

2015

27<sup>th</sup> Annual  
Student  
Research  
Symposium

Brochure by MORE - RISE Program  
August 17- Sept. 4

## Program & Symposium Goals

The RISE Program encourages and provides research opportunities for undergraduates. This goal is accomplished with four components

- (1) inviting scientists to present seminars and workshops
- (2) freshmen enrolled in introductory research courses
- (3) activities for improving quantitative skills
- (4) arrange for students to participate in research with established scientists during the academic year or in summer programs in the United States of America.

Today's symposium follows two weeks of judging by 27 faculty who evaluated 52 poster presentations by students. Their talks presented the results of research at laboratories and universities. Their projects were conducted under the supervision of a supporting faculty member (mentor) in their labs. Most students received research credits at Cayey for their efforts and their poster presentations are part of the research experience. Posters can be seen in the North Science Building (NEC).

Graduate education is essential for Cayey alumni to become scientists and improve the world's health and environment. Today we will hear why and how graduate school is a source of innovation and discovery. Future opportunities will be awarded to UPRC alumni that are prepared.

In addition to the testimonials from alumni pictured on the right Dr. Carlos González from UPR-Río Piedras will speak on 'How to apply for the Ph.D.' And Dr. Alexis Santos will speak on 'Why do We need Ph.D.s?'

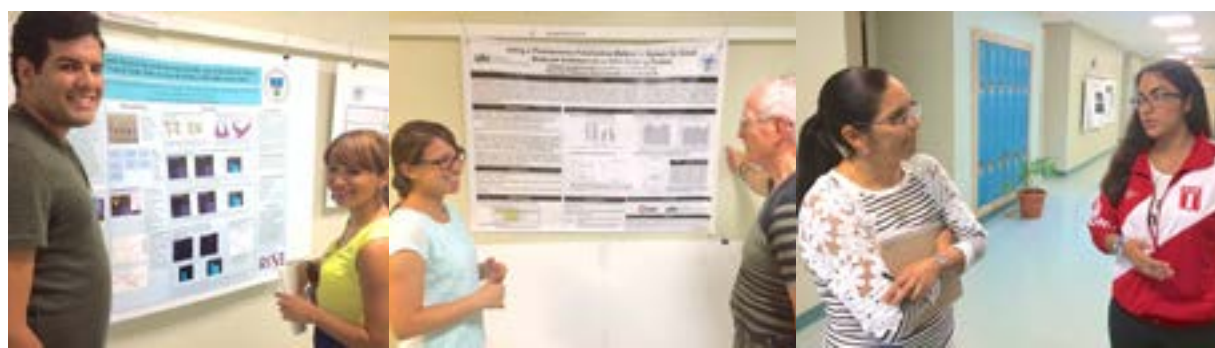
If you are interested or have a question, please ask the speaker. Your interest acknowledges the success of the presenter.

Thanks to the RISE Staff- Mr. Michael Vicente, Ms. Lourdes Alvarez, & Mr. Giovanni Cruz  
& RISE Coordinators- Dr. Eneida Díaz & Dr. Vibha Bansal



Thanks for the collective effort of 28 Science Faculty who interviewed & judged 52 posters.

Dr. Ana Acevedo	Dr. Eneida Díaz	Dr. Rosann O'Neil
Dr. Belinda Román	Dr. Enrique Rodríguez	Dr. Víctor Pantojas
Dr. Carlos Ricart	Dr. Javier Arce	Dr. Yiselle Gierbolini
Dr. Mayra Pagán	Dr. José Molina	Dr. Juan López
Dr. Chad Lozada	Dr. Juan Santana	Dr. Zulma García
Dr. Christian Menéndez	Dr. Maytee Cruz	Dr. Luz Torres
Dr. Claudia Ospina	Dr. Ricardo Martínez	Prof. Edgar Llera
Dr. Dalvin Méndez	Dr. Olgary Figueroa	Prof. Edgardo Rivera
Dr. Elba Reyes	Dr. Robert Ross	Prof. Gilberto Flores
		Prof. Félix Velázquez



Science graduates – **From Cayey** are discovering a bright future through research.

