

**PROPOSAL FOR THE CREATION OF THE PROFESSIONAL MASTER'S DEGREE IN BIOLOGY WITH
PROJECT (PLAN II) AND NO THESIS OR PROJECT (PLAN III) IN THE DEPARTMENT OF BIOLOGY
OF THE UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ**

Department of Biology Graduate Committee

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I. INTRODUCTION

A. Program title and academic degree

The title of this program will be:

**PROFESSIONAL MASTER'S DEGREE IN BIOLOGY
WITH PROJECT (PLAN II) AND NO THESIS OR PROJECT (PLAN III)**

This program will include only one academic degree and two study plans options:

Professional Master in Biology (M.P.B.) Plan II or Plan III

B. Description of the program

The creation of a **Professional Master in Biology (M.P.B.) with Project (Plan II)** and a **Professional Master in Biology (M.P.B.) without thesis or project (Plan III)** will expand the current Biology Graduate Program offerings to three options. Our current graduate program offers only a **Master in Science (M.S.) degree in Biology Plan I (with thesis)**. We are proposing two alternatives to complete a Master's degree in Biology: **Professional Master Plan II with project** and **Plan III without thesis or project** as part of the graduate academic offer of the Department of Biology of the University of Puerto Rico, Mayagüez Campus (UPRM). To differentiate these two alternatives from our current offer, the new study plans were designated as **Professional Master in Biology (M.P.B.) Plan II** and **Professional Master in Biology Plan III (M.P.B.)**. These two Professional Master degrees in Biology will enrich our academic offer and help attract a more diverse student population, which aligns with the UPR-2017-2022 Strategic Plan. The creation of these new study plans will help us to: 1) expand the professional profile of our graduate students, 2) serve a diverse, contemporary, and multisectoral student population where students can pursue diverse careers; 3) increase enrollment in our graduate program, 4) improve retention rate, and 5) reduce graduation time.

The proposed study plans will be educational opportunities for students considering non-academia-related jobs such as technical or consulting jobs, K-12 school teachers or instructors at institutions of higher education, among others. Both study plans will provide up-to-date general and specialized knowledge in diverse areas of interest with a technical training component. Also, the availability of Plan II and Plan III for the Master's degree in Biology represents new opportunities for inter and transdisciplinary collaborations that urgently address the emergence and complexity brought by the climate crisis and other critical biological issues. These master's degrees will allow the development of knowledge and strategies on broad socio-ecological issues, particularly in a country that faces first-hand the consequences of the climate crisis at the level of biodiversity, conservation, sustainability, environmental justice and health, among others. Given the versatile and flexible design of both plans, there is also the potential to explore with other disciplines intergenerational solutions calibrated with current "planetary boundaries" metrics at local and global scales.

Similar to our current Plan I, **Plan II** will provide knowledge based on the application of the scientific method but without engaging in a long-term research project. The student will be able to develop different skills as a requirement for a practical project inside or outside the university environment or as part of external projects or practices within government agencies or the private sector. With these projects the student will be able to answer applied questions or solve a problem in a short time without getting involved in the complexity of carrying out a master's thesis in science. Students enrolled in **Plan III** will have the opportunity to update their knowledge in basic and applied biology attending different courses at the Department of Biology and outside our department. These students can also engage in the use and application of new techniques as part of the laboratory component in various of the courses listed in **Table VI.5**.

C. Modalities of offer

The study plans proposed do not include unusual modalities.

D. Expected date of initiating the program

The Professional Master (M.P.B.) in Biology Plan II or Plan III of the Department of Biology of UPRM will begin the first semester of the academic year 2024–2025.

E. Program duration and maximum time to complete the degree

The current time limits for completing these study plans are established by the University of Puerto Rico Academic Senate Certification # 09-09 (amended). These are six calendar years for students entering the program with a Bachelor in Science (B.S.) or equivalent degree.

II. PROFESSIONAL ACCREDITATION

This program does not require professional accreditation.

III. JUSTIFICATION AND PERTINENCE FOR THE CREATION OF A PROFESSIONAL MASTER (M.P.) IN BIOLOGY PLAN II AND PLAN III IN THE DEPARTMENT OF BIOLOGY OF UPRM

Since its creation in 1962, the Graduate Program of the Department of Biology only offers a plan of study leading to the degree of **Master in Biology (M.S.) with Thesis (Plan I)**. This plan of study consists of 30 credits (3 core, 21 specialty, and 6 of research or thesis). The distribution of credits encourages students to continue doctoral studies since the focus of the study plan is research. Occasionally, in our department additional options to our current master's plan have been discussed. However, *our graduate program has never formally entered a curricular review process or increase the current offer of available study plans.*

With the recent changes and challenges that our society has undergone and with a new generation of students who nurture our undergraduate and graduate programs, is relevant to provide our students various options to grow as professionals and join the diverse working sectors outside academia. Our current plan of study requires our students to prepare a thesis as the culmination of several years of research. During this time, they use the scientific method to formulate hypothesis, design experiments, collect and analyze data independently. This effort is then reflected in the writing of the thesis, guided by the student's graduate committee. However, for those graduates who want to work in state (e.g. Department of Natural Resources of Puerto Rico) or federal (e.g. Environmental Protection Agency, Food and Drug Administration, National Oceanic and Atmospheric Administration) organizations, non-governmental organizations or the private industry, the current profile of our graduate student offers few tools to enter the workforce, improve professionally, and acquire a postgraduate degree and/or improve their opportunities for promotion or better salary.

Taking into consideration the previous arguments, at the end of 2022 the Departmental Graduate Committee (DGC) of Biology discussed the possibility of expanding our academic offer in the graduate program by implementing two new plans of study. As a result, we ***propose the creation of a Professional Master Degree in Biology with Project (Plan II) and a Professional Master's Degree in Biology without Thesis or Project (Plan III) to increase our graduate offer.*** The proposal was approved by the faculty of the Department of Biology in August 17, 2023 (See letter of M.P.B. proposal approval by the faculty of the Department of Biology).

Our proposal took as a reference and basis for comparison: 1) the current UPR Strategic Plan (2017-2022), 2) the SA Certification 09-09 (*Rules Governing Graduate Studies at Mayagüez University Campus*), amended on October 30, 2020, 3) the 2022 curricular review of the Department of Marine Sciences at UPRM, and 4) Master of Science programs of several institutions of higher education in Puerto Rico and the United States (**Table III.1**) that offer M.P. degrees. Most of these universities do not require any type of exam to confer the degree, except University of *Hawaii* and UPRM. In many of the study plans included in **Table III.1**, attending a seminar course is part of the core course requirements.

Table III.1. Comparison of Study Plans for Master of Science or Science in Biology Between Several Institutions of Higher Education in Puerto Rico and the United States

Institution	Master's Program	Number of Credits Required	Time to Complete Degree
Ana G. Méndez University	M.S. in Biomedical Sciences (with project)	36: 33 core and 3 of research (project)	Two (2) years
	M.S. Environmental Sciences with specialization in environmental management (with project)	35: 17 core, 12 specialty, and 6 of research (project)	Two and a half (2.5) years

Institution	Master's Program	Number of Credits Required	Time to Complete Degree
Interamerican University of Puerto Rico	Bayamón: M.S. in Biology with two specialties: Biotechnology and Molecular and Environmental and Ecological Sciences.	35: 11 core, 12 specialty, and 12 of prescribed distributive courses for the plan without research project (thesis). The student will pass an additional 12 credits of this program; six (6) of these credits will be in courses of their specialty.	Does not indicate
	Aguadilla: M.S. two specialties: Molecular Biotechnology and Environmental and Ecological Sciences.	35: 11 core, 12 specialty, and 12 of prescribed distributive courses for the plan without thesis/research project. The student will pass the Scientific Writing course and 9 additional credits of this program with six credits in courses of their specialty.	Does not indicate
University of Miami	Master of Professional Science (MPS)	30: 24-28 in courses and 2-6 boarding or internship in summer	One to two (1-2) years
University of North Carolina	M.S.	32: 26 in courses and 6 in thesis	Does not indicate
University of Hawaii	M.S.	30: 18 in courses; 6 of thesis, and 6 of supervised research project.	Does not indicate
Department of Biology, UPRM	M.S. with thesis	30: 3 core, 21 specialty, and 6 of research project (thesis)	Two to three (2-3) years
Department Microbiology and Medical Zoology, UPR-MSU	M.S.	34: 28 in courses credits; 6 thesis credits.	Does not indicate
Faculty of Natural Sciences, UPR-RP	M.S. with specialty in Biology	30: 24 credits in graduate courses; 6 credits in research; teaching requirement.	Does not indicate
	M.S. with specialty in Environmental Sciences	38: 18 core courses, 6 specialty, 2 in graduate seminar, 6 in elective courses, and 6 in thesis. Students must also approve Part A of the Environmental Sciences Graduate Program qualifying exam, defend thesis proposal, and thesis.	Does not indicate
Department of Mechanical Engineering, UPRM	Master of Engineering (MEng)	30: 3 in advanced mathematical course, 9 specialty, 9 ME electives, and 9 in free electives	Does not indicate
Department of Marine Sciences, UPRM	M.S. (with thesis)	30: 3 core, 21 specialty, and 6 of research project (thesis)	Up to four and a half (4.5) years
	M.P. (with project) M.P. (only courses)	32 36	Both programs started in 2021 (currently in hold)

The proposed study plans will add two new alternatives to complete a Master's degree in Biology at UPRM and within other UPR units. As showed in **Table III.1** no other units at UPR, with the exception Department of Marine Sciences at UPRM, is offering a MP in biology and/or related areas. Our Department of Biology will be a pioneer and can be in a better position to compete with other higher education institutions at USA that for decades have offered similar alternatives. **Plan II** and **Plan III** for our **Professional Master's Degree in Biology** provide alternatives for unconventional students who wish to improve their professional preparation without committing to prolonged or complex research. Our graduates will be able to issue technical and scientific opinions on matters related to their areas of expertise at different entities, forums, and the community. They will be exposed to the use of cutting-edge equipment and technologies that will allow them to face various professional challenges with scientific and ethical responsibility. The implementation of these proposed study plans should help our department to: 1) improve the profile of our graduates, 2) decrease graduation time for our students, 3) make better use of departmental resources, and 4) diversify the student pool interested in our graduate program. To make a clear distinction between our current **Plan I**, students who complete the requirements for the master's degree following one of the two proposed plans will be conferred the degree of **Professional Master in Biology (M.P.B.)**.

IV. RELATIONSHIP BETWEEN THESE NEW ACADEMIC PROGRAMS WITH THE MISSION AND THE CURRENT STRATEGIC PLAN OF UPR AND UPRM

A. Relationship with the Strategic Plan of the University of Puerto Rico and with the institutional plan of the Mayagüez Campus

The proposed M.P.B. degrees in Biology (Plan II and Plan III) will advance the objectives of the Strategic Plan of both the University of Puerto Rico and UPRM. As its Mission (2016–2021), the University of Puerto Rico proclaims:

“Artículo 2. Objetivos de la Universidad de Puerto Rico. (18 L.P.R.A. § 601)

- *La Universidad, como órgano de la educación superior, por su obligación de servicio al pueblo de Puerto Rico y por su debida fidelidad a los ideales de una sociedad integralmente democrática, tiene como misión esencial alcanzar los siguientes objetivos, con los cuales es consustancial la más amplia libertad de cátedra y de investigación científica:*
- *Transmitir e incrementar el saber por medio de las ciencias y de las artes, poniéndolo al servicio de la comunidad a través de la acción de sus profesores, investigadores, estudiantes y egresados.*
- *Contribuir al cultivo y disfrute de los valores éticos y estéticos de la cultura.*
- *En el cumplimiento leal de su misión, la Universidad deberá:*
- *Cultivar el amor al conocimiento como vía de libertad a través de la búsqueda y discusión de la verdad, en actitud de respeto al diálogo creador.*
- *Conservar, enriquecer y difundir los valores culturales del pueblo puertorriqueño y fortalecer la conciencia de su unidad en la común empresa de resolver democráticamente sus problemas.*
- *Procurar la formación plena del estudiante, en vista a su responsabilidad como servidor de la comunidad.*

- *Desarrollar a plenitud la riqueza intelectual y espiritual latente en nuestro pueblo, a fin de que los valores de la inteligencia y del espíritu de las personalidades excepcionales que surgen de todos sus sectores sociales, especialmente los menos favorecidos en recursos económicos, puedan ponerse al servicio de la sociedad puertorriqueña.*
- *Colaborar con otros organismos, dentro de las esferas de acción que le son propias, en el estudio de los problemas de Puerto Rico.*
- *Tener presente que por su carácter de Universidad y por su identificación con los ideales de vida de Puerto Rico, ella está esencialmente vinculada a los valores e intereses de toda comunidad democrática.”*

(<https://www.upr.edu/plan-estrategico-upr-2016-2021-proceso-y-propuesta/plan-estrategico-upr-2016-2021-mision-vision-y-retos/#1460117236195-57d816fe-e091>)

Similarly, our Mission (2012–2022) at UPRM states that the university will provide service to Puerto Rico and to the world (international broad impacts):

“To provide excellent service to Puerto Rico and to the world by:

- *Forming educated, cultured, capable, critical thinking citizens professionally prepared in the fields of agricultural sciences, engineering, arts, sciences, and business administration so they may contribute to the educational, cultural, social, technological and economic development.*
- *Performing creative work, research, and to service to meet society’s needs and to make available the results of these activities.*

We provide our students with the skills and sensibility needed to effectively address and solve current challenges and to exemplify the values and attitudes that should prevail in a democratic society that treasures and respects diversity.”

(https://www.uprm.edu/oiip/docs/Plan%20Estrat%E9gico/Plan_Estrategico_2012-2022-ingles-final.pdf)

In terms of Vision, the University of Puerto Rico portrays itself as:

“Universidad de excelencia y proyección global comprometida con el pueblo de Puerto Rico mediante un quehacer transformador en la docencia, investigación y servicio en las diversas ramas del saber humano”.

The vision of the UPRM claims:

“To be a leading institution in higher education and research; transforming society through the pursuit of knowledge in an environment of ethics, justice, and peace.” The Strategic Objectives of the UPRM plan (2012–2022) include:

1. *To establish a strategic planning and assessment culture.*
2. *To lead higher education throughout Puerto Rico while guaranteeing the best education for our students.*
3. *To increase and diversify institutional sources of revenue.*
4. *To adopt efficient and expedient administrative procedures.*

5. *To strengthen research and competitive creative endeavors.*
6. *To influence our Puerto Rican society.*
7. *To strengthen school spirit, pride, and identity.”*

Objective #2 highlights the importance of updating our academic offering through the creation of new programs. To advance this objective, it is essential that the institutional administration commit to the following strategies:

1. To maintain, to update, and to strengthen our academic programs by streamlining or redesign of the processes defined to effect curricular changes and ***to create new courses and programs.***

Similarly, **objective #3 was supported by two auxiliary decisions that will be primarily accomplished through the proposed Professional Master's Degrees in Biology:**

1. “Increase income generated by UPRM, withholding it completely for its particular needs (research, creative work, university enterprises, federal government, state government, intramural performances).
2. ***To keep students aware of external funding opportunities for scholarships and assistantships.”***

Objective #5 listed strategies to strengthen research and creative endeavors: by providing “support and essential resources necessary for efficient research and creative endeavors”, by increasing “external funding for research and creative work that provide Campus income”, and “to promote and to give relevancy to Graduate Studies by:

- a. Increasing investment in graduate research and teaching fellowships and assistantships.
- b. Diversifying and enhancing graduate candidates pool.
- c. Providing scholarship and assistantship awards as incentives in the selection of top students.
- d. Promoting our graduate offerings throughout the western hemisphere
- e. ***Promoting and supporting the creation of graduate programs that have either high demand or high probability of success in reaching external funds for research and development.***

The attainment of the above will be facilitated by offering the new ***Professional Master's Degrees in Biology (Plan II and Plan III)***. With the proximity of important ecosystems such as Cartagena lagoon, the Guánica and Maricao forests, *Tres Palmas* Reserve, access to protected areas by the US Fish and Wildlife Service plus collaborations with our schools of engineering, agriculture and business administration we will “identify, among existing graduate programs, world-class niches of specialized research” (Plan II) [(Strategic Objective of the UPRM plan (2012–2022))]. For students enrolled on Plan III, we will provide them with up-to-date tools and skills to tackle current and emergent biological problems and developing projects within these unique

areas will provide information that could be applied to help solving different challenges that Puerto Rico has.

Objective #6, entails the methods by which UPRM can respond to the needs of the Puerto Rican society “to promote entrepreneurial and leadership approaches among our students throughout all fields of knowledge.” Our faculty can provide the expertise and the technical structure to develop current unexplored talents in local and international students. Study Plan III of the propose MP degree provide the structure and flexibility for our students to engage in an inter or trans disciplinary collaborations than can enhance their profile and open unexpected opportunities for them outside the normal spectrum of biological careers.

In page 12, the Strategic Plan agrees:

1. To promote the use of expertise within our university community to meet both our campus' and our country's needs.
2. To promote, to develop and to facilitate research, focused in the application and marketing of results to meet the country's needs.
3. To promote student participation in community projects, providing opportunities for these activities within university curricula.

Through the new **Professional Master's Degrees in Biology** propose, we can contribute to implement and advance new academic modalities, allowing the development of the university, and enhancing our quality standards, economic independence, and innovation. Innovation, is the pursue of novel solutions to current and emerging biological problems within our cultural context. Our graduates can play a key role in our efforts to sustain ecological and genetic diversity, environmental and human health, plant conservation and food supply, and foster entrepreneurial initiatives. The core courses (**Table VI.5**) will promote critical thinking, scientific writing skills, and the ability to communicate findings and results while fostering collaborations among the academia and private and governmental sectors.

B. Relationship of this program with current academic programs within UPR and with other universities in Puerto Rico

1. Within the University of Puerto Rico at Mayagüez:

Currently, at UPRM few departments offer Professional Master's degrees, for example, the Department of Mechanical Engineering and the College of Business Administration. Our propose M.P.B. is not ascribed as competition and will not increase the demand for their courses or resources. The courses required for the **Professional Master's Degrees in Biology (Plan II and Plan III)** could be the same courses offer for our existing M.S. in Biology (Plan I) at UPRM and could benefit other UPR units. As with our current MS Plan I, the propose program will complement and benefit other graduate programs at UPRM such as Marine Sciences,

Agronomy and Soils, Animal Sciences, Applied Chemistry, Bioengineering, Computer Engineering, and Chemical and Civil Engineering. It also could benefit from the diverse offerings of the programs mention above and programs offer by UPR-Río Piedras Campus.

2. With other units within the University of Puerto Rico:

The proposed UPRM Professional Master's Degrees in Biology (Plan II and Plan III) is different from other programs within the UPR in: a) the number and focus of core credits; b) number and focus of elective courses and, c) the expertise of our faculty. For instance, we cover unique areas of specialization in Aerobiology, Biology of Extremophiles, Bioremediation, Functional Ecology, Population Genetics, Microbiology of Anaerobes, Plant Genetics, and Biotechnological Improvement, Biodiversity Informatics, Entomology, Parasitology, Limnology, Protistology and Metagenomics. The programs will not share more similarities than those already shared by other M.S. programs within the UPR. We find these few common grounds more an asset than a hindrance, particularly for the types of research that are performed in Puerto Rico and our developing economy.

3. With other universities in Puerto Rico:

Currently, there are only two institutions outside of the UPR system that offer M.P. programs in biology or related fields. The Interamerican University at Bayamón and Aguadilla offers a M.S. in Biology without thesis in either Molecular Biotechnology and Environmental or Ecological Sciences, both requesting 35 credits to complete the program. MP programs with project at Ana G. Méndez University in Gurabo in Biomedical Sciences or Environmental Sciences with specializations in Environmental Management, request between 35 and 36 credits to complete the program. **Table III.1** summarize the requirements for all these programs. In contrast to these two programs, our proposed program requires a lesser number of credits (30), consistent with a worldwide trend (Russo, 2004; Sauermann and Roach, 2012). ***As a distinctive feature, our program has a multidisciplinary approach stemming from our unique faculty profiles and academic environment*** (i.e., a close association with Marine Sciences, Agronomy, Biotechnology, Bioengineering, and Engineering).

V. CONCEPTUAL FRAMEWORK

A. Mission

The mission of the proposed graduate programs is to educate and train future scientists and professionals to excel and lead in either the academia, governmental or non-governmental agencies, and industries within Puerto Rico and throughout the world. These programs will increase our educated workforce to deal with current and emergent biological issues and challenges. We will accomplish this through innovative, multidisciplinary and diverse research activities, particularly stemming from the unique academic diversity of our Campus, and through research, technical, and teaching collaborations. The curriculum provides ample opportunity for our students to enhance their communication skills an important asset in any working scenario.

Our students will have the opportunity to study a wide range of biological patterns, processes, and mechanisms in a diverse biological and educational setting that will expand and enrich their professional and personal profile.

B. Goals and objectives

The proposed M.P.B. programs will:

1. Expand the academic offer in UPRM at the graduate level in Puerto Rico.
2. Educate professionals and scholars to engage in the advancement and understanding of a wide range of biological issues, challenges, and phenomena.
3. Engage graduate students in innovative and multidisciplinary research with other scientists from our campus and at other institutions (Plan II).
4. Prepare new generations of national and international professionals and educators aware of the ethical and societal relevance of their endeavors (Plan III).

C. Educational philosophy

The traditional education approach expects graduate students to make important and original contributions to academic research by coupling coursework with research under the supervision of experienced scientists. Also, most employers today seek professionals with problem-solving skills, the ability to engage in research and communicate results and findings, the capacity to participate in collaborative work, interpersonal talents, ethical awareness, entrepreneurial initiatives, and interdisciplinary experiences (Campbell et al., 2005; Sauermann and Roach, 2012). The participating faculty of the Department of Biology can provide the necessary conditions for our graduate to develop these skills and enhance their graduate profile.

The proposed graduate programs will facilitate the education and training of our future scientists and professionals to excel and lead in either academia, governmental or non-governmental agencies, and industries anywhere. Our graduates will play key roles in our efforts to sustain and conserve ecological and genetic diversity, environmental and human health, and can engage in diverse entrepreneurial initiatives.

Students enrolled in Plan II, will be provided with up-to-date techniques, tools, and skills to tackle current and emergent biological problems. Through their projects they will design experiments based on particular questions or situations, gather and analyze data, and draw conclusions to help solve or understand different environmental/biological challenges or issues. They will be able to engage in technical discussions on biological topics and communicate effectively. As a result of the diverse environment in our program, they will have the capacity to participate in collaborative work experiences and entrepreneurial initiatives.

Graduates from Plan III will have training and knowledge that will allow them to participate in various sectors of the workforce around the world. Core courses will promote critical thinking, scientific writing skills, and the ability to communicate science effectively in academia, private, and governmental sectors. These skills will enhance their profile making them

viable candidates for managerial positions in different industries or to engage in different entrepreneurial ventures. Our Professional Master in Biology Plan III could allow our graduates to apply for new job opportunities and/or enhance their salary.

D. Coherence and sufficiency

The participating faculty of the Department of Biology holds a diverse profile in terms of their areas of expertise and distinctive educational backgrounds. These characteristics represent favorable conditions to train our graduates and equip them with the knowledge, experiences, and abilities to be a strong candidate for any available position in the workplace.

VI. CURRICULAR DESIGN

A. Curricular scheme for the M.P.B. Degrees in Biology (Plan II) and (Plan III)

The requirements for our Professional Master's Degrees in Biology (Plan II and Plan III) are described in **Table VI.1**. Core courses for both study programs include **Research Methods in Biology** (BIOL 6689), **Graduate Seminar** (BIOL 6690), and a course in statistics. Both, **Research Methods in Biology** and the **Graduate Seminar** are currently core courses for our M.S. in Biology (Plan I). In **Table VI.2**, we provide a comparison of the requirements of our current study plan and the two proposed study plans (Plan II and Plan III). The curricular structure proposed for the M.P.B. programs are presented in **Table VI.3** and **Table VI.4**. Electives courses for each study plan can be selected from **Table VI.5**.

Table VI.1. Requirements for the Professional Master's Degrees in Biology with Project (Plan II) and Professional Master's Degree in Biology without Thesis or Project (Plan III)

Requirements of the Study Plan	M.P.B. Plan II	M.P.B. Plan III
Courses and number of core credits	BIOL 6689 (2) BIOL 6690 (1) Statistics course (3)	BIOL 6689 (2) BIOL 6690 (1) Statistics course (3)
Courses and number of specialty credits	21 ; at least 6 outside the study area but in related areas	24 ; at least 6 outside the study area but in related areas
Number of credits for project/research	3 ; under BIOL 6991* or BIOL 6992*	Not applicable
Oral final examination	No	Yes, upon completion of required credits
Total credits	30	30

* *Special Studies in Biology I or II*, respectively.

Table VI.2. Comparison of the Requirements of our Current Study Plan (MS with Thesis) and the Proposed Study Plans for the Professional Master's Degrees in Biology (Plan II and Plan III)

Requirements of the Study Plan	M.S. Plan I	M.P.B. Plan II	M.P.B. Plan III
Courses and number of core credits	BIOL 6689 (2) BIOL 6690 (1) Statistics course (6)	BIOL 6689 (2) BIOL 6690 (1) Statistics course (3)	BIOL 6689 (2) BIOL 6690 (1) Statistics course (3)
Courses and number of specialty credits	21 ; at least 6 outside the study area but in related areas	21 ; at least 6 outside the study area but in related areas	24 ; at least 6 outside the study area but in related areas
Number of credits for project/research	6 (BIOL 6990)	3 ; under BIOL 6991* or BIOL 6992*	0
Thesis	Yes	No; a report or other type of academic/technical product is required.	Not applicable
Oral final examination	Yes	No	Yes, upon completion of required credits
Total credits	30	30	30

* *Special Studies in Biology I or II*, respectively.

Table VI.3. Curricular Structure for the Proposed Study Plan II for the Professional Master's Degree in Biology

	First Semester		Second Semester	
	Name and Course Codification	Number of Credits	Name and Course Codification	Number of Credits
First Year	Biological Research Methods (BIOL 6689)	2	Special Studies in Biology (BIOL 6991 or BIOL 6992)	3
	Statistics course	3	Electives	6
	Electives	4		
	Total credits	9	Total credits	9
	Total credits for First Year: 18			
Second Year	First Semester		Second Semester	
	Name and Course Codification	Number of Credits	Name and Course Codification	Number of Credits
	Electives	3	Graduate Seminar (BIOL 6690)	1
	Electives	6	Electives	2
	Total credits	9	Total credits	3
	Total credits for Second Year: 12			

Table VI.4. Curricular Structure for the Proposed Study Plan III for the Professional Master's Degree in Biology

First Year	First Semester		Second Semester	
	Name and Course Codification	Number of Credits	Name and Course Codification	Number of Credits
	Biological Research Methods (BIOL 6689)	2	Electives	3
	Statistics course	3	Electives	6
	Electives	4		
	Total credits	9	Total credits	9
Total credits for First Year: 18				
Second Year	First Semester		Second Semester	
	Name and Course Codification	Number of Credits	Name and Course Codification	Number of Credits
	Electives	9	Graduate Seminar (BIOL 6690)	1
			Electives	2
	Total credits	9	Total credits	3
	Total credits for Second Year: 12			

Note that **Table VI.5** include courses from not only the Department of Biology, but also from other departments in UPRM, giving flexibility and balance to these curricula. The opportunity to select from such a diverse list of courses also allows the student to expand his/her academic profile. The distribution of credits directs the student towards the acquisition of knowledge in their chosen area of interest. These graduates will have training that will allow them to perform in various sectors of the workforce applying the knowledge acquired.

B. Courses that compose the curriculum

Table VI.5 comprise a list of more than 130 courses from our Academic Catalogue (2023-2024) from which our students can choose their electives to complete their study plans in addition to the core courses.

Table VI.5. List of Advanced Undergraduate Courses and Graduate Courses Available at UPRM as Described in our Current Catalogue to Satisfy Courses Requirements for Study Plans for the Professional Master's Degree in Biology (Plan II and Plan III)

Codification	Title	Credits	Description
BIOL 5005	Elementary Plant Anatomy	3 (2 lecture; 1 lab)	The study of simple and complex tissues of the organs of vascular plants; the study of the characteristics of parenchyma, sclerenchyma, and collenchyma cells, as well as the elements composing the xylem and phloem tissues.
BIOL 5007	General Plant Morphology	3 (2 lecture; 1 lab)	The general principles of plant morphology, including evolutionary tendencies, phylogenetic lines and the life cycles of the principal groups of plants.

