

# C.V. Natalia Enid Aponte Borges

Hi! My name is **Natalia** and I'm a **biologist, graduate researcher, and passionate bilingual educator**. My interests broadly involve **integrative biology, ecology and evolution, and behavior and physiology**. I am also interested in **accessible STEM education**.

I'm currently a **Ph.D. Candidate** at the **University of Pennsylvania**, with a **B.S. in Biology** from the **University of Puerto Rico-Río Piedras (2019)**. I have extensive experience in **interdisciplinary research, cellular and molecular biology, and STEM outreach and teaching**.

## Contact Information:

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## Education

### -Ph.D. Candidate in Earth & Environmental Science

Earth and Environmental Science (focus in geobiology/geomicrobiology) - 2019-present



The University of Pennsylvania  
Dept. of Earth & Environmental Science

**Research Advisor:** Dr. Ileana Pérez-Rodríguez

**Research Experience:** Geobiology and geomicrobiology (microbe-mineral interactions)

### -B.S. in Integrative Biology

Integrative Biology - 2015-2019



The University of Puerto Rico - Río Piedras  
Dept. of Natural Sciences

**Research Advisors:** Dr. Zomary Florez-Cruz and Dr. Paul Bayman-Gupta

**Research experience:** Prokaryotic genetics, evolutionary biology, mycology, and plant pathology

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## Research Experience

### Graduate Research

#### -Geomicrobiology, environmental microbiology, and microbial ecology

Dr. Ileana Pérez-Rodríguez – (Fall '19 - Fall '22)

#### Projects

- Microbial physiologies behind the metabolic versatility of chemosynthetic *Epsilonproteobacteria* and *Aquificae*, two dominating bacterial classes ubiquitous at deep-sea hydrothermal vents.
- Environmental enrichment and characterization of putative isolates originating from Juan de Fuca Ridge Flank crustal fluids in the East Pacific Rise (EPR).

### Undergraduate Research

#### -Microbiology, mycology, plant pathology, and evolutionary biology

Dr. Paul Bayman-Gupta – (Fall '18 - Spring '19)

#### Project

- *Fusarium* spp. as fungal pathogens of coffee berry disease in Puerto Rico.

#### -Microbiology and prokaryotic genetics

Dr. Zomary Flores-Cruz – (Summer '16 - Spring '18)

#### Projects

- *Vibrio fischeri* mutants' exposure to external oxidative stress by reactive oxygen species (ROS).
- Monitoring *V. fischeri* oxyR mutant behavior in media with exogenous catalase.

#### -Ecology and zoology

Dr. Omar Pérez-Reyes – (Fall '15)

#### Project

- Examining *Coenobita clypeatus* population decline in Piñones, Puerto Rico.

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## Talks & Posters

### Talks

- "Cultivation of hydrogenotrophic NO<sub>3</sub>- reducers from subsurface crustal fluids of the Juan de Fuca Ridge flank"  
Presented at: Mid-Atlantic Regional Geobiology Symposium, February 2022 (also a poster)
- "The Physiologies of Hydrogenotrophic microbes Associated with Hydrothermalism and Their Potential Application"  
Presented as Thesis Proposal for Ph.D. Candidacy, May 2021.
- "The physiologies behind the metabolic versatility of chemosynthetic *Epsilonproteobacteria* and *Aquificae*."  
Presented at: Penn EES Monday Noon Seminar, November 2020.
- "*Fusarium* spp. as fungal pathogens of coffee berry disease in Puerto Rico".  
Presented at: UPR-RP 2018-2019 MARC Cohort Seminar, May 2019.
- "Monitoring *Vibrio fischeri* oxyR mutant behavior in media with exogenous catalase."  
Presented at: Puerto Rico Interdisciplinary Scientific Junior Technical Meeting, April 2018.

### Posters

- "Monitoring *Vibrio fischeri* oxyR mutant behavior in media with exogenous catalase."  
Presented at: The squid-Vibrio Symbiosis Conference at Scripps Oceanography Institute, in June 2018, and Puerto Rico Society of Microbiologists Annual Conference, in May 2018.