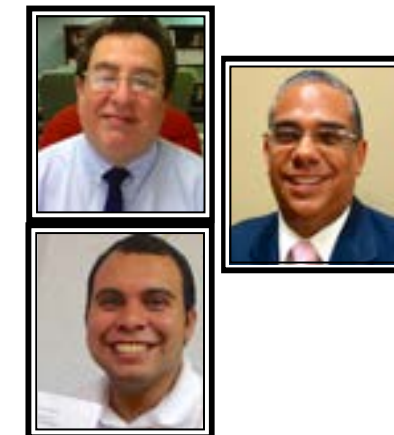
Name	Dept of Study	Institution	Cayey Grad yr	PhD yr
Lisandra Santiago	Analytical Chemistry	Univ. at Buffalo	2008	2014
Gonzalez, Maryvi	Anatomy and Neurobiology	UPR School of Medicine	2010	
Laura Vicente		UPR School of Medicine	2014	
Ormarie Vazquez	Biochem and molecular	University of Georgia	2013	
Yadilette Rivera		Univ. Of Massachusetts	2008	2013
Lester J. Rosario	Biology (MD/PhD)	UPR School of Medicine	2014	
Carlos Santos		Univ. of Minnesota	2014	
Joseph Perez		University of Pittsburgh	2015	
Raquel Montanez		Univ. of Notre Dame	2015	
Claudia B. Colon		Ponce Health Sciences Univ.	2013	
José J. Rosado	Biomedical Science	UPR School of Medicine	2014	
Olga D. Gonzalez		UMD New Jersey	2009	
Aslin Rodriguez	Biophysics	UPR Mayaguez	2010	
Rossana Colon	Cell & Molecular Biology	Univ. of Washington -Seattle	2013	
Xiomaris Cotto		NYU School of Med.	2007	2012
Joan Roque	Chemical Education	North Carolina State Univ.	2009	2015
Jean E. Calderón		Univ. of Central Florida	2009	2015
Orielyz Flores		Univ. of Central Florida	2010	2015
Ramon Figueroa		UPR-RP	2010	
Frances Rodriguez		Univ. of California, Berkeley	2011	
Karina Tirado		Boston University	2012	
Luis de Jesus		Univ. of Texas	2012	
Amaris C. Borges	Chemistry	Univ. at Buffalo	2013	
Vivian Rodriguez		Univ. at Buffalo	2013	
Antonio Romero		Univ. of California, San Diego	2014	
Jaylissa Torres		Yale University	2014	
Natalia Rivera		Univ. at Buffalo	2014	
Maria Rivera		Univ. at Buffalo	2015	
Omar Padilla		Cornell University	2015	
Jose Suarez	Comparative Medicine	Michigan State Univ.	2010	
Monica Rios		Michigan State Univ.	2012	
Dorianmarie Vargas	Genetics & Genomics	Univ. of Central Florida	2013	
Maria C. Huertas	Integrated Life Sciences	University of Georgia	2014	
Isamar Ortiz		Penn State Univ.	2011	
Jaritza Gomez		U of Wisconsin-Madison	2011	
Carlos Baez	Material Chemistry	U of Wisconsin-Madison	2014	
Widad Abdalla	Math	University of Iowa	2011	
Tanya M. Cruz		Univ. of Rochester	2009	
Jorge Martinez	Microbiology	Univ. of Michigan	2010	
Wanda Figueroa		Univ. of Missouri, Columbia	2012	
Elvin E. Morales		Univ. of Notre Dame	2013	
Erick X. Guzman	Microbiology and Zoology	UPR School of Medicine	2014	
Jose Rosado		UPR School of Medicine	2014	
Eileen S. Rodriguez	Neuroscience	Michigan State Univ.	2009	2015
Jose Peña		Medical Univ South Carolina	2010	
Jennifer Ocasio		North Carolina Chapel Hill	2013	
Joshua I Rosario	(MD/PhD)	Baylor Univ.	2014	
Jessica Torres	Organic Chemistry	North Carolina State	2009	2015
Roselin Rosario		Rutgers	2008	2013
Yeseda Garay		NOVA Southeastern, Ponce	2010	2014
Maribel Vazquez		Univ. South Carolina	2011	
Janice M. Diaz	Pharmacology & toxicology	Michigan State Univ.	2013	
Janice M. Nieves		Harvard University	2013	
Melissa Medina		Univ. at Buffalo	2013	
Karina Nieves		Johns Hopkins Univ	2014	
Jessian L. Munoz	Stem Cell (MD/PhD)	UMD New Jersey	2009	2013

Future Scientists – Since 2008 56 RISE summer interns are pursuing the Ph.D.

