship Recipients

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.

Samar Ayoub
High School: Sylvania Southview High School, Sylvania, Ohio
SEED Institution: University of Toledo, Ohio
SEED Mentor: Amanda Bryant-Friedrich
University of Toledo, Ohio

Destiny West
High School: Firestone High School, Akron, Ohio
SEED Institution: The University of Akron, Ohio
SEED Mentor: Michael Konopka
The Ohio State University, Columbus

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 imagining technologies. Since 1993, Bayer has supported Project SEED alumni.

Carolina Banales
High School: Florin High School, Sacramento, Calif.
SEED Institution: University of California, Davis
SEED Mentor: Natalia Loewen
University of California, Davis
Major: Biochemistry

Timothy Chen
High School: Green Hope High School, Cary, N.C.
SEED Institution: North Carolina State University, Raleigh
SEED Mentor: Melissa Pasquinelli
University: North Carolina State University, Raleigh

Aparna Chintapalli
High School: Homestead High School, Cupertino, Calif.
SEED Institution: Ball State University, Muncie, Ind.
SEED Mentor: Robert Sammelson
Pomona College, Claremont, Calif.

Judith Cruz Lopez
High School: Vineland High School, Vineland, N.J.
SEED Institution: Rowan University, Glassboro, N.J.
SEED Mentor: Timothy Vaden
University: Rowan University, Glassboro, N.J
Major: Chemical Engineering

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.

Anthony Nguyen
High School: Tualatin High School, Tualatin, Oreg.
SEED Institution: University of Portland, Oreg.
SEED Mentor: Angela Hoffman
University of Portland, Oreg.
Major: Biochemistry

Alexis Parks
High School: Coconiro High School, Flagstaff, Ariz.
SEED Institution: Northern Arizona University, Flagstaff, Ariz.
Mentor: Jani Ingram
Northern Arizona University, Flagstaff, Ariz
Major: Chemistry

2015–2016 College Scholarship Recipients

Ullyot Scholars

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

Laan Yeung
High School: West Lafayette High School, West Lafayette, Ind.
SEED Institution: Purdue University, West Lafayette, Ind.
SEED Mentor: Julie Liu
Harvard University, Cambridge, Mass.
Major: Biochemistry

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, 11 of the 18 awardees have graduated in the chemical science.

Sonali Mali is a sophomore at Indiana University, Bloomington, Ind. Sonali is majoring in Biochemistry.

Seth Reasoner is a sophomore at Berea College, Berea, KY. Seth is majoring in Chemistry.

William Wey is a sophomore at Vanderbilt University, Nashville, Tenn. William is majoring in Chemistry.

ACS Project SEED Scholars

Li Xu
High School: Galileo Academy of Science & Technology, San Francisco, Calif.
SEED Institution: San Francisco State University,Calif.
SEED Mentor: Zheng Hui He
University of California, Irvine
Major: Pharmaceutical Sciences

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

2015 Project SEED Students Testimonials

Bader Scholar: **Aaliyah Ardoin**, Washington Marion Magnet High School, Lake Charles, La
Mentor: Dr. Ron Darbeau
SEED Institution: McNeese State University, Lake Charles, La

"German physical chemist, Walther Hermann Nernst, once said "Knowledge is the death of research." Although some may view this statement as true, others may deem this statement to be false. I disagree with this statement simply because I believe that gaining knowledge only opens doors for more research. As humans, we always want something better than what we have. Research can be viewed as the stepping stone for life as we know it, without it people would know and have very little. This past summer, I had the pleasure of working with Dr. Ron Darbeau, along with some of his students, studying amides. Amides belong to an organic functional group and contain a carbonyl group. To be more specific, I researched the yield of N-Nitrosation of N-Benzylpivalamides. The idea of the project was to create a solution that would consequently produce the most yield. This included learning how to handle various types of lab equipment, learning about chemicals and what they are used for, and also just simply getting the feel of what a real lab would be like. With each trial, I added sodium bicarbonate to the benzylamine and pivaloyl chloride solution to find what method would create the largest yield of product. The results of the project showed me that adding a base like sodium bicarbonate would create the biggest yield of product. The more product I had, the more crystals would be formed. These crystals could then be used to create TLC's (Thin Layer Chromatography's), check melting and boiling points, or can be stored for further experimentation. This was a fun, easy, and well planned way to figure which solutions are easiest to work with and which ones would be great for further study. The SEED program was an overall great experience. As an unprivileged student, I did not know there were such interesting things going on in a chemistry lab. Although research is very time consuming, getting the results you hope for can make you a very happy camper. Not only did the program make me look forward to working in the lab, in the future, but it made me think about how little research can make such a big difference in people's lives. Experiments such as the one I performed can be used in both chemistry and medical fields thus can help many people. ***By saying this, the program has influenced me to major in chemistry pre-medicine and become an anesthesiologist. Not only do I want to help administer medicine but I would like to do research along with others and help advance medicine that will be used well past my lifetime. It has helped me grow into a very independent young woman and has helped me become curious and eager to learn than ever before. I thank Dr. Darbeau for his mentoring and hope to work with him again very soon."***

Ashland Scholar: **Samar Ayoub,** Sylvania Southview High School, Sylvania, Ohio
Mentor: Amanda Bryant-Friedrich
SEED Institution: University of Toledo, Ohio