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## Languages

### Spanish

Native

### English

Fluent, Proficient

## Research interests

- Ecology and evolution
- Integrative biology
- Behavior

- Prokaryotic biology
- Physiology
- Molecular biology
- Genetics
- Computational biology

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## Teaching Experience

-Attain Applied Behavioral Analysis, Instructional

- Penn Lens Research Mentor

### Aide

Instructional Aide (Special Education Paraprofessional and Academic Support) for students with ASD

*in collaboration with **Agora Cyber Charter School** - (Fall '22)*

### -Science Explorers, Club Instructor

Kaboom Chemistry After-school Club Science Instructor

*The Philadelphia School* - (Fall '22)

### -Center for Teaching and Learning (CTL) Graduate Fellow

CTL Departmental Graduate Fellow

*University of Pennsylvania, Dept. of Earth and Environmental Science* – (Fall '21- Spring '22)

### -Teaching Assistant (T.A.)

GEOL-130 Oceanography, T.A. for Dr. Jane Dmochowski

*University of Pennsylvania, Dept. of Earth and Environmental Science* - (Spring '20, '21)

Laboratory research mentor to two high school students; geomicrobiology-related projects

*University of Pennsylvania, Dept. of Earth and Environmental Science* - (Summer '21)

### -Bilingual Community Outreach

ESL tutoring & agroecology outreach

*Center for Urban, Community, and Entrepreneurial Action* – (Fall '18 - Spring '19)

### -Microbiology Elementary School Outreach

Microbiology and STEM outreach for local elementary schools

*CEM (ASM Student Microbiology Chapter) UPR-RP* - (Spring '18)

### -Undergraduate Tutor

Introductory Biology, Botany, and Microbiology courses  
*University of Puerto Rico - Río Piedras, Natural Sciences Dept.* – (Spring '16 - Fall '19)

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## Related Accomplishments

### -Gloria Twine Chisum Fellowship

April '21, UPenn School of Arts & Sciences

### -Scholars for Environmental Equity Fellow

Fall '20, The Netter Center for Community Partnerships

### -Penn Fund to Encourage Women (FEW) Grant

September '20, UPenn & Graduate Women in Science Philadelphia Fund for a conference on gender bias in STEM

### -Penn Geobiology Symposium Organization Committee

March '20, '21, and '22 UPenn

### -Benjamin Franklin Fellowship

August '19, UPenn

### -Fontaine Society Fellowship

August '19, UPenn

### -Amgen Foundation BioTalents Scholar

August '18, UPR-Mayagüez

### -Leadership Alliance Internship

Summer '18, UPenn

### - Best Undergraduate Poster Presentation, Puerto Rico Society of Microbiologists Annual Conference

Spring '18, San Juan, PR

### -NIH Maximizing Access to Research Careers (MARC) Fellowship

Summer '17 - Spring '19, UPR-Río Piedras

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## Strengths & Skills

- Data management, analysis, and presentation
- Grant and scientific writing
- Integrative research approach
- Laboratory management
- Ecological research methods
- Fieldwork experience
- Microbiology research methods
- Microscopy & staining
- Cell and tissue culturing
- Effective and engaging mentorship
- Accessible science communication

- Interdisciplinary project management and experience
  - Behavioral data collection
  - Varied curriculum development (K-12, higher education)
  - Python/R
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## Affiliations

Fontaine Society

The Netter Center for Community Partnerships

Weingarten Learning Resources Center

Penn Center for Teaching and Learning

Graduate Women+ in Science (GWIS) Philadelphia Chapter

Penn Society for the Advancement of Chicanos and Native Americans in the Sciences (SACNAS)

La Casa Latina

Geo-Latinas in the Earth & Planetary Sciences

International Society for Microbial Ecology (ISME)

Center for Dark Energy Biosphere Investigations (C-DEBI)

Science Explorers

Ciencia PR

El Taller Puertorriqueño

Mural Arts Philadelphia



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