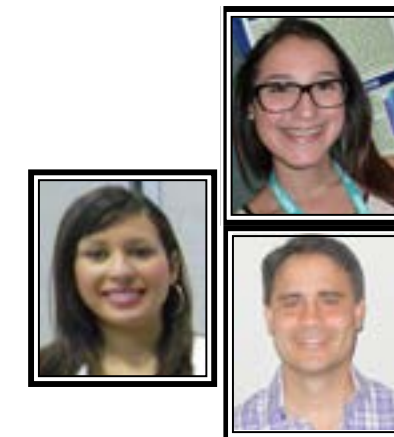
Poster Presentations – August 17- Sept. 4 **North Science Building**

Program – September 5 **Science Building- Auditorium**

- 8:30 Coffee- Pastries**
- 8:45 Welcoming Remarks –**  
*Mario Medina, Ph.D.,*  
– UPR-Cayey, Chancellor
- 9:00 How to apply for the Ph.D.**  
*Carlos González, Ph.D.*  
– Univ. of PR.-Río Piedras
- 9:30 Why Do We Need Ph.D.s?**  
*Alexis Santos, Ph.D.*  
– Penn State University



- 10:05 UPR-Cayey Alumni Speak**  
**From Cayey to Graduate School**  
*Laura Vicente* – UPR-School of Medicine  
*Maryvi González, Ph.D.* – UPR-School of Medicine  
*Nelson López, Ph.D.* – Amgen



- 11:20 Focus Group**  
*Liz Sepulveda* – Ortiz, Lord, Hope & Associates
- 11:45 Awarding of Certificates**

Refreshments will be provided from 8:30 until the end of the session.  
Provided by the Chancellor's Office at UPR-Cayey



# 1

**Mr. Christian Agosto \***

Cell Polarity Establishment  
in Complex Mammalian Skin Epithelium

Scott Williams, Ph.D.

University of North Carolina- Chapel Hill



# 52

**Ms. Leyda Villagrasa**

The Role of PERP  
in Growth Hormone Tumorigenesis  
of the Pituitary

Margaret Wierman, M.D.

University of Colorado- Aurora



# 49

**Mr. Verónica Torres**

TBA

Mathew Gentry, Ph.D.

University of Kentucky



# 4

**Mr. Juan Apiz \***

The Role of fife-1 in the  
Presynaptic Density of the Model *C. elegans*

Janet Richmond, Ph.D.

University of Illinois at Chicago



# 2

**Mr. Abneil Alicea**

Electrochemical Studies  
of Diamond Microelectrode Arrays–  
Application for the Detection of Pyocyanin

Greg Swain, Ph.D.

Michigan State University



Orientation on May 2 for summer interns.



# 50

**Ms. Zuleika Velázquez**

Expression of ITPKs  
in Colorectal Cancer Cells

Lawrence Gaspers, Ph.D.

Rutgers Biomedical and Health Sciences



# 5

**Mr. Christopher Bernard \***

Development of Aromatic Polymer using  
Biomass Phenols

Scott Phillips, Ph.D.

Penn State University



# 3

**Mr. Edwin Alvarado \***

Using NMR to Elucidate the Structure and  
Dynamics of Human microRNA let-7g

Qi Zhang, Ph.D.

University of North Carolina at Chapel Hill



# 51

**Ms. Jesica Vicente**

Role of the Serotonergic System During  
Lactation in Response to High Fat Diet  
Feeding during Puberty, Pregnancy and Lactation

Laura Hernández, PhD

University of Wisconsin



# 6

**Ms. Angely Berríos**

Synthesis of Dendrimers:  
Improving a Synthetic Method

Virgil Percec, Ph.D.

University Pennsylvania



# 7

**Ms. Natalia Calderón**

Multiple Interactions Between Rta and the Notch Signaling Pathway

Determine Reactivation Success

David Lukac, Ph.D.

Rutgers Biomedical and Health Sciences



#46

**Mr. Anibal Tornés**

Influence of Estrous Cycle on Alcohol & Nicotine Consumption in C57BL/6 X 129 Female Mice

Anna Lee, Ph.D.

University of Minnesota



# 43

**Mr. John López**

The Influence of Human Activities on Prevalence of Intestinal Infections in Sylvatic Animals

Hope Hollocher, Ph.D.

University of Notre Dame



#10

**Ms. Crystal Colón \***

Developmental Expression of TRPV1 in the Embryonic Chicken Cornea

James Kubilus, Ph.D.

Tufts Medical School

Currently an exchange student at MSU.



# 8

**Ms. Patricia Claudio \***

Evolution of Anterior and Posterior Patterning in the Wasp *Nasonia vitripennis*

Jeremy Lynch, Ph.D.

