

# Institute of Interdisciplinary Research

UNIVERSITY OF PUERTO RICO AT CAYEY

## *Our Mission*

*To advance undergraduate research, community service and academic creation at UPR Cayey by supporting interdisciplinary, regional and applied research projects.*

## *Our Goals*

To advance and facilitate interdisciplinary research.

To produce knowledge relevant to Puerto Rico and to the UPR-C service region.

To provide undergraduate research experiences that lead to student success.

To provide a supportive environment for researchers.

To disseminate the results of our research projects.



## THE INSTITUTE IN NUMBERS 2004-2023

**206** RESEARCH PROJECTS

**102** RESEARCHERS SUPPORTED

**1,700** STUDENTS ENGAGED IN  
RESEARCH

**135** DIFFERENT COURSES DEVELOPED

**79 %** APPLY TO GRADUATE SCHOOL &  
**91 %** OF THOSE REPORT BEING  
ADMITTED

**214** PUBLICATIONS

**\$22,114,146** EXTERNAL FUNDS  
SECURED

**40** PROFESSIONAL DEVELOPMENT  
ACTIVITIES OFFERED ANNUALLY

**1,700** AFFILIATES

► To learn more about our successful model of research in a Primary Undergraduate Institution see:

Godreau, I., Gavillán-Suárez, J., Franco-Ortiz, M., Calderón-Squiabro, J. M., Martí, V., & Gaspar-Concepción, J. (2015) "Growing Faculty Research for Students' Success: Best practices of a research institute at a minority-serving undergraduate institution", *Journal of Research Administration*, vol. 46:2, 55-78

August 17, 2023

## MELLON INITIATIVE

“Invigorating Scholarly Communities at the Institute Interdisciplinary Research”

The Andrew W. Mellon Foundation  
2023-2026

Dr. Isar P. Godreau, Contact PI  
isar.godreau@upr.edu

### Goal:

The goal is to support projects under a common theme that is specific to UPR-Cayey, yet broad enough to speak to the strengths, lines of inquiry and curricular innovations of its diverse faculty.



Prof. Vionex Marti, Interim Director  
vionex.marti@upr.edu

**Institute of Interdisciplinary Research**  
PO Box 372230  
Cayey, PR 00737-2230

Phone: 787-738-2161, ext. 2615

<http://www.upr.edu/iii-cayey>

E-mail: [instituto.investigacion@upr.edu](mailto:instituto.investigacion@upr.edu)



[instituto.investigaciones.interdisciplinarias](https://www.facebook.com/instituto.investigaciones.interdisciplinarias)



@III\_UPRCayey

Census Information Center: [cic.upr@upr.edu](mailto:cic.upr@upr.edu)

# Resources

## CENSUS INFORMATION CENTER

Part of the US Census Bureau, the CIC Program helps to disseminate Census information to communities. It is also an analysis, education and service center.

## INTERDISCIPLINARY SEMINARS, CONFERENCES, WORKSHOPS AND TRAININGS

An ongoing program of seminars, conferences and workshops provides opportunity for faculty and students to share their research, invite collaborators as speakers, receive training in research methodologies and responsible conduct in research, among other topics.

## SUPPORT FOR FACULTY IN RESEARCH

The Institute provides research and mentorship training, proposal development training, Startup Funds and seed money for new faculty.

## STUDENTS AND FACULTY RESEARCH SYMPOSIA

The Institute coordinates the annual UPR Cayey Student and Faculty Research Symposia.

## INTERDISCIPLINARY COURSES

Three innovative master syllabi provide education opportunities to UPR students: The INTD 4116: Interdisciplinary Research Experiences, where students work as Research Assistants and obtain academic credits; the INTD 4996: Topics in Interdisciplinary Studies, and the INTD 3027: Culture, Health, and Environment Topics. The Institute welcomes researchers from PR and the Diaspora as Adjunct Professors to conduct research in Puerto Rico through the INTD 4116 course. See *The Antonia Pantoja Research Mentoring Program* at: <http://bit.ly/antonia-pantoja-program>.

## TECHNICAL RESEARCH REPORTS: “CUADERNOS DEL INSTITUTO”

These on-line publications provide an accessible, edited venue to disseminate research results and obtain feedback for future peer-reviewed publications. Both faculty and students publish their research. The *Cuadernos* are available in both hard copy and web portal versions.

## PRE AND POST AWARD SUPPORT

We provide pre award and post award support to researchers in collaboration with the UPR-C Sponsored Programs and Research Office. Through various externally funded projects, the III has been a leader in research infrastructure development and enhancement at the UPR Cayey.

## WEB PAGE

Provides news, resources, results, researchers profiles and other information of benefit for the research community.

## RESEARCH LABS

One computer lab with research software, telecommunications equipment and support technician.

## AFFILIATES

Our network of affiliates has members with whom we share research activities and opportunities

## RESEARCH SUPPORT PERSONNEL

Our team is comprised by a director (Prof. Vionex Marti), two researchers (Dr. Isar Godreau/ Anthropology and Dr. Mariluz Franco/Psychology), a demographer and four administrative assistants.