Codification	Title	Credits	Description
BIOL 5009	Pteridology	3 (2 lecture; 1 lab)	Lectures and laboratories on the morphology, taxonomy and ecological distribution of the local ferns and their allies. Assigned readings and field trips.
BIOL 5016	Plant Evolution	2	Analysis of the geological, morphological, anatomical, physiological, and geographical evidence showing how the different plant phyla have evolved, with emphasis on the evolution of tracheophytes. Assigned reading reports.
BIOL 5017	Tropical Bryology	3 (2 lecture; 1 lab)	The biology of the mosses, liverworts, and hornworts, emphasizing the structure, identification, reproduction, and ecology of the native species of Puerto Rico.
BIOL 5018	Plant Physiology	4 (3 lecture; 1 lab)	Plant physiology: diffusion, transpiration, absorption and transport, mineral nutrition, metabolism, growth and development, hormones, effects of environmental factors.
BIOL 5045	Scanning Electron Microscopy	3 (2 lecture; 1 lab)	Theoretical and practical aspects of the scanning electron microscope with emphasis on sample preparation for SEM, detection of the different types of signals emitted by the specimen, and image analysis
BIOL 5055	Eukaryotic Molecular Genetics	3	Recent discoveries related to: the eukaryotic genome, gene structure, recombination, DNA replication, DNA repair, transposable elements, chromatin, regulation of transcription and translation, catalytic RNA, mRNA processing and transport are emphasized.
BIOL 5056	Eukaryotic Molecular Genetics Laboratory	2	Practical experience where the research techniques used in eukaryotic molecular genetics are discussed. Steps are undertaken according to updated protocols for DNA preparation, polymerase chain reaction, restriction mapping, gene cloning, DNA sequencing, and construction of genomic and cDNA libraries.
BIOL 5416	Herpetology	3	A study of the biology, classification and morphology of amphibians and reptiles, with emphasis on local species.
BIOL 5417	Ichthyology	3	A study of the biology, classification and morphology of fishes, with emphasis on local species. Field trips.
BIOL 5585	Medical and Veterinary Entomology	3	This course offers the student interested in entomology, animal husbandry of veterinary science, an opportunity to become familiar with the recognition, characteristics, habits and control of insects, ticks, mites, and other arthropods that attack man and domestic animals.
BIOL 5755	Virology	3	The Classification, Structure, Physiology and Biochemical Activities of Viruses.
BIOL 5758	Bacterial Genetics	2	DNA replication and expression in the prokaryotic cell; transfer of genetic information; the impact of genetic processes on the physiology and ecology of bacteria.
BIOL 5759	Bacterial Genetics Lab	2	Molecular techniques for the study of the genetics of bacteria and bacteriophages. Practical experiences in the processes of recombination, complementation, the control of genetic expression, and the transmission of genetic information among microorganisms.
BIOL 5786	Pathologic Human Biology	3	A systematic study of the dysfunctions of the cardiovascular, digestive, respiratory genitourinary and endocrine systems.

Codification	Title	Credits	Description
BIOL 5765	Mycology	3	A study of the morphology, physiology, classification and relation of fungi to man. Emphasis is given to the isolation and identification of the different groups.
BIOL 5815	Animal Behavior	3	A study of activities and responses of animals in meeting their life requirements. Field trips.
BIOL 5955	Introduction to Research Methods in Ecology	3	Field and laboratory exercises serve to introduce the student to the basic methods used in ecological research. The student is trained in the use of computers for the analysis of ecological data.
BIOL 5990	Field Biology Workshop	1–3	Intensive practical experience in selected areas of field biology, in or outside of Puerto Rico. A final written report will be required.
BIOL 6015	Insect Morphology	4	A study of the general internal and external morphology of insects.
BIOL 6040	Biogeography	3	A study of the principles governing the distribution of organisms. Examples of the Caribbean area are used.
BIOL 6155	Plant Ecology	4	The interrelations of plants and environment; climatic, edaphic, and biotic factors in their relation to origin, development, and structures of vegetation; introduction to ecological field work and the methods of ecological research. Practice is given in the recognition of associations, determination, and description of their structure, and relationships and measurements of environmental factors.
BIOL 6199	Behavioral Ecology	3	Recent developments in behavioral ecology. Evolutionary and ecological models applied to the behavioral problems of survival and reproduction integration of theory with field and laboratory evidences. Field trips required.
BIOL 6356	Cytogenetics	3 (2 lecture; 1 lab)	A study of different aspects of the cell that affect inheritance.
BIOL 6369	Population Genetics	3	Genetic variation in natural populations of both plants and animals in different communities covering selection, migration, mutations, mating systems, and the effect of population size on the maintenance of genetic variation.
BIOL 6605	Environmental Pollution and Disturbance	3 (2 lecture; 1 lab)	An ecological consideration of pollution and disturbance of the environment; the effects of industrial, domestic and other pollutants of the ecosystem; the physical, chemical and biological parameters used in pollution control and abatement.
BIOL 6607	Population Ecology	3	Study of populations for the analysis of the control and interaction among them. Topics such as mortality, fertility, population growth, competition and predator-prey interaction will be discussed.
BIOL 6610	Limnology	3 (2 lecture; 1 lab)	A study of the physical, chemical and biological characteristics and interrelations of these factors in aquatic situations; community structure in still and running water; studies of local streams and ponds.
BIOL 6617	Advanced Genetics	3	Discussion of selected topics in genetics.

Codification	Title	Credits	Description
BIOL 6631	Cellular Biochemistry and Physiology	4	The interconversions of energy in living cells; photosynthesis and carbohydrate metabolism as energy sources; the utilization of metabolic energy for protein synthesis; solute and solvent movement; nerve and muscle phenomena. Emphasis on metabolic regulation and enzyme action.
BIOL 6635	Medical Mycology	3	Study of the fungi pathogenic to man.
BIOL 6637	Taxonomy and Morphology of Fungi	3	A thorough coverage of the phycomycetes, ascomycetes, deuteromycetes and basidiomycetes from a taxonomical and morphological approach, with emphasis on saprophytes, zoo pathogens and phytopathogens.
BIOL 6642	Advanced Mycology	3	A study of fungi, with emphasis on current literature and methods of research.
BIOL 6650	Bacterial Diversity	3	The diversity of prokaryotic organisms in relation to eco-physiological and evolutionary perspectives, emphasizing their isolation, identification, and application.
BIOL 6688	Scientific Photography for Biologists	2	Photographic techniques in biological research. A presentation and a portfolio of the student's work is required.
BIOL 6689	Biological Research Methods	2	Methods and theory of investigation in the biological field, including a study of the biological literature and of sources of information from major institutions active in this field. The student is required to write a research proposal in his area of interest.
BIOL 6690	Graduate Seminar	1	Discussion of recent literature in biology and related fields. Students will discuss principal topics in their special fields.
BIOL 6705	Advanced Food Microbiology	3 (2 lecture; 1 lab)	Microbiology of food commodities. The nature and function of beneficial and harmful microorganisms. Foodborne diseases. Effects of food processing and storage on microorganisms.
BIOL 6805	Symbiosis	3	Study of common and unusual biological associations between distinct organisms, such as parasites, endosymbiotic bacteria, pollinators, and others. Analysis of organism interactions, from the endosymbiotic theory on the origin of eukaryotic cells to the ecological interactions between organisms and their evolution. A final oral presentation will be required.
BIOL 6806	Biological Systematics	3	Study of the theory and practice of biological systematics, including parsimony analysis of morphological and molecular characters. Discussion of concepts and methods pertinent to the generation and evaluation of phylogenetic trees, and their application using current software packages. A course project on the phylogeny of a particular group or organisms is required.
BIOL 6990	Research	6	Research for a thesis.
BIOL 6991	Special Studies in Biology	3	Supervised research in some special topics of biology other than a thesis problem, but designed to provide experience and training in scientific investigation.

Codification	Title	Credits	Description
BIOL 6992	Special Studies in Biology	3	Supervised research in some special topics of biology other than a thesis problem, but designed to provide experience and training in scientific investigation.
BIOL 6993	Special Topics in Biology I	3	Selected topics in biology, botany, microbiology, and zoology.
BIOL 6994	Special Topics in Biology II	3	Selected topics in biology, botany, microbiology, and zoology.
BIOL 6997	Selected Topics in Biology: Laboratory	3	Laboratory practice of selected topics in biology, botany, microbiology, or zoology.
BOTA 6006	Physiology of Bacteria	3 (2 lecture; 1 lab)	The physiology of bacteria and the biochemistry of microbial processes.
ZOOL 5005	Invertebrates of Puerto Rico	3 (2 lecture; 1 lab)	Taxonomy and ecology of the most common invertebrates of Puerto Rico, especially Arthropoda (exclusive of insects and marine forms) and Mollusca.
ZOOL 6019	Advanced Parasitology	4 (3 lecture; 1 lab)	Lectures, conferences, reading and laboratory work dealing with practical problems of classification, morphology and host relations of animal parasites.
ZOOL 6025	Systematic Zoology	3	The naming and classification of animals, rules and basis of nomenclature, quantitative methods of analysis, and methods for presentation of systematic findings.
ZOOL 6039	Animal Ecology	3 (2 lecture; 1 lab)	A study of the principles of ecology as applied to animals.
ZOOL 6056	Zoogeography	3	A study of the geographical distribution of animals, with special emphasis on factors affecting this distribution. Assigned readings and reports.
ZOOL 6058	Insect Taxonomy	3 (2 lecture; 1 lab)	The classification of the hexapoda. Construction of keys, preparation of description, nomenclatural problems, faunistic and monographic studies, catalogs and bibliographies.
CHEM 5071	General Biochemistry I	3	Chemical characterization of proteins, carbohydrates, lipids, and nucleic acids; principles of enzymology and bioenergetics; biological membranes and transport; recombinant DNA techniques; biological oxidations.
CHEM 5072	General Biochemistry II	3	Biosynthesis and biodegradation of carbohydrates, lipids, amino acids, and nucleic acids; integration and regulation of animal metabolism; chemistry of genetic expression and regulation.
CHEM 6007	Special Topics I	1-6	One to six hours of lecture per week.
CHEM 6008	Special Topics II	1-3	From one to three hours of lecture per week.
CHEM 6009	Spectroscopy of Biological Molecules	3	Spectroscopy techniques to study the structures and conformational changes of biological molecules.
CHEM 6036	Chemical Aspects of Environmental Problems	3	Chemical aspects of environmental problems with emphasis on those occurring in Puerto Rico such as those involving heavy metals, volatile organic compounds, pesticides, and solid wastes. Critical analysis on their effects on public health and the design of new technology for the solution and prevention of these problems will be conducted.

Codification	Title	Credits	Description
CHEM 6050	Trace Analysis of Environmental Contaminants	3	Sampling techniques and instrumental methods of analysis at trace levels of contaminants in water, air, and soil.
CHEM 6218	Chemical Separations	3	Advanced techniques of chemical separations, and their analytical and preparative applications, recent methods of extraction, chromatography, electrophoresis and sedimentation.
CHEM 6815	Plant Biochemistry	3	Chemistry of plant constituents. Chemical processes occurring during the growth and development of plants; biochemistry of photosynthesis.
CHEM 6915	Enzymes	3	Fundamental principles of enzymatic reactions, including topics such as: mechanisms, kinetics, inhibitors, and activators.
GEOL 6107	Geology and Tectonics of the Caribbean	3	The geologic and tectonic evolution of the Caribbean plate and adjacent areas.
GEOL 6175	Paleoecology	3	Use of geological evidence and the ecology of living organisms to understand the nature and development of past environments.
CMOB 5016	Phycology	3 (2 lecture; 1 lab)	Fundamental study of algae in general, with reference to the main groups: Chlorophyta, Xanthophyta, Cyanophyta, Phaeophyta, Rhodophyta. Study of biology, life histories, morphogenesis, ecology, evolution, taxonomy, and commercial or industrial uses of algae, and their importance in the bio-economics of the sea and other bodies of water.
CMOB 5017	Marine Ecology and Resource Management	5 (3 lecture; 2 lab)	Description of the marine environment and familiarization with the major tropical marine communities; data-gathering and biological sampling techniques; human impact on the marine environment from the standpoint of pollution, exploitation, protection, and regulation; jurisprudence in major litigation involving marine resources; management practices.
CMOB 6018	Marine Ecology	4 (3 lecture; 1 lab)	Structure and function of marine ecosystems; flux of energy and materials in biogeochemical cycles.
CMOB 6075	Freshwater Invertebrates	3 (2 lecture; 1 lab)	Identification of freshwater invertebrates, their role in the environment, and their importance in aquaculture and pollution studies.
CMOB 6077	Zooplankton Ecology	3 (2 lecture; 1 lab)	Aspects of zooplankton ecology in relation to oceanographic processes in estuarine, neritic, and oceanic ecosystems. Includes experiences in sampling techniques and experimental design.
CMOB 6078	Analysis of Spatial Data on Marine Ecology	3	Collection and analysis of spatial data in marine ecology within a geographic information system and landscape ecological context with applications to ecological problems. Emphasis on ecological issues in the marine environment and their application to marine resources management. A research project is required.
CMOB 6079	DNA Data Analysis of Marine Organisms	6 (3 lecture; 1 lab)	Introduction to modern marine population genetics and phylogenetics of marine species. Study of the different types of molecular data and their collection; phylogeny

Codification	Title	Credits	Description
			reconstruction by parsimony, distance, and likelihood methods; tests of the molecular clock for dating speciation events; Darwinian selection at the molecular level, interspecies variation, detection of population structure; and genomic evolution. Analysis of real data from the marine scientific literature with computer software in population genetics and phylogenetics.
CMOB 6618	Biological Oceanography	3 (2 lecture; 1 lab)	Marine life and its relationship to geological, physical and chemical aspects of the ocean; basic techniques fundamental to marine research. Demonstrations and field trips.
CMOB 6635	Research Methods in Marine Sciences	3	Techniques of data collection, analysis, and interpretation with emphasis on research problems relevant to the marine ecosystems of Puerto Rico.
CMOB 6645	Marine Plankton Biology	3 (2 lecture; 1 lab)	Study of the marine plankton with emphasis on systematics, morphology, life histories, physiology, feeding, and reproduction. Importance of plankton on the economy of the sea, particularly in their role as primary and secondary producers.
CMOB 6655	Molecular Marine Biology	4 (2 lecture; 2 lab)	Theory, practice, and applications of molecular marine biology.
CMOB 8635	Marine Microbiology	3 (2 lecture; 1 lab)	A study of the biology of marine microalgae, bacteria and protozoa, with emphasis on the techniques of pure cultures and the physiology and ecology of marine organisms, both autotrophic and heterotrophic.
CMOB 8636	Marine Parasitology	4 (2 lecture; 2 lab)	Parasitology of marine organisms with emphasis on local fauna; collecting methods, preparation for the study and identification of parasites.
CMOB 8645	Marine Physiology	3	The physiological processes at the cellular and organismal levels directly concerned with the adaptation of the organism to the physical and chemical environment of the ocean; the more specialized physiological processes encountered in the study of the growth and behavior of marine organisms.
CMOB 8646	Marine Physiology Laboratory	1–2	Laboratory research projects on a specific physiological process of marine organisms in response to marine environment
CMOB 8658	Advanced Marine Parasitology	3 (2 lecture; 1 lab)	Study of advanced topics on the parasites of marine animals. A research project will be required.
CMOB 8665	Morphology of Marine Invertebrates	3 (2 lecture; 1 lab)	Form, structure and function of representative marine invertebrates.
CMOB 8676	Systematics of Marine Invertebrates	4 (2 lecture; 2 lab)	Taxonomy, phylogeny and distribution of marine invertebrates with special attention to local forms.
CMOB 8678	Marine Population Biology	3	Principles of population biology and their application to the organization of marine communities.
CMOB 8679	Marine Botany	3 (2 lecture; 1 lab)	A study of the flora of the sea, with emphasis on the morphology, ecology and taxonomy of algae.
CMOB 8685	The Rhodophyta of Puerto Rico	3 (2 lecture; 1 lab)	A study of the life cycles, reproduction, taxonomy and ecology of the macroscopic red algae of Puerto Rico.

Codification	Title	Credits	Description
CMOB 8686	Ichthyology I	3 (2 lecture; 1 lab)	A study of the morphology, physiology and ecology of fishes, with emphasis on marine forms.
CMOB 8687	Ichthyology II	3 (2 lecture; 1 lab)	Study of the systematic, evolution and distribution of fishes, with emphasis on marine forms.
CMOB 8695	The Phaeophyta	3 (2 lecture; 1 lab)	Life cycles, biology, morphology, ecology, taxonomy and evolution of the brown algae.
CMOB 8696	The Chlorophyta	3 (2 lecture; 1 lab)	Life cycles, biology, morphology, ecology, taxonomy, and evolution of the benthic marine green algae.
CMOB 8708	Coral Reef Biology	3 (2 lecture; 1 lab)	Evolution, characteristics, and distribution of coral reefs
CMOB 8709	Ecology and Zoography of Coral Reefs	3 (3 lecture; 1 lab)	Study of the ecology and geographical distribution of corals and coral reefs. Field trips are required.
CMOB 8715	Ecological Concepts in Marine Research	3 (2 lecture; 1 lab)	Advanced ecological concepts with special emphasis on the marine environment; energy relationships in ecological systems; application of quantitative biology and experimental methods in ecological research.
CMOQ 6615	Chemical Oceanography II	3	General survey of chemical oceanography, including application of basic concepts of physical and analytical chemistry to the marine environments, chemical interactions of major and minor constituents of seawater, the influence of chemical processes on physical, biological, and geological processes.
CMOQ 6617	Marine Pollution II	3	Deleterious effects on living resources, human health, marine activities, and water quality caused by the anthropogenic introduction of substances or energy into the marine environment.
CMOG 8655	Marine Biogeography I, II	3	The origin, speciation and distribution of marine plants and animals in relation to the physical, chemical and physiological aspects of the ocean, with special emphasis on tropical biota.
CMOG 8698	Biogeology Seminar II	3	Introduction to the problems of biota-sediment interaction; influence of biological factors on geological processes. Guest lecturers will be invited. Each student will be required to make an oral presentation of at least one topic during the semester.
CMOG 8706	Structure of Coral Reef	3 (1 lecture; 2 lab)	Structure, development, and methods of study of coral reefs. Field trips required
ESMA 6305	Statistical Methods	3	Populations and samples, probability distributions, sampling distributions, statistical inference, linear and multiple regression and correlation, analysis of variance and covariance. Use of statistical computer package.
COMP 6315/ESMA 6315	Data Mining	3	Concepts and techniques of data mining, based on statistical methodology. Study and application of diverse data preprocessing techniques. Application of data visualization techniques in two and three dimensions, linear and nonlinear supervised classifiers, clustering methods, and outlier detention. Application of association rule and text mining techniques

Codification	Title	Credits	Description
ESMA 6660	Biostatistical Analysis	3	Descriptive and inferential statistical techniques, design of experiments, construction of biomathematical models, bio-essays and probability analysis.
AGRO 5005	Biometrics	3 (2 lecture; 1 lab)	Basic concepts of statistical reasoning applied to problems in agricultural, biological and environmental sciences. Data gathering, graphical description and numerical summarization. Concepts of probability and sampling. Estimation and hypothesis testing, analysis of variance, linear regression and correlation. Students describe and analyze real data sets and use statistical computing programs.
AGRO 5006	Genesis, Morphology and Classification of Soils	3	Historical development of concepts of soil and systems of soil classification; principles and nomenclature of "Soil Taxonomy"; environmental factors and processes of soil formation; and field study of soil profiles.
AGRO 5007	Soil Physics	3 (2 lecture; 1 lab)	Physical properties of soils, and factors affecting them; soil consistency, structure, water, air, temperature, tillage; evaluation and influence in determination of soil productivity.
AGRO 5008	Soils of Puerto Rico	3 (2 lecture; 1 lab)	Study of the genesis and distribution of the soils of Puerto Rico, based on environmental conditions; classification of soils using the "Soil Taxonomy" system; evaluation of the morphological, chemical, physical, and mineralogical properties of soils with respect to agricultural and not agricultural uses.
AGRO 5010	Management of Natural Forests	3	The study of the composition and structure of the different forest systems of the tropics; wet forest, deciduous forest, conifer forest and mangrove from the stand point of multiple use and sustainability.
AGRO 5015	Conservation, Management, and Development of Natural Resources	3	Study of concepts, methods and techniques in the conservation, management and development of natural resources, and their effects on environmental quality. Contemporary problems in the management and allocation of issues and natural resources will be discussed.
AGRO 5501	Agricultural Biotechnology	3	Biological concepts for biotechnology: enzymes, nucleic acids, genetic transfer mechanisms, operons, plasmids, vectors, cloning, DNA sequencing, monoclonal antibodies, clonal production and hybridization.
AGRO 6005	Use of Statistical Computer Packages in Biometry	2	Use of statistical computer packages in the analysis of experimental data.
AGRO 6600	Advanced Biometrics	3 (2 lecture; 1 lab)	Advanced study of analysis of variance, covariance and multiple regression, design and analysis of experiments applied to research problems in agricultural, biological and environmental sciences. Students design experiments, analyze data and use statistical computing programs.
AGRO 6604	Soil-Plant Relationships	3	Study of the processes that affect root growth and development, methods of study of such processes, availability of nutrients and factors that affect their

Codification	Title	Credits	Description
			movement and absorption; growth as a function of dry matter accumulation, root proliferation and nutrient uptake.
AGRO 6607	Soil Chemistry	3 (2 lecture; 1 lab)	Chemical composition and properties of soils, chemical processes of weathering, soil solution reaction, chemical properties of clays, and ionic exchanges in soils.
AGRO 6624	Soil Mineralogy	3 (2 lecture; 1 lab)	Identification of the constituent minerals of soils, and their relation to soil classification and agricultural practices.
CFIT 5006	Phytoremediation	3	Advanced undergraduate course where the principles used in Phytoremediation will be discussed. These include the use of vascular plants for the phytoextraction, rhizofiltration, phytostabilization and phytovolatilization of organic contaminants from the soils and water resources. Phytoremediation offers a permanent solution for removing the contaminants from the environment.
CFIT 6644	Environmental Physiology	3	Environmental aspects of phytophysiology, including energy, nutrition cycles, pollution, and other.
CFIT 6645	Advances in Biological Nitrogen Fixation	3	Mechanism by which atmospheric nitrogen is incorporated into plant proteins and modern techniques utilized for its study, organisms capable of fixing nitrogen in a free-living state or in symbiosis with plants, methodology to take advantage of this process in agriculture.
INPE 6609	Advanced Dairy Bacteriology	3 (2 lecture; 1 lab)	The microbiology of milk and milk products. Thermodynamics and their relationship with animals.
PROC 5005	Phytopathogenic Fungi	3 (2 lecture; 1 lab)	Examination of the most interesting groups of fungi from the phytopathogenic point of view: their taxonomy, nomenclature, morphology, genetics, host-parasite relationship, physiology, and ecology. Distinctive characteristic of specific pathogens.
PROC 5006	Insects of Tropical Crops	3 (2 lecture; 1 lab)	Major insects affecting tropical crops, their biology and taxonomy; identification of damages in the field as well as in the laboratory; appropriate measures of control.
PROC 6608	Advanced Tropical Phytopathology	4	Study and analysis of the etiology, pathology, epiphytology, and control of major plant diseases of the most important economic tropical crops.
PROC 6624	Morphology and Taxonomy of Phytoparasitic Nematodes	3 (2 lecture; 1 lab)	Morphology, anatomy, and taxonomy of phytoparasitic nematodes; rules and problems of nomenclature.
PROC 6645	Biological Control: Concepts and Theories	3 (2 lecture; 1 lab)	Ecological theories that study the use of beneficial organisms for the population density regulation of organisms noxious to crops of economic importance. Other topics to be studied are: the structure of the agroecosystem community, predator-prey ecological relations, types and components of predation, post-introduction programs and aspects of integration, perspectives and development of biological control strategies, with emphasis on insect control.

Codification	Title	Credits	Description
PROC 6650	Phytovirology	3 (2 lecture; 1 lab)	Fundamental concepts of plant viruses including transmission, vector identification, their effects on insect vectors, host range, classification, serology, and physical properties and methods of control. Research methods are emphasized in the laboratory.
INEL 5208	Principles of Biomedical Instrumentation	4 (3 lecture; 1 lab)	Theoretical and practical aspects of the methods used to measure physiological events with emphasis in the cardiovascular, pulmonary and nervous systems.
INEL 6007	Introduction to Remote Sensing	3	History, principles, and applications of remote sensing. Electromagnetic radiation; aerial photography; image interpretation; land observation satellite systems; image resolution; preprocessing and classification of images; geographic information systems.
INQU 8007	Transport Phenomena in Biological Systems	3	This is an elective course intended for graduate students in chemical engineering or related fields. The course discusses the integration of the fundamentals of transport phenomena to biological systems. It focuses on the application of momentum and mass transport from the cellular to the organ level, including artificial organs. Upon the completion of the course the students are expected to understand the fundamental principles of biological transport processes by formulating the mathematical expressions of these principles and their solution; analyze physiological characteristics of biological systems, and evaluate their implication in biological transport.
INME 6065	Principles of Biomedical Engineering	3	Application of engineering principles and quantitative methods in biology to analyze and describe complex biological systems. Survey of human anatomy and physiology, modern molecular biology, professional ethics, and regulatory issues.
INME 6115	Biomaterials	3	Study of advanced materials as applied to biomedical systems. Integration of materials science and engineering concepts with biology for the successful design of interfaces between living cells and organic and inorganic materials.
INME 6135	Tissue Engineering	3	Study of tissue engineering applied to biomedical systems with emphasis on quantitative cell and tissue biology, cell and tissue characterization, engineering methods and design, and clinical applications.
BING 6002	Molecular and Cellular Biology for Engineers	3	Study of the biology of cells, emphasizing examples relevant to bioengineering. Topics such as protein structure and function, cellular membranes and organelles, cell growth and oncogenic transformation, cellular transport, receptors and cell signaling, the cytoskeleton, the extracellular matrix, and cell movement will be included.
BING 6017	Advanced Biostatistics Applications	3	Application of statistical methods to solve biomedical and bioengineering problems. Use of generalized linear models, including logistic, Poisson, and binomial regressions. Design of experiments under biological

Codification	Title	Credits	Description
			process constraints and appropriate data analysis. Use of artificial neural network techniques to model nonlinear relationships among qualitative and quantitative variables of a biomedical system.
INTD 5001	Multidisciplinary Archaeology I	3 (2 lecture; 1 lab)	Introduction to archaeological research in Puerto Rico and the Caribbean from a multidisciplinary perspective. Includes the study of archaeological sites and regions using approaches and techniques provided by diverse disciplines of the natural sciences and engineering. Organized in modules of Introduction to Archaeological Theory; Survey and Remote Sensing; Excavation and Geoarchaeology.
INTD 5002	Multidisciplinary Archaeology II	3 (2 lecture; 1 lab)	Introduction to the systematic description of archaeological data, their recording procedures, analysis, and methodical synthesis of the data produced. Includes the analysis of material remains using approaches and techniques provided by diverse disciplines of the natural sciences and engineering. Organized in modules of Archaeometry, Analysis of Archaeological Materials, and Synthesis of Archaeological Data.

C. Curricular coherence and sufficiency

Courses from other departments aligned with the professional interests of our graduate students, included in the program of study, allow for some flexibility in their study plans. Enrollment in courses from other departments and faculties can enhance our graduate students' profile, study plans, and also increase the demand for the courses at other academic units. In addition, both plans have been designed so that the student completes the study plan in less time than the average time it takes to complete our current Study Plan I, because of the wide selection of courses to choose. Finally, because our proposed study plans share the same requirements for the core courses as Study Plan I, our students will also have the option to continue a PhD after completing their study plan.

D. Educational philosophy

The proposed study plans are designed to offer the courses in a face-to-face, hybrid or in a technology-assisted modality. All courses in **Table VI.5** rely on conferences and independent study to achieve the objectives of each course. In many courses there is the opportunity to team teach a class to promote an interdisciplinary environment. The laboratory practices included in many of the courses listed in **Table VI.5** offer our students to opportunity to engage in diverse hands-on experiences and to interact with faculty and laboratory technicians in a very rich teaching-learning environment. The seminar course provides students the opportunity to polish their skills related to analyze scientific literature and to share the information with an audience.

E. Courses' syllabus

Table VI.5 summarizes a list of advanced undergraduate courses and graduate courses available at UPRM to satisfy course requirements for Study Plans for the Professional Master's Degree in Biology (Plan II and Plan III). The descriptions of the courses included in **Table VI.5** were obtained from our current Academic Catalogue (2023-2024) available at <https://www.uprm.edu/asuntosacademicos/catalogos-academicos>. The syllabus of most courses offered by the Department of Biology are available at <https://www.uprm.edu/biology/>.

VII. ADMISSION, ENROLLMENT, AND GRADUATION

A. Admission requirements

The admission requirements for the propose programs are detailed in **Certification 09-09** (as amended), and includes:

1. Baccalaureate or equivalent
2. Fluency in Spanish and English
3. One of the following undergraduate averages (scale: A=4):
 - a. Graduation average of 2.5 or higher,
 - b. Average concentration of 3.0 or greater, or
 - c. Average of 3.0 or higher in a minimum of 60 credits approved in the last four undergraduate semesters

B. Enrollment projection

Enrollment projection, including new enrollments, transfers, and re-admissions is estimated based on the application and graduation rates of the Biology M.S. program of UPRM over the past 10 academic years (August 2013- January 2023). For that period, the average number of applications the Department of Biology receives annually was 26 with an average admission of 16 students annually. Based on this data, we are projecting 15 applications per year for the M.P.B. Plan II and 10 applications per year for the M.P.B. Plan III. The admission of students applying for Plan II will be subjected to the faculty available to accept students. Students applying for Plan III can start in the program immediately under the initial guidance of the Graduate Program Coordinator at the Department of Biology.

C. Academic requirements to grant the degree

The general requirements for obtaining the ***Professional Master's Degree in Biology*** will be governed by **Certification 09-09** (as amended), so they will be similar to the general requirements for obtaining the Master's degree in Biology Plan I. The graduate student who has completed **Plan II** and/or **Plan III** shall:

1. Approve the courses of the study plan with a general academic index of 3.0 or more.
2. Comply with the residency requirement of UPR-M.
3. Meet any other requirement of the current Biology Graduate Program.
4. Be recommended for the degree by the Arts and Sciences Faculty.
5. Not be subject to disciplinary sanctions or a process pending resolution before any of the disciplinary forums as defined by the General Student Regulations of the University of Puerto Rico and the Student Regulations of UPR-M.
6. Have satisfied all financial obligations to the University of Puerto Rico.

Specific requirements for earning the ***Professional Master's Degree in Biology (Plans II and III)*** are detailed in **Table VII.1**. In addition, students enrolled in any of these study plans should approve all core courses with A or B. Students enrolled in Plan II are required to deliver a presentation of the project before the departmental faculty and all students should meet all the requirements of the SA Certification 09-09 (as amended).