University of Illinois at Chicago



# 47

**Ms. Amanda Icazatti**

Using a Fluorescence Polarization Method to Screen for Small Molecule Inhibitors of an RNA-Binding Protein

Chow Lee, Ph.D.

University of Northern British Columbia



# 44

**Ms. Camille Ruiz**

Measuring the Stability of pH Gradients Across a Membranes Using Droplet Interface Bilayers

Matthew Holden, Ph.D.

University of Massachusetts-Amherst



# 11 **Ms. Ashley Cosme**

Synthesis of a Hydroxamic Acid, Potential Inhibitor for *Mycobacterium tuberculosis* Isocitrate Lyase

Andrew Murkin, Ph.D.

University at Buffalo



# 9

**Ms. Nicole Colón \***

Expression of Nerve Membrane Proteins in a Naturally Occurring CA<sup>2+</sup> Channelopathy

William Atchison, Ph.D.

Michigan State University



# 48

**Ms. Dariana Torres**

Oxidative Coupling of Indoles with Oxindoles

Marisa Kozlowski, Ph.D.

University of Pennsylvania



# 45

**Ms. Shelimarie Santos**

Towards an Enantioselective Synthesis of a Tetrahydrofuran *via* a Copper-Promoted Oxyamination Reaction

Sherry Chemler, Ph.D.

University at Buffalo



# 12

**Mr. José Cruz \***

Characterization of an Rpf2 Homolog and its Association with the Pre-ribosomal Complex in *Trypanosoma brucei*

Noreen Williams, Ph.D.

University at Buffalo



# 13

**Ms. Katia Cruz**

Landscape Variability and Climate Change  
Implications for Wild Blue Lupine Emergence  
across the Indiana Dunes National Lakeshore

Jessica Hellmann, Ph.D.

University of Notre Dame



# 40

**Ms. Crystal Rivera**

GATA 3 and GATA 1  
as Transcription Factors of ACKR1 (DARC)  
in Lymphoblast Cell Lines

Andrea Walens, Ph.D.

University of Georgia- Athens



# 37

**Ms. Laura Ramos**

Comparing Sentiments Related to  
Religious Struggle between Spanish and  
English Written Prayers

John Pertian, Ph.D.

University of Cincinnati College of Medicine



# 16

**Ms. Alejandra Ferrer**

The Evolution of Voltage-Gated Sodium  
Channel Gene Expression  
in the Peripheral Nervous system of Amphibians

Heather Eisthen, Ph.D.

Michigan State University



# 14

**Ms. Perla Elosegui**

The Susceptibility of NSC 34  
Motor Neuron Cell Line and  
Spinal Cord Cell Culture to MeHG Toxicity

William Atchison, Ph.D.

Michigan State University



# 41

**Ms. Nicole Rivera**

Effect of Gypsum Addition on  
Soil Aggregation in a Silt Loam Soil  
in Wooster, Ohio

Warren Dick, Ph.D.

The Ohio State University



# 38

**Ms. Charlene Rivera \***

The Loss of Alpha2delta-1 Disrupts Excitatory  
Synaptogenesis and Cortical Structure:  
A Link to Epilepsy and Hyperexcitability?

Chris Dulla, Ph.D.

Tufts Medical School



# 17

**Ms. Valerie Flores**

Recruitment of Neutrophils in IL-17ra<sup>-/-</sup> Mice  
after Challenge with *A. fumigatus*  
Grown in Minimal Medium

Amariliz Rivera, Ph.D.

Rutgers Biomedical and Health Sciences



# 15

**Mr. Fernando Fernández\***

Morpholino Knockdown  
of Genes in Electric Fish

Jason Gallant, Ph.D.

Michigan State University

Currently an exchange student at  
University of Idaho



# 42

**Ms. Nicolle Rosa \***

Integrator Subunits 11 and 9 are  
Necessary for Viral Micro RNA Processing

Joan Steitz, Ph.D.

Yale University



# 39

**Ms. Cosette Rivera**

Quantification of Floorplate Marker Expression  
in Cells Differentiated from  
Induced Pluripotent Stem Cells

Jeanne Loring, Ph.D.

The Scripps Research Institute



# 18

**Ms. Ann González**

Relationship between EMT and some  
Glycolysis Related Genes

Brunhilde Felding, Ph.D.

The Scripps Research Institute - La Jolla



# 19

**Mr. Anthony Hernández**

Effects of Binge Drinking  
in Female Mice after Traumatic Brain Injury

Zachary Weil, Ph.D.