"My motivation to participate in Project SEED stemmed from my passion to explore a world of unknown and partake in research where I may not always find exact answers but will constantly acquire knowledge. Being a part of this program allotted me the opportunity to familiarize myself with a real-life chemistry lab. Conducting basic experiments in chemistry class were no comparison to the sophisticated and complex procedures I followed in the lab. In Project SEED, I had the chance to choose my own route: I could follow whatever path I desired. Because the idea of creating new things fascinated me, I decided to synthesize organic molecules. Specifically, I aimed to predict the possible small molecule metabolites formed as a result of oxidative damage to the 2-deoxyribose sugar of thymidine. The experiment was not something I completed overnight; there were multiple steps that needed to be taken into account, as well as critical thinking and trial and error. I became very familiar with research tools and terms such as placing reaction mixtures onto rotovaps, conducting TLCs (Thin Layer Chromatography), and examining data from NMRs (Nuclear Magnetic Resonance) and MALDI (Matrix Assisted Laser Desorption/Ionization). Though I could not identify the exact molecule I created at the end of my experiment, I did construct possible sugar structures from the three unknown peaks of the H-NMR. Through completing Project SEED, I have become more confident upon the path to my future as a medical professional.

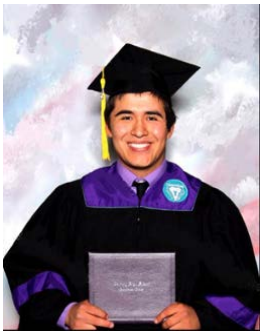
2015 Project SEED Students Testimonials

The world of medicine has intrigued me ever since I was a child. My parents would often find me watching scenes from Grey's Anatomy on TV, awestruck by how efficiently a physician must work and how quickly a patient can slip from one wrong move. Project SEED placed me in the middle of the action. I could mix chemicals together, and when I did not receive the desired results, I had to think. I had to rationalize my next step; there were no guideline to follow if a reaction mixture turned orange. Working in a lab over the summer taught me to further analyze my decisions, to find answers to difficult questions, to create an alternative method when the first one did not work - and I enjoyed every second of it. ***This program has indirectly prepared me for my future in medicine, where I have to be comfortable with thinking on my feet and discovering new solutions.*** If a patient has difficulty breathing, and CPR (Cardiopulmonary Resuscitation) does not work, I cannot just quit. I cannot pronounce that there is nothing more I can do. Instead, I sift through the possibilities and place a breathing tube down their throat to start intubation. Project SEED helped me not only grow as a person, but as a future physician. It also taught me that there is always another way - there are different routes to achieving your goal. Though finally reaching your goal can produce a "feel- good feeling," it is the trail you take to deprotect that 3' ketone of thymidine that is of great value. This program has provided me with life skills that have further guided me on my path to becoming a physician."

Bayer Scholar: **Judith Cruz Lopez**, Vineland High School, Vineland, N.J.
Mentor Timothy Vaden
SEED Institution: Rowan University, Glassboro, N.J.

I shall beginning my essay by thanking the American Chemical Society, Rowan University's Science Department, and my AP Chemistry teacher for allowing me to participate in a wonderful experience that Project SEED gave me. Working on chemical research at a nearby university last summer has taught many new techniques. I began my journey working under Dr. Lei Yu and Dr. Timothy Vaden's guidance. Our research team succeeded in finding a comprehensive set of data from multiple tests that showed how $BMIBF_4$ and Acetic Acid react to one another at different concentrations. These tests included GCMS, IR (Infrared) spectroscopy, Electric Conductivity, and Raman Spectroscopy. The entire purpose of performing the experiments is to find if $BMIBF_4$ (1-methyl-3butylimidazolium tetrafluoroborate) combined with Glacial Acetic Acid would have a high proton concentration. We also sought to find high conductivity in this solution. With both those tests showing positive data, the team hoped that the findings were precise enough to be considered as a replacement for Nafion, a polymer that has grown into a well-used fuel cell material, to provide a more dependent and trustworthy fuel cell. The GCMS was an instrument used to separate the chemical mixture into pulses of pure chemical. The following instrument used was the IR, it was used to analysis the infrared light interacting with the molecules in each solution. Conductivity tests were conducted to draw conclusions about the presence of ions in these solutions. Our overall data wasn't a proper conclusion to sternly say that any of the solutions can or cannot be used as a replacement fuel cell. More tests should be conducted such as the Calorimetry test. Overall, time, patience and attention is learned throughout these experiments. They explained all the instruments used and their functions. The purpose of the research was to find a solution that would block the LasR chemical signal from being translated by the bacteria. If this happens, the bacteria could no longer attack the human body. The bacterium Pseudomonas Aeurignosa was the target of the experiments. To conduct every experiment, a combination of a Roto-Vap, a NMR, and an automated flash purification (AAFP) machine were used. The Rotary Evaporator helped to get rid of any unwanted solvent from the solutions. The NMR was used to ensure the correct compound was created after experimentation, and the AAFP was used to purify each solution. Project SEED has influenced me into majoring in chemistry. ***Before entering the program I grew to love chemistry from my high school studies but by the end of the summer I knew chemistry would be my intended major. My goal is to become a Cosmetic Chemist and engineer products. I've been accepted into every chemistry program at every university I've applied to. I'm more than thankful for have had the opportunity to study chemistry at a higher level and with that I can be a step ahead in life."***