Table VII.1. Specific Requirements to Obtain the Degree of M.P.B. in Biology (Plan II or Plan III)

M.P.B. in Biology Plan II	M.P.B. in Biology Plan III
Conduct a project. Prepare a final project report. Present a departmental seminar of the project.	Pass the degree exam (oral) of subjects covered in courses in the study plan.
Submit the final version of the project report, approved by signature of all members of the Examination Committee, to the OEG no later than the deadline set by the OEG.	Approve the total credits specified by the program (30): three (3) core credits and three (3) credits of a statistics course. A maximum of nine (9) advanced undergraduate level credits.
Approve the total credits specified by the program (30): three (3) core credits and three (3) credits of a statistics course. Up to a maximum of nine (9) advanced undergraduate level credits. Up to a maximum of six (6) of project credits. A minimum of nine (9) credits outside the area of study, but in related areas.	A minimum of nine (9) graduate level credits. A minimum of six (6) credits in electives outside the area of study, but in related areas.

Table VI.5 displays a list of more than 130 advanced undergraduate and graduate courses available at UPR-M to satisfy course requirements. In the table, we include 80 advanced undergraduate and graduate courses from various faculties outside Arts and Sciences that can enhance our graduate students' study plans and also increase the demand for the courses at each academic unit. The increased demand for these courses to complete the course requirements for the proposed M.P.B. study plans will make these courses more available for a future Ph.D. program in Biology as well as for current doctoral programs in other departments.

VIII. FACULTY

A. Faculty profile

More than 25 full-time professors compose the current faculty of the Department of Biology, most of them with doctoral degrees (**Table VIII.1**) and available to accept students enrolled in the propose study plans. This group of professors includes graduates from several renowned institutions, mostly in the United States. In the past three years, five new faculty with diverse research backgrounds have been hired. These professors will create cutting-edge graduate-level courses that will enhance our graduate program and are engage in trending research areas that will attract a new wave of graduate students.

The participating professors have average academic loads (in credit-hours per semester) of teaching, research release, and other duties. **There will be no significant increase in academic loads for these professors after approval of this program because the programs' core courses will be taught in alternating semesters and the teaching responsibilities for these courses will be shared by several professors.** For the elective courses, the students will have available the graduate course projection list that includes an offering projection for five years. Also, they can enroll courses from other departments related to their particular interests.

Our faculty has been successful in obtaining external funding from agencies such as HHMI, NSF, NOAA, USDA, and NASA in previous years. Between August 2018 and May 2023, faculty members at the department of Biology submit 30 proposals highlighting their commitment to quality research and academic productivity. A total of 15 proposals were approved for a total of \$2,071,315 in external funds granted to our Biology Department faculty. Likewise, the participating professors published 73 articles in peer-reviewed journals over the 2018–2022 period.

Table VIII.1. Participating Faculty Profiles (Rank: Assis. = Assistant Professor, Assoc. = Associate Professor, Prof. = Full Professor)

Name, rank, and field of specialty	Institution; year Ph.D. obtained	Post-doctoral experience	# peer-reviewed publications; (2020–2023)	Google scholar citations and h-index	Courses able to teach for the proposed programs
Carlos Acevedo Suárez, Prof., Immunology	Vanderbilt University, Tennessee; 2006	No	1	N/A	BIOL 5055, BIOL 5117 Immunology
Dimaris Acosta Mercado, Prof., Protistology	University of Guelph, Canada; 2003	No	4	368; 7	BIOL 5955, BIOL 6991, BIOL 6992
Mónica Alfaro Lozano, Prof., Marine biology	University of Puerto Rico, Mayagüez Campus; 2002	No	2	NA	BIOL 5045, BIOL 5955, ZOOL 5005

Name, rank, and field of specialty	Institution; year Ph.D. obtained	Post-doctoral experience	# peer-reviewed publications; (2020–2023)	Google scholar citations and h-index	Courses able to teach for the proposed programs
Matías J. Cafaro, Prof., Mycology	University of Kansas; 2003	Yes	13	1453; 18	BIOL 6991, BIOL 6642, BIOL 6805, BIOL 6993
Timothy Colston, Assis., Genomics, Host Interactions, Microbiomes	University of Mississippi; 2017	Yes	20	1217; 18	BIOL 5416, BIOL 6040, BIOL 6805, BIOL 6806
Alondra Díaz Lameiro, Assis., Genetics	Binghamton University, NY; 2016	Yes	3	55; 4	BIOL 5055/5056, BIOL 5057, BIOL 5399, BIOL 6369, BIOL 6011/6012, BIOL 6617, BIOL 6806
Clara Isaza Brando, Assis., Biophysics	Ohio State University; 2005	Yes	10	431; 9	BIOL 5055/5056, BIOL 5057, BIOL 5116
Sean Locke, Assoc., Parasitology	Concordia University (Montreal, Quebec, Canada); 2010	Yes	23	2049; 25	BIOL 6019 Evolution/Ecology of Parasites, Molecular Systematics, Advanced Parasitology
Yadira Malavez Acevedo, Assoc., Microbiology	Ohio State University; 2012	No	1	26;3	BIOL 5758, BIOL 6617, BIOL 6650, BIOL 6705 BIOL 6991, BIOL 6992
Sandra L Maldonado Ramírez, Prof., Mycology, Aerobiology, Plant pathology	Cornell University; 2001	No	4	1209;7	BIOL 5765, BIOL 6635, BIOL 6637, BIOL 6642, BIOL 6689, BIOL 6991, BIOL 6992
Rafael Montalvo Rodríguez, Prof, Microbiology	University of Nebraska; 2003	No	2	1749;14	BIOL 6017, BIOL 6650, BIOL 6806, BIOL 6991, BIOL 6992
Alejandro Ortiz Acevedo, Assoc., Cellular physiology	University of California, Davis; 2000	Yes	None	181; 7	BIOL 6631
Alberto Puente Rolón, Assoc., Herpethology, Tropical ecology	University of Puerto Rico, Río Piedras Campus; 2012	No	7	511;12	BIOL 5416, BIOL 5815, BIOL 6199, BIOL 6990
Luis Ríos Hernández, Prof., Anaerobic microbiology	University of Oklahoma, Norman; 2003	Yes	0	652; 5	BIOL 6990, BIOL 6991, BIOL 6992, BIOL 6690
Carlos Ríos Velázquez, Prof., Microbiology	University of Wisconsin; 2000	Yes	12	485; 11	BIOL 5758, BIOL 5759, BIOL 6011/6012, BIOL 6990, BIOL 6991, BIOL

Name, rank, and field of specialty	Institution; year Ph.D. obtained	Post-doctoral experience	# peer-reviewed publications; (2020–2023)	Google scholar citations and h-index	Courses able to teach for the proposed programs
					6992, BIOL 6994 (Biology and Technology of Plasmids), BIOL 6997 (Prokaryotic Molecular Genetics), Metagenomics
Ruber Rodríguez Barreras, Assis., Quantitative ecology, Marine ecology	University of Puerto Rico, Río Piedras Campus; 2015	Yes	7	307; 10	BIOL 5955, BIOL 6011/6012, BIOL 6610
Carlos J. Santos Flores, Prof., Limnology	University of Wisconsin-Madison; 2001	No	4	334; 8	BIOL 6610, ZOO 5005
Dimuth Siritunga, Prof., Molecular biology, Plant biotechnology	The Ohio State University; 2002	Yes	8	2284; 22	BIOL 5018, Plant Molecular Biology
Alex Van Dam, Assoc., Entomology	University of California Davis; 2013	Yes	8	1025; 12	BIOL 6015, ZOO 6058
Benjamín van Ee Smit, Prof., Plant Systematics	University of Wisconsin-Madison; 2006	Yes	7	2218; 17	BIOL 5005, BIOL 5007, BIOL 5016, BIOL 6040
Alex J. Veglia, Assis., Ecology and Evolutionary Biology	Rice University; 2023	No	9	86;6	BIOL 5057, BIOL 5755, BIOL 6003/6004, BIOL 6990

The faculty of the proposed programs will arrange for several activities aimed at improving the conditions that will make this program successful. Some of these activities will be conducted early on, while other activities will be conducted in response to the assessment data that will be gathered. The Coordinator for Graduate Studies of the Department of Biology, currently the Associate Director for Graduate Studies of this department will seek opportunities for our graduate students to engage in professional workshops or conference and grow professionally. At departmental level, meetings related to laboratory safety, institutional policies, and the attendance to seminars will also contribute to expand students' profile.

IX. PROGRAM ADMINISTRATION

The proposed study plans will be administered by campus-wide and departmental administrative units. The Office of Graduate Studies at UPRM is responsible for implementing the rules governing graduate studies and handling applications through an online application system. The Graduate Committee of the Department of Biology will evaluate applications and recommends acceptance.

At the departmental level, administration of the program will involve interactions between department-wide units, such as the Coordinator for Graduate Studies and the Departmental Graduate Studies Committee. The Coordinator for Graduate Studies of the Department of Biology, presides over the Graduate Studies Committee. Because of the differences between our current Study Plan I and the proposed Study Plans (II and III), we establish several responsibilities for the Coordinator for Graduate Studies, the Departmental Graduate Studies Committee, the supervising professors for students in Plan II and one administrative assistant as follows:

For **PLAN II**, the Graduate Program Coordinator will:

1. provide orientation on degree requirements and deadlines and guidance to meet those requirements /deadlines.
2. prepare the Study Plan for the students
3. monitor the progress of the students so that they meet the requirements in the established time.

The professor in charge of the project in which the student will participate will: 1). provide laboratory space, equipment, and materials for the students enrolled in BIOL 6991 or BIOL 6992, 2). guide the student in the preparation of the proposal, 3). keep track of the progress of the assigned project to meet the requirements in the established time, 4). participate in meetings related to the student' progress, 5). review and approve the proposal, and 6). review and approve the final report. The Departmental Graduate Committee will periodically monitor the progress of these students so that they meet the requirements/deadlines in the established time. Also, the committee will review and approve the proposal and review and approve the final report.

For **PLAN III**, the Graduate Program Coordinator will:

1. provide orientation on degree requirements and deadlines and guidance to meet those requirements /deadlines.
2. prepare the Study Plan for the students
3. monitor the progress of the students so that they meet the requirements in the established time.

The Departmental Graduate Committee will periodically monitor the progress of these students so they meet the requirements/deadlines in the established time. A departmental

administrative assistant will help the Coordinator for Graduate Studies: 1). to communicate periodically with the students, 2). with the completion of all the necessary paper work on time, 3). to keep track of the progress of the students, and 4). to obtain data for evaluation and assessment.

X. INFORMATION RESOURCES

The Department of Biology building has up-to-date internet connections (INTERNET 2) that allow faculty and students to readily access electronic journals through the General Library and other internet sources. Our current research resources support teaching in the graduate programs at upper-level courses, which will include the proposed doctoral program. Our Biology building is equipped with modern communication services, which include video conference (Polycom 4000MP) capabilities available for virtual classes and remotely broadcasted seminars. These facilities allow the faculty to develop new teaching methods incorporating new technologies with traditional learning approaches. The department employs a permanent IT technician, who helps administer and maintain its IT resources, which include several Dell PowerEdge 750/2850 servers providing support for the departmental webpage, an active directory, a Windows Update Server, DNS, DHCP, firewall, and several online databases such as BioServices (faculty information), BRAHMS (herbarium collections), and SPECIFY 6 (invertebrate collections).

XI. TEACHING, RESEARCH, AND SERVICE INFRASTRUCTURE

The Department of Biology is housed in the 4-story biology building, a structure with a surface area of 190,000 square feet. The building has 11 teaching classrooms, 15 teaching laboratories, and 11 research laboratories, all equipped with digital projectors and computers with an OC3/Internet2 connection. Recently we equipped classrooms with modern video conference (Polycom 4000MP) capabilities available for virtual classes and remotely broadcasted seminars. In addition, there are 40 faculty offices, a faculty lounge, two computer centers, and an auditorium prepared for video-conferencing with a maximum capacity of 130 students. Each computer center is equipped with 32 computers (all connected to the Internet). Appropriate software and printers are available for teaching and as a resource for the biology community. Graduate students have individual cubicles in two rooms specially designed for them, including access to computers with Internet, where the graduate students can attend to their obligatory office hours. The building also has three biology student association offices shared by all associations (βββ, CPM, SEMI, T-MED, MEDLIFE, AEXO, iGEM-RUM, QUIROS, and AEB). All classrooms and offices are equipped with handicap access.

The Department of Biology has auxiliary facilities and equipment housed in the same building. The herbarium (MAPR), holding more than 25,000 specimens, is located on the ground floor. Also, on the ground floor is the Microscopy Center, which will house a new electron microscope, a confocal laser microscope, as well as conventional light, Nomarski (optical

interference), fluorescence, and phase contrast microscopes, and microphotographic equipment. A new SEM has been approved by the NSF MRI program recently. The department has invested significantly in new equipment for its research laboratories; among these are modern and sophisticated growth chambers, freezers of various temperature ranges, thermocyclers for PCR, microscopes and stereoscopes, centrifuges, electrophoresis equipment, and more. A separate Entomology Laboratory (3,200 square feet) was renovated and houses the various departmental invertebrate collections. A green house and animal care facility annex become available for research and teaching in 2016.

Outside of the Biology Building, the Department of Biology has access to the Caribbean Genome Center, located in laboratories belonging to the Department of Marine Sciences, which includes a complete Next-Generation-Sequencing laboratory with powerful computer resources that is freely available to faculty and students of both departments. In addition, another area composed of approximately seven acres of secondary growth forest, is used to develop experiments and to teach courses in botany, zoology, mycology, microbiology, and ecology. The Department has requested this area be granted the status of “University Urban Forest,” and therefore be protected from further development.

The UPRM Department of Biology has hired several faculty members into tenure track positions who are engaged in research as part of their appointments. In order to facilitate this process, the College of Arts and Sciences traditionally grants a reduction in teaching load during the first year to allow the new professors sufficient time to set up their laboratories, initiate research, generate preliminary results useful for their applications for external funds, and apply for external funds. Additional time may be granted when external awards with funds provided for those purposes are obtained. Furthermore, the College of Arts and Sciences, as well as the Center for Research and Development (CID), typically provide competitive small seed money grants to initiate research. Research facilities are available with modern equipment devoted to research, as well as classroom and teaching laboratory space that can be used in support of research. External funds obtained by our faculty in recent years, reached more than \$2 million during the 2018–2023 period. These external funds have permitted upgrading research facilities and equipment. New programs will benefit the department by increasing student diversity and by stimulating interactions and collaboration within the university and beyond. Professors and graduate students actively involved in innovative research will upgrade and enhance the content of the respective courses they teach. Graduate students in the Department received research assistantships in the areas of mycology, microbiology, plant molecular biology, entomology, and ecology supported through public and private external research funds (e.g. USDA Forest Service, NSF, NOAA, Amgen Corporation, Gates Foundation, and CIIC).

The department maintains, among other facilities, fully equipped teaching laboratories for mycology, microbiology, immunology, virology, cell biology, genetics, general biology, zoology, and botany. Technical personnel are dedicated full time to run these laboratories. The department also has vehicles for fieldwork and access to a field station in the Toro Negro State Forest. It also houses the Microscopy Center, where several microscope services are offered.

Greenhouse and animal house facilities became available for research and teaching activities since 2016.

The General Library at UPRM has the essential resources to support the proposed programs. The library holds over 750 biology journals, and is constantly expanding its holdings by acquiring database services and online journals recommended by faculty. The increase in the number of electronic resources, the main preference of researchers, exceeds the increase in the number of traditional hard-copy sources. Many important journals are exclusively published online, and almost all of the prestigious scientific journals have parallel publications in both print and electronic formats. The Department of Biology gathers the suggestions of the faculty about new resource needs (books, journals, databases, etc.). This information is sent to the General Library, where the requests are processed according to the funds available.

XII. STUDENT SERVICES

The Mayagüez Campus of the University of Puerto Rico offers several student services, including opportunities to obtain teaching, research, and service assistantships. Under the recently approved ***Certification 147***, graduate students who enter the program with a B.S. or equivalent degree will be allowed to receive a maximum of four years (8 semesters) of graduate assistantship. All graduate students will receive teaching assistantships from the department during the course of their program in order to fulfill their financial commitments. Students receiving teaching assistantships from institutional funds have their registration fee waived; other fees and medical plan costs are not waived.

Graduate students under the proposed M.P.B. Plan II working for researchers with externally-funded projects, may receive assistantships from those projects. We expect an increase in the number of research assistantships granted if our doctoral program is approved due to the increased number of externally funded programs to which our faculty will be able to apply. The registration fee and other fees are not waived for externally funded assistantships.

A third type of assistantship is the service assistantship. Students receiving this type of assistantship will work as laboratory assistants, laboratory technicians, field assistants, or assigned to tasks related to their academic training.

In addition to the above, graduate students, in general, can also apply for scholarships. U.S. citizens or permanent residents can apply, through the Dean of Student Affairs, for a \$2,000 scholarship for travel to national and international conferences to present their research findings (dependent on available funds). The Graduate Studies Office maintains a list of various programs that provide different scholarships.

Students at our campus benefit from various services including an Athletic Department offering sport and fitness services and facilities, extensive assistance on degree-related issues provided by the Office of Graduate Studies, an Office for Services to Students with Disabilities,

emergency and other medical assistance at the on-campus Medical Services Center, and a Placement Office that helps students secure employment after graduation. UPRM also has available a Department of Counseling and Psychological Services, integrated by a multidisciplinary team of professional counselors, clinical psychologists and social workers to support, help, and counsel students.

XIII. CATALOGUE AND OUTREACH

The Department of Biology offers programs leading to a Master's degree in Science (Plan I) or a Professional Master's in Biology (M.P.B.) with the option with project (Plan II) or a degree under a non-thesis option (Plan III). Although there are no formal options, students can specialize in conservation biology, environmental or applied microbiology, botany, cellular and molecular biology, ecology, physiology, genetics, mycology, virology, parasitology, zoology, entomology, herpetology, and limnology.

In addition to the admission requirements of the Graduate Studies Office, a Bachelor of Science degree in Biology or its equivalent is required. Generally, more than 90% of the admitted students have a 3.00 GPA or higher in biology courses.

Requirements for all Master's degrees in the Department of Biology are met with the approval of a minimum of thirty credit hours of graduate courses, including the thesis for students enrolled in Plan I. For students enrolled in the Professional Master's degree program, a project is required instead of a thesis (Plan II) or an additional six credits in electives for students completing Plan III. All students are allowed in a maximum of nine credits in advanced undergraduate (5000) courses, and are required to approve Biological Research Methods (BIOL 6689) and the Graduate Seminar (BIOL 6690) as core courses. Students in Plan I and Plan II are required to present a departmental seminar and a thesis or project report, respectively, related to their thesis research or project. All students should present an oral exam before completing all the requirements for the degree. Other program requirements are established by the Graduate Studies Office.

Our departmental facilities include laboratories dedicated to research in botany, cellular and molecular biology, comparative physiology, entomology, virology, microbiology, mycology, and other areas of biology. An herbarium, a greenhouse, zoological collections, and an animal house are also available for research. In addition, the Biology Department operates a Microscopy Center and the Caribbean Genome Center, which provide students the opportunity to engage in cutting edge research and expand their professional profile.

An active recruitment plan for the new programs will entail activities such as attending Open Houses, postings on professional society websites and forums, participation in national and international scientific meetings, on the department's websites as well as social media. Additional resources will be *Ciencia Puerto Rico* (www.cienciapr.org), current and former undergraduate students, and foreign graduate students at UPRM. These activities will allow the

divulcation of the graduate program to prospective students. B.S. and M.S. students from UPRM, the rest of the UPR system, and other higher education institutions within Puerto Rico and throughout the world will learn about our program.

XIV. BUDGET

The Department of Biology have resources such as space, equipment, and expert faculty to accept students who apply for the programs proposed. Therefore, we do not expect any budgetary impact related to the beginning of the program and no budget is requested. The Department of Biology will offer four years (8 semesters) of guaranteed financial support through teaching assistantships or proctorships for those entering the program with a B.S. or equivalent degree.

XV. ASSESSMENT OF THE PROPOSED STUDY PLANS

The proposed new study plans will be evaluated periodically to determine their contribution to the profile of our graduates and their overall impact on the Department's Graduate Program. The information collected from these evaluations will provide the basis for the continuous improvement of our graduate program. A series of assessment strategies are proposed in **Table XV.1** based on various operational objectives.

Table XV.1. Evaluation of the Proposed Study Plans for the M.P.B. (Plan II and Plan III)*

Operational objective	Measuring instruments	Measurement parameter	Implementation personnel	Assessment calendar
Increase demand for our graduate program	Record of number of applications received, number of students admitted, and number of students enrolled	Increase the number of graduate students admitted by 15% the first year of implementation of the new study plans	Graduate Program Coordinator and graduate office administrative staff	Semiannual
Diversify the profile of our graduate students	Proportion between sexes, places of origin ¹ of the admitted students, and undergraduate institution of origin	Increase the number of graduate students admitted from different origins by 50% the first year of implementation of the new study plans	Counsellors, Graduate Program Coordinator, and graduate office administrative staff	Semiannual
Increase student retention rate	Proportion of students who complete the study plan within the established time.	Number of graduates that complete their study program on time.	Counsellors, Graduate Program Coordinator	Semiannual
Meeting the expectations and needs of our graduate students	Services evaluation questionnaire for students completing the study plan.	Degree of satisfaction expressed by our graduate students between 75-85%.	Assessment Committee, Graduate Program Coordinator, and	When each student completes

Operational objective	Measuring instruments	Measurement parameter	Implementation personnel	Assessment calendar
	Number of E-mails acknowledging our service or help		graduate office administrative staff	the study plan.
Increase collaborations between our department and academic and non-academic community	1. Keep up-to-date records of number of: a. Collaborators b. Collaborating agencies c. Potential agencies and/or collaborators d. Visits/meetings related to collaborations	Comparison between current collaborators and collaborations established after one year of the implementation of the new study plans	Researchers graduate students, Graduate Program Coordinator, and graduate office administrative staff	Annual
Promoting research (for Plan II)	1. Have accessible announcements of funding opportunities, conferences, professional meetings, etc. through the website of the Graduate Program 2. Keep up-to-date records of: a. Participation of students in scientific meetings, symposia, etc. b. Number of proposals submitted and proposals approved. c. Number of articles submitted and articles published.	1. Number of invitations to scientific meetings, symposia, presentations, etc. 2. Number of letters of acceptance to scientific meetings, symposia, etc. 3. Number of manuscripts, proposals, submitted. 4. Number of manuscripts, proposals, accepted. 5. Media appearances by our graduates/faculty	Researchers graduate students, Graduate Program Coordinator, and graduate office administrative staff	Semiannual
Facilitate the insertion of our graduates into the workforce	1. Maintain an active record of opportunities for doctoral studies and employment opportunities for our graduate students through the website of the Graduate Program.	1. Record of students requesting mentoring services (doctoral study opportunities, job offers, etc.). 2. Verify statistics of use of the resources available on the website of the Graduate Program. 3. Document the number of graduates who have entered the workforce or have continued doctoral studies.	Counsellors, Graduate Program Coordinator, and graduate office administrative staff	Annual

*Table layout based on a table from *Propuesta para la modificación del Programa de Maestría en Ciencias Marinas (Plan I) y creación de Programas Plan II y Plan III* (included in Certification SA 20-520).

¹ Origin refers to the sector from which the student comes: academia, private sector, local, state or federal government agency, etc.

As part of the continuous evaluation process, administrative staff at our Graduate Program Office will be collecting the following information:

- a. Number of students entering each programs of study.
- b. Study plan selected by the student.
- c. Number of students retained in each study program.
- d. Academic progress of students in the new programs of study by academic year.
- e. Number of students completing the new programs of study per academic year.
- f. Graduation time for graduates of the new programs of study.
- g. Type and number of academic products resulting from the new programs:
 1. professional meeting attendance
 2. presentations
 3. posters
 4. number of peer-reviewed publications
 5. teaching modules
 6. technical reports
 7. technical manuals
 8. portfolios
 9. case of study
 10. infographics
 11. patents
 12. any other relevant product.
- h. Number of collaborations associated with students in the new study plans.
- i. Graduate's placements in the labor force.
- j. Student satisfaction questionnaire completed at completion of the new study program.

Through comparisons between the new study plans with our current Plan I, the impact of the new study programs in our department will be assessed.

XVI. DEVELOPMENT PLAN

Through continuous analysis of the data gather with our different assessment tools, we will implement measures to correct and improve the particular issues we find. The decisions related to the implementation of corrective measures or new tools to evaluate the propose programs will be consulted with our faculty and the Departmental Graduate Committee.

XVII. ACKNOWLEDGMENTS

Our gratitude to Dr. Jaime Acosta, previous Associate Director and Coordinator of our Graduate Program, for the initial efforts to expand our academic offer; to Dr. Dimaris Acosta, for recently providing a more inclusive, global view of the potential of the proposed study plans. Also, we appreciate the help of our administrative assistants, Mrs. Mary L. Jiménez Cartagena and Mrs. Brenda Soto Pérez, and the comments, suggestions, and support of our colleagues at the Department of Biology.

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- <https://nces.nsf.gov/explore-data> 30june2023

XIX. APPENDIX

A. Programs' Description for Academic Catalogue

The Department of Biology offers programs leading to a Master of Science (M.S. Plan I) or a Professional Master in Biology (MPB) with project (Plan II) or a no-thesis/no-project option (Plan III). Although there are no formal concentrations, students may major in conservation biology, environmental or applied microbiology, botany, cellular and molecular biology, ecology, physiology, genetics, mycology, virology, parasitology, zoology, entomology, herpetology, and limnology. In addition to the Office of Graduate Studies admission requirements, a bachelor's degree (B.S.) in Biology or its equivalent is required. Overall, more than 90% of admitted students have a GPA of 3.00 or higher in biology courses.

To complete a master's degree in the Department of Biology, approval of a minimum of thirty credit hours of graduate courses, including the thesis (students in Plan I) is required. For students in the professional master's program, a project is required in lieu of a thesis (Plan II) or an additional six credits in electives (students in Plan III). All students are allowed a maximum of nine credits in advanced undergraduate courses (5000 level) and must pass Research Methods in Biology (BIOL 6689) and Graduate Seminar (BIOL 6690) as core courses. Students in Plan I and Plan II are required to present a departmental seminar and a thesis or project report, respectively, related to their research or project. All students must take an oral exam before completing the requirements for the degree. Other program requirements are set by the Office of Graduate Studies.

Our departmental facilities include laboratories dedicated to research in botany, cellular and molecular biology, comparative physiology, entomology, virology, microbiology, mycology, and other areas of biology. An herbarium, a greenhouse, zoological collections, and an animal house are also available for research. In addition, the Department of Biology operates a Microscopy Center and the Caribbean Genome Center that provides students with the opportunity to participate in cutting-edge research or expand their professional profile. For more information you can visit our website web <https://www.uprm.edu/biology/>

Spanish version:

Descripción de Programas para el Catálogo Académico

El Departamento de Biología, ofrece programas conducentes a una Maestría en Ciencias (M.S. Plan I) o Maestría Profesional en Biología (MPB) con proyecto (Plan II) o la opción de no tesis ni proyecto (Plan III). Aunque no hay concentraciones formales, los estudiantes pueden especializarse en biología de la conservación, microbiología ambiental o aplicada, botánica, biología celular y molecular, ecología, fisiología, genética, micología, virología, parasitología, zoología, entomología, herpetología y limnología. Además de los requisitos de admisión de la Oficina de Estudios Graduados, se requiere un bachillerato (B.S.) en Biología o su equivalente. En general, más del 90% de los estudiantes admitidos tienen un GPA de 3.00 o superior en los cursos de biología.

Para completar las maestrías en el Departamento de Biología, se requiere la aprobación de un mínimo de treinta horas de crédito de cursos graduados, incluida la tesis (estudiantes matriculados en Plan I). Para estudiantes en el programa de maestría profesional, se requiere un proyecto en lugar de una tesis (Plan II) o seis créditos adicionales en electivas para los estudiantes en el Plan III. A todos los estudiantes se les permite un máximo de nueve créditos en cursos subgraduados avanzados (nivel 5000) y deben aprobar Métodos de Investigación en Biología (BIOL 6689) y el Seminario Graduado (BIOL 6690), como cursos medulares. Los estudiantes en el Plan I y el Plan II, deben presentar un seminario departamental y un informe de tesis o proyecto, respectivamente, relacionados con su investigación o proyecto. Todos los estudiantes deben presentar un examen oral antes de completar los requisitos para el grado. Otros requisitos del programa son establecidos por la Oficina de Estudios Graduados.

Nuestras facilidades departamentales incluyen laboratorios dedicados a la investigación en botánica, biología celular y molecular, fisiología comparada, entomología, virología, microbiología, micología y otras áreas de la biología. Un herbario, un invernadero, colecciones zoológicas y una casa de animales también están disponibles para la investigación. Además, el Departamento de Biología opera un Centro de Microscopía y el Centro del Genoma del Caribe, que brinda a los estudiantes la oportunidad de participar en investigaciones de vanguardia o ampliar su perfil profesional. Para más información pueden visitar nuestra página web <https://www.uprm.edu/biology/>



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B. Letter of M.P.B. Proposal Approval by the Faculty of the Department of Biology

August 21, 2023

Dr. Fernando Gilbes Santaella
Dean of Arts and Sciences
UPR, Mayaguez Campus
Mayaguez, Puerto Rico

Dear Dr. Gilbes Santaella:

It is attached for the corresponding procedure, the proposal for the creation of the professional Master's degree in Biology without thesis (plan II) and no thesis or project (plan III) in the Department of Biology of the University of Puerto Rico at Mayaguez, which was unanimously approved at a meeting of the Department of Biology, on August 17, 2023.