Ohio State University



# 34

**Ms. Lizbeth Pérez \***

Mitochondrial Membrane Potential Changes  
in Responses to Methylmercury  
Induced Toxicity in NSC34 Cells

William Atchison, Ph.D.

Michigan State University



# 31

**Ms. Normarieli Passalacqua**

Synthesis, Characterization of Carbon Dots  
and their Application for Metal Ion Sensing

Luis Colón, Ph.D.

University of Buffalo



# 22

**Mr. Darryl López \***

Microelectrodes for the Detection  
of Neurotransmitters

Greg Swain, Ph.D.

Michigan State University

Fall 2015 Studying in UPR-Mayagüez



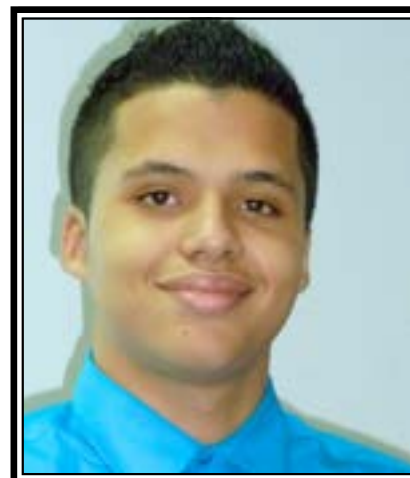
# 20

**Ms. Carolina Huertas**

Expression of Survival Signals Generated  
in BT-20 Cells after Treatment  
with r-Moj-DN

Julio Soto, Ph.D.

San José State University



# 35

**Ms. Danilo Pérez \***

Understanding Tissue Patterning Generation  
during Seedpod Development in *Arabidopsis*  
*thaliana* using Agent Based Modeling (ABM)

Cranos Williams, Ph.D.

North Carolina State University



# 32

**Mr. Alberto Pedraza**

Synthesis of Oxidized  
Penicillin-G and Derivates

James Kiddle, Ph.D.

Western Michigan University



# 23

**Mr. Roger Machín**

Synthesis of Ionic Liquid  
Polymeric Electrolytes  
for Lithium Ion Batteries

Coray Colina, Ph.D.

Penn State University



# 21

**Ms. Génesis López**

Identification of Novel Endoribonuclease(s)  
Involved in tRNA Processing  
in *Escherichia coli*

Sidney Kushner, Ph.D.

University of Georgia-Athens



# 36

**Mr. Jariel Ramírez**

Tool for Identifying Target-kinase Importance  
by Analyzing Significance  
at Compound- and Cellular-Activity

Thomas Dexheimer, Ph.D.

Michigan State University



# 33

**Ms. Michelle Pérez**

TRPV2 Ion Channel Interacts with Rab7  
to Influence Endosomal Function

Vera Moiseenkova-Bell, Ph.D.

Case Western Reserve University



# 24

**Mr. Jorge Berríos**

Harmful Cyanobacteria in Bear Lake and Muskegon  
Lake: Characterization of the Toxin Producing  
Species and the Analysis of Microcystin

Rick Rediske, Ph.D.

Grand Valley State University



# 25

**Mr. Gustavo Martínez**

Double Knockout of Homologs Lin 28a and b  
Results in Open Neural Tube Defects Due to  
Reduced Proliferation Rate

Jian-Fu Chen, Ph.D.

University of Georgia-Athens



# 28

**Ms. Wilmarie Morales**

Macrophages and Microglia Regulate  
Oligodendrocyte Differentiation by Mertk  
Medicated Activin A Expression

Glenn Matsushima, Ph.D.  
University of North Carolina- Chapel Hill



At MSU this semester.

# 26

**Mr. Joyce Mendoza**

The Effects of Bcl -xl on Reading the Synapse for  
Synaptic Plasticity (Ready LTP or 'rLTP')

Elizabeth Jonas, M.D.

Marine Biological Laboratory- Woods Hole



# 29

**Ms. Jessica Ortiz**

Astrocytes as Targets  
of Methylmercury Neurotoxicity

William Atchison, Ph.D.  
Michigan State University



# 27

**Ms. Keila Mestey \***

The Roles of Lysine Acetylation  
in Fungal Pathogenesis

Neeraj Chauhan, Ph.D.

Rutgers Biomedical and Health Sciences



# 30

**Mr. José Pabón**

TBA

Erich Jarvis, Ph.D.

Duke University