2015 Project SEED Students Testimonials



Bader Scholar: **Mateo Gonzalez**, Century High School, Pocatello, Idaho
Mentor: Rene Rodriguez
SEED Institution: Idaho State University, Pocatello

The SEED Experience at ISU Many residents, especially of high school age, residing in the Pocatello Idaho area are unaware of what goes on within their city limits. After undergoing a transformation that is participating in Project SEED, I was able to access the "secrets" of the city and the life that was available to me through university education. Dr. Rodriguez and the other awesome professors at the ISU Chemistry department spent eight weeks introducing me to Atomic Chemical Vapor Deposition (ACVD), Plasma Enhanced Chemical Vapor Deposition (PECVD), Raman Spectroscopy, Writing scientific reports, and many more concepts. Many concepts and experiments I would not have experienced, or known about otherwise. Attending the department picnic on the second day of the program really introduced to me the impact of education. Meeting other students was eye opening. There were students from all over the world. They had all come to study Chemistry in Pocatello, Idaho; a small town of 54,000 people. These students all departed into the vast unknown travelling hundreds, even thousands of miles to have an exceptional education that focused on their learning personally. I returned to the laboratory the next day, filled with a new vigor to get the most out of the program. That's when Dr. Rodriguez first introduced another student, Fadil. He explained concepts so foreign that I couldn't compute them. The goal was to investigate the effect of Tin (II) Chloride in Germanium Sulfide thin films. To reach this goal we investigated the formation of conductive bridges from the Silver and Aluminum through a Germanium Sulfide Thin Film Dielectric. We made many samples and went through the painstaking process of wrapping glass slides individually with aluminum foil in accordance with each area that needed to be covered in the PECVD and ACVD procedures. Then after completing device prototypes with different amounts of each chemical compound at different thicknesses they were tested to see if they displayed the desired results. The desired results were a control of electrical current through the formation and creation of the conductive bridges through the dielectric. The results however were well worth it once we, Fadil and I, presented the poster for our project at the ACS NORM conference in Missoula Montana. We were able to demonstrate the different configurations that provided the best results, and how other results were not expected as well. Dr. Pak said, "A bachelor's degree is not enough anymore. To compete, you should have at least a master's degree." There I decided to not only complete my education for sure, but I also decided that there are other more fulfilling careers than medicine. ***I decided that I would change the world by becoming a chemical engineer or chemist who would work on new methods to grow industry only more fuel efficient. Until then that is how Project SEED has influenced me, and I just hope I can participate one more time.***

Bader Scholar: **SangHo Jee**, Old Mill High School, Millersville, Md.
Mentor Zhihong Nie
SEED Institution: University of Maryland (UMD), College Park

"Participating in the Project SEED I and II during the summers has helped me grow as both a professional and an individual. I worked with Dr. Nie at the University of Maryland, College Park in studying the effect of small dye molecules as model drugs on the self-assembly of hybrid nanoparticles. In my research I synthesized gold nanoparticles and tethered them to amphiphilic diblock copolymers that when exposed to polar solvents such as water, self-assembled. With the goal of drug delivery, I used small dye molecules to observe the effects of drug loading on the morphology and the optical properties of the vesicles formed. Project SEED has helped me see how research is an effective tool at both discovering new materials and methods, as well as refining existing techniques. This applies to my work at UMD because I had to research the new assemblies that resulted from the addition of the dye molecules and study exactly how much dye was loaded into the drug assembly. However, in order for me to quantify the dyes, I had to consult literature on how it was done previously and adapt the techniques to the equipment and materials I had in order to get accurate data. Through my experiences, I learned why science is a valuable tool and how research occurs in real life. I had the chance through Project SEED to experience the difficult task of confidently reporting my data through the repetition of observations. Science to me has become an experience beyond the textbook or a

list of steps given to me to follow. It is about controlling all variables, changing them or making them constant, and having repeated experiments to truly establish a cause and effect relationship. As a part of Project SEED, I had to design my own procedures and experiments, collect and analyze data, and compile it into a report that I can present. This experiment has helped me both educationally and professionally. Being able to design good experiments and carry them out has helped me tremendously in high school and will be invaluable in college. Even the most basic skills such as using a pipet correctly to more advanced skills such as operating a UV-Vis spectrometer is a necessity in experiments ranging from basic school labs to research opportunities as an undergraduate. ***I had the opportunity to develop as a professional and my career outlooks have changed due to Project SEED. Using the data from the research, I was able to present at the Project SEED symposium as well as the Mid-Atlantic Soft Matter Conference at Georgetown. It was a valuable experience for me to be able to present my research in front of others. I was allowed to be a part of the research community and talk to those in it. Research as a career has been opened to me because I now have exposure and connections to people in the field. Now I'll be able to research during my undergraduate studies as well as afterwards. The course of my life has been changed by Project SEED and the invaluable experience it gave me."***

Bader Scholar: **Camila Morocho**, Science Park High School, Newark, N.J.
Mentor Yaakov Saturen and Eliseo Eugenin
SEED Institution: New York University