I thank you in advance for your attention to this matter.

Cordially yours,

Sandra L. Maldonado Ramírez
Associate Director
Graduate Program Coordinator

mlj

Enclosure

Deseamos informarle que, para someter la propuesta de creación de un programa nuevo deberán utilizar la Certificación 163 (2022-2023), *Reglamento para la creación de programas académicos nuevos en la Universidad de Puerto Rico*, versión compilada y la Guía para la redacción de propuestas para el establecimiento de programas académicos nuevos en la Universidad de Puerto Rico. Solicitamos que enfatice en lo siguiente: a) demanda proyectada; b) tendencias del mercado; c) comparables; d) análisis de competencia y ventajas competitivas (si existen programas en instituciones privadas en Puerto Rico); e) mercado a impactar; f) alineación al plan de desarrollo económico (si está dirigida al mercado local; g) descripción del presupuesto para el programa propuesto a cinco (5) años.

Por último, una vez se reciba la propuesta en la Vicepresidencia, la propuesta será evaluada bajo una mirada sistémica.

Cordialmente,



Rosaura Ramírez Ordóñez, Ph.D.
Vicepresidenta Ejecutiva Interina

CCL/aac

c Dr. Agustín Rullán Toro, rector

C. Faculty CV's

Carlos A. Acevedo Suárez

Professor

Department of Biology

University of Puerto Rico - Mayagüez Campus (UPR-RUM)

787-832-4040, ext. 2683

carlos.acevedo5@upr.edu

Professional Experience

2006 to present

UPR-RUM, Mayagüez, PR

Professor

ImmunoGen, Inc., Cambridge, MA

1992-1994

Research Associate

BioTechnica Diagnostics, Inc./OmniGene, Inc., Cambridge, MA

1989-1992

Assistant Scientist

Education

Vanderbilt University School of Medicine (VUSM), Nashville, TN

2006

Ph. D in Immunology

UPR-RUM, Mayagüez, PR

2000

M. S. in Biology

Massachusetts Institute of Technology (MIT), Cambridge, MA

1989

B. S. in Biology

Teaching Experience

UPR-RUM, Biology Department

2006 to present

Graduate Courses:

Special Studies in Biology (BIOL 6991)

Research (BIOL 6990)

Graduate Seminar (BIOL 6690)

Undergraduate Courses:

2006 to present

Cellular and Molecular Biology of Cancer (BIOL 5117) - Also taken by graduate students.

Seminar (BIOL 4925)

Special Problems in Biology II: Research (BIOL 4902)

Special Problems in Biology I: Research (BIOL 4901)

Immunology (BIOL 4008) - Also Laboratory Coordinator

Immunology Laboratory (BIOL 4008L)

General Biology II (BIOL 3062)

General Biology I (BIOL 3061)

Courses taught as *Teaching Assistant* while pursuing M. S. in Biology

1995-2000

Immunology Laboratory (BIOL 4008L) - Also Laboratory Coordinator

General Biology II Laboratory (BIOL 3052L, now BIOL 3064)

General Biology I Laboratory (BIOL 3051L, now BIOL 3063)

VUSM, Microbiology and Immunology Department

Courses taught as *Teaching Assistant* while pursuing Ph. D in Immunology 2000-2002

*Interdisciplinary Graduate Program: Bioregulation II (IGP 302) - Defense Mechanisms
Microbiology and Immunology Laboratory (VMS I)*

Biomedical Research Education and Training Program - Preparing for the Ph. D Course

Undergraduate Education/Research Proposals

UPR-RUM, Biology Department

American Heart Association - Hispanic Serving Institutions (HSI) Scholars Program

2021-2022; 2023-2024

The goal of the program is to provide an academic year scientific research experience, professional mentoring, leadership skills, workshops, and cultural competence training to promising undergraduate students at HSIs.

Expanding Undergraduate Students' Education, Opportunities and Options in Clinical and Translational Research (PI: Rubén García, UPR-Recinto de Ciencias Médicas (UPR-RCM); co-PI: José R. Moscoso, Universidad Central del Caribe (UCC)) 2016-2023

A cooperative Title V proposal sponsored by the Developing Hispanic-Serving Institutions Program - Title V from the United States Department of Education awarded to UPR-RCM and UCC. Joined in March of 2019 as Mentor in undergraduate and graduate research training programs: Research Education towards Opportunities (RETO), Mentorship Offering Training Opportunities for Research (MOTOR), Intensive Development and

Experiences in Advancement of Research and Increased Opportunities (IDEARIO).

HHMI ROLE MODEL-UPR-RUM (PI: Nanette Diffoot)

2008-2012

Research Oriented Laboratory Enhancements by Module Development for Laboratories (ROLE MODEL). Howard Hughes Medical Institute - Undergraduate Science Program; 1 of 6 co-PIs. Responsible for Immunology module. Total award: \$1,400,000.

Research Experience

UPR-RUM, Biology Department

2006 to present

Principal Investigator

Development of a web-based simulation of immunodiffusion laboratory technique for students in Immunology course (BIOL 4008) at UPR-RUM.

Molecular typing of HLA-E via PCR methods.

Development of a mobile software application to promote education, self-care, and treatment follow-up among Puerto Rican breast cancer patients (part of RETO/MOTOR/IDEARIO).

*Screening of red-tailed boa (*Boa constrictor constrictor*) specimens for infectious pathogens.*

Most common causative pathogens for central line-associated bloodstream infections (CLABSI) in oncology settings in Mayagüez, Puerto Rico (part of RETO/MOTOR/IDEARIO).

*Characterization of protein expression profile during development of the Puerto Rican monarch butterfly *Danaus plexippus megalippe f. portoricensis* A. Clark, 1941 (Lepidoptera: Nymphalidae).*

Characterization of antigen receptor signaling pathways in lymphocytes.

VUSM, Microbiology and Immunology Department 2000-2006
Ph. D Dissertation Research 2001-2006

Characterized the development and intracellular signaling of autoreactive B cells maintained in a state of immunological tolerance in vivo by self-antigen.

Graduate Student Rotations 2000-2001

Optimized and characterized bacterial expression of cell permeable versions of intracellular mediators of B and T cell signaling pathways.

Characterized intracellular signaling pathways leading to NF- κ B activation in T cells.

Studied signal transduction pathways for IL-4 expression in T cells.

Characterized Natural Killer T (NKT) cell function.

Research Assistant Summer 2000

Characterized the assembly of CD1d and MHC class I molecules in vivo.

UPR-RUM, Biology Department 1995-2000

M. S. Dissertation Research

Constructed and characterized a mutated genomic clone of parvovirus LuIII to study the role of viral DNA sequences in particle encapsidation.

ImmunoGen, Inc., Cambridge, MA 1992-1994

Research Associate - Biochemistry Group, Research and Development Department

Developed and characterized immunotoxins (made of specific monoclonal antibodies conjugated to modified natural toxins) used as targeted cancer therapies.

BioTechnica Diagnostics, Inc./OmniGene, Inc., Cambridge, MA 1989-1992

Assistant Scientist - Research and Development Department

Developed membrane-based immunoassay test kit allowing dental practitioners rapid detection in-office of pathogens associated with periodontal disease.

MIT, Biology Department 1988

Undergraduate Student

Isolated and characterized novel conditional mutations in the rpb1 gene, encoding for large subunit of RNA polymerase II in Saccharomyces cerevisiae.

Presentations and Publications

Seminars and Workshops

SNPP 2023: Panel on Careers in Academia (Panelist). Sagrado-MIT Neuroscience Pre-College Program (SNPP) (for high school students from Puerto Rico). MIT July 2023

Online Workshop: Trends in Biomanufacturing: Characterization of Target Proteins for Immunotherapy. Amgen BioTalents (Spring 2023). Biology Department, UPR-RUM March 2023

Uso de inmunoterapia contra el cáncer. Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM January 2023

Online Workshop: Trends in Biomanufacturing: Characterization of Target Proteins for Immunotherapy. Amgen BioTalents (Fall 2022). Biology Department, UPR-RUM November 2022

Online Workshop: *Trends in Biomanufacturing: Characterization of Target Proteins for Immunotherapy*. Amgen BioTalents (Spring/Summer 2022). Biology Department, UPR-RUM
March/May 2022

Development of a Tailored Mobile Application for Puerto Rican Breast Cancer Patients. Team Venus Presentation (under my mentorship). 2022 Biology Research Symposium, Biology Department, UPR-RUM
May 2022

Apuntes de un inmunólogo en la industria y en la academia... Asociación Estudiantil de Biotecnología Industrial (AEBI). Biology Department, UPR-RUM
March 2022

Inmunología en 2022: De pandemias y vacunas. Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM
February 2022

El sistema inmunológico: Un aliado contra el cáncer. Future Pharmacists Association (FPA) - RUM Chapter
October 2021

Apuntes de inmunología: Desde oncoimmunoterapia hasta pandemias y vacunas. T-MED µβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM
September 2021

Online Workshop: *Immunotherapy: Characterization of Target Proteins*. Amgen BioTalents (Summer 2021). Biology Department, UPR-RUM
May 2021

Careers in Science Roundtables: International Opportunities (Roundtable discussion leader) The American Association of Immunologists 2021 Annual Meeting
May 2021

Vacunas e inmunoterapias. T-MED µβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM
March 2021

Online Workshop: *Immunotherapy: Characterization of Target Proteins*. Amgen BioTalents (Spring 2021). Biology Department, UPR-RUM
March 2021

La base genética del cáncer y su tratamiento a base de inmunoterapias. Grupo de Interés de Oncología (GIO). Escuela de Medicina, UPR-RCM
February 2021

Retos en Inmunología: Pasado, presente y futuro. Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM
February 2021

Inmunología: Desde viruela hasta COVID-19, cáncer y alergias. T-MED µβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM
February 2021

Online Presentation: *Development of a Mobile Software Application to Promote Education, Self-care, and Treatment Follow-up Among Puerto Rican Breast Cancer Patients*. Proposal presentation of Concept Paper by Team Venus (under my mentorship). CTMT - IDEARIO UPR-RCM, UCC and UPR-RUM
August 2021

Vamos a protegernos del COVID-19. βββ National Biological Honor Society. Biology Department, UPR-RUM
October 2020

Aspectos genéticos del cáncer. Medicine Education and Development for Low Income Families Everywhere (MEDLIFE) and βββ National Biological Honor Society. Biology Department, UPR-RUM
October 2020

Por qué me gusta la inmunología. American Medical Student Association (AMSA).
Biology Department, UPR-RUM October 2020

Online Workshop: *Tools in Oncoimmunotherapy: Characterization of Target Proteins.*
Amgen BioTalents (Fall 2020). Biology Department, UPR-RUM September 2020

Online Presentation: *Most Common Causative Pathogens for Central Line-Associated Bloodstream Infections (CLABSI) in Oncology Settings in Puerto Rico.* Team Patogénesis (under my mentorship). Conversatorio Virtual II - CTMT - IDEARIO UPR- RCM, UCC and UPR-RUM
August 2020

Workshop: *Tools in Oncoimmunotherapy: Characterization of Target Proteins.* Amgen BioTalents (Spring 2020). Biology Department, UPR-RUM March 2020

Combatiendo desde adentro: Utilizando el sistema inmunológico para combatir el cáncer. βββ National Biological Honor Society and T-MED μβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM February/March 2020

Hablemos de inmunología. American Medical Student Association (AMSA). Biology Department, UPR-RUM September 2019

Workshop: *Oncoimmunotherapy.* Amgen BioTalents (Fall 2019). Biology Department, UPR-RUM August 2019

Workshop: *Research 101 - A Look Inside Biology Research.* Rotaract and Alpha Helix Biomedical Society (AHBS). Biology Department, UPR-RUM April 2019

Workshop: *Oncoimmunotherapy.* Amgen BioTalents (Spring 2019). Biology Department, UPR-RUM March 2019

Inmunoterapia para el cáncer. American Medical Student Association (AMSA). Biology Department, UPR-RUM February 2019

El Virus de Inmunodeficiencia Humana y el Síndrome de Inmunodeficiencia Adquirida. Sociedad Estudiantil de Microbiología Industrial (SEMI). Biology Department, UPR-RUM November 2018

Prevención de exposición ocupacional a patógenos en sangre y fluidos corporales. Students, Teaching Laboratory Staff, and Faculty. Biology Department, UPR-RUM November 2018

Inmunoterapia: Utilizando el sistema inmunológico para combatir el cáncer. Círculo de Pre-Médicos (CPM) and Students, Teaching Laboratory Staff, and Faculty. Biology Department, UPR-RUM August/October 2018

Batallando contra el cáncer: ¿Dónde estamos y hacia dónde vamos? T-MED μβ: Futuros Profesionales del Laboratorio Clínico and Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM March 2018

Workshop: *Determinación de grupos sanguíneos por inmunoaglutinación.* T-MED μβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM March 2018

Workshop: *Determinación de grupos sanguíneos por inmunoaglutinación*. T-MED μβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM
November 2016

Batallando contra el cáncer. T-MED μβ: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM
November 2016

Workshops: *Cómo preparar una presentación oral* and *Preparación de un Curriculum Vitae y/o Resumé*. Future Scientists Seminar - βββ National Biological Honor Society. Biology Department, UPR-RUM
September 2016

Workshop: *Inmunología, VIH y SIDA*. For high school students from Carib Christian School in Aguadilla, PR. Proyecto Enlace Estudiantil para el Desarrollo del Interés y Conocimiento de las Ciencias en Estudiantes del Sistema Educativo de Puerto Rico a Nivel Intermedio y Superior. Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM
March 2016

Workshop: *Preparación de un Curriculum Vitae*. Asociación de Estudiantes Graduados de Biología (AEGB). Biology Department, UPR-RUM
March 2016

Hablemos de VIH y SIDA. Grupo de Promoción de la Salud (GPS). Medical Services Department, UPR-RUM
March 2016

El Virus de Inmunodeficiencia Humana y el Síndrome de Inmunodeficiencia Adquirida. Semana del Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM
March 2015

Hablemos del cáncer. Semana de las Ciencias - Consejo de Estudiantes de la Facultad de Artes y Ciencias, UPRM and βββ National Biological Honor Society, Biology Department, UPR-RUM
October/November 2014

Workshop: *Preparación de un resumé*. Asociación de Estudiantes de Biología (AEB). Biology Department, UPR-RUM
October 2014

Workshop: *Preparación de un Curriculum Vitae*. Asociación de Estudiantes Graduados de Biología (AEGB). Biology Department, UPR-RUM
May 2014

Cómo llegué a ser un científico... Series of talks to students from grades 7-12 at Escuela Especializada Agroecológica Laura Mercado in San Germán, PR
March 2014

Conversation with Scientists (Panelist). Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS), UPR-RUM
February 2014

4^{to} Conversatorio de Profesionales de la Salud (Panelist). Círculo de Pre-Médicos (CPM). Biology Department, UPR-RUM
November 2013

Seguridad en el laboratorio: Prevención de exposición ocupacional a patógenos en sangre y en fluidos corporales. For incoming graduate students, Biology Department, UPR-RUM
November 2013

¿Ganaremos la batalla contra el cáncer? Círculo de Pre-Médicos (CPM) and Asociación de Estudiantes Graduados de Biología (AEGB). Biology Department, UPR-RUM
October/November 2013

UPR-RUM - Howard Hughes Medical Institute (HHMI) Immunology Workshop for College Professors and Teachers (K-12): *Detection of Immunoglobulins from Human Body Fluids by Western Blot*. HHMI ROLE MODEL - Undergraduate Science Program. Biology Department, UPR-RUM May 2012

Seguridad en el laboratorio: Prevención de exposición ocupacional a patógenos en sangre y en fluidos corporales. For incoming graduate students, Biology Department, UPR-RUM April 2012

Síndrome de Inmunodeficiencia Adquirida (SIDA). Grupo de Estudiantes de Apoyo al Recinto (GEAR). Medical Services Department, UPR-RUM December 2011

UPR-RUM - Howard Hughes Medical Institute (HHMI) Immunology Workshop for College Professors and Teachers (K-12): *Detection of Immunoglobulin G from Human Plasma by Western Blot*. HHMI ROLE MODEL - Undergraduate Science Program. Biology Department, UPR-RUM June 2011

Cáncer: Historia y biología molecular. Sociedad de Estudiantes de Biología Molecular and Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS), UPR-RUM April 2011

Seguridad en el laboratorio: Prevención de exposición ocupacional a patógenos en sangre y en fluidos corporales. For incoming graduate students, Biology Department, UPR-RUM March 2011

Cáncer: De la teoría al campo de batalla. T-MED $\mu\beta$: Futuros Profesionales del Laboratorio Clínico. Biology Department, UPR-RUM March 2011

UPR-RUM - Howard Hughes Medical Institute (HHMI) Immunology Workshop for Undergraduate Students: *Use of Western Blot to Identify Serum Proteins*. HHMI ROLE MODEL - Undergraduate Science Program. Biology Department, UPR-RUM August 2010

Cáncer: Avances recientes y nuevos retos. $\beta\beta\beta$ National Biological Honor Society. Biology Department, UPR-RUM October 2009

UPR-RUM - Howard Hughes Medical Institute (HHMI) Immunology Workshop for Undergraduate Students: *Characterization of Signal Transduction Pathways in Lymphocytes by Western Blot*. HHMI ROLE MODEL - Undergraduate Science Program. Biology Department, UPR-RUM May 2009

Seguridad en el laboratorio: Prevención de exposición ocupacional a patógenos en sangre y en fluidos corporales. For incoming graduate students, Biology Department, UPR-RUM March 2009

Workshop: *Cultivo de células mamíferas*. For staff from Abbot Laboratories, Bioprocess Development Training Complex, UPR-RUM November 2008

El mundo de la microbiología según un inmunólogo. Sociedad Estudiantil de Microbiología Industrial (SEMI). Biology Department, UPR-RUM April 2008

Características de tolerancia inmunológica a insulina y de mediadores de inmunidad innata. Minority Access to Research Careers (MARC)/SLOAN Program. Biology Department, UPR-RUM January 2008

Lab Safety: Bloodborne Pathogens. Puerto Rico-Louis Stokes Alliance for Minority Participation (PR-LSAMP). Biology Department, UPR-RUM October 2007

Seguridad en el laboratorio: Prevención de exposición ocupacional a patógenos en sangre y fluidos corporales. Graduate Students, Teaching Laboratory Staff, and Faculty, Biology Department, UPR-RUM September 2007

Características de tolerancia inmunológica a insulina y de mediadores de inmunidad innata. βββ National Biological Honor Society. Biology Department, UPR-RUM February 2007

B Cell Tolerance to a Physiologic Autoantigen. Ph. D Dissertation Defense, Microbiology and Immunology Department, VUSM May 2006

Impaired Intracellular Calcium Mobilization and NFATc1 Availability in Tolerant Anti-Insulin B Cells. Rheumatology Division Grand Rounds Conference, VUSM April 2006

B Cell Tolerance to Insulin. Biology Department, UPR-RUM March 2006

Impaired Ca²⁺ Mobilization in B Lymphocytes Tolerant to Insulin Alters Distal B Cell Receptor Signaling. Research Progress Report, Microbiology and Immunology Department, VUSM September 2005

Decreased Ca²⁺ Mobilization in Tolerant B Cells Selectively Alters NFAT but not NF-κB Induction. Rheumatology Division Retreat, VUSM/University of Tennessee March 2005

CD19 Function in B Cell Development. Rheumatology Division Grand Rounds Conference, VUSM April 2004

Understanding B Cell Tolerance to a Physiologic Autoantigen. Research in Progress Seminar Series, Microbiology and Immunology Department, VUSM March 2003

B Cell Tolerance to a Physiologic Autoantigen. Immunology Research Proposal Presentation, Microbiology and Immunology Department, VUSM February 2002

Advanced Topics in B Cell Biology (bimonthly presentations), Microbiology and Immunology Department, VUSM September 2001 - June 2006

Current Topics in Immunology (biannual presentations), Microbiology and Immunology Department, VUSM September 2000 - June 2006

Putting Together an MHC-Encoded Class I Molecule In Vivo. VUSM-UPRM Bridges Program, VUSM August 2000

Construction and Characterization of a Chimeric Clone of Parvovirus Lulll Containing a Substitution of Its Genomic Termini for Those of the Prototype Strain of Mice Minute Virus (MMvp). M. S. Dissertation Defense, Biology Department, UPR-RUM March 2000

Posters

Crespo J. and C. A. Acevedo-Suárez. *COVID-19 and Pregnancy: A Literature Review*. 2022 American Heart Association - Hispanic Serving Institutions (HSI) Scholars Program Spring Symposium April 2022

Abreu-Santana, J., B. Soto-Torres, E. A. Reynoso-Jiménez, D. O. López-Ramos, K. J. Bonet-Guadalupe, D. Colón-Dávila, H. U. Sotelo-Caraballo, N. G. Santiago-Santiago, and C. A. Acevedo-Suárez. *Progress in the Development of a Mobile Software Application to Promote Education, Self-care, and Treatment Follow-up Among Puerto Rican Breast Cancer Patients*. 2022 Annual Meeting Association for Clinical and Translational Research April 2022

Soto-Torres, B., E. A. Reynoso-Jiménez, J. Abreu-Santana, and C. A. Acevedo-Suárez. *Development of a Mobile Software Application to Promote Education, Self-care, and Treatment Follow-up Among Puerto Rican Breast Cancer Patients*. 2021 ALLIANCE Scientific Day: Multidisciplinary Research Responses to COVID-19: Challenges and Outcomes. Puerto Rico Clinical and Translational Research Week May 2021

Rosario-Rodríguez, R. A. and C. A. Acevedo-Suárez. *Characterization of Protein Expression Profile During Development of the Puerto Rican Monarch Butterfly *Danaus plexippus megalippe f. portoricensis* A. Clark, 1941 (Lepidoptera: Danainae)*. Sigma Xi XX Poster Day - UPR-RUM April 2015

Carreira Rosado, A. and C. A. Acevedo-Suárez. *Characterization of IP₃R Signaling in Lymphocytes*. BIOMINDS Poster Day - UPR-RUM March 2009

Henry, R. A., C. A. Acevedo-Suárez, B. R. Cruz, J. D. Pask, and J. W. Thomas. *Insulin Exposure Evokes Multiple Routes of Tolerance in Immature Anti-Insulin B Cells*. Keystone Symposium: B Cells in Context February 2009

Henry, R. A., C. A. Acevedo-Suárez, and J. W. Thomas. *Insulin Induces Multiple Forms of Tolerance in Developing B Cells*. Vanderbilt Research and Training Center: Diabetes Day, VUSM November 2008

Henry, R. A., C. A. Acevedo-Suárez, and J. W. Thomas. *Functional Silencing of Immature B Cells by Insulin*. FASEB Experimental Biology 2008 Meeting/The American Association of Immunologists 2008 Annual Meeting April/May 2008

Henry, R. A., C. A. Acevedo-Suárez, and J. W. Thomas. *Tolerance Induction for Immature Anti-Insulin B Cells Involves Impaired Calcium Mobilization*. The American Association of Immunologists 2007 Annual Meeting May 2007

Acevedo-Suárez, C. A. *Characterization of Intracellular Signaling Pathways in Lymphocytes and of Mediators of Innate Immune Responses*. Segunda Jornada de Investigadores en Biociencias - UPR-RUM February 2007

Acevedo-Suárez, C. A., M. B. Reich, D. M. Kilkenny, M. Rojas, E. J. Woodward, R. A. Henry, and J. W. Thomas. *Decreased Calcium Mobilization in Tolerant B Cells Selectively Alters NFAT Activation*. Keystone Symposium: B Cell Development, Function and Disease March 2005

Acevedo-Suárez, C. A., C. Hulbert, E. J. Woodward, R. A. Henry, and J. W. Thomas. *Anergic B Cells Are Permissive of an Organ-Specific Autoimmune Disease*. Keystone

Symposium: Lymphocyte Activation and Signaling and New England Science Symposium
January/February 2004

Acevedo-Suárez, C. A., E. J. Woodward, R. A. Henry, and J. W. Thomas. *Mechanisms of B Lymphocyte Development and Tolerance*. Microbiology and Immunology Department Retreat, VUSM (Selected as Best Poster) November 2004

Acevedo-Suárez, C. A., E. J. Woodward, R. A. Henry, and J. W. Thomas. *Mechanisms of B Lymphocyte Development and Tolerance to a Physiologic Autoantigen*. Microbiology and Immunology Department Recruitment Day, VUSM September 2003

Acevedo-Suárez, C. A., E. J. Woodward, and J. W. Thomas. *B Cell Tolerance to a Physiologic Autoantigen*. Microbiology and Immunology Department Retreat, VUSM November 2002

Acevedo-Suárez, C. A., E. J. Woodward, M. Rojas, F. Xu, C. Hulbert, and J. W. Thomas. *Studies on B Lymphocyte Tolerance to a Physiological Autoantigen*. Microbiology and Immunology Department Recruitment Day, VUSM September 2002

Acevedo-Suárez, C. A., M. Rojas, F. Xu, C. Hulbert, and J. W. Thomas. *B Cell Tolerance to a Physiologic Autoantigen*. Microbiology and Immunology Department Recruitment Day, VUSM September 2001

Peer-reviewed Publications

Rosario-Rodríguez, R. A. y C. A. Acevedo-Suárez. 2020. **Primer reporte de infección causada por el protozoario *Ophryocystis elektroscirrha* McLaughlin y Myers (Neogregarinida: Ophryocystidae) en la mariposa monarca *Danaus plexippus megalippe f. portoricensis* A. Clark (Lepidoptera: Nymphalidae) en Puerto Rico.** *Revista Chilena de Entomología* 46: 521-523.

Henry, R. A., C. A. Acevedo-Suárez, and J. W. Thomas. 2009. **Functional Silencing is Initiated and Maintained in Immature Anti-Insulin B Cells.** *The Journal of Immunology* 182: 3432-3439.

Acevedo-Suárez, C. A., D. M. Kilkenny, M. B. Reich, and J. W. Thomas. 2006. **Impaired Intracellular Calcium Mobilization and NFATc1 Availability in Tolerant Anti-Insulin B Cells.** *The Journal of Immunology* 177: 2234-2241.

Acevedo-Suárez, C. A., C. Hulbert, E. J. Woodward, and J. W. Thomas. 2005. **Uncoupling of Anergy from Developmental Arrest in Anti-Insulin B Cells Supports the Development of Autoimmune Diabetes.** *The Journal of Immunology* 174: 827-833.

Carter, R. S., B. C. Geyer, M. Xie, C. A. Acevedo-Suárez, and D. W. Ballard. 2001. **Persistent Activation of NF- κ B by the Tax Transforming Protein Involves Chronic Phosphorylation of I κ B Kinase Subunits IKK β and IKK γ .** *The Journal of Biological Chemistry* 276: 24445-24448.

BIOSKETCH

Dimaris Acosta-Mercado

Professional Preparation

University of Puerto Rico, Mayagüez	Biology	B.S. (1993)
University of Puerto Rico, Mayagüez	Botany	M.S. (1996)
University of Guelph, Canada	Ciliate Ecology	Ph. D. (2003)

Appointments

University of Puerto Rico, Mayagüez	Professor (2003- Present)
University of Guelph, Canada	Invertebrate Zoo Instructor (1998)
University of Puerto Rico, Mayagüez	Biology Instructor (1996-1998)

Sumitted Grants

2022 “Soil Health Improvement With Upcycled Value-Added Products From Water Hyacinth”.
PI: Hwang, Sangchul, Co PI: Dimaris Acosta-Mercado
USDA: \$749,631.00
Rejected

Previous Awards

2023 “Cryptic ciliate biodiversity along salinity gradients in the solar salterns of the Cabo Rojo Fish and Wildlife Reserve”

PI: Jose Antonio Vela Novoa and Dimaris Acosta-Mercado
Seed Money, SEA GRANT, \$2, 500

2016 “Webs within trophic webs”

PI: Dimaris Acosta-Mercado
Seed Money, Dean of Arts and Sciences, UPRM: \$4, 500

2014 “Coupling spatial and landscape distribution patterns of modern foraminifera with habitat genetics: a model integrating geostatistics, gene flow, and metapopulation theory to identify critical coastal areas for conservation”

PI: Dimaris Acosta- Mercado
Seed Money, Dean of Arts and Sciences , UPRM: \$3,500

2012-2016 “Climatic change and food web change: impacts on biodiversity, ecosystem functioning and public health along a latitudinal gradient”

PI: Regis Cereghino
Co PI: Diane Srivastava
Consultant: Dimaris Acosta-Mercado
ANR (L’Agence National de la Recherche): 390, 000 Euros

2007 “RUI: Bryophytes as biodomes: A simultaneous inventory of bryophytes and their associated microfaunal diversity in two cloud forests of the Dominican Republic”

PI: Dimaris Acosta-Mercado

CoPI: Inés Sastre de Jesús

CoPI: Carlos Santos-Flores

NSF \$359,601

2005 “RUI: A genetic analyzer for studies on biodiversity, phylogenetics, population genetics and molecular biology in the Caribbean”

PI: Juan C. Martínez Crusado

Co-PI: Dimaris Acosta Mercado

Co- PI: Dimuth Siritunga

NSF \$90,635

Recent Scientific Products

Régis Céréghino, Mark Kurtis Trzcinski, A. Andrew M. MacDonald, Nicholas A. C. Marino, **Dimaris Acosta Mercado**, Céline Leroy, Bruno Corbara, Gustavo Q. Romero, Vinicius F. Farjalla, Ignacio M. Barberis, Olivier Dézerald, Edd Hammill, Trisha B. Atwood, Gustavo C. O. Piccoli, Fabiola Ospina Bautista, Jean-François Carrias, Juliana S. Leal, Guillermo Montero, Pablo A. P. Antiqueira, Rodrigo Freire, Emilio Realpe, Sarah L. Amundrud, Paula M. de Omena, Alice B. A. Campos, Diane S. Srivastava. **2022**. Functional redundancy dampens precipitation change impacts on species-rich invertebrate communities across the Neotropics. *Functional Ecology* 36:1559-1572 DOI: 10.1111/1365-2435.14048

Romero, G.Q., Marino, N.A.C., MacDonald, A.A.M. GustavoQ.Romero, NicholasA.C.Marino, A.AndrewM.MacDonald, RégisCéréghino, M.KurtisTrzcinski, **DimarisAcostaMercado**, CélineLeroy, BrunoCorbara, ViniciusF.Farjalla IgnacioM.Barberis, OlivierDézerald, EddHammill,TrishaB.Atwood,GustavoC.O.Piccoli, Fabiola Ospina Bautista, Jean-François Carrias, Juliana S. Leal, Guillermo Montero, Pablo A. P. Antiqueira, Rodrigo Freire, Emilio Realpe, Sarah L. Amundrud, Paula M. de Omena, Alice B. A. Campos, Pavel Kratina, Eoin J. O’Gorman & Diane S. Srivastava. **2020**. Extreme rainfall events alter the trophic structure in bromeliad tanks across the Neotropics. *Nature Communications* **11**- 3215. <https://doi.org/10.1038/s41467-020-17036-4>

Srivastava, Diane; Céréghino, Régis; Trzcinski, Mark; MacDonald, A. Andrew; Marino, Nicholas; **Acosta Mercado, Dimaris**; Leroy, Céline; Corbara, Bruno; Romero, Gustavo; Farjalla, Vinicius; Barberis, Ignacio; Dézerald, Olivier; Hammill, Edd; Atwood, Trisha; Piccoli, Gustavo Cauê; Ospina Bautista, Fabiola; Carrias, Jean-François; Leal, Juliana; Montero, Guillermo; Antiqueira, Pablo; Freire, Rodrigo; Realpe, Emilio; Amundrud, Sarah; de Omena, Paula; Campos, Alice. **2020**. Ecological response to altered rainfall differs across the Neotropics. *2020. Ecology* 101: e 02984 1-15.