## PARTNERS AND COLLABORATORS

Some of our collaborators are:

ALZHEIMER'S ASSOCIATION





Universidad de Puerto Rico en Cayey  
Instituto de Investigaciones Interdisciplinarias

PROYECTOS DE INVESTIGACIÓN | AÑO ACADÉMICO 2023-2024



## ¿Cómo salimos del desastre? Comunidades, cambio climático y colonialismo

Investigadora: Dra. Rosa E. Ficek Torres (Instituto de Investigaciones Interdisciplinarias)

## Center for the Advancement of Wearable Technologies (CAWT): Engineered (Bio) Interfaces, Energy Harvesting/Storage and Data Analytics of Health and Diagnostic Monitoring

Investigador: Dr. Juan M. López Encarnación (Matemática-Física)

## Collective Care: Responses to Natural and Human-Made Disasters in Puerto Rico

Investigadora: Dra. Rosa E. Ficek Torres (Instituto de Investigaciones Interdisciplinarias)

## Discovery and Development and Anxiolytic Agents from Tropical Marine Macroalgae

Investigador: Dr. Ricardo Chiesa (Biología)

## Empoderamiento legal: Acceso y vulnerabilidades frente a la injusticia

Investigadoras: Dra. Isar P. Godreau (Instituto de Investigaciones Interdisciplinarias), Ariadna Godreau

## Ética de cuido y cascada de desastres: Trabajadores de la salud en Puerto Rico después de María

Investigadora: Dra. Adriana Garriga

## Función de H<sub>2</sub>S en su superóxido de dismutase y su implicación en la formación de fibrillas

Investigadora: Dra. Ruth Pietri (Química)

## Hispanic and Latin student experiences with POGIL activities in English and Spanish in General Chemistry at a Hispanic-Serving Institution

Investigadora: Dra. Joan Roque (Química)

## Historias de los procesos de recuperación en comunidades en Puerto Rico luego de los desastres naturales

Investigadora: Dra. Patricia Noboa

## Improvements on low-density parity-check (LDPC) codes and high-performance neuromorphic engineering for communication systems

Investigadores: Dr. Moisés Delgado,  
Dr. Danilo Barrionuevo (Matemática-Física)

## Nanoscale Multiferritic Properties for High Performance Neuromorphic Computing

Investigador: Dr. Danilo Barrionuevo  
(Matemática-Física)

Proyectos patrocinados por los  
Institutos Nacionales de Salud (NIH)

### The University of Puerto Rico at Cayey METAS+: Maintaining, Engaging, and Tracking Alumni in Science and Health Research

Investigadores: Dra. Isar P. Godreau,  
Dr. José Caraballo Cueto, Dr. Raymond  
Tremblay (Instituto de Investigaciones  
Interdisciplinarias)

### The U-RISE Program at UPR Cayey: Undergraduate Research Initiative for Student Enhancement

Investigadores: Dr. Juan Santana (Química),  
Dr. Robert Ross (Biología), Dra. Joan Roque  
(Química), Dra. Laura Vicente

## NASA EPSCoR: Design of Novel Polymeric Membranes and Responsives Molecules for CO<sub>2</sub> Removal and Water Reclamation in Future Long-Term Missions: A Computational and Experimental Approach

Investigador: Dr. Juan M. López Encarnación



### **NASA MIRO: Puerto Rico Space Partnership for Research, Innovation and Training to Engage the Next Generation of Explorers (PR-SPRInT) | Subaward-Computational and Experimental Approach**

Investigador: Dr. Juan M. López Encarnación  
(Matemática-Física)

### **Negotiating Dementia Care in Rural Networks of Care in Puerto Rico**

Investigadora: Dra. Patria C. López de Victoria  
(Inglés)

### **Partnership to Increase Representation in Energy Research in Puerto Rico (PIRES-PR)**

Investigador: Dr. Juan Santana (Química),  
Dr. Lisandro Cunci (Universidad Ana G.  
Méndez)

### **Proyecto de creación teatral y comunitaria etnoescenología, antropología y dramaturgia espectacular**

Investigador: Dr. Jorge Luis Torres  
(Humanidades)

### **PRSTRT-Studies on the Molecular Structure and Stability of Water Nanobubbles**

Investigador: Dr. Juan M. López Encarnación  
(Matemática-Física)

### **Relevancia de algunas tradiciones de música de cuerdas en África para el estudio de la historia de las experiencias musicales caribeñas**

Investigador: Dr. Errol L. Montes Pizarro  
(Matemática-Física)

### **To Enhance Pathways for Students in the UPR Cayey Chemistry Program to enter STEM Masters and Doctoral Graduate Programs**

Investigador: Dr. Wilfredo Resto (Química)

#### Proyectos III/Mellon Foundation

#### **III/Mellon: Invigorating Scholarly Communities at the Institute of Interdisciplinary Research**

Investigadoras: Dra. Isar P. Godreau,  
Prof. Vionex Marti, Dra. Mariluz Franco Ortiz,  
(Instituto de Investigaciones Interdisciplinarias)

#### **Acompañamiento psicosocial como herramienta de aprendizaje y transformación social**

Investigadoras: Dra. Patria C López de Victoria  
(Inglés), Dra. Laurimar Reverón,  
Dra. Antoiniette Alom (Ciencias Sociales)

#### **Archivo del Huracán María: construyendo memoria colectiva con métodos participativos**

Investigadora: Dra. Rosa E. Ficek Torres  
(Instituto de Investigaciones Interdisciplinarias)

#### **Documenting Puerto Rican English**

Investigadora: Dra. Sally J. Delgado (Inglés)

#### **El Derecho en la Literatura: representaciones y resistencias**

Investigadora: Dra. Janette Becerra  
(Estudios Hispánicos)

#### **Envejecimiento y Sociedad**

Investigadora: Dra. Ruth Mercado (CEDE)

#### **Letra y performance boricua actual**

Investigador: Dr. Alejandro Carpio  
(Estudios Hispánicos)

#### **Visualizando la afrodignidad: examinando los libros de texto de Estudios Sociales en la escuela elemental para la equidad racial**

Investigadoras: Dra. Isar P. Godreau,  
Dra. Mariluz Franco Ortiz  
(Instituto de Investigaciones Interdisciplinarias)

#### **Writing to Heal: Creative writing techniques to promote student resilience, empowerment, and agency**

Dra. Thayra Reyes (Inglés)