"In the summer of 2014, I had the opportunity to intern at the Public Health Research Institute (PHRI) in New Jersey's Medical School. The fellowship allowed me to conduct research and work among postdoctoral students where I learned that science was about combined failures and discoveries, and it was then that I realized that medical discoveries would not be possible without the tools used to do so. I had the pleasure of working with Eliseo Eugenin, Ph.D. which was my mentor and principal investigator, and I researched the Role of Lipids in the Pathogenesis of Accelerated Atherosclerosis in HIV-Infected Individuals. It was during my experience that I discovered that science and engineering is the piecing together of various subjects to innovate and improve human life. I want to create innovative technology to help others in the medical field, thus my interest in biomedical engineering immersed. I want to do more than just conduct research in the limits of a laboratory like I did over the summer because, ultimately I want to be able to apply scientific concepts that I will learn in the classroom and lab onto solving real world issues and ultimately be responsible for bridging people and other subject areas together to develop a creation. ***The Summer Internship program has been such a fulfilling experience rather than just an average internship. I have not only gained knowledge on research and careers in science but who I am as a person and what I want to pursue in life. I loved how my experience allowed me to enter science realm and investigate issues hands on rather than merely reading on the topic. Through the Project Seed experience I have started my path to becoming great scientist and engineer, and who knows where this journey will take me!***

Fosbinder Scholar: **Anthony Nguyen,** Tualatin High School, Tualatin, Oreg.
Mentor: Angela Hoffman
SEED Institution: University of Portland, Oreg.

"My experience with Project SEED has not only provided me with valuable skills that are applicable to both school and everyday life but also created an opportunity for me to explore a career in the chemistry field. A useful skill that I acquired from this program is being acquisitive. This skill proved to be useful in my science classes as it allowed me to observe, gather data, and research at a quick and steady pace. My scientific understanding has also improved as I can now analyze research articles and seek out relevant information required for my research. Within the professional environment, I am able to learn how to communicate effectively to my professor, allowing me to build a professional relationship. My research experiment was on a

cytotoxic alkaloid, which is produced from a local plant called Cephalotaxus harringtonia. Alkaloids are nitrogenous organic compounds found typically in plants. There are many types of alkaloids that are used often in daily life, ranging from pesticides to chemotherapeutic drugs. C. harringtonia was chosen for this experiment because of its relation to the Pacific Yew tree, a well-known plant that produces an anti-cancer drug called Taxol. Since C. harringtonia displayed signs of resistant against pesticide and fungal infections, questions were raised whether the compound in this plant could become the next anti-microbial agent or even an anti-tumor molecule. The first method in identifying the alkaloid compound is extraction. This involves grinding up the stems and leaves from the plant and soaking them in a methanol bath for at least 2 hours. The solution is then filtered to separate the solids from the liquid. The liquid is placed into a rotary-evaporator to evaporate the methanol in the solution. The crude alkaloid extract is then placed into a solid-phase extractor to separate the molecules based on their physical and chemical properties. Once the molecules have been separated, the sample is then separated even further, using a Reveleris machine, to isolate molecules based on their solubility, known as fractionation. After this step, each fraction is tested to see its cytotoxic effect on the fungus Pythium Ultimum. Showing signs of molecular activity, the fraction is then fractionated again until the alkaloids have been isolated enough from other compounds. With its final separation, the molecule's mass is recorded and its molecular structure is examined. With this research, I wish to help more students explore a career in chemistry and hopefully, one of them will improve upon my research and use it as a stepping stone for his or her future experiments. ***With a year of high school remaining, I am fortunate that Project SEED has supported my curiosity to explore more of my field of major and further my education outside of school, which will help me fulfill my goal of becoming a pharmacist***."

Fosbinder Scholar: **Alexis Parks,** Coconiro High School, Flagstaff, Ariz.
Mentor: Jani Ingram
SEED Institution: Northern Arizona University

"Project SEED furthered my knowledge of chemistry, more specifically analytical chemistry, beyond a point that I thought possible. My research project involved looking at radioactive metal levels on the Navajo Reservation and Colorado Plateau in order to determine if the amount of metal present was detrimental to the health in the surrounding Navajo community. The radioactive metals were mined by using open-pit mining techniques. Layers of top soil were removed in order to access the metal. In an effort to restore the land the government added a layer to the top soil after the mining was finished. In spite of the new layer of soil, the metal is still much closer to the surface than it used to be. Sheep graze on this land and ingest trace amounts of the radioactive metal. This could have major repercussions for the Navajo people because sheep is a major food source on the Reservation. The toxic trace metals may also be the cause of the elevated risk of cancer in the Navajo community. We collected our data to test the hypothesis by acidifying samples of sheep soft tissue and bones, plants, and water from various areas of the Reservation with Hydrofluoric Acid, Nitric Acid, and Boric Acid. We then ran the samples through an Inductively Coupled Plasma Mass Spectrometer (ICP-MS). My eight weeks in the Northern Arizona University (NAU) chemistry labs began with a three-day training period on lab safety and legal protocol with the other summer students. I then moved on to in-lab training with my group. I was taught how to calibrate pipettes, how to properly pipette solutions, and how to weigh exact amounts of dry materials. I started actual lab work by weighing out dried samples into 10 mL crucibles and 4 mL glass vials so that we could dry ash them and then prepare them for further testing. I also weighed out exact amounts (0.7700 g) of boric acid so we could finish preparing samples that were ashed before I joined the program. On Tuesday, 5 August we presented our preliminary findings to the families that live in the affected areas, and to other people interested in our work. We plan to present our findings to the Navajo community as a whole once we have definitive results. If the toxic metal amounts prove to be above background levels, we hope to find ways to lower them to safe levels, in an attempt to prevent future health risks. ***Project SEED influenced my education and career plan by opening my eyes to the possibilities of lab work. I grew professionally during the project, as I learned a great deal about ethics in science, how to work in a lab environment, the importance of meeting deadlines, and the importance of thorough data collection. The project helped me understand that I have potential as a chemist. I am planning on pursuing an analytical chemistry degree and finding a career in the chemistry field. Project SEED completely changed my plans for my future, and I am thankful for that***."