Bayron-Arce;ay, M, Rodriguez-Camacho K, **Acosta-Mercado, D.** XXXX Morphological Response of *Bolivina lowmani* to Sediment Composition and Organic Matter: Applying Geometric Morphometrics for Potential Bio-monitoring. Submitted to the Journal of Foraminiferal Research. Manuscript JFR #2492.

Santiago-Vera, J. D., **Acosta-Mercado, D.** Submitted to Protist. Disentangling Community Shifts of Ciliates and Testate Amoebae in Bromeliad Phytotelmata: A Longitudinal Survey Coupled to Environmental Parameters in a Dry.

Acosta-Mercado, D., Cancel- Morales, N., China, J. D., Sastre de Jesús, I., Santos –Flores, C. J. 2012. Could the canopy structure of bryophytes serve as an indicator of microbial biodiversity? A test for testate amoebae and microcrustaceans from a subtropical cloud forest in Dominican Republic. Microbial Ecology 64: 200-213.

Lara, E., **Acosta-Mercado, D.** 2012. A molecular perspective on ciliates as bioindicators. European journal of Soil Biology 49: 107-111.

Adl, S., **D. Acosta-Mercado**, and D. Lynn. 2008. Protozoa. In: M. R. Carter and E. G. Gregorich (editors), Soil Sampling and Methods of Analysis. 2 ed. CRC Press, Taylor & Francis, Boca Raton, FL. 1224 pp ISBN 978-0-8493-3586-0.

Acosta-Martínez, V., **Acosta-Mercado, D.**, Sotomayor, D., and L. Cruz. 2007. Microbial communities and enzyme activities under different management in semiarid soils. Applied Soil Ecology 38: 249-260.

Web- based Products

Bryodome <http://bryodome.uprm.edu/>- In our web the community will find data, community links and protocols to study protists, micro-crustaceans and bryophytes in Cloud Forests.

What will happen if the rainforest dry up? In our web the community will find data, community links and literature about the effects of climate change and current experiments associated to answer the effects on rainforest biodiversity <http://rainwebs.univ-tlse3.fr/>

Presentations

Ramirez- Martinez, J., **Acosta-Mercado, D.** La respuestas de amebas testadas a simulaciones de cambio climático: Un estudio latitudinal de microcosmos en bromelias. IX Congreso de la Biodiversidad Caribeña, January 2017.

Bayron- Arcelay, M., **Acosta-Mercado, D.** 2016. Spatial Distribution of Benthic Foraminifera Changes through time: Contrasting the Diversity between Live and Dead Assemblages. IX Congreso de la Biodiversidad Caribeña, January 2017.

Bayron-Arcelay M., Rodriguez-Camacho K. & **Acosta-Mercado D.** (2016) Patch Size Does Matter:

Diversity Patterns of Benthic Foraminifera Vary Across Time and Space in La Parguera, Puerto Rico. Society of Microbiologists of Puerto Rico (SMPR) Chapter of the Catholic University at Ponce, PR.

Bayron-Arcelay M., Rodriguez-Camacho K. & **Acosta-Mercado D.** (2016) Size and Shape Does Matter: A Morphometric Study of the Benthic Foraminiferal *Bolivina* sp. of La Parguera, Puerto Rico. Undergraduate Research Symposium of the Biology Department at University of Puerto Rico at Mayaguez (URS-UPRM), PR.

DIANE S. SRIVASTAVA¹ , **DIMARIS ACOSTA MERCADO**² , PABLO ANTIQUEIRA³ , IGNACIO M. BARBERIS⁴ , ALICE CAMPOS⁵ , JEAN-FRANÇOIS CARRIAS⁶ , JULIANA DA SILVA LEAL⁵ , OLIVIER DÉZERALD⁷ , VINICIUS F. FARJALLA⁵ , RODRIGO FREIRE⁴ , NICHOLAS DOS ANJOS CRISTIANO MARINO⁵ , A. ANDREW M. MACDONALD¹ , GUILLERMO MONTERO⁷ , PAULA MUNHOZ DE OMENA³ , M. FABIOLA OSPINA-BAUTISTA⁸ , GUSTAVO CAUÊ DE OLIVEIRA PÍCCOLI⁹ , EMILIO REALPE⁸ , GUSTAVO Q. ROMERO³ , M. KURTIS TRZCINSKI¹⁰ , EDD HAMMILL¹. 2016 Geographic constancy and contingency in the sensitivity of bromeliad food webs to precipitation change. June, 2016, France. ATCB Meeting.

Acosta-Mercado, D. 2015. Functional response and resilience of testate amoebae to climate change. BWG II, Brazil, 2015

Acosta-Mercado, D. 2015. Small is beautiful. BWG II, Brazil, 2015

Bayron-Arcelay M. & **Acosta-Mercado D.** (2014) Intermediate disturbance hypothesis: Do benthic foraminifera follow the trend? Undergraduate Research Symposium of the Biology Department at University of Puerto Rico at Mayaguez (URS-UPRM), PR.

Acosta-Mercado, D., Camacho- Garzon, YA, 2013. Diversity and productivity: do ciliates follow the trend? XIV ICOP (International Congress of Protistology), Vancouver, Canada, July 28- Aug 4, 2013.

Santiago- Vera J. D. , **Acosta-Mercado, D.** 2013. Poster: Ciliates and community shifts in bromeliad phytotelmata: insights from a longitudinal study. XIV ICOP (International Congress of protistology), Vancouver July 28- Aug 4, 2013.

Santiago- Vera J. D. , **Acosta-Mercado, D.** 2012. Poster: Ciliates and predators: a microcosm study to asses top-down effects on community structure. International Symposium of Microbial Ecology 14, Copenhagen, Denmark. September, 2012.

Santiago-Vera, J.D, **Acosta-Mercado, D.** 2013. Poster: Top down effects and ciliates: insights from a simple food web of ciliates and *Macrostomum tuba*. The Sixth Symposium, Frontiers in Environmental Microbiology: the transforming legacy, Gurabo, Puerto Rico 2013.

Acosta-Mercado, D. Cancel- Morales, N. 2010. Can different bryophyte canopy structures stimulate different communities and diversity of testate amoebae? 5 th International Symposium on Testate Amoebae, Montbelliard, France, September 14-17, 2010.

Acosta-Mercado, D, Cancel- Morales, N., Sastre de Jesus, I., Estremera I. 2009. Poster: Can different bryophyte canopy structures stimulate different communities and diversity of testate amoebae? Data from the cloud forest of Sierra de Baboruco, Dominican Republic”. Second Symposium Frontiers in Environmental Microbiology: A Caribbean Perspective, Universidad del Turabo, Puerto Rico.

Acosta-Mercado, D, Cancel- Morales, N., Sastre de Jesus, I. 2009. Different bryophyte canopy structures stimulate different communities and diversity of testate amoebae. The Joint Annual Meeting of Botany and Mycology 2009, Snowbird, Utah. July 25- 29, 2009.

Camacho- Garzon, YA, **Acosta-Mercado, D**. 2007. Diversidad microbiana asociada a briofitos de Sierra de Baboruco, Republica Dominicana”, Comunidad Cachote, Republica Dominicana, June 2007.

Acosta-Mercado, D. 2007. “Microbial diversity within natural micro-ecosystems”, Western Connecticut State University at UPRM, August, 2007.

Awards

- **2016 URS 6**. Best talk in Ecology. Kyara Rodríguez & **D. Acosta-Mercado**
- **2016 URS 6** Best talk in Microbial Ecology. Jorge Ramírez & **D. Acosta-Mercado**

Collaborations in Education

NSF- CRIRE Program December 2022- Costa Rica- Native American Research Mentory- 16 tribes.
Heritage University, WA.

AFAMAC 2015- present- Workshop design for Biology Teachers of elementary and secondary schools in Puerto Rico.

August, 2014- Speaker for the “PROMISE Summer Success Institute (SSI)”, University of Maryland, Baltimore County.

A talk: Keeping it Real Empowerment Breakout Sessions

Roundtable: Leadership and Mentoring for the Professoriate

March, 2014 – II Workshop for Women in STEM in Puerto Rico, Metropolitan University

March, 2012- I Workshop for Women in STEM in Puerto Rico, Metropolitan University

Service

NSF Reviewer: Distant and on site Panel Reviewer for Dimensions of Biodiversity

Journal Manuscript Reviewer for: Microbial Ecology, Journal of Eukaryotic Microbiology and Caribbean Journal of Science

Science Fair Mentor for High School Students (3)

Continued Education

June 7- July 10th 2023- online course ZEN and the Art of Saving the Planet. We were a total of 756 participants from 154 countries. Most of us were involved in activities associated to Climate Crisis. The course was designed to assist us in being more efficient as to how we bring these topics in our job- related activities.

August 14 th 2023. Two webinars: Moving with Storms: Climate and Emergency- offered by Dr. Vanessa Andriotti de Olivieiras. University of Victoria and University of Biritish Columbia, Canada. These webinars were focused on new ways to design education programs at the university level that will be relevant to the climate crisis. Also they discussed they key component which was to hospice modernity and its consequences in the way we relate to each other and to ecosystems.

Jaime A. Acosta Martínez
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Hormigueros, P.R. 00660
Cel (787) 640-1124
E-mail . jaime.acosta1@upr.edu

EDUCATION

- Ph.D.** Entomology, Virginia Polytechnic Institute and State University
Dec 1995 Blacksburg, Virginia
Dissertation Title: “Ecological studies and pesticides response of *Evergestis rimosalis* (Guenée) (Pyralidae) and its parasitoid *Cotesia orobenae* Forbes (Braconidae)”, Advisor: L. T. Kok
- M.S.** Biology, University of Puerto Rico, Mayagüez Campus, Puerto Rico
May 1992 Thesis Title: “Life cycle and food preferences of *Liposcelis divinatorius* Müller”, Advisor: F. Padovani
- B.S.** Biology, University of Puerto Rico, Mayagüez Campus, Puerto Rico
May 1988

WORK EXPERIENCE

- Enlace de Ciencias**, Proyecto AlACiMa, Arts and Science Faculty, University of Puerto Rico, Mayagüez Campus. September 2006 – may 2008
- Associate Dean for Academic and Student Affairs**, Arts and Science Faculty, University of Puerto Rico, Mayagüez Campus. January - August 2001
- Associate Director**, Department of Biology, University of Puerto Rico, Mayagüez Campus
August 2000- January 2001
- Associate Professor**, Department of Biology, University of Puerto Rico, Mayagüez Campus.
August 2003-present
Teaching General Ecology, Zoology (Biol 3021-3022), Cibi 3031-3032, Seminar (Biol. 4925), Medical and Veterinary Entomology (Biol. 5585).
- August 2001-2003
Teaching General Ecology, Animal Organismal Biology (Biol 3425). Special Problem in Ecology. Instrumentación y Técnicas en Investigación Biológicas (Biol 6993)
- January- May 2001

Teaching General Ecology, General Entomology and Entomology Laboratories

Special Problem in Ecology

January - December 2000

Teaching General Biology I & II (Biol. 3051 & 3052), Seminar (Biol. 4925) and Animal Organismal Biology (Biol. 3425).

August - December 1999

General Biology I (Biol. 3051), Seminar (Biol. 4925), and Introduction to the Biological Sciences I (Cibi 3031).

January - May 1999

Seminar (Biol. 4925), Introduction to the Biological Sciences I (Cibi 3031) and Introduction to the Biological Sciences Laboratory II (Cibi 3032).

August - December 1998

Principles of Ecology (Biol. 3125), General Biology I (Biol. 3051), and Introduction to the Biological Sciences II. (Cibi 3032).

January - May 1998

Principles of Ecology (Biol. 3125), and Introduction to the Biological Sciences II (Cibi 3032).

August - December 1997

Insects Taxonomy (Zool. 6058, Graduate Level Course; Lecture and Laboratory), Introduction to the Biological Sciences I (Cibi 3031), and Seminar (Biol. 4925).

January-May 1997

Principles of Ecology (Biol 3125), and Introduction to Entomology (Biol 4446; Lecture and Laboratory).

August-December 1996

Animal Behavior (Biol 5815, Advance Level Course; Lecture and Laboratory), Animal Organismal Biology (Biol 3425), and Principles of Ecology (Biol 3125).

January-May 1996

General Biology I (Biol 3051), and Introduction to the Biological Sciences Laboratory II. (Cibi 3032).

Instructor, Department of Biology and Environmental Science, Interamerican University of Puerto Rico, San German Campus.

January-June 1997

General Biology 1 (Biol. 2111), Human Anatomy and Physiology (Biol. 2151, Lecture and Laboratory), and Zoology (Biol. 3425, Lecture and Laboratory).

Teaching Assistant, Entomology Department, Virginia Polytechnic Institute and State University Blacksburg, Virginia.

January-May 1995

Undergraduated Integrated Pest Management (Ent 4254). Duties involved teaching two laboratory sections, leading discussions, wrote and grading homework and exams and holding office hours.

Teaching Assistant, Chemistry Department, University of Puerto Rico, Mayagüez Campus.

January 1990-May 1992

General Chemistry 1 and 2 (Quim 3001 and 3002). Duties involved teaching laboratory sections, leading discussions, wrote and grading homework and exams and holding office hours.

Teaching Assistant, Department of Biology, University of Puerto Rico, Mayagüez Campus.

January 1989-May 1992

Introduction to the Biological Sciences I and II. (Cibi 3001 and 3002), and Introduction to Entomology (Biol 4446). Duties involved teaching laboratory sections, leading discussions, wrote and grading homework and exams and holding office hours.

RESEARCH EXPERIENCE AND PUBLICATIONS

Oral Presentation, Evaluación de los Parametros Fisico-Quimicos de la Quebrada de Oro localizada en Mayagüez, Puerto Rico. Joan Torres y Jaime Acosta. Simposio de Estudiantes Participantes en el Internado de Verano del CETP. Edificio Facundo Bueso, Universidad de Puerto Rico en Rio Piedras. September 20, 2002.

Oral Presentation, Estudio Comparativo de los Macroinvertebrados en las Áreas Canalizadas y no Canalizadas en la Quebrada de Oro en Mayagüez. Juan Luis Ocasio y Jaime Acosta. Simposio de Estudiantes Participantes en el Internado de Verano de CETP. Edificio Facundo Bueso, Universidad de Puerto Rico en Rio Piedras. September 20, 2002.

Poster Long-Term Ecological Research, Second Annual Public Symposium. Change in the distribution of *Hemidactylus geckoes* in Puerto Rico: *Hemidactylus mabouia* and *H. haitianus* Carlos Martínez, Alberto Gonzalez y Jaime Acosta University of Puerto Rico, Rio Piedras Campus. January 19, 2002.

Poster V Sigma- Xi Student Poster Night, *Geckobia hemidactyli* Wrence 1935, from *Hemidactylus mabouia* and *H. brooki haitianus* in Puerto Rico. Carlos Martínez, Alberto Gonzalez y Jaime Acosta. University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico. April 27, 2001.

Oral Presentation, Geographical Distribution of the Imported Fire Ant (Hymenoptera: Formicidae) 36th ACS Junior Technical Meeting. Nydia Irizarry, Maria Vargas, Jaime Acosta. March 13, 1999. Pontifical Catholic University, Ponce, Puerto Rico. March 10, 2001

Oral Presentation, Nest Size and Abundance of the Red Imported Fire Ant (Hymenoptera: Formicidae) 36th ACS Junior Technical Meeting. Tania Ortiz, Maria Vargas, Jaime Acosta. March 13, 1999. Pontifical Catholic University, Ponce, Puerto Rico. March 10, 2001

Oral Presentation Infection of the Fire Ants *Solenopsis invicta* Buren and *Solenopsis geminata* by the Ingestion of the Entomopathogenic Fungus *Beauveria bassiana*. 36th ACS Junior Technical Meeting. Damaris Velazquez, Maria Vargas, Jaime Acosta, Vivian Navas. March 13, 1999. Pontifical Catholic University, Ponce, Puerto Rico. March 10, 2001.

Poster, V Sigma- Xi Student Poster Night, El uso de *Beauveria bassiana* como biocontrolador de la hormiga brava *Solenopsis invicta*, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico. April 28, 2000

Oral Presentation,. Control Biológico de la hormiga brava (*Solenopsis* sp.) en Puerto Rico. XX Simposio de Flora y Fauna, Universidad del Sagrado Corazón. April 11, 2000

Poster, Uso de *Beauveria bassiana* como biocontrolador de la hormiga brava *Solenopsis invicta*.. Segundo Simposio de Micología. University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico. April 8, 2000.

Grants y Publicaciones

Benigno Ojeda, Jaime Acosta, Santo Navarro. Macroinvertebrados Bénticos en el Río Guanajibo (San Germán, Puerto Rico) (en preparación).

Martínez, N. J., N. M. Franz & J. A. Acosta. Structure of the scarab beetle fauna (Coleoptera: Scarabaeoidea) in forest remnants of western Puerto Rico. Entomotropica. (in review)

Martínez, N. J., J. A. Acosta & N. M. Franz. 2009. Structure of the beetle fauna (Insecta:

Coleoptera) in forest remnants of western Puerto Rico. *Journal of Agriculture of the University of Puerto Rico* 93: 83-100.

Carlos Cesar Martinez, Alberto González Negrón, Michel Bertrand, and Jaime Acosta. 2003. *Hemidactylus mabouia* (Sauria: Gekkonidae), Host of *Geckobia hemidactyli* (Actiniedida: Pterygosomatidae), throughout the Caribbean and South America *Caribbean journal of Science*, Vol 39, No.3 321-326

L.T. Kok and J. A. Acosta-Martinez 2001. Differential susceptibility of *Cotesia orobena*, a parasitoid of the cross-striped cabbageworm, to commonly used insecticides in Cruciferae. *BioControl* 46: 419-426.

Grant sometido a la *Ford motor Company*, Estudio y Evaluación del Impacto de la Hormiga Brava importada, *Solenopsis invicta*, en la Mortalidad de los Neonatos de las Tortugas Marinas en la Zona Oeste. 5,000.00 Jaime Acosta. Septiembre 27, 2002.

Fondos Reto Promise- Study of Physical and Chemical Factors that affect the insect diversity in the Mangrove at Urb. San Jose in Mayaguez. Arlette Martell y Jaime Acosta Agosto 2002. 500.00 para materiales.

Fondos CETP, Para los proyectos; Evaluación de los Parametros Fisico-Quimicos de la Quebrada de Oro localizada en Mayagüez, Puerto Rico.y el Estudio Comparativo de los Macroinvertebrados en las Áreas Canalizadas y no Canalizadas en la Quebrada de Oro en Mayagüez Programa de Investigación, 1,000.00. Estudiantes Joan Torres y Juan Luis Ocasio Junio 2002

Fondos AMP, Programa de Investigación de Puerto Rico AMP. Estudiante Ramon Martinez se nos asigno 400.00 para problema especial. Agosto-diciembre 2001.

Seed Money

“Distribución geográfica, ciclo de vida y control biológico de *Solenopsis* sp. En Puerto Rico.” (With Dra. María Vargas). University of Puerto Rico, Mayagüez Campus. April 27, 2000

Seed Money

“Estudio del hongo *Beauveria bassiana* como agente biocontrolador de la hormiga *Solenopsis invicta*.” (With Dra. María Vargas). University of Puerto Rico, Mayagüez Campus. Established and maintained laboratory colonies of fire ants. Designed and conducted experiments of insect behavior, reproduction capacity and pesticide response of fire ants. June 1999.

January 1993- June 1995

Pre-Doctoral Fellow/ Ph. D. Research, Department of Entomology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. Establish and maintained laboratory colonies of insects. Designed and conducted experiments of insect behavior, reproduction capacity and pesticide response

January 1989- May 1992

Research Assistant, Biology Department, University of Puerto Rico, Mayagüez Campus. Worked in the Identification and management of insects pest infesting warehouse in pharmaceutical facilities and food processing plants

PRESENTATIONS

Oral presentation and Workshop, Human Respiration and Celular Respiration. Sala Eugene Francis. RUM. May 4, 2002.

Oral presentation and Workshop, Human Respiration, InterAmerican University, San Germán Campus-student Center. CEtP. August 1, 2001.

Oral presentation and Workshop, Fotosíntesis and Celular Respiration, InterAmerican University, San Germán Campus-student Center. CEtP. August 1, 2001

Presentation, Cómo Tratar a las Personas con Tacto y Destreza, Seminario Departamental, Departamento de Biología. September 6, 2001

Oral presentation and Workshop, Collage Ecológico, Cielo Mar, Aguadilla. CEtP. August 1, 2001

Oral presentation and Workshop, Mas Espeso, Menos espeso ¿Cuál es el concepto?, Hotel Cielo Mar, Aguadilla. CEtP. August 1, 2001

Oral presentation, Programa Biotecnología Industrial. Piñeiro 202, June 20, 2002

Oral presentation and Workshop, Verano para maestros –Bristol-Myers: Estadísticas, Excel, Biología general, como presentar en feria Científica. Departamento de Biología, RUM. C-301 June 9-11, 2001

Workshop, Verano para maestros- Bristol-Myers; Taller de Estadísticas, Excel y temas de Biología General. C-301, June 8 and 9, 2000

Oral Presentation, La Estadística en la Biología, Uso y Aplicaciones. Pontifical Catholic University, Recinto de Mayagüez. November 27, 2000.

Oral Presentation, Modulo de Fermentación para el maestro y el estudiante. Acosta J. A. & Vendrell L. Taller de estudiantes en acción. Centro de Recursos para Ciencias e Ingeniería de la Universidad de Puerto Rico, Recinto de Rio Piedras. October 27, 2000.

Organizador y Presentador, Vida Silvestre, Insectos del Bosque de Boquerón. Bosque de Boquerón, Pontifical Catholic University. October 14, 2000.

Oral Presentation, Destructives but beautiful insects. Roanoke Science Museum, Roanoke, V.A. June 1995.

OTHER PROFESSIONAL ACTIVITIES

Thesis Commitees and Related Activities

Committee Chairman. M.S. degree. Damayanti Borrero. Department of Biology, University of Puerto Rico, Mayaguez Campus. Completed, March 2001.

Committee Chairman. M.S. degree. Nydia Irizarry. Department of Biology, University of Puerto Rico, Mayaguez Campus. In progress.

Committee Chairman. M.S. degree. Alberto González. Department of Biology, University of Puerto Rico, Mayaguez Campus. In progress.

Committee Chairman. M.S. degree. Angelica Guzman. Department of Biology, University of Puerto Rico, Mayaguez Campus. In progress.

Committee Member. M.S. degree. Olgaly Ramos Rodriguez. Department of Biology, University of Puerto Rico, Mayaguez Campus. Finished, July 2001.

Committee Member. M.S. degree. Emanuel Rodriguez Camacho. Department of Biology, University of Puerto Rico, Mayaguez Campus.

Committee Member. M.S. degree. Damaris Velázquez Cancel. Department of Biology, University of Puerto Rico, Mayaguez Campus.

Committee Member substitute. Ph. D. degree. Final Oral Examination of William Bowden Kirby. Marine Science, July 11, 2001.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Lourdes Saez Santiago. “Contribución de Enemigos Naturales al Control de la Chinche Harinosa de la Papaya (*Paracoccus marginatus*) y de Parasitoides Naturales e Importados al Control de la Chinche Harinosa Rosada del Hibisco (*Maconellicoccus hirsutus*)”, 2000.

Committee Member substitute. M.S. degree. Final Oral Examination of Javier Blanco Jimenez, “Taxonomic Revision and Cladistic Analysis of *Homoschema* Blake (Coleoptera: Chrysomelidae: Alticinae)”, June 7, 2000.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Amparo Salazar Albarracin, “Efecto de *Mucuna Deeringiana* (Bort) Merr. Sobre el picudo del corno, *Cosmopolites sordidus* (Coleoptera: Curculionidae) Germar en platano”. June 23, 1999.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Eduardo Correa Galindez. “Enemigos naturales y distribución del picudo del pimiento, *Anthonomus eugenii* Cano (Coleoptera: Curculionidae) en Puerto Rico”, May 7, 1999.

Committee Member. Examen Oral para el Grado de Maestro de la estudiante Maria del Carmen Morales Perez, “Biotest with *Penicillium canescens* for determining integrity of flexible plastic pouches”, 18 de junio de 1998.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Victor Torres Collazo, “Efecto de los insectos más comunes en el cultivo del pimiento (*Capsicum annum*) en la transmisión de bacterias fitopatógenas y/o entomopatógenas”, 15 de mayo de 1998.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Magda E. Bonet Talavera, “Entomopatógenos de *Plutella xylostella* (Lepidoptera: Iponomeutidae) en Puerto Rico”, 29 de abril de 1997.

Representative of Graduate Studies. M.S. degree. Final Oral Examination of Maria O. Gonzalez Chavez, “Enemigos Naturales de Estados inmaduros del minador de hoja del cafeto *Leucoptera coffeella* (Guerin-Meneville)”. 6 de diciembre de 1996.

RESEARCH INTEREST

Ecological studies of the imported fire ants "*Solenopsis invicta*"
Taxonomical studies of insects of Puerto Rico
Ecological studies of Aquatic Insects
Ecological studies of Hymenopteran parasitoids and its host
Pesticides response of Bio-control agents

TEACHING INTERESTS

Undergraduated biology and entomology courses including zoology, ecology, behavior and parasitology. Graduated entomology, behavior and ecology courses

AWARDS / AFFILIATIONS

Nominado para Who is whom among the professors para 2001.
Reconocimiento, Dia de la Biotecnologia Industrial, Ingenieria Civil. May 3, 2001
Patricia Robert Harris Fellowship, 1992-1995
Entomological Society of America, 1994-present
Alwood Entomological Society, 1992-1995
Southwestern Entomological Society, 1994-1996
Sociedad Entomológica de Puerto Rico, 1999-present

ACADEMIC AND CIVIC ACTIVITIES

Reunion Coaches equipo olimpico, InterAmerican University. CEtP .September 2002.

Charla sobre insectos durante la Actividad *Bios ' 02*. Celis 125. May 9, 2002

Coach, para el equipo del Recinto Universitario de Mayagüez en la Olimpiadas CEtP 2001.
InterAmerican University, November 9 & 10, 2001. (winning team for 2001)

Orientación a estudiantes de Feria Científica Escuela Intermedia Municipio de Hormigueros. October 31, 2001

Orientación Académica y Vocacional a Estudiantes de Escuela Superior del Municipio de Juyuya, Salón 208. February 09, 2001

Foro, Preparación Académica de los estudiantes al momento de su ingreso al sistema Universitario de PR y su impacto en el Departamento de Matemáticas. Sala de Reuniones Centro de Estudiantes, RUM. April 20, 2001

Participante Simposio Ecología Tropical: Bosques de Puerto Rico. Sala de Reuniones en el Centro de Estudiantes RUM. April 5, 2001

Organizador, Summer Programs in Duke University. November, 2000

Organizador, Graduated Programs in RCM, P.R. October 24, 2000

Coach, para el equipo del Recinto Universitario de Mayagüez en la Olimpiadas CEtP 2000. Sala Figueroa Chapel, Recinto Universitario de Mayagüez. October 2000.(winning team for 2000)

Ayudante en Clínica de Hemoglobina y Glucosa durante la Semana de la Microbiología, actividad auspiciada por la SEMI. March 29, 2000.

Jurado Microtrivias SEMI, Biology Department, University of Puerto Rico Mayagüez Campus, March 28, 2000.

Miembro de la delegación del departamento de biología que recibió el donativo de Bristol Myers Squibb, February 14, 2000

Counselor of Sociedad Estudiantil de Microbiología Industrial, Biology Department, University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico, August 1998 - 2000.

Participante Decimosexto Simposio de Ecología Isleña, “La Ecología de los Arrecifes” Universidad Interamericana de Puerto Rico, Recinto Metropolitano, October 29, 1999.

Participante Decimosexto Simposio de Microbiología Industrial “ From Phenetics to Phylogeny of Microbes”, March 25, 1999.

Coorganizador Semana de la Microbiología March 21-25, 1999.

Reforestación del Bosque Susúa en Sabana Grande, October 24, 1998.

Actividad de reforestación del Bosque del Pueblo en Adjuntas, 1998

Moderador de los Junior Technical Meeting. March 11, 2000. University of Puerto

Rico, Rio Piedras, Puerto Rico

Moderador de los Junior Technical Meeting. March 13, 1999. University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico

Miembro del Comité de Currículo Departamental, Present.

Presidente del Comité Relaciones Sociales Departamentales, August- December 2000.

Miembro del Comité de Medalla Departamental, February- May 1999.

Representante del Comité de Currículo Facultad August 2001, present

Presidente del Comité de Currículo Departamental, August 2001, present

Presidente del Comité de Currículo Departamental, February - May, 2000.

Miembro del Comité de Plan Estratégico Departamental, november 1998

Miembro del Comité evaluador de los libros de texto para el curso de CIBI, 2000

Miembro del Comité evaluador de los libros de texto para el curso de CIBI, 1998

Miembro del Comité evaluador de los libros de texto para el curso de Biología General, 1996.

COMMUNITY SERVICE

Identificación de araña viuda negra (*Latrodectus mactans*) para geólogos de Recursos Naturales.

Representante de la Asociación de Padres & Maestros Academia Adventista del este Nivel Elemental, August 1999-present.

Certificado de Agradecimiento, otorgado durante las premiaciones de la Feria Científica Regional, Pontificia Universidad Católica de Mayagüez. March 18, 2000

Jurado de Feria Científica Regional, Pontificia Universidad Católica de Mayagüez, March 8 & 9, 2000

Delegado de la Academia Adventista del Oeste, Primer Congreso de Padres y Maestros de Las Academias Adventistas del Oeste. Universidad Adventista de las Antillas, Mayagüez, Puerto Rico. May 5 & 6, 2000.

Insects. Acosta, Jaime A. Elementary School, Winnie the pooh, Mayagüez, Puerto Rico. November 1997.

The Importance of Insects. Elementary school, Winnie the pooh, Mayagüez, Puerto Rico. March 1997.

The Importance of Insects. Colegio Episcopal San Andres, Mayagüez Puerto Rico. June 1996.

The importance of insects. Elementary community school of Guaynabo, Puerto Rico. May 1996.

PROFESSIONAL ENHANCEMENT

Presente y Futuro de la Educación en Puerto Rico. Hotel Cielo Mar Aguadilla, Puerto Rico, Decanato Asuntos Academicos RUM. August 30, 2002.

Misconceptions in the classrooms: helping students identify their beliefs and then truly changing them. Ponce Hilton, PR-LSAMP. February 22, 2002.

Cuarta Conferencia Anual; Hacia la excelencia en la preparacion de maestros de ciencias y matematicas. Ponce Hilton, CEtP. 25 de enero de 2002.

First Biological Congres: Evolucion de la Biologia en el siglo XXI. Hotel Ritz Carlton, Isla Verde, CEtP. October 26, 2001

Workshop, Ponce Hilton, PR-LSAMP September 28, 2001.

Workshop, El uso de la calculadora para graficar, el CBL y los sensores en los laboratorios de Biología, Química y Física. Sala Eugene Francis, May 14, 2001

Workshop: Orientación de la Oficina de Ética Gubernamental. Anfiteatro Ingeniería Industria 229. April 18, 2001

Workshop, How to Handle People with Tact and Skill. El San Juan Hotel and Casino. March 15, 2001.

Workshop, Aspectos Legales y El Director. Anfiteatro de Enfermeria, RUM,

February 23, 2001

Workshop, El uso de la calculadora para graficar, el CBL y los sensores en los laboratorios de Biología, Química y Física. Sala Centro de Estudiantes, January 27, 2001

Third Annual Conference, Hacia la Excelencia en la Preparación de Maestros en Ciencias y Matematicas. Ponce Hilton, January 26, 2001

Workshop, Gerencia Académica, Sala Eugene Francis, Física, December 1-2, 2000.

Workshop, El uso del Internet en el salón de clases, Parte I. Quim 323, 8:00-4:30pm October 21, 2000

Workshop, Encuentro de Grandes Educadores. Palmas del Mar. September 29-30, 2000

Workshop, Uso del Correo Electrónico y Comunidades Virtuales. Cetp, sala Eugene Francis, 6:00-9:00. September 6, 2000.

Workshop, La calculadora gráfica. Hotel el Faro Aguadilla. August 1- 4, 2000.

Participación en “Estrategias exitosas para mejorar la enseñanza en ciencias, matemáticas, ingeniería y tecnología” Universidad Sagrado Corazón. March 24, 2000

Certificado y Broche distintivo del CEP, Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. February 17, 2000.

Workshop, Búsqueda de fondos externos, Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. September, 1999.

Workshop, Preparación del Prontuario,. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. November 19, 1998

Orientación de Profesores de Nueva Contratación. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. August 10 -11, 1998.

Preparación de Propuestas. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. May 5, 1998.

Publicación y uso de Artículos de Investigación. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. March 24, 1998.

El Avalúo (Assesment) como proceso indispensable para la efectividad en la enseñanza Parte I. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. February 13, 1997.

Estilos de Aprendizaje y Enseñanza Parte I. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. February 13, 1997.

Aprendizaje Cooperativo: Estrategia que promueve el Aprendizaje Activo Parte I. Centro de Enriquecimiento Profesional, Decanato de Asuntos Académicos, Universidad de Puerto Rico. September 5, 1996.

PROFESSIONAL SKILLS

- Desing and evaluation of the experiments
- Use of statistical programs
- Use of Pesticides and Equipment

MATIAS J. CAFARO
Ph. D. (Botany)
The University of Kansas
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Mailing Address: University of Puerto Rico Department of Biology Call Box 9000 Mayaguez, PR 00681	Office Phone: (787) 832-4040 ext. 3608 Fax: (787) 834-3673 Home: (787) 851-5032 Cell: (787) 245-1214 E-mail: matias.cafaro@upr.edu matcaf@gmail.com
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EDUCATION

Undergraduate

Universidad de Buenos Aires (UBA). Facultad de Ciencias Exáctas y Naturales.

Degree: Licenciado en Ciencias Biológicas. Mycology 1991-1997.

Thesis: *Caracterización isoenzimática de endofitos fúngicos de gramíneas autóctonas de la Argentina.*

Graduate

University of Kansas, Lawrence, Kansas.

Department of Ecology and Evolutionary Biology. Program in Plant Biology.

Degree: PhD in Botany with Honors. 1998-2003.

Dissertation: *Systematics of the Trichomycetes as an ecological group with emphasis on the phylogeny of Eccrinales and Asellariales based on rDNA sequences.*

RESEARCH INTERESTS: Symbiosis between fungi and arthropods, systematics and coevolution, marine and anaerobic fungi, microbial ecology and communities, biotechnological potential of symbionts.

ACADEMIC INTERESTS: Science outreach, Diversity and minorities affairs in science, Research administration, International programs and education.

RESEARCH GRANTS

2021 PR Water Institute – USGS (2021PR-104B) Biocomposites for wastewater treatment for reuse. PI: O. Marcelo Suarez, co-PI: Matias Cafaro, UPRM (\$20,100). Duration: 1 year.

2020 NASA-EPSCoR, Center of sustainable technologies for water reclamation and reuse (CSTWR2). PI: Marco De Jesus, co-PI: Matias Cafaro UPRM (\$1,112,750). Duration: 3 years.

2017 NOAA, SeaGrant R23-1-17, Title: Bioremediation of oil pollutants by fungi associated with coastal mangroves in Puerto Rico. PI: Matias Cafaro, co-PI: Kristin Peterson, UPRM (\$38,950). Duration: 2 years.

2016 Royal Botanical Gardens Kew, Title: Garfield Weston global tree seed bank project. PI: Matias Cafaro, co-PI: Jeanine Velez, UPRM (\$32,250). Duration: 3 years.

2013 US Department of Agriculture. E. Kika de La Garza Fellowship (\$7,104). Visiting scientist Systematic Mycology & Microbiology Lab (ARS). Dr. Stephen A. Rehner.

2012 National Endowment for the Humanities, Award AC-50156-12, Title: The convergence of science, technology and the humanities: expanding the humanities curriculum at UPRM. PI: Dana Collins, Senior Personnell: Matias Cafaro, UPRM (\$99,997). Duration: 3 years.

2007 National Science Foundation, MO: *Exploring the symbiotic association between tropical social insects and actinomycetes*. Award # MCB-0702025. PI: Cameron Currie, UW-Madison, co-PI: Terry Balser, UW-Madison, co-PI: Matias Cafaro, UPRM (Subaward \$252,316). Duration: 5 years.

2006 National Science Foundation, RIG/CAA, RUI: *Symbiotic gut fungi (Trichomycetes: Zygomycota) of arthropods in the Caribbean: exploring their biodiversity in the Neotropics*. Award # 0615510. PI: Matias Cafaro, UPRM (\$174,915). Duration: 2 years.

PROFESSIONAL EXPERIENCE

Special Advisor to the Chancellor for Research, Innovation and Creative Endeavors

Office of the Chancellor, University of Puerto Rico – Mayaguez, January 2021 – March 2021

Interim Coordinator for Industrial Biotechnology Program

College of Arts & Sciences, University of Puerto Rico – Mayaguez, August 2018 – present

Associate Dean of Research

College of Arts & Sciences, University of Puerto Rico – Mayaguez, February 2018 – present

Interim Department Chair

Department of Biology, University of Puerto Rico – Mayaguez, February 2016 – February 2018.

Full Professor

Department of Biology, University of Puerto Rico – Mayaguez, July 2014 – present.

Associate Professor

Department of Biology, University of Puerto Rico – Mayaguez, July 2008 – June 2014.

Assistant Professor

Department of Biology, University of Puerto Rico – Mayaguez, July 2005 – June 2008.

Post Doctoral Research Associate

Department of Bacteriology, University of Wisconsin – Madison.

September 2004 – July 2005. Advisor: Cameron Currie.

Department of Ecology and Evolutionary Biology. University of Kansas.

August 2003 – August 2004. Advisor: Cameron Currie.

Teaching Assistant

Botany Department. Universidad de Buenos Aires. Facultad de Ciencias Exáctas y Naturales.

Position earned through competition.

1996 Spring Introduction to Botany

1997 Fall Microbiology of Soils

1997 Spring Introduction to Botany

Department of Ecology and Evolutionary Biology. University of Kansas.

Fall 2000 History and Diversity of Organisms

Fall 2001 History and Diversity of Organisms

Lecturer

2000 Invited speaker to Mycology class at Harvard University (Prof. D. Pfister)

2001 Lecturer to History and Diversity of Organisms at KU (Prof. C. Haufler)

2002 Invited speaker to Microbial Symbiosis Seminar class at KU (Prof. C. Currie)

2003 Lecturer to History and Diversity of Organisms at KU (Prof. C. Currie)

Invited speaker to Topics in Phylogenetic Analysis (Prof. E. O. Wiley)

Research Assistant

1994-1997 Mycology Laboratory. Facultad de Ciencias Exáctas y Naturales. Universidad de Buenos Aires.

Basic approaches to fungi management. Culture, isolation and microscopy techniques. Dr. Daniel Cabral.

1995-1997 Programa de hongos que intervienen en la degradación biológica. PRHIDEB-CONICET (Argentine National Research Council). Budgeted, coordinated and implemented my thesis project. Built up and organized an isozyme laboratory. Developed skills in genetics of fungi. Dr. Daniel Cabral.

1995-1997 Studies of symbiosis between fungi and autotrophic organisms. Research Project UBACyT EX047. Determined and monitored endophytes of grasses in different parts of the country. Assisted, conducted and motivated undergraduate's dissertation projects on isozyme analyses of different groups of fungi. Drs. Daniel Cabral & Maria Bertoni.

1998-2002 Taxonomy and co-evolution of Trichomycetes (gut-inhabiting fungi) and their Chironomidae (Diptera) hosts Trichomycetes - Fungi Associated with Arthropods. NSF - Partnership for Enhancing Expertise in Taxonomy (PEET) DEB 9521811. Maintain culture, liquid nitrogen and lyophilized collections of Trichomycetes. Assist in culturing and determination of new species of fungi. Web Page update. Dr. Robert Lichtwardt.

2002-2003 DNA extraction, purification and sequencing analysis of Actinomycetes associated with attine ants and their nests. Directing undergraduate and graduate students in molecular analyses and other techniques. Dr. Cameron Currie.

Field Work

1995 Survey campaign of endophytes of grasses in the Province of Santa Cruz, Argentina. Collected, analyzed, recognized grasses in the field. Examined, detected, recorded and isolated fungi.

1997 Survey campaign of endophytes of grasses in the Provinces of Catamarca and Tucumán, Argentina. Collected, analyzed, recognized grasses in the field. Examined, detected, recorded and isolated fungi.

1998 Collection of freshwater and terrestrial Trichomycetes in the Finger Lakes Region, NY. Collection of Trichomycetes in Puerto Rico. Collected and preserved different arthropods, host of Trichomycetes. Dissected and examined under microscope, recorded, photographed and cultured Trichomycetes. Preserved the fungi for later DNA analysis.

1999 Collection of Marine Trichomycetes in Patagonia. Collected and preserved marine Trichomycetes from isopods. Collection of freshwater and terrestrial Trichomycetes in the Ozark Plateau, AR, MO. Survey of Trichomycetes in Friday Harbor Island, WA.

2000 Collection of freshwater and terrestrial Trichomycetes in the Finger Lakes Region, NY. Survey of Trichomycetes in the Green Mountains, VT.

2001 Collection of freshwater and terrestrial Trichomycetes in Wasatch Mountains, UT. Survey of marine Trichomycetes in Bodega Bay, CA.

2002 Collection of freshwater and terrestrial Trichomycetes in Southern France and Catalunya, Spain. Collaboration in the "Flora de la Peninsula Iberica" at the Universitat Autònoma de Barcelona, Prof. Sergi Santamaria.

2003 Collection of Attine ants in Southern Texas, USA.

2004 Collection of Attine ants and other insects in the Amazon basin, Madre de Dios, Peru.

2005 Collection of freshwater and terrestrial Trichomycetes in Veracruz, Mexico.

2006 Collection of freshwater and terrestrial Trichomycetes in Puerto Rico, in Veracruz (Mexico) and Dominican Republic.

2008 Collection of freshwater and terrestrial Trichomycetes in Jamaica.

2009-2020 Collection of freshwater and terrestrial arthropods for isolation of bacteria and fungi (trichomycetes) in Puerto Rico.

AWARDS

2015 University of Puerto Rico – Mayaguez. College of Arts and Sciences. Seed Money: *Barcoding the diversity of Puerto Rican mesophotic reef sponges* (\$3,000).

2014 University of Puerto Rico – Mayaguez. College of Arts and Sciences. Travel Award: *VIII Congreso Latinoamericano de Micología*, Medellín, Colombia (\$1,255).

2013 University of Puerto Rico – Mayaguez. College of Arts and Sciences. Seed Money: *Microbial diversity associated with mangrove fiddler crabs in Puerto Rico and their impact on ecosystem decontamination* (\$3,000).

2009 University of Puerto Rico – Mayaguez. Programa de incentivos por publicaciones (\$850).

2006 University of Puerto Rico – Mayaguez. Research & Development Center . Seed Money: *Study of Tropical Zygomycetes (Fungi) in Puerto Rico*. (\$4,883).

University of Puerto Rico – Mayaguez. College of Arts and Sciences. Seed Money: *Trichomycetes – fungal associates of arthropods – in the island of Puerto Rico*. (\$4,997.52).

2003 University of Kansas. Dept. of Ecology & Evolutionary Biology. (\$200). Plant Biology Endowed Summer Fund Award (\$1,100). Ph. D. with Honors. Mycological Society of America. Mentor Student Travel Award - Kenneth Wells Award (\$500).

2002 University of Kansas. Dept. of Ecology & Evolutionary Biology. (\$200). Plant Biology Endowed Summer Fund Award (\$2,500). Tinker Field Research Grant (\$1,209).

2001 University of Kansas. Dept. of Ecology & Evolutionary Biology. (\$200). Plant Biology Endowed Summer Fund Award (\$1,994).

2000 University of Kansas. Dept. of Ecology & Evolutionary Biology. Plant Biology Endowed Summer Fund Award (\$1,875). Graduate School Travel Award (\$300).

1999 University of Kansas. Dept. of Ecology & Evolutionary Biology. Eugenie S. Polson Award (\$1,226). Asociación Latinoamericana de Micología/NSF. Taxonomy of Ascomycetes Workshop (\$250).

1998 University of Kansas. Dept. of Botany. Arthur Mix Award (\$650).

BIBLIOGRAPHY

Publications

In refereed journals

1. 2023 Orlando Geli-Cruz; **Matias J. Cafaro**; Carlos J. Santos-Flores; Alex J. Ropelewski; Alex R. Van Dam. Benchmarking assembly free nanopore read mappers to classify complex millipede gut microbiota via Oxford Nanopore Sequencing Technology. *Journal of Biological Methods* (accepted)
2. 2019 Bradon R. McDonald, Marc G. Chevrete, Jonathan L. Klassen, Heidi A. Horn, Eric J. Caldera, Evelyn Wendt-Pienkowski, **Matias J. Cafaro**, Antonio C. Ruzzini, Ethan B. Van Arnam, George M. Weinstock, Nicole M. Gerardo, Michael Poulsen, Garret Suen, Jon Clardy, Cameron R. Currie. Genome Biology and Evolution. Biogeography and Microscale Diversity Shape the Biosynthetic Potential of Fungus-growing Ant-associated *Pseudonocardia*. *BioRxiv*, 545640.
3. 2018 Marfetan, JA, Romero, AI, **Cafaro, MJ** & Folgarait, PJ. New *Escovopsis* species from Argentina. *Mycotaxon* 133: 569-589.
4. 2017 Reynolds, NK, Smith, ME, Tretter, ED, Gause, J, Heeney, D, **Cafaro, MJ**, Smith, JF, Novak, SJ, Bourland, WA & White, MM. Resolving relationships at the animal-fungal divergence: A molecular phylogenetic study of the protist trichomycetes (Ichthyosporae, Eccrinidae) *Molecular Phylogenetics and Evolution* 109: 447-464.
5. 2016 Marfetan, JA, Romero, AI, **Cafaro, MJ** & Folgarait, PJ. Distribution of *Escovopsis* species in Argentina and its explanation: ant species, phytogeographical regions, site characteristics or climatic variables? *Fungal ecology* (submitted)
6. 2016 Urbina, H, Scofield, DG, **Cafaro, MJ** & Rosling, A. DNA-metabarcoding uncovers the diversity of soil-inhabiting fungi in the tropical island of Puerto Rico. *Mycoscience* 57(3): 217-227.
7. 2015 Hernandez Reyes, R & **Cafaro, MJ**. Diversity of *Actinobacteria* associated with *Paratrechina longicornis* ants in a tropical dry forest. *Journal of Basic Microbiology* 55: 11-21.
8. 2013 Contreras, K & **Cafaro, MJ**. Morphometric studies in *Enterobryus luteovirgatus* sp. nov. (Ichthyosporae: Eccrinidae) associated with yellow-banded millipedes in Puerto Rico. *Acta Protozoologica* 52: 291-297.
9. 2013 Lugo, MA, Crespo EM, **Cafaro, MJ** & Jofre, L. Hongos asociados con dos poblaciones de *Acromyrmex lobicornis* (Formicidae) de San Luis, Argentina. *Boletín de la Sociedad Argentina de Botánica* 48(1): 5-15.
10. 2012 Hernández Roa, JJ & **Cafaro, MJ**. Seasonality in the level of infection by *Enterobryus halophilus* (Trichomycetes) in *Emerita portoricensis*. *Mycologia* 104(2): 337-344.
11. 2011 Valle, LG, White, MM & **Cafaro, MJ**. Dipteran-associated Harpellales from lowland and submontane tropical rain forests of Veracruz (Mexico). *Mycologia* 103(3): 656-673.
12. 2011 **Cafaro, MJ**, Poulsen, M, Little, AEF, Price, SL, Gerardo, NM, Wong, B, Stuart, AE, Larget, B, Abbot, P & Currie, CR. Specificity in the symbiotic association between fungus-growing ants and protective *Pseudonocardia* bacteria. *Proc. R. Soc. B* 278: 1814-1822.
13. 2011 Folgarait, PJ, Marfetan, JA & **Cafaro, MJ**. Growth and conidiation response of *Escovopsis weberii* against the fungal cultivar from the leaf-cutter ant *Acromyrmex lundii*. *Environmental Entomology* 40 (2): 342-349.
14. 2010 Poulsen, M, **Cafaro, MJ**, Erhardt, DP, Little, AEF, Gerardo, NM & Currie, CR. Variation in *Pseudonocardia* antibiotic defense helps govern parasite-induced morbidity in *Acromyrmex* leaf-cutting ants. *Environmental Microbiology Reports* 2 (4): 534-540.
15. 2010 Valle, LG & **Cafaro, MJ**. Harpellales of the Dominican Republic (Hispaniola Island) and the insular effect on gut fungi. *Mycologia* 102 (2): 363-373.
16. 2010 Taerum, SJ, **Cafaro, MJ** & Currie, CR. Presence of multiparasite infections within individual colonies of leaf-cutter ants. *Environmental Entomology* 39 (1): 105-113.
17. 2009 Hernández Roa, JJ, Virella, CR & **Cafaro, MJ**. First survey of arthropod gut fungi and associates from Vieques, Puerto Rico. *Mycologia* 101 (6): 896-903.
18. 2008 Valle, LG, White, MM & **Cafaro, MJ**. Harpellales in the digestive tracts of Ephemeroptera and Plecoptera nymphs from Veracruz, Mexico. *Mycologia* 100 (1): 149-162.
19. 2008 Valle, LG & **Cafaro, MJ**. First report of Zygosporae in Asellariales and new species from the Caribbean. *Mycologia* 100 (1): 122-131.
20. 2007 Taerum, SJ, **Cafaro, MJ**, Little, AEF, Schultz, TR & Currie, CR. Low host-pathogen specificity in the leaf-cutting ant-microbe symbiosis. *Proc. R. Soc. B* 274: 1971-1978.
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Asterisk (*) = undergraduate student

1. 2022 Hydrocarbon degradation studies by mangrove fungi in Puerto Rico. **Cafaro, MJ.** MSA Annual Meeting, Gainesville, FL 10-13 July.
2. 2022 Coliform bacteria in Quebrada de Oro at University of Puerto Rico-Mayaguez. Suarez Garcia*, R, Ruiz Hernandez*, A, Berrocales Vazquez, K, **Cafaro, MJ.** Junior Technical Meeting (PRISM/JTM), UPR-Humacao, 9 April.
3. 2021 Degradation of hydrocarbons and their derivatives by mangrove fungi. **Cafaro, MJ.** Virtual Meeting, Sociedad Argentina de Botanica, 6-8 September.
4. 2021 Fungi associated to the skin of *Boa constrictor* in Puerto Rico. Alvarado-González*, M, Alonso-Zayas*, P, Herrero-Rapagna, G.A, Lara-Santos*, C.J, Sánchez-Santana, B., **Cafaro, MJ.** Virtual Junior Technical Meeting (PRISM/JTM) 23-24 April.
5. 2021 Biocontrol of the pathogen *Salmonella typhimurium* using bacteriophages. Josué Pabón Maldonado*, Christian J. Quiles Pérez, **Cafaro, MJ.** Virtual Junior Technical Meeting (PRISM/JTM) 23-24 April.
6. 2021 Increase of biomass in fungi in the presence of different concentrations of nanobubbles. Medina Lopez*, Paola, Lopez Hernandez*, J, Gonzalez Marquez*, J Berrocales Vazquez, K, **Cafaro, MJ.** Virtual Junior Technical Meeting (PRISM/JTM) 23-24 April.
7. 2020 Prevalence of *Stachylina* species (Harpellales) in Mayaguez, Puerto Rico. Gamalier Alicea Cruz, Fabian Gonzalez*, **Cafaro, MJ.** MSA Virtual Meeting, Mycology from the cloud, 22 July.
8. 2020 Termite-associated actinobacteria metabolites against pathogenic bacteria. Velez-Baez*, Estefany, Hernandez*, Ashlyn, Quiles, Christian, **Cafaro, MJ.** ASM Microbe 2020 Virtual Meeting, 18 June.
9. 2019 Distribution of Harpellales (Kickxellomycotina) in Culicidae and Chironomidae in Puerto Rico. Gamalier Alicea Cruz, Fabian Gonzalez*, **Cafaro, MJ.** Sociedad Puertorriqueña de Micología. PUCPR, Ponce. November 16.
10. 2019 Bioremediation of oil pollutants by fungi associated with coastal mangroves in Puerto Rico. Matías-Cabán, Kathleen N., Vázquez-Nieves*, Aslin, **Cafaro, MJ.** MSA Annual Meeting, Minneapolis, MN 10-15 August.
11. 2019 Survey of Marine Yeasts associated with Mangroves in Puerto Rico. Colón-Rosario, Carla F., Rivera-Sotomayor*, Rafael, Torres-Nieves*, Shelsy M., **Cafaro, MJ.** MSA Annual Meeting, Minneapolis, MN 10-15 August.
12. 2019 Distribution of Harpellales (Kickxellomycotina) in Culicidae and Chironomidae in Puerto Rico. Gamalier Alicea Cruz, Fabian Gonzalez*, **Cafaro, MJ.** 38th Puerto Rico Interdisciplinary Scientific Meeting/53rd ACS Junior Technical Meeting (PRISM/JTM) May 4th.

13. 2019 Survey of Marine Yeasts associated with Mangroves in Puerto Rico. Colón-Rosario, Carla F., Rivera-Sotomayor, Rafael, Torres-Nieves, Shelsy M., **Cafaro, MJ**. 38th Puerto Rico Interdisciplinary Scientific Meeting/53rd ACS Junior Technical Meeting (PRISM/JTM) May 4th.
14. 2019 Bioremediation of oil pollutants by fungi associated with coastal mangroves in Puerto Rico. Matías-Cabán, Kathleen N., Vázquez-Nieves, Aslin, **Cafaro, MJ**. 38th Puerto Rico Interdisciplinary Scientific Meeting/53rd ACS Junior Technical Meeting (PRISM/JTM) May 4th.
15. 2019 Characterization of Microorganism Associated with Active Sludge Compost and its Effects on Plant Development. Francisco A. Rivera Arias, Yoana Guzman, **Cafaro, MJ**. XII Symposium Frontiers in Environmental Microbiology: interconnections for progress. February 25.
16. 2019 Survey of Marine Yeasts associated with Mangroves in Puerto Rico. Carla F. Colón Rosario, Rafael E. Rivera Sotomayor, Shelsy M. Torres Nieves, **Cafaro, MJ**. XII Symposium Frontiers in Environmental Microbiology: interconnections for progress. February 25.
17. 2019 Actinobacteria Secondary Metabolites as a Potential Antimicrobial Agents. Christian J. Quiles Pérez, **MJ. Cafaro**, Jeffrey Marrero Rivera, Abel Baerga Ortiz. XII Symposium Frontiers in Environmental Microbiology: interconnections for progress. February 25.
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19. 2017 Guzmán Laureano, J, Chávez-Jáuregui, RN, Wessel-Beaver, L, **Cafaro, MJ**. Quality and nutritional assessment of immature fruit of tropical pumpkin with a unique yellow fruit color. 12 Simposio Latinoamericano de Ciencia de Alimentos. Campinas, SP Brazil. 4-7 November.
20. 2017 Gonzalez-Ferrer, S, Hernandez-Lamberty, M, Peterson, KR & **Cafaro, MJ**. Bioremediation of petroleum products in coastal mangroves by lignicolous fungal consortia. IX Congreso Latinoamericano de Micología. Lima, Peru. 22-25 August.
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23. 2016 Diaz, Y, Ortiz, G, Lugo A, Sanchez J, **Cafaro, MJ** & Filipa Godoy-Vitorino. The core microbiome of an herbivorous red mangrove crab: *Aratus pisonii*. Quinto Simposio de Investigación Estudiantil ASM PR branch, Pontificia Universidad Católica de Puerto Rico, Ponce, Oct 15.
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25. 2016 Kelly Castro, E. & **Cafaro, MJ**. Potential bioremediation role of fungi associated with red mangroves in Puerto Rico. MSA Annual Meeting, Berkeley, CA 7-11 August.
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32. 2015 Jean Fabre*, A. Rodriguez, J. Cuevas, E. Torres, **M. Cafaro**, T. Glavina, J. Kimbrell, J. Jansson & F. Godoy-Vitorino. Metagenomic analysis of fungal communities of the mangrove ecosystem in Puerto Rico's Southern Karst. XVI Simposio de Micología, UPR-Mayaguez. May 9.
33. 2014 Figueroa-Negrón, V & **Cafaro, MJ**. Endophytic fungi from *Avicennia germinans* in Puerto Rico. VIII Congreso Latinoamericano de Micología, Medellín, Nov 4-7.
34. 2014 Kelly-Castro, EC & **Cafaro, MJ**. Use of Congo Red as an analogous substrate to lignin to identify potential ligninolytic abilities in manglicolous fungi from Bahía Sucia, Cabo Rojo. VIII Congreso Latinoamericano de Micología, Medellín, Nov 4-7.