2015 Project SEED Students Testimonials

Bader Scholar: **Nina Raymundo,** Lawrence North High School, Indianapolis, Ind.
Mentor: Maria Teresa Rizzo
SEED Institution: Methodist Research Institute, Indianapolis, Ind.

"The summer before my senior year, I was fortunate enough to be chosen as one of the few Project SEED interns. For a duration of 8 weeks, I worked under Dr. Maria Teresa Rizzo at The Methodist Research Institute. I was given the task to find a novel treatment for Glioblastoma Multiforme by targeting the enzyme mPGES-1. During my stint at the lab, I believe that I was able to grow as person. The first few weeks were highly stressful and I felt out of place but with the help of my mentor and my fellow Project SEED interns, I was able to get through. Not only was I able to learn about the technical about being in a lab such as how to perform a Western blot or how lyse cells, but I was able to explore the aspect that involved critical thinking and troubleshooting. All in all, my experience has allowed me to further delve into my interest with science. ***Through Project SEED, I have realized how much I enjoyed working in the field of research which has inspired me to continue on this path in the future. As a freshman at IU Bloomington this upcoming fall, I hope to participate in undergraduate research to continue on expanding knowledge."***

Bader Scholar: **Jamarii Robinson**, Mississippi School for Mathematics and Science, Columbus
Mentor: Douglas Masterson
SEED Institution: University of Southern Mississippi

"Project SEED is an outstanding life-changing experience. My words alone cannot express how great of a program it is. For the past two summers, I have worked in an organic lab at the University of Southern Mississippi (USM) led by Dr. Douglas Masterson. The wonderful experience that is Project SEED allowed me to learn from intelligent students and teachers, gain important comprehensions of chemistry, and undergo a preview of my future career. Project SEED allows students to meet with professors and their students to learn about chemistry in a laboratory setting. As an adolescent from a low-income family, I usually do not get many opportunities to work with distinguished individuals. However, thanks to Project SEED, I have become familiar with many scientists at USM's Chemistry Department. I have met Hari Kotapati, a graduate student who taught me both the basics of Organic Chemistry and college life. I also received the pleasure of working with Dr. Douglas Masterson. He helped me realize that while intelligent, chemists love to joke around and have fun. Due to Project SEED, I have met with many other students and faculty of USM's Chemistry Department, each passing on their knowledge of chemistry. Through Project SEED, I was taught some of the essential concepts of organic chemistry. Scientific names of compounds consisting of up to thirty atoms were one of the first things I learned. The specific details of how to distinguish atoms based on position and bond numbers were also introduced to me. Before Project SEED, I was confused on how scientists were able to synthesize long compounds consisting of various elements. Hari and Dr. Masterson showed me how chemists could take a small compound and add several chains and substituents to create entirely new compounds. My summers in Project SEED are some of the best learning experiences I have underwent. While I participated in Project SEED, I learned not only the concepts of chemistry but also, how those concepts are used in the laboratory. The chemists at USM demonstrated different types of reactions. I had the opportunity to participate in PLE (Pig Liver Esterase), hydration, and dehydration reactions. Hari also presented how to use apparatuses, clamps, and tubes to suspend beakers and set up experiments. I was also taught new methods of measuring and pouring chemicals. With these procedures of optimal chemical distribution, I have helped students at my own school. I plan to use these valuable techniques in future experiments. ***Project SEED is an extraordinary experience. Through it, I was able to meet chemists who taught me both the abstract and concrete concepts of chemistry. This knowledge has already proven its worth in my chemistry classes where their teachings helped me get high grades on quizzes and other assignments. Thanks to the scientists, teachers, and friends I have met though Project SEED, I was finally able to choose a focus and decide that chemistry would be part of my future career."***

Students Speaking from the Lab

Chevron Oronite Company, Calif.

Project SEED was a great experience! It introduced me to my intended major in biochemistry, and taught me a lot about college and my future post-graduate education. I learned a great deal about laboratory procedure, as well, and gained experience which will help me as I continue my education.

Kristen Stucki, Idaho
Summer II

It was a great experience. I practiced what I learned in school and learned new thing as well. The tests I conducted were very interesting and showed me how important following steps and being organized is. My mentor also help me understand why we were conducting certain test and how the test worked. I would do this again Even if they didn't pay me.

Valdemar Roman, Calif.
Summer I

Project seed has helped me to become more responsible. I have learned so much more about chemistry during my first year in project seed. Since attending seed I have found chemistry more interesting than before.

Jose Miguel Perez, N.J.
Summer I

This summer was a learning experience for me. It showed me that science is everywhere. And it gave me an opportunity to see what it is that you actually do in college.

Adriyanna Jones, Mich.
Summer I

Project SEED has not only been informational, but fun and helpful in the development of my college and academic career!