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36. 2014 Reynolds N, Tretter E, Heeney D, Kandel* P, Gause J, **Cafaro MJ**, Valle LG, White MM. Engaging in evolutionary evaluation of endobionts: toward a multi-gene phylogeny of the protist trichomycete orders Eccrinales and Amoebidiales. ISEP/ISOP joint meeting, Banff, Alberta, Canada. Aug 3-8.
37. 2014 Nunez Baez*, SG, Guzman Salgado, YL, Velez Torres, LN, Mendez Morales, E & **Cafaro, MJ**. Antifungal Production in Actinobacteria Associated with the Exoskeleton and the Intestine of the Termite *Nasutitermes costalis*. ASM 2014: 114th General Meeting. Boston Convention Center, Boston, Massachusetts. May 17-20.
38. 2013 Guzman Salgado, YL, Mendez Morales, E & **Cafaro, MJ**. Cellulose-Degrading Ability of Actinobacteria Associated with the Gut of the Termite *Nasutitermes costalis*. ABRCMS, Gaylord Opryland Resort & Convention Center, Nashville, TN, November 13-16.
39. 2013 Reynolds N, Tretter E, Heeney D, Kandel* P, Gause J, **Cafaro MJ**, White MM. Resolving relationships at the animal-fungal divergence: toward a multigene phylogeny of the protist trichomycete orders Eccrinales and Amoebidiales. XIV International Congress of Protistology, Vancouver, British Columbia, Canada. July 28 – August 2.
40. 2013 Velez Torres*, LN & **Cafaro, MJ**. Determination of the inhibitory capacity of Actinobacteria against *Candida albicans* and *Candida guilliermondii*. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
41. 2013 Valdes Valderrama*, E, Riascos Cuero, C & **Cafaro, MJ**. Phylogenetic analysis using BOX-PCR DNA fingerprinting to characterize diversity of actinobacteria associated with *Nasutitermes* termite nests in three different habitats of western Puerto Rico. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
42. 2013 Rosado*, M, Kelly, EC & **Cafaro, MJ**. Characterization of fungi associated with *Rhizophora mangle* wood and decaying leaves from Bahia Sucia, Cabo Rojo, PR. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
43. 2013 Pineda*, R, Riascos Cuero, C & **Cafaro, MJ**. Cellulose degradation of Actinobacteria isolated from termite nests in Puerto Rico. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
44. 2013 Maymi Guadalupe*, J, Caban Figueroa*, V, Figueroa Negron, V & **Cafaro, MJ**. Phosphate-solubilization by bacteria associated with the fiddler crab, *Uca rapax*, from mangroves in Cabo Rojo, Puerto Rico. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
45. 2013 Guzmán Salgado*, Y, Veléz Torres*, L, Méndez Morales, E & **Cafaro, MJ**. Antifungal production in Actinobacteria associated with the exoskeleton of the termite *Nasutitermes costalis*. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
46. 2013 Riascos Cuero, C & **Cafaro, MJ**. Actinobacteria associated with *Nasutitermes* termite nests and their ecological role. Passing the torch of research and ethics to the next generation, ASM PR branch, UPR-Arecibo. December 7.
47. 2013 **Cafaro, MJ**. Fungal pathogens in mosquitoes and blackflies. AAAS-Caribbean Division Annual Conference. UPR-RCM, San Juan, PR. September 21.
48. 2013 Vazquez Contreras*, K & **Cafaro, MJ**. The protist trichomycete *Enterobryus* associated with *Anadenobolus monilicornis* in Guanica Dry Forest. APS-MSA joint meeting, Austin, TX. August 10-14.
49. 2013 Rivera Beede, IM & **Cafaro, MJ**. Seasonality and prevalence of *Asellaria jatibonicua* in terrestrial isopods. APS-MSA joint meeting, Austin, TX. August 10-14.
50. 2013 Veléz Torres*, L, Méndez Morales, E & **Cafaro, MJ**. Antifungal production in Actinobacteria associated with the exoskeleton of the termite *Nasutitermes costalis*. XIV Simposio de Micología, UPR-Aguadilla. April 20.
51. 2013 Vazquez Contreras*, K & **Cafaro, MJ**. The protist trichomycete *Enterobryus* associated with *Anadenobolus monilicornis* in Guanica Dry Forest. XIV Simposio de Micología, UPR-Aguadilla. April 20.
52. 2013 Rivera Beede, IM **Cafaro, MJ**. Seasonality and prevalence of *Asellaria jatibonicua* in terrestrial isopods. XIV Simposio de Micología, UPR-Aguadilla. April 20.
53. 2013 Kelly Castro*, E, Medina Rivera, M & **Cafaro, MJ**. Confrontations between *Actinobacteria* Isolated from *Cyphomyrmex minutus* and Microfungi with Pathogenic Potential. XIV Simposio de Micología, UPR-Aguadilla. April 20.
54. 2013 Guzmán Salgado*, Y, Méndez Morales, E & **Cafaro, MJ**. Cellulose-degrading ability of Actinobacteria associated with the termite *Nasutitermes costalis*. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.
55. 2013 Figueroa Negrón*, V & **Cafaro, MJ**. Degradation of hydrocarbons and alginate: insights from bacterial communities associated with the fiddler crab *Uca rapax*. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.

56. 2013 Kelly Castro*, E & **Cafaro, MJ**. Confrontations between *Actinobacteria* Isolated from *Cyphomyrmex minutus* and Microfungi with Pathogenic Potential. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.
57. 2013 Veléz Torres*, L, Méndez Morales, E & **Cafaro, MJ**. Antifungal Production in Actinobacteria Associated with the Exoskeleton of the Termite *Nasutitermes costalis*. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.
58. 2013 Rivera Beede, IM **Cafaro, MJ**. Seasonality and prevalence of *Asellaria jatibonicua* in terrestrial isopods. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.
59. 2013 Olmo Fontáñez, AM & **Cafaro, MJ**. Comparison between bacterial diversity associated with mangrove soil and with the hindgut of the fiddler crab *Uca rapax*. Passing the torch of research and ethics to the next generation, ASM PR branch, InterAmerican University. April 6.
60. 2012 Figueroa Negrón*, V, Olmo Fontáñez, AM & **Cafaro, MJ**. Hydrocarbon Degradation Capacity of Bacteria Associated with the Fiddler Crab *Uca rapax* from Boquerón State Forest. 5th NEA Science Day, UPRM. October 25.
61. 2012 Rivera Ruiz*, K, Millán Barea*, M, Olmo Fontáñez, A, & **Cafaro, MJ**. Scanning Electron Microscopy Analysis of the Microflora Associated with the Hindgut of the Fiddler Crab *Uca rapax*. 5th NEA Science Day, UPRM. October 25.
62. 2012 Veléz Torres*, L, Méndez Morales, E & **Cafaro, MJ**. Antifungal Production in Actinobacteria Associated with the Exoskeleton of the Termite *Nasutitermes costalis*. 5th NEA Science Day, UPRM. October 25.
63. 2012 Vazquez Contreras*, K & **Cafaro, MJ**. Revision of Genus *Enterobryus* Associated With The Gut Of *Anadenobolus monilicornis* In Guanica Dry Forest. 5th NEA Science Day, UPRM. October 25.
64. 2012 Kelly Castro*, E & **Cafaro, MJ**. Confrontations between *Actinobacteria* Isolated from *Cyphomyrmex minutus* and Microfungi with Pathogenic Potential. 5th NEA Science Day, UPRM. October 25.
65. 2012 Olmo Fontáñez, AM & **Cafaro, MJ**. *Vibrio* sp. and *Uca rapax* Association: a Mutualistic Nutritional Relationship? 5th NEA Science Day, UPRM. October 25.
66. 2012 Rivera Beede, I & **Cafaro, MJ**. A population study of trichomycete infection in terrestrial isopods. 5th NEA Science Day, UPRM. October 25.
67. 2012 **Cafaro, MJ**. The protist trichomycete genus *Enterobryus* in the Caribbean. Mycological Society of America, New Haven, CT. July 14-19.
68. 2012 Medina Rivera, M & **Cafaro, MJ**. Microfungi community associated with yeast agriculture ant *Cyphomyrmex minutus*. Mycological Society of America, New Haven, CT. July 14-19.
69. 2012 Mendez Morales, E & **Cafaro, MJ**. Diversity of Actinobacteria associated to *Nasutitermes costalis* termites in Puerto Rico. American Society of Microbiology, San Francisco, CA. June 16-19.
70. 2012 Medina Rivera, M & **Cafaro, MJ**. Microbial community associated with the yeast agriculture ant *Cyphomyrmex minutus*. American Society of Microbiology, San Francisco, CA. June 16-19.
71. 2012 Antonetti Negron*, K, Medina Rivera, M & **Cafaro, MJ**. Identification and description of the yeast cultivated by the fungus-growing ant *Cyphomyrmex minutus*. 5th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 16.
72. 2012 Benítez Rodríguez*, A, Méndez Morales, E & **Cafaro, MJ**. Identification of fungi associated to *Nasutitermes costalis* termite nests. 5th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 16.
73. 2012 Kelly Castro*, E, Medina Rivera, M & **Cafaro, MJ**. Confrontations between Actinobacteria isolated from *Cyphomyrmex minutus* and microfungi with pathogenic potential. 5th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 16.
74. 2012 Matos Collado*, L, Medina Rivera, M & **Cafaro, MJ**. Diversity of Actinobacteria associated with the yeast-agriculture ant *Cyphomyrmex minutus*. 5th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 16.
75. 2012 Riascos Cuero, C & **Cafaro, MJ**. Application of PCR fingerprinting techniques for identification of Actinobacteria associated with *Nasutitermes costalis* (Isoptera: Termitidae) nests in Western Puerto Rico. 5th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 16.
76. 2011 **Cafaro, MJ**. Ecology, systematics and biogeography of trichomycetes (gut fungi) in the Caribbean. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
77. 2011 Olmo Fontáñez, AM & **Cafaro, MJ**. Diversity of bacteria associated with mangrove crab, *Uca rapax* in Puerto Rico. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.

78. 2011 Mendez Morales, E, Soto*, G, Toro*, J & **Cafaro, MJ**. Diversity of actinobacteria associated to *Nasutitermes costalis* termites in Puerto Rico. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
79. 2011 Medina Rivera, M, Antonetti Negron*, K & **Cafaro, MJ**. Description of the microfungi community in the refuse material from nests of the yeast agriculture ant *Cyphomyrmex minutus*. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
80. 2011 Riascos Cuero, C, Mendez Morales, E & **Cafaro, MJ**. Actinobacteria associated with *Nasutitermes costalis* (Isoptera: Termitidae) nests in western Puerto Rico. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
81. 2011 Kelly Castro*, EC, Medina Rivera, M & **Cafaro, MJ**. Microfungi associated to the yeast agriculture ant *Cyphomyrmex minutus*. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
82. 2011 Vazquez Contreras*, K & **Cafaro, MJ**. Revision of the genus *Enterobryus* associated with the gut of *Anadenobolus monilicornis* in Guanica dry forest. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
83. 2011 Benitez Rodriguez*, A, Toro Zapata*, J, Mendez Morales, E & **Cafaro, MJ**. Microfungi associated to *Nasutitermes costalis* termite nests. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
84. 2011 Matos Collado*, L, Medina Rivera, M & **Cafaro, MJ**. Diversity of actinobacteria associated with the yeast agriculture ant *Cyphomyrmex minutus*. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), University of Puerto Rico-Bayamon, PR November 5.
85. 2011 Kelly Castro*, EC, Medina Rivera, M & **Cafaro, MJ**. Microfungi associated to the yeast agriculture ant *Cyphomyrmex minutus*. SACNAS National Conference, San Jose, CA October 27-30.
86. 2011 **Cafaro, MJ**. Fungi: to be or not to be? The trichomycetes. VII Congreso Latinoamericano de Micología, San Jose, Costa Rica, 18-21 Julio.
87. 2011 Medina Rivera, M & **Cafaro, MJ**. Microfungi associated to the yeast agriculture ant *Cyphomyrmex minutus*. VII Congreso Latinoamericano de Micología, San Jose, Costa Rica, 18-21 Julio.
88. 2011 Olmo Fontáñez, AM & **Cafaro, MJ**. Gut Microflora of the Fiddler Crab, *Uca rapax*, in Puerto Rico. 4th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 25.
89. 2011 Mendez Morales, E & **Cafaro, MJ**. Actinobacteria associated with *Nasutitermes* termites in Puerto Rico. 4th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 25.
90. 2011 Kelly Castro*, EC, Medina Rivera, M & **Cafaro, MJ**. Microfungi Associated with the Fungus-growing Ant, *Cyphomyrmex minutus*. 4th Symposium Frontiers in Environmental Microbiology, Universidad del Turabo, PR, March 25.
91. 2010 Olmo Fontáñez, AM & **Cafaro, MJ**. Gut microflora of fiddler crabs (*Uca*) in Puerto Rico. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), InterAmerican University, Ponce, PR November 6.
92. 2010 Hernandez Reyes, R & **Cafaro, MJ**. Actinomycetes Associated with two species of Ants in Guanica Tropical Forest, Puerto Rico. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), InterAmerican University, Ponce, PR November 6.
93. 2010 Medina Rivera, M & **Cafaro, MJ**. Characterization of fungi associated with the fungus-growing ant, *Cyphomyrmex minutus*. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), InterAmerican University, Ponce, PR November 6.
94. 2010 Mendez Morales, E & **Cafaro, MJ**. Identification of actinobacteria associated with *Nasutitermes* termite. Semi Annual Meeting of PR Society of Microbiologists (ASM Branch), InterAmerican University, Ponce, PR November 6.
95. 2010 Olmo Fontáñez*, AM & **Cafaro, MJ**. Gut microflora of fiddler crabs (*Uca* spp.) in Puerto Rico. 4th NEA Science Day, UPRM February 11.
96. 2009 Hernandez Reyes, R & **Cafaro, MJ**. Preliminary survey of the diversity of Actinomycetes associated with ants in Guánica and Cambalache Tropical forests, Puerto Rico. Convención Semianual Sociedad de Microbiólogos de Puerto Rico, UPR-Humacao, PR Diciembre 5.
97. 2009 Medina Rivera, M & **Cafaro, MJ**. Isolation and identification of actinobacteria associated with the Attine ant *Cyphomyrmex minutus*. Convención Semianual Sociedad de Microbiólogos de Puerto Rico, UPR-Humacao, PR Diciembre 5.
98. 2009 Gorosito, NB, **Cafaro, MJ**, Colman, D & Folgarait, PJ. Mycoparasites isolated from *Acromyrmex* spp and *Atta* spp colonies: antagonism and mycoparasitism. VI Congreso Argentino de Microbiología General, Cordoba, Argentina, 21-23 Octubre.
99. 2009 **Cafaro, MJ** & Valle, LG. Island effect on the biodiversity of gut symbionts of arthropods (Trichomycetes). VI International Symbiosis Congress, Madison, WI, 9-15 August.

100. 2009 Medina Rivera, M & **Cafaro, MJ**. Isolation and identification of actinobacteria associated with the Attine ant *Cyphomyrmex minutus*. VI International Symbiosis Congress, Madison, WI, 9-15 August.
101. 2009 Mazo Vargas, A., **Cafaro, MJ** & Franz, N. Phylogeny of Exophthalmus complex genus (Coleoptera: Curculionidae: Entiminae) from the Caribbean. XXVIII Simposio de la Flora y Fauna del Caribe 2009. UPR-Humacao, PR Abril 24.
102. 2009 Hernandez Roper*, P, Hernandez Roa, J & **Cafaro, MJ**. Morphological differentiation of the *Enterobryus* species in *Uca*. 2nd Symposium Frontiers in Environmental Microbiology: A Caribbean perspective, Universidad del Turabo, PR, March 20.
103. 2009 Nieves Colon*, N & **Cafaro, MJ**. Bacterial flora associated with the beetle *Spassalus crenatus*. 2nd Symposium Frontiers in Environmental Microbiology: A Caribbean perspective, Universidad del Turabo, PR, March 20.
104. 2009 Rivera de Jesus*, J & **Cafaro, MJ**. Morphological characterization of *Enterobryus* (OPISTHOKONTA: MESOMYCETOZOA) species found in millipedes of Puerto Rico. 2nd Symposium Frontiers in Environmental Microbiology: A Caribbean perspective, Universidad del Turabo, PR, March 20.
105. 2009 **Cafaro, MJ**. Microbe interactions in the attine ant system. Keynote speaker. 2nd Symposium Frontiers in Environmental Microbiology: A Caribbean perspective, Universidad del Turabo, PR, March 20.
106. 2008 **Cafaro, MJ**. Current status of trichomycete knowledge in Latin America. Keynote speaker. VI Congreso Latinoamericano de Micología, Mar del Plata, Argentina, 10-13 November.
107. 2008 Hernandez Roa, J. & **Cafaro, MJ**. Seasonality in the level of infection by *Enterobryus* sp. (Trichomycetes) in *Emerita portoricensis*. VI Congreso Latinoamericano de Micología, Mar del Plata, Argentina, 10-13 November.
108. 2008 Rivera de Jesus*, J, Virella Perez, CR & **Cafaro, MJ**. Morphological and molecular characterization of *Enterobryus* (OPISTHOKONTA: MESOMYCETOZOA) species found in millipedes of Puerto Rico. SACNAS Conference, Salt Lake City, UT, 9-12 Oct.
109. 2008 Rivera de Jesus*, J., Virella Perez, CR & **Cafaro, MJ**. *Enterobryus* species found in a new millipede host (*Anadenobolus monilicornis*) from Guanica Dry forest, PR. X Simposio de Micología, Universidad del Turabo, PR, 2-3 Mayo.
110. 2008 Virella Perez, C. & **Cafaro, MJ**. Intestinal microflora of *Anadenobolus monilicornis*, a millipede species found in the Guanica Dry Forest, Puerto Rico. X Simposio de Micología, Universidad del Turabo, PR, 2-3 Mayo.
111. 2008 **Cafaro, MJ**. Trichomycetes, simbioses intestinales de artrópodos, su diversidad y distribución en el Caribe. Keynote speaker. Congreso de Biodiversidad Caribeña, Santo Domingo, Republica Dominicana, 29 Ene-1 Feb.
112. 2008 Virella Perez, C. & **Cafaro, MJ**. Intestinal microflora of *Anadenobolus monilicornis*, a millipede species found in the Guanica dry forest, Puerto Rico. XIII Sigma Xi Poster Day, UPRM Chapter, Mayagüez, PR April 10.
113. 2008 Rodríguez Santos*, R., Hernández Roa, J & **Cafaro, MJ**. *Enterobryus* within two crustaceans: *Uca* sp. and *Emerita portoricensis*. XIII Sigma Xi Poster Day, UPRM Chapter, Mayagüez, PR April 10.
114. 2008 Medina-Rivera*, M., Roldan-Vélez*, L. & **Cafaro, MJ**. Isolation of bacteria from the ant *Odontomachus ruinodis*. XIII Sigma Xi Poster Day, UPRM Chapter, Mayagüez, PR April 10.
115. 2007 Acevedo Mendez*, S., Hernandez Roa, J. & Cafaro, MJ. Nuclear characterization of Eccrinales [Opisthokonta: Mesomycetozoa] through fluorescence. American Society for Cell Biology, Washington, DC, December 1-5.
116. 2007 Virella Perez, C. & **Cafaro, MJ**. Mycelial fungi associated with the guts of millipedes found in Puerto Rico. Mycological Society of America, Baton Rouge, LA. August 6-9.
117. 2007 Hernandez Roa, J. & **Cafaro, MJ**. Biodiversity of trichomycetes associated with marine arthropods in Puerto Rico. Mycological Society of America, Baton Rouge, LA. August 6-9.
118. 2007 Guardia Valle, L & **Cafaro, MJ**. First observation of zygosporos in Asellariales (Trichomycetes). Mycological Society of America, Baton Rouge, LA. August 6-9.
119. 2007 Virella Perez, C. & **Cafaro, MJ**. Microflora asociada al sistema digestivo de milpiés del área sudoeste de Puerto Rico. IX Simposio de Micología, PUCPR, Ponce, PR Mayo 5.
120. 2007 Hernandez Roa, J. & **Cafaro, MJ**. Biodiversidad de Trichomycetes (Zygomycota) asociados con artrópodos marinos en Puerto Rico. IX Simposio de Micología, PUCPR, Ponce, PR Mayo 5.
121. 2007 Acevedo Mendez*, S. & **Cafaro, MJ**. Zygomycetes en el Oeste de Puerto Rico. IX Simposio de Micología, PUCPR, Ponce, PR Mayo 5.
122. 2007 Hernandez Roa, J. & **Cafaro, MJ**. Simbioses intestinales de artrópodos (Trichomycetes) en Puerto Rico. Simposio de la Flora y Fauna del Caribe 2007. UPR-Humacao, PR Abril 27.
123. 2007 Virella Perez, C. & **Cafaro, MJ**. Microflora asociada al sistema digestivo de milpiés del área sudoeste de Puerto Rico. Simposio de la Flora y Fauna del Caribe 2007. UPR-Humacao, PR 27 April 2007.

124. 2006 Rosado Rodríguez*, G. & **Cafaro, MJ**. Informe preliminar y distribución de Trichomycetes (Zygomycota) en Puerto Rico. IX Congreso Latinoamericano de Botánica, Santo Domingo, Rep. Dominicana, 18-25 Junio.
125. 2006 Rosado Rodríguez*, G. & **Cafaro, MJ**. Trichomycetes (arthropod gut fungi) from Western Puerto Rico. XI Sigma Xi Poster Day, UPRM Chapter, Mayagüez, PR April 6.
126. 2006 **Cafaro, MJ**. Hongos asociados con artrópodos (Trichomycetes - Zygomycota): ecología, filogenia y evolución. VIII Simposio de Micología, Ponce, PR May 6.
127. 2006 White, M, James, T, O'Donnell, K, **Cafaro, M**, Tanabe, Y, Sujiyama, J. Phylogeny of the Zygomycota based on Bayesian phylogenetic analysis analysis of nuclear ribosomal sequence data. Deep Hypha, Baton Rouge, LA February 24-26.
128. 2005 Little, AE, **Cafaro, MJ** & Currie. Ants, agriculture, and antibiotics: Discovery of a new layer of exploitation of the Attine ant-microbesymbiosis. Evolution Meeting 2005 – Fairbanks, Alaska.
129. 2005 **Cafaro, MJ** & Lichtwardt, R. Unveiling cryptic relationships of the Eccrinales. *Inoculum* XX (3): 24. MSA, Hilo, Hawaii.
130. 2003 White, M, **Cafaro, M. J.** & Lichtwardt, R. What are gut fungi? Molecular data reveals phylogenetic surprises among Trichomycetes (Zygomycota). 4th International Symbiosis Society Congress, Halifax, Canada, Book of Abstract, p. 118.
131. 2003 **Cafaro, MJ**. Eccrinales (Trichomycetes) are not fungi, but a novel clade of the class Mesomycetozoea, in the early divergence of animals and fungi. *Inoculum* 54 (3): 14. MSA, Asilomar, CA.
132. 2002 **Cafaro, MJ**. Systematics of non-culturable orders of Trichomycetes based on molecular markers. 7th International Mycological Congress, Oslo, Norway, Book of Abstracts, p. 48-49.
133. 2002, **Cafaro, MJ**, White, MM & Lichtwardt, R. Toward the a molecular based phylogeny of the Trichomycetes (Zygomycota). PEET IV. Expanding PEET to the World and to the Tree of Life. Berkeley, CA.
134. 2001 **Cafaro, MJ**. Relationship of Eccrinales to other organisms based on rDNA sequences. VI Annual Graduate Student Research Retreat, The University of Kansas Natural History Museum and Biodiversity Research Center & Dept. of Ecology and Evolutionary Biology, Lawrence, KS.
135. 2001 **Cafaro, MJ**. Species richness patterns in symbiotic gut fungi (Trichomycetes). *Inoculum* 52 (3): 24. MSA, Salt Lake City, UT.
136. 2000 Lichtwardt, R, **Cafaro, MJ** & White, M. M. Toward a new monograph of the Trichomycetes, Fungal associates of arthropods. PEET III: The monographic process. Smithsonian Institution, Washington, DC.
137. 2000 **Cafaro, MJ**. Relationship of the Eccrinales to other Trichomycetes. *Inoculum* 51 (3): 21. MSA, Burlington, VT.
138. 1999 **Cafaro, MJ**. Trichomycetes en Latinoamérica. III Congreso Latinoamericano de Micología, Caracas, Venezuela.
139. 1999 Cabral, D, Lugo, M, **Cafaro, MJ** & White, JF. Asociación con endofitos en gramíneas autóctonas argentinas.II. III Congreso Latinoamericano de Micología, Caracas, Venezuela.
140. 1999 **Cafaro, M**. Gut fungi of isopods, the genus *Palavascia*. XVI International Botanical Congress, St. Louis, MO, U.S.A.
141. 1999 White, M. M., **Cafaro, M** & Lichtwardt, R. Trekking for Trichos: a survey of Trichomycetes in Puerto Rico. XVI International Botanical Congress, St. Louis, MO, U.S.A.
142. 1998 **Cafaro, M**. Trichomycetes living in the guts of isopods. PEET II. WHOI-MBL, Woods Hole, MA.
143. 1998 **Cafaro, M**. Isozyme study on fungal endophytes of grasses from Argentina. *Inoculum* 49(2): 12.
144. 1996 Cabral, D, Lugo, M, **Cafaro, M** & White, J. Asociación con endofitos en gramíneas autóctonas argentinas. II Congreso Latinoamericano de Micología, La Habana, Cuba.
145. 1996 Cabral, D, **Cafaro, M** & Saidman, B. Caracterización isoenzimática de endofitos de gramíneas tóxicas de Argentina. II Congreso Latinoamericano de Micología, La Habana, Cuba.
146. 1996 **Cafaro, M**, Perrota, D, Mizrycki, C, Battista, S & Sivori, A. Cinética de la producción de enzimas extracelulares de *Thecotheus pelletieri* en medios sintéticos y semisintéticos. II Congreso Latinoamericano de Micología, La Habana, Cuba.

Other presentations.

1. 2015 DL Collins, NG Santiago, H Huyke, C Papadopoulos, JF Vega- Riveros, A Nieves-Rosa, A Brown, R Portuondo, **MJ Cafaro**, M Landers. Increasing student engagement through the development of interdisciplinary courses: Linking Engineering and Technology, the Sciences, and the Humanities. Frontiers in Education 2015, 21-24 Oct. El Paso, TX.
2. 2013 Veléz Torres*, L, Méndez Morales, E & **Cafaro, MJ**. Antifungal Production in Actinobacteria Associated with the Exoskeleton of the Termite *Nasutitermes costalis*. 3rd Biology Undergraduate Research Symposium, May 4.

3. 2013 Vazquez*, K & **Cafaro, MJ.** The protist trichomycete *Enterobryus* associated with *Anadenobolus monilicornis* in Guanica Dry Forest. 3rd Biology Undergraduate Research Symposium, May 4.
4. 2013 Valdes Valderrama, E, Riascos Cuero, C & **Cafaro, MJ.** Implementation of 1-D analysis software Quantity One to improve accuracy of BOX-PCR DNA fingerprinting for identification of Actinobacteria associated with *Nasutitermes* nests. 3rd Biology Undergraduate Research Symposium, May 4.
5. 2013 Millan Barea*, M, Olmo Fontanez, A, Rivera Ruiz*, K & **Cafaro, MJ.** Scanning electron microscopy analysis of the microflora associated with the hindgut of the fiddler crab *Uca rapax*. 3rd Biology Undergraduate Research Symposium, May 4.
6. 2013 Bonilla*, K Riascos Cuero, C & **Cafaro, MJ.** Microscopic and molecular characterization of Actinobacteria associated with *Nasutitermes costalis* (Isoptera: Termitidae) nests. 3rd Biology Undergraduate Research Symposium, May 4.
7. 2013 Guzmán Salgado*, Y, Méndez Morales, E & **Cafaro, MJ.** Cellulose-degrading ability of Actinobacteria associated with the termite *Nasutitermes costalis*. 3rd Biology Undergraduate Research Symposium, May 4.
8. 2013 Pineda*, R, Riascos Cuero, C & **Cafaro, MJ.** Chemical analysis of nest material from two termite species in Puerto Rico. 3rd Biology Undergraduate Research Symposium, May 4.
9. 2013 Figueroa Negrón*, V, Olmo Fontánz, AM & **Cafaro, MJ.** Cellulolytic Enzyme Activity and Degradation of Hydrocarbons and Alginate: Insights from Bacterial Communities Associated with the Fiddler Crab *Uca rapax*. 3rd Biology Undergraduate Research Symposium, May 4.
10. 2012 **Cafaro, MJ.** Actinobacteria communities associated with ants in Puerto Rico. Invited speaker to Seminar series at Department of Biology, UPR-Rio Piedras, September 26.
11. 2012 Matos Collado*, L & **Cafaro, MJ.** Diversity of Actinobacteria associated with the yeast-agriculture ant *Cyphomyrmex minutus* exoskeleton and cultivar. 2nd Biology Undergraduate Research Symposium, May 7.
12. 2012 Kelly Castro*, EC & **Cafaro, MJ.** Confrontations between Actinobacteria isolated from *Cyphomyrmex minutus* and microfungi with pathogenic potential. 2nd Biology Undergraduate Research Symposium, May 7.
13. 2012 Benitez Rodriguez*, AE & **Cafaro, MJ.** Identification of fungi associated to *Nasutitermes costalis* termite nests. 2nd Biology Undergraduate Research Symposium, May 7.
14. 2012 Navedo*, N & **Cafaro, MJ.** Morphological description of Actinobacteria associated with *Nasutitermes costalis* (Isoptera: Termitidae) nests in three ecosystems of Western Puerto Rico. 2nd Biology Undergraduate Research Symposium, May 7.
15. 2012 Santiago*, MP & **Cafaro, MJ.** Identification of Actinobacteria associated with *Nasutitermes costalis* termite. 2nd Biology Undergraduate Research Symposium, May 7.
16. 2012 Vazquez-Contreras*, K & **Cafaro, MJ.** *Enterobryus* (Ichthyosporea: Eccrinales) associated with the gut of the millipede *Anadenobolus monilicornis* in Guanica Dry Forest. 2nd Biology Undergraduate Research Symposium, May 7.
17. 2012 Maldonado Perez, L & **Cafaro, MJ.** *Nasutitermes costalis* nest viability in correlation with Actinobacteria density. 2nd Biology Undergraduate Research Symposium, May 7.
18. 2012 Figueroa Negrón, V & **Cafaro, MJ.** Diversity of bacteria associated with the hindgut of *Uca rapax* fiddler crab in Puerto Rico: their role and ability to degrade cellulose. 2nd Biology Undergraduate Research Symposium, May 7.
19. 2012 Bonilla Miranda*, K & **Cafaro, MJ.** Comparison among three different PCR fingerprinting techniques for identification of Actinobacteria associated with *Nasutitermes costalis* (Isoptera: Termitidae) nests in Western Puerto Rico. 2nd Biology Undergraduate Research Symposium, May 7.
20. 2012 Antonetti*, K & **Cafaro, MJ.** Identification and description of the yeast cultivated by the fungus-growing ant *Cyphomyrmex minutus*. 2nd Biology Undergraduate Research Symposium, May 7.
21. 2012 Guzmán Salgado*, Y & **Cafaro, MJ.** Cellulose-degrading ability of Actinobacteria associated with the termite gut of *Nasutitermes costalis*. 2nd Biology Undergraduate Research Symposium, May 7.
22. 2012 Gay Fagundo, JJ & **Cafaro, MJ.** Morphological description of microbial community associated with the nest material, exoskeleton and gut of *Nasutitermes costalis*. 2nd Biology Undergraduate Research Symposium, May 7.
23. 2011 **Cafaro, MJ.** Hunting for trichomycetes (gut fungi) in Latin America and the Caribbean. 50th Anniversary Center of Latin American Studies, University of Kansas, Lawrence, KS, November 19.
24. 2011 **Cafaro, MJ.** Trichomycetes: fungal symbionts of arthropods (or not?). University of Tennessee - Martin, TN, May 12.
25. 2011 **Cafaro, MJ.** The importance of a complete academic CV. 1st Biology Undergraduate Symposium, May 7.
26. 2011 Antonetti Negron*, K & **Cafaro, MJ.** Actinobacteria associated to *Paratrechina* sp. ant in Guanica dry forest. 1st Biology Undergraduate Symposium, May 7.
27. 2011 Kelly Castro*, EC, Medina Rivera, M & **Cafaro, MJ.** Microfungi Associated with the Fungus-growing Ant, *Cyphomyrmex minutus*. 1st Biology Undergraduate Symposium, May 7.