Scarlett Scarberry, WV
Summer I

Project SEED was truly one of the most enriching learning experiences I have been able to take part in. Before this internship, I had never visited a laboratory before or even used basic instruments such as microscopes and pipettes. I feel much more prepared to pursue a career in a science-related field than I did before. I am very grateful towards the ACS & UPR-RP for granting me this opportunity.

Graciela Gautier, PR
Summer I

I came into Project SEED hoping to finally decide my final major to study in college or the career I want to pursue in life. However, Project SEED actually made my decision more difficult! Because of Project SEED, I discovered new branches of science that I never knew existed. Thus, my decision has grown even more difficult, because I have discovered new sciences that I love.

Erica Truong, Ohio
Summer II

This program has helped prepared me for not only college, but also my Senior year of high school. I am very grateful to this program, as well as to all that I learned while in it.

Courtney Christensen, UT
Summer I

Project Seed was great! I recommend it to all students who are interested in chemistry.

Selena Tran-Jurado, N. Mex.
Summer II

Students Speaking from the Lab

I had a lot of fun working on the SEED Project and while I'm not completely certain yet that I'd go into a chemistry major, the experience I had sparked my interest more to where I would definitely be willing to work more with chemists to help with their projects to continue learning more.

Taylor Bergan, AK
Summer I

Project SEED was amazing and I learned many new things. I'm very happy that I was able to experience what it's like to work in a real chemistry lab all summer!

Eboni Bell, Calif.
Summer I

The SEED program gave me an amazing opportunity to expand my knowledge. I would suggest that for all high school students who I know. I learned a lot of organic chemistry, hands on a real lab. Anyone who likes chemistry should join this program.

Kieu Ho, Minn.
Summer II

Overall I had an amazing time at this program. The environment was so welcoming and friendly. Everyone was very helpful and the program was very flexible. Also there were a lot of options for laboratory selection which I really liked. Labs ranged from all sorts of chemistry. This program was able to allow me and the rest of the SEED students to conduct real, graduate-level work in a fun way.

Daniel Leung, Calif.
Summer I

It was a helpful program and helped me decide what I want to study.

Kevin Seda, CT
Summer I

Project SEED was an excellent opportunity to experience scientific research and its real-life applications. It taught many valuable lessons; despite common misconceptions, science is all about networking! Project SEED helped me determine my major for college. I would definitely participate in the program again.

Meliha Grbic, Idaho
Summer I

Project SEED offered me an amazing opportunity to learn and grow as a scientist. The effect it had on me will not only help throughout college but also help me in the future. I loved the opportunity to work in a lab preforming real research and I can't wait to recommend the program to everyone at my school who's interested in science.

Crystal Vejar, UT
Summer I

University of California, Merced

Project Seed was a great experience. I was able to do fundamental research that taught me not only how to conduct professional experiments but also helped me understand the level of responsibility needed in the laboratory.

Daem Celestin, Mass.
Summer I

Project SEED is an awesome opportunity for students that are at an economic disadvantage. It definitely helped me realize how much I love science, more specifically chemistry. I had a lot of fun and learned a lot. This is definitely a summer I would remember.

Kevin Huang, VT
Summer I

Project SEED was an amazing experience and I wish all students could have that experience before they go off to college.

Jonathan Jironvil, Mass.
Summer II

Project SEED Students at Sci-Mix

Project SEED students from Central New York, Indiana, New York, Northeastern, North Jersey, and Trenton Local Sections presented their Project SEED research projects at the Sci-Mix poster session at the 250th ACS Fall National Meeting in Boston, Mass.

Central New York Local Section: Coordinator, Sally Mitchell

Jackson Hernandez	Revised Synthesis of 2-(Trimethylsilyl)methyl-2-propen-1-01

Indiana Local Section:	**Coordinator, Elmer Sanders**
Vishaal Mali	Development of In Vitro Protein Footprinting

New York Local Section:	**Coordinator, Nadia Makar**
Jessica Alvitres	Induction of Epithelial-to-Mesenchymal Transition (EMT) in Dormant Breast Cancer Micrometastases By Inflammatory Cytokines Leading to Reactivation of Cancer Cells
Sofia Dominguez	Fabrication and Characterization of Graphene and MoS2 Heterostructures
Isadora Faris	Factors Affecting the Disintegration Rate of Polymer Films
Josue Sanchez	Preparing Murchison Samples for $^{40}Ar/^{39}Ar$ Dating

Northeastern Local Section:	**Coordinator, Cheryl Schnitzer**
Jessica Antoine	The Synthesis and Characterization of a Tetrahydroxylated Pyrrolizidine
Daem Celestin	The Absorption of Thioethers on Au(111)
Jonathan Jironvir	The Synthesis of Polyhydroxylated Pyrrolidine from L-glucose and D-altrose Derivatives
Cesar Romero	The Absorption of Thioethers on Au(111) Using Scanning Tunneling Microscope

North Jersey Local Section:	**Coordinator, Susan Fahrenholtz**
Badjessa Bahoumda	Comparison of Air and Helium as Carrier Gas using an Ionic Liquid Column
Batch Clerizier	Peptide Synthesis in the Laboratory
Vivian Igwagu	The Synthesis of Glucals for Use in Drugs
Danielson Joseph	Study of Selectivity of Alkanes on Ionic Liquid Columns
Justin Quezada	Development of a Dispersive Microextraction Method for Environmental Monitoring
Johanna Riera	Liposomes as Drug-Carriers to Target Cancer Cells
Charles Ta	Regulating the Balance of Neural and Chemical Activity in the Brain through Localization of CAMK in Inhibitory Synapses
Nicole Taylor	Holey Expanded Graphite and its Electrocatalytical Application

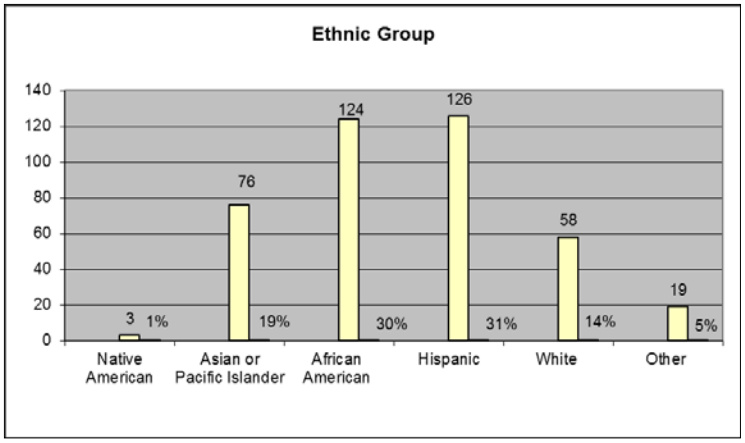
Trenton Local Section:	**Coordinator, Danielle Jacobs**
Mideum Abraham Park	Investigations into the Green Aza-Conjugate Addition of Sulfonamides to 2-Vinylpyridine & its Derivatives
Haniyyah Sardar	Development of New Biocatalytic Strategies and a Biochemistry Teaching Lab

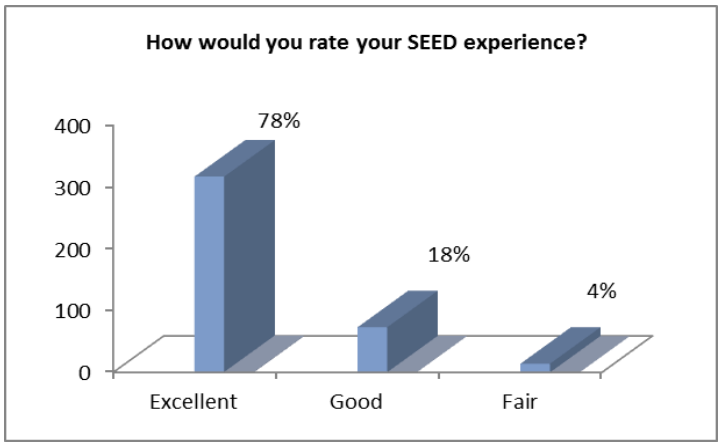
2015 Student Survey Results

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 Project SEED is serving its target population and if is achieving its goals. Of the 423 students in the program, 406 students responded.

Student Gender	Summer I	Summer II	Total %
Male	119	34	38%
Female	185	68	62%
TOTAL	304	102	100%

Family Income Level	Summer I	Summer II	Total %
$6,999 or Less	87	24	27%
$7,000 to $16,000	48	24	18%
$17,000 to $25,000	57	16	18%
$26,000 to $35,000	59	21	20%
$36,000 or more	53	17	17%
TOTAL	304	102	100%





Demographics by State	Summer I	Summer II
Alabama	1	1
Arizona	0	1
Alaska	1	0
California	49	13
Colorado	2	1
Connecticut	4	0
Delaware	1	0
District of Columbia	5	2
Florida	6	2
Georgia	3	0
Hawaii	2	0
Idaho	6	3
Illinois	5	1
Indiana	24	10
Iowa	2	1
Kansas	0	1
Louisiana	2	1
Maryland	12	1
Massachusetts	2	2
Michigan	17	6
Minnesota	6	3
Mississippi	3	0
Missouri	3	2
Nebraska	2	1
Nevada	4	0
New Hampshire	1	0
New Jersey	50	12
New Mexico	1	2
New York	7	1
North Carolina	8	2
North Dakota	1	0
Ohio	19	12
Oregon	2	0
Pennsylvania	12	6
Puerto Rico	6	2
South Carolina	2	4
Tennessee	3	0
Texas	17	8
Utah	5	0
Virginia	1	0
Vermont	3	1
West Virginia	3	0
Wisconsin	1	0
TOTAL	304	102

2015 Student Survey Results

How much education Do you expect to complete	Summer I	Summer II	Total %
High School	78	16	23.2%
Vocational, Trade	0	1	0.2%
Some College	1	0	0.2%
2-year College	2	0	0.5%
4-year College	78	17	23.4%
Graduate/Professional School	145	68	52.5%

Student Research Sites	Summer I	Summer II	Total %
Academic Laboratory	183	74	63%
Government Laboratory	17	3	5%
Industrial Laboratory	82	18	25%
Medical Laboratory	22	7	7%

Students Agreed that Project SEED Helped:	Summer I	Summer II	Total %
Develop Skills and abilities	295	99	97%
Develop self-confidence	279	90	91%
Develop responsibility	287	94	94%
Understand the ethical behavior of scientists	210	95	75%
Develop better study habits	269	66	83%
Learn what advance study is like	195	94	71%
Decide to continue my education after high school	267	94	89%
Choose a college major	281	92	92%
Decide to pursue a career in science	192	67	64%
Develop greater interest in scientific/technical areas	246	84	81%

College Majors	Summer I First Choice	Summer II First Choice
Agriculture	3%	0%
Architecture	2%	2%
Astronomy	1%	0%
Biology & Life Sciences	17%	20%
Business & Commerce	3%	2%
Chemistry	23%	28%
Communications	1%	2%
Computer Sciences	5%	7%
Earth Sciences	0%	0%
Education	1%	0%
Engineering	9%	12%
Foreign Languages	0%	0%
Health Professions	13%	9%
Home Economics	0%	0%
Language & Literature	0%	0%
Library Science	0%	0%
Mathematics	1%	2%
Military Sciences	0%	0%
Pharmacy Sciences	0%	0%
Philosophy	2%	2%
Physics	2%	1%
Social Sciences	0%	0%
Technical & Vocational	15%	15%
Other	3%	2%

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We truly appreciate your continued generosity!

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North Dakota SEED Program

2015 Project SEED Named Scholars

Students supported through individual and corporate contributions to the ACS Project SEED Endowment.

Beth Anne Walden Memorial Fund (1)

Samantha Alderete – *Feik School of Pharmacy, San Antonio, Tex.*

Clayton E. Callis (2)

April Lewis – *Saint Louis University, Mo.*
Melissa McNearney – *University of Missouri, Kansas City*

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Brianna Abreu, Mariela Garcia, Julissa Hernandez, Laura Leon, Gilda Lovera – *Montclair State University, N.J.*
Chithma Gunawardana – *Beth Israel Medical Center, N.J.*

William J. Dulmage (1)

Isaac Ortega – *New Jersey Institute of Technology*

The Glaxo Foundation (15)

Betelihem Mebrahtu, Donovan Miller – *Duke University, N.C.*
Abbott Ndukwe – *North Carolina State University*
Chidubem Nwakuche, Samuel Ndukwe – *North Carolina University*
Julio Casanova – *University of North Carolina, Charlotte*
Vivian Andrade, Camila Davila, Monika Fanous, Nardeen Khella, Vanessa Martinez, Tatiana Ramirez, Neida Rios – *New Jersey Institute of Technology*
Keileen Alvarez, Katherine Mendoza – *Montclair State University, N.J.*

John C. Haas (1)

Sarine McKenzie – *Duquesne University, Pa.*

Milton Harris (1)

Raubie Raiford – *George Washington University, D.C.*

Henry A. Hill (1)

Cesar Romero – *Stonehill College, Mass.*

Rao Makineni (12)

Jerry Vue – *University of California, Merced*
Nuvia Cervantes, Matteo Danforth, Sereena Nand, Anthony Nguyen, Sierra Turrieta, Araceli Valencia – *University of the Pacific, Calif.*
Tenzin Lama, Mian Shahab, Tenzin Woeser – *Chevron Oronite, Calif.*
Brandon Chan, Haowen Liu – *San Francisco State University, Calif.*

Donald F. & Mildred Topp Othmer (32)

Sofia Dominguez, Josie Martinez – *Stevens Institute of Technology, N.J.*
Allison Guajala, Ayleen Pittar-Flores – *New Jersey Institute of Technology*
Justin Quezada – *Montclair University, N.J.*
Jose Ayala, Cindy Gnawa, Jose Perez, Angel Rodriguez, Jisell Rosario, Nicole Taylor – *Rutgers University, Newark, N.J.*
Katherine Fernandez, Jose Hernandez-Morales, Ashley Lopez, Tracey Simon – *Rutgers University, Piscataway, N.J.*
Aiman Awan, Efstathois Leontaris, Jacqueline Suarez – *New Jersey City University*
Jaylene Hernandez, Davina Thompson – *Rowan University, N.J.*
Badjessa Bahoumda, Batch Clerizier, Chris Ibraheem, Kamita Singh – *Seton Hall University, N.J.*
Anakarla Gonzalez – *Academy for Enrichment and Advancement, N.J.*
Ying Qi Lin – *New York University*
Shally Lin, James Weathers – *Rochester Institute of Technology, N.Y*
Abir Andullah, Ayele Ayih, Raushan Rupa – *Columbia University, N.Y.*
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John D. Roberts (1)

Daem Celestin – *Stonehill College, Mass.*

Rohm and Haas Corporation (10)

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Vincent A. Sedlak (7)

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Chrisan-Kay Clarke, Richard Qian – *Prairie View University*

Horace and Thelma Selby (15)

Tyler Coleman – *Bayer MaterialScience, LLC*
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Victor Villanueva – *University of Texas at San Antonio.*
Katelyn Damron, George Wilkinson – *West Virginia State University*
Nina Filippova, Asma Rokhaneevna – *University of Utah*
Courtney Christensen, Crystal Vejar – *Utah State University*
Sara Cuellar, Davion Oliver – *Texas Wesleyan University*
Jason Lee, Zana Mack – Univesrity of South Carolina

2015 Project SEED Named Scholars

Anne K. Silver (2)
Syed Shafuan, Syed Shamium – *Wichita State University, Kans.*

Xerox Corporation (1)
Mideum Park – *Rider University, N.J.*

Kang Yang (1)
Victoria Taylor – *Prairie View University, Tex.*

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