28. 2009 **Cafaro, MJ.** Phylogenetic approaches to arthropod-microbe interactions. Department of Biology, Western Kentucky University, Feb 2.
29. 2009 **Cafaro, MJ.** Arthropod gut symbionts in the Caribbean. Department of Biological Sciences, Western Illinois University, Jan 22.
30. 2008 **Cafaro, MJ.** Interactions between arthropods and microbes. SACNAS Mayaguez Student Chapter. September 9th.
31. 2008 **Cafaro, MJ.** Arthropod-microbe interactions: exploring new ecological niches. Department of Biology, University of Denver, Feb 21.
32. 2007 **Cafaro, MJ.** Hormigas cultivadoras de hongos y sus microbios asociados. Invited speaker to Graduate Seminar at Department of Agronomy & Soils, UPRM.
33. 2007 **Cafaro, MJ.** Trichomycetes – fungal associates of arthropods – in the island of Puerto Rico. IV Simposio de Investigacion de Fondos Semilla, Decanato de Artes y Ciencias, UPRM.
34. 2007 **Cafaro, MJ.** Fungi-arthropod associations. Invited speaker to Mycology Seminar at Department of Biology, Universidad del Turabo, PR.
35. 2006 **Cafaro, MJ** & Guardia Valle, L. Microbiota asociada al intestino de insectos. Museo Nacional de Historia Natural Santo Domingo, Rep. Dominicana
36. 2006 **Cafaro, MJ.** Symbiotic gut fungi of arthropods in the Tropics. Invited speaker to Seminar series at Department of Biology, UPR-Rio Piedras.
37. 2006 **Cafaro, MJ**, White, M & Guardia Valle, L. Gut biota of arthropods. Seminar at Estacion Biologica “Los Tuxtlas”, Veracruz, Mexico, 5 August.
38. 2005 **Cafaro, MJ.** Interacciones microbianas en hormigas que cultivan hongos (Tribu Attini). Universidad Nacional de Quilmes.
39. 2005 **Cafaro, MJ.** Microbial interactions in fungus-growing ants. University of Puerto Rico – Mayaguez. Department of Biology.
40. 2005 **Cafaro, MJ.** Symbiotic gut fungi of arthropods: a phylogenetic perspective. Evolution Group, University of Wisconsin.
41. 2004 **Cafaro, MJ.** Are the Eccrinales and other Trichomycetes real fungi? The Kaw Valley Mycological Society.
42. 2002 **Cafaro, MJ.** Trichomycetes: diversity and life history. Invited speaker to the KU Alumni Advisory Board.

PROFESSIONAL AFFILIATIONS

Asociación Latinoamericana de Micología, Asociación Micológica "Carlos Spegazzini", Mycological Society of America, Sociedad Puertorriqueña de Micología, ASM Puerto Rico Branch.

EXTRACURRICULAR COURSES, WORKSHOPS, MEETINGS

- 3-28 June 1996. Microorganisms in Agriculture and Agroindustry. University of Buenos Aires. Ing. Agrónoma O. Correa & Lic. M. Soria.
- 16-17 October 1997. Bacterial autotrophy and Microbiology Teaching. University of Buenos Aires. Dr. G. Drews & Dr. G. Fuchs (University of Frisburg, Germany) and Dr.H. Schlegel (University of Gottingen, Germany).
- 27-31 August 1999. Taxonomy of Ascomycetes. University Simón Bolívar & Biological Station "Rancho Grande". Venezuela. Dr. Teresa Iturriaga (University Simón Bolívar, Venezuela) and Dr. Donald Pfister (Harvard University, USA).
- Deep Hypha
- American Society for Microbiology – North Central Branch. November 12-13, 2004. Madison, WI
- 5 October, 2006. 2nd Annual Symposium for Coastal and Marine applied Research. University of Puerto Rico Sea Grant Program
- 9-12 January 2007. Sampling and testing for indicator organisms in fresh and sea water short course. The PR Water Resources and Environmental Research Institute & EPA.
- 5 March, 2009. Taller: Analizando cuentas en UFIS. Departamento de Finanzas, UPRM, 2.5 contact hours.
- 26-28 January, 2010. Manejo de Cursos en Moodle I - II. Centro de Enriquecimiento Profesional, UPRM.
- 13-16 June, 2010. NSF sponsored workshop “Primarily Undergraduate Institutions: An Important Resource for Systematics Research”
- 22-26 January, 2011. “Genome Data Management Workshop”. UPRM.
- 24-26 February, 2012. NEH-sponsored Workshop on “Interdisciplinary Teaching”, Dr. Carolyn Haynes, Miami University, Ohio.
- 22 March, 2012. NEH-sponsored Workshop “The problem of Consciousness”, Dr. Anderson Brown, UPRM.
- 20 April, 2012. NEH-sponsored Workshop “The Turing Machine”, Dr. Fernando Vega, UPRM.
- 27 May – 13 Jun, 2012. **BIOL5990 Field Course:** Wildlife Safari and Cultural Tour to India.

- 21 September, 2012. NEH-sponsored Workshop "Human versus Artificial Intelligence", Dr. Douglas Hofstadter, Distinguished Professor of Cognitive Science, University of Indiana.
- 16 March, 2013. NEH-sponsored Workshop "Alternative technologies: choice, critique, and the future?", Dr. Indira Nair, Carnegie-Mellon University and Dr. Carl Mitchem, Colorado School of Mines.
- 19 April, 2013. NEH-sponsored Workshop "Interdisciplinary courses: an opportunity to promote critical thinking", Dr. Ana Nieves Rosa, UPRM.
- 25 May – 11 Jun, 2013. **BIOL5990 Field Course:** Wildlife Safari and Cultural Tour to India.
- 27 Jun – 10 Jul, 2013. USDA Internship at Beltsville, MD.
- 15 Jul – 1 Aug, 2013. **BIOL5990 Field Course:** Wildlife Safari to South Africa.
- 22 March, 2014. NEH-sponsored Workshop "Questioning Technology as an Interdisciplinary Teaching and Learning Experience", 7.5 contact hours.
- 25 May – 12 Jun, 2014 **BIOL5990 Field Course:** Wildlife Safari and Cultural Tour to India.
- 15 March, 2015 Workshop: Individual and Interactive Sessions on Scalable Active Learn, Dr. Ed Prather, 6.5 contact hours.
- 15 – 31 Jul, 2015 **BIOL5990 Field Course:** Wildlife Safari and Cultural Tour to Peru.
- 28 April, 2016 Analisis de Riesgo en el laboratorio. Oficina de Salud y Seguridad UPRM.
- 30 April, 2016 Presentation: Fishing and Ecotourism: Opportunities for Puerto Rico.
- 16 Sep, 2016 Taller de Gerencia Academica I UPRM, 7 contact hours.
- 18 Nov, 2016 Taller de Gerencia Academica II UPRM, 4 contact hours.
- 6 April, 2017 Orientacion de Practica Intramural para Profesores UPRM.
- 1 Aug, 2017 Adiestramiento Certificacion de Ayudantias Graduadas y Sistema en linea. Oficina de Estudios Graduados, 3 contact hours.
- 7 Nov, 2018 Grant Writing Workshop, NSF. A. Johnson, E. Carpenter, L.R. Farrior. Pontificia Universidad Catolica PR, Mayaguez.
- 8-9 Nov, 2018 HSI Conference (NSF), Innovation Ecosystems, Mayaguez, PR.
- 13-15 Oct, 2020 State of the World's Plants and Fungi Virtual Symposium, Royal Botanic Gardens, Kew, UK.
- 12-19 Nov, 2020 Imagining the Future of Undergraduate STEM Education – NSF.
- 10 Feb, 2022 Primer Encuentro Interagencial y Académico Descenso Poblacional en Puerto Rico: ¿Qué vamos a hacer? Universidad de Puerto Rico, Rio Piedras.

LANGUAGES

Spanish (native), English fluent, Italian intermediate, French basic.

SYNERGISTIC ACTIVITIES AND SERVICES

1998 Departmental Graduate Student representative. Graduate & Professional Association representative. Graduate Student representative in Recruitment Committee for Fungal Biologist.

1999 Departmental Graduate Student representative, Graduate & Professional Association representative, Graduate Student representative in Promotion & Tenure Committee.

2000 Graduate Student representative in Promotion & Tenure Committee.

2001 Orientation Graduate Student Committee Member, Graduate Student representative in Recruitment Committee for Plant Ecophysicologist.

2001-2002 Phi Beta Delta Honor Society for International Scholars - Alpha Pi Chapter - Vice President.

2005 UPRM – Lab Security Committee, Industrial Microbiology Group.

2006 UPRM- Lab Security Committee, Industrial Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee.

2007 Industrial Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee, Evaluation Scale for Research in Biology Group.

2008 Industrial Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee, Chair of the Seminar Series in Biology.

Associate Editor: Checklist Journal (Brazil).

VI Latin American Mycology Congress – External Organizer and Consultant.

Workshop: *Microbios asociados a nidos de hormigas cultivadoras de Hongos*, Universidad Nacional de Quilmes, Argentina. 19-22 November.

2009 Industrial Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee, Chair of the Seminar Series in Biology, Member Darwin Committee.

Associate Editor: Checklist Journal (Brazil).

Workshop: *Basic Mycology*, Universidad Nacional de Quilmes, Argentina. 15-16 June.

2010 Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee, Departmental Graduate Committee.

Associate Editor: Checklist Journal (Brazil), Current Microbiology.

4th North Alliance for Graduate Education and the Professoriate (NEA) Science Day, February, 11.

Moderator: 30th Puerto Rico Interdisciplinary Scientific Meeting and 45th Junior Technical Meeting, March 30.

2011 Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee, Departmental Graduate Committee, Departmental Personnell Committee.

Associate Editor: Checklist Journal (Brazil), Current Microbiology.

VII Latin American Mycology Congress – Symposium Organizer: Taxonomy of Chytridiomycota and Zygomycota.

Mycological Society of America: Mentor Student Travel Awards Committee.

2012 Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee (Chair), Departmental Personnell Committee.

Associate Editor: Checklist Journal (Brazil), Current Microbiology.

Mycological Society of America: Mentor Student Travel Awards Committee, Chair of Insect-Fungi Session.

5th NEA Science Day at UPRM: Poster Judge.

VIII Latin American Mycological Congress 2014 symposium organizer.

2013 Microbiology Group, PhD Proposal Committee, Arts & Science Library Committee (Chair), Departmental Personnell Committee.

Associate Editor: Checklist Journal (Brazil), Current Microbiology.

Mycological Society of America: Mentor Student Travel Awards Committee.

VIII Latin American Mycological Congress 2014 symposium organizer.

MEDLIFE-UPRM student chapter faculty advisor.

2014 Microbiology Group, PhD Proposal Committee, Departmental Personnell Committee (Chair).

Associate Editor: Checklist Journal (Brazil).

Mycological Society of America: Mentor Student Travel Awards Committee, Ecology Committee.

VIII Latin American Mycological Congress 2014 symposium organizer.

Puerto Rico Mycological Society: President 2014-2015.

2015 Microbiology Group, PhD Proposal Committee, Departmental Personnell Committee (Chair), Promotion and Tenure Committee College of Arts & Sciences (Chair).

Associate Editor: Checklist Journal (Brazil).

Mycological Society of America: Mentor Student Travel Awards Committee (Chair), Ecology Committee.

International Mycological Congress 11 (IMC11-2018) Stearing Committee (**Congress Secretary**).

Puerto Rico Mycological Society: President 2015-2016.

2016 PhD Proposal Committee, Promotion and Tenure Committee College of Arts & Sciences (Chair).

Associate Editor: Checklist Journal (Brazil).

Mycological Society of America: Mentor Student Travel Awards Committee (Past-Chair), Ecology Committee, Diversity Committee.

International Mycological Congress 11 (IMC11-2018) Stearing Committee (**Congress Secretary**).

Puerto Rico Mycological Society: Past-President 2016-2017.

2017 Mycological Society of America: Diversity Committee.

International Mycological Congress 11 (IMC11-2018) Stearing Committee (**Congress Secretary**).

2018 Mycological Society of America: Diversity Committee.

International Mycological Congress 11 San Juan, PR July 16-22. **Congress Secretary**.

Institutional Research Committee UPRM: developed research policy, proposal for the Dean of Research Office.

2020 Mycological Society of America: Chair Finance Committee.

2021 Mycological Society of America: Chair Finance Committee. Mentoring students through NSF-EECOs proposal: A Support Ecosystem to Expand Capabilities and Opportunities for STEM Undergraduates Following Hurricane Maria.

2022 Mycological Society of America: Chair Finance Committee. Puerto Rico Mycological Society: Treasurer. SACNAS UPRM Exhibitor booth. American Heart Association research mentor. 27th EPSCoR Conference, Portland, ME.

2022 Mycological Society of America: Chair Finance Committee. Puerto Rico Mycological Society: Treasurer.

REVIEWER

Mycologia, Fungal Diversity, Caribbean Journal of Science, National Science Foundation, Sociedad Argentina de Botanica, NSERC-Canada, Checklist Journal, Journal of Invertebrate Pathology, Fungal Ecology, Protist, Current Microbiology, FEMS Microbiology Ecology, PLOS One, Gayana Botanica.

GRADUATE STUDENT COMMITTEES

Chair: Jonatan Hernandez Roa (MS July 2009), Geidy Acevedo (MS Dec 2011), Ruth Hernandez Reyes (MS May 2012), Mariely Medina Rivera (MS May 2012), Andres Velez (MS May 2012), Emanuel Mendez Morales (MS May 2013), Angelica Olmo Fontanez (MS May 2013), Carolina Riascos Cuero (MS May 2014), Ivonne Rivera Beede (MS May 2015), Emily Kelly Castro (MS May 2016), Veronica Figueroa Negron (MS May 2018), Carla Aponte Lopez (MS May 2018), Yoana Guzman Salgado, Zuleida Valentin Alago, Gamalier Alicea Cruz (MS May 2020), Carla Colon, Kathleen Matias Caban (MS May 2021), Carolina Burgos Pagan, Christian Quiles (MS May 2021), Manuel Molinares Guette (MS May 2023), Andy Portalatin, Katiushka Berrocales, Tai Massas Le Cleres, Leobaldo Luna Alvear.

Member: MS: Yesenia Echavarria, Hector Diaz Zabala, Jennifer Giron, Anyimilehidi Mazo Vargas, Ivenise Carrero, Laura Vazquez, Augusto Montoya, Carlos Pasiche, Melvin Caraballo, Janice Hernandez, Paola Gonzalez, John Lopez Calero, Orlando Geli Cruz, Julyris Guzman, Zuleimary Velez, Kiara Perez.

PhD: Gualberto Rosado (PhD, UPRM), Edna Justiniano, Ariel Marfetan (PhD, UNQ, Argentina), Augusto Siri (PhD, UNLP, Argentina).

Graduate School Representative or External Juror: David Hernandez, Manuel Santana Jimenez, Jose Miguel Garcia Peña, Mayra Ronquillo, Jason Dragoni, Johannies Rivera, Ricardo Liquet, Ivan Suero, Andrea Lopez Peña (Universidad del Valle).

DEFENDED THESES

1. 2023 Molinares Guette, M. Potencial de biorremediación de aceite de motor usado por hongos asociados a mangle. UPRM
2. 2021 Quiles Perez, C. A new approach to fight microorganisms: termite-associated Actinobacteria secondary metabolites against pathogenic bacteria and fungi. UPRM
3. 2021 Matias Caban, K. Growth of fungi recovered from coastal mangroves in waste motor oil: a preliminary study for bioremediation. UPRM
4. 2020 Alicea Cruz, G. Distribution of Harpellales (Kickxellomycotina) in Culicidae and Chironomidae in urban sites in Mayaguez and Arecibo, Puerto Rico. UPRM
5. 2018 Aponte Lopez, C. Response of *Capsicum chinense* to mycorrhizae inoculation and local mycorrhizal diversity associated with the crop in Puerto Rico. UPRM
6. 2018 Figueroa Negron, V. Endophytic fungi associated with the black mangrove *Avicennia germinans* in Cabo Rojo, Puerto Rico: their antibiotic potential. UPRM
7. 2016 Kelly Castro, EC. Potential bioremediation role of manglicolous fungi associated with the mangrove tree, *Rhizophora mangle*, in Puerto Rico. UPRM
8. 2015 Rivera Beede, IM. Seasonality and prevalence of *Asellaria jatibonicua* in the terrestrial isopod *Littorophiloscia culebrae*. UPRM
9. 2014 Riascos Cuero, C. *Streptomyces* asociados a nidos de *Nasutitermes costalis* y *Nasutitermes acajutlae* (Isoptera: Termitidae) en tres zonas ecológicas de Puerto Rico. UPRM
10. 2013 Olmo Fontanez, AM. Diversity of bacteria associated with the mangrove fiddler crab, *Uca rapax*, in Boqueron, Puerto Rico and their cellulose degradation capacity. UPRM
11. 2013 Mendez Morales, E. Diversity of Actinobacteria associated with *Nasutitermes costalis* termite and its ability to inhibit the growth of entomopathogenic fungi. UPRM
12. 2012 Hernandez Reyes, RD. Diversity of Actinobacteria Associated with Common Ant Species in the Guánica Tropical Dry Forest, Puerto Rico. UPRM
13. 2012 Medina Rivera, M. Interaction between the fungus-growing ant *Cyphomyrmex minutus* and its symbionts at Cambalache forest, Puerto Rico. UPRM
14. 2012 Velez Bravo, AH. Revision and phylogeny of Neotropical subfamily Nyctiborinae (Dictyoptera: Blattaria: Ectobiidae). UPRM
15. 2011 Acevedo Mendez, G. Phylogeny of five species of *Anilocra* Leach 1818 (Isopoda: Cymothoidae) from Puerto Rico and the Virgin Islands. UPRM
16. 2009 Hernandez Roa, J. Estacionalidad en la infección de *Enterobryus holophilus* (Opisthokonta: Mesomycetozoa) en el intestino de *Emerita portoricensis* (Decapoda: Hippidae). UPRM

UNDERGRADUATE RESEARCH STUDENTS

2023 (10) Alexis Ruiz, Roberto Suarez, Tanlix Bartolomei, Alejandra Morales, Yalinneth Crespo, Melanie Acevedo, Alexandra Valentin, Yanmarie Pagan, Dana Vargas, Camila Sanchez.

2022 (7) Josue Pabon, Marianny Alvarado, Janet Gonzalez, Paola Medina, Oscar Castellon, Alexis Ruiz, Roberto Suarez.

2021 (6) Josue Pabon, Marianny Alvarado, Janet Gonzalez, Jeimmy Lopez, Paola Medina, Oscar Castellon.
2020 (9) Estefany Velez, Pura Arroyo, Paola Amador, Mayte Cerezo, Leandra Ramos, Isabel Yordan, Jose Manuel, Ashlyn Hernandez, Josue Pabon.
2019 (7) Rafael Rivera Sotomayor, Ashlyn Hernandez, Aslin Vázquez-Nieves, Shelsy Torres-Nieves, Estefany Velez, Pura Arroyo, Francisco Rivera Arias.
2018 (6) Desirette Soto, Shekina M. González Ferrer, José E. López Sekulits, Fabián González Bonet, Raysa Lopez Torres, Karimar Amador Martinez.
2017 (8) Desirette Soto, Shekina M. González Ferrer, Michael Hernández Lamberty, Dennis Rivera López, Víctor Gallardo Rivera, José E. López Sekulits, Fabián González Bonet, Christian McRoberts Amador.
2016 (13) Desirette Soto, Alvin Crespo, Edaris Izquierdo, Olga Ortiz, Cristina Cardona, Carla Centeno, Samuel Ramos, Charles Soto, Charles Castro, Johann Cancel, Lizsonette Medina, Raiza Gonzalez, Yesenia Gonzalez, Paola Monctezuma.
2015 (11) Kimberly Padilla, Cristina Cardona, Carla Centeno, Luis Colon, Samuel Ramos, Charles Soto, Charles Castro, Johann Cancel, Gerardo Donate, Lizsonette Medina, Yesenia Gonzalez.
2014 (14) Charles Castro, Luis De Jesus, Imperio Real, Edaris Izquierdo, Carlos Tapia, Maria del Mar Monroig, Zuleida Valentin, Johann Cancel, Gerardo Donate, Lizsonette Medina, Zully Contreras, Yisenia Nazario, Gamalier Alicea, Olga Ortiz.
2013 (16) Katiria Bonilla, Emily Kelly, Kenny Vazquez, Veronica Figueroa, Jose Gay, Yoana Guzman, Lorraine Velez, Ricardo Pineda, Eduard Valdes, Jonathan Maymi, Maria del Mar Monroig, Mariely Rosado, Victoria Caban, Zully Contreras, Olga Ortiz, Gabriel Perez.
2012 (17) Katiria Bonilla, Louis Maldonado, Mayrim Millan, Ninotchka Navedo, Lourdes Irizarry, Keyla Rivera, Alexander Benitez, Emily Kelly, Lani Matos, Kenny Vazquez, Karla Antonetti, Nicolle Arroyo, Veronica Figueroa, Jose Gay, Yoana Guzman, Maria Santiago, Lorraine Velez.
2011 (14) Alexander Benitez, Jorge Toro, Guillermo Soto, Emily Kelly, Lani Matos, Kenny Vazquez, Carlos Pasiche, Karla Antonetti, Nicolle Arroyo, Veronica Figueroa, Jose Gay, Yoana Guzman, Maria Santiago, Lorraine Velez.
2010 (7) Angelica Olmo Fontanez, Jaime Chevere, Noelia Nieves Colon, Priscilla Hernandez Roper, Alexander Marrero, Ivette Roldan, Deborah Muñiz.
2009 (8) Jesabel Rivera de Jesus, Carlos Aponte, Noelia Nieves Colon, Priscilla Hernandez Roper, Jeffry Morales, Alexander Marrero, Angelica Olmo Fontanez, Jaime Chevere.
2008 (7) Mariely Medina, Ricardo Rodriguez, Laura Roldan, Victor Rivera, Jesabel Rivera de Jesus, Carlos Aponte, Noelia Nieves Colon.
2007 (6) Jason Alers, Michael Ryan, Sujeil Acevedo, Maritza Rivera Montalvo, Natalia Rodríguez, Mariely Medina.
2006 (3) Zaida Bayron Marrero, Edna Castaneda Torres, Gualberto Rosado Rodriguez.
2005 (1) Gresheira Lara Hernandez.

COLLABORATORS

Merlin M. White (Boise State University), Andrea Romero, Silvia Lopez, Alexandra M. Gottlieb (Universidad de Buenos Aires, Argentina), Patricia Folgarait (Universidad Nacional de Quilmes, Argentina), Sergi Santamaria, Laia Guardia Valle (Univeridad Autonoma de Barcelona, Spain), Cameron Currie (University of Wisconsin, Madison), Sharon Cantrell (Universidad Ana G. Mendez, PR), Monica Lugo (Universidad Nacional de San Luis, Argentina), Filipa Godoy Vitorino (UPR-RCM), Abel Baerga Ortiz (UPR-RCM), Jeffrey Marrero Rivera (PR Trust), Marco de Jesus, Felix Roman, David Suleiman, Pedro Tarafa, Oscar M. Suarez (UPR-Mayaguez).

VISITING FULBRIGHT SCHOLAR 2007: Dr. Laia Guardia Valle, Univeridad Autonoma de Barcelona, Spain.
 Project: Diversity and Biology of Neotropical Caribbean Trichomycetes.

MENTORS

Undergraduate thesis: Dr. Daniel Cabral, Universidad de Buenos Aires, Argentina – deceased 2008
 Graduate dissertation: Dr. Robert W. Lichtwardt, University of Kansas – deceased 2018
 Postdoctoral: Dr. Cameron Currie, University of Wisconsin

TIMOTHY JOHN COLSTON

Assistant Professor
Department of Biology
University of Puerto Rico
Mayagüez, Puerto Rico

Phone: 939-227-0169 (cellular)
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Web: maddreptiles.com

SUMMARY

PhD: 2017; Publications: 36; [Google Scholar](#) (h-index=18, i10-index=23, citations=1191); New species described: 12; Funding: >\$200,000 USD awarded, ~\$1.3million USD pending.

PROFESSIONAL APPOINTMENTS

2021–Present Assistant Professor
Department of Biology, University of Puerto Rico–Mayagüez
2017–Present Research Associate
National Museum of Natural History, Smithsonian Institution
2021–Present Assistant Professor (courtesy appointment)
Department of Biology, University of Florida
2020–2021 Postdoctoral Researcher
Department of Biology, University of Florida
2018–2020 NSF-FAPESP Postdoctoral Researcher
Department of Biological Science, Florida State University
2017–2018 NSF Postdoctoral Researcher
Department of Biological Sciences, The George Washington University
2012–2015 Research Affiliate
Zoological Natural History Museum, Addis Ababa, Ethiopia
2012–2013 Fulbright Research Scholar
Department of Zoological Science; Addis Ababa University, Ethiopia
2011–2012 Instructor
Northwest Community College, Oxford, MS

EDUCATION

Ph.D. University of Mississippi, Biology, 2017
The Reptile Gut Microbiome: Its Role in Host Evolution and Community Assembly
—Elected 2017 Class Marshall for high research productivity
M.S. University of Oklahoma, Zoology, 2010
Origins of Neotropical Diversity: Lineage Diversification in Tree Boas
B.S. University of Oklahoma, Zoology, 2007

RESEARCH INTERESTS

* Host-microbiome Interactions & Coevolution	* Biogeography of Neotropical & African Amphibians & Reptiles
* Evolution, Ecology, Conservation & Systematics of Amphibians & Reptiles	* Evolutionary Genomics, Venomics
* Wildlife Trade & Conservation Implications	* Taxonomy

RESEARCH SUMMARY

I am an evolutionary biologist, microbial ecologist and bioinformatician, who uses genomic methods to study host-associated microbial communities, evolutionary relationships of hosts, genetic mechanisms governing phenotypic variation and processes of community assembly in an effort to use a holistic and interdisciplinary approach to understand organismal evolution and patterns of biodiversity. I employ cutting edge genomic methods (eDNA, metagenomics, transcriptomics, whole genome sequencing) and computationally intense analyses (machine learning, model analyses) in evolutionary and biodiversity discovery studies. This research has far reaching implications that span disciplines from conservation biology to disease ecology and human health.

FELLOWSHIPS, GRANTS & AWARDS

(total awarded: \$226,818 USD; pending: \$1,324,853 USD)

RESEARCH GRANTS

2022	PR-INBRE IDeA Network Small Instrumentation Grant [\$25,000]
2020	FSU Undergraduate Research Opportunity Program Materials Grant [\$250]
2019	FSU Undergraduate Research Opportunity Program Materials Grant [\$250]
2015	NSF Doctoral Dissertation Improvement Grant [DEB 1501711; \$18,419]
2015	Society for Integrative & Comparative Biology, GIAR [\$820]
2011–2014	Graduate Student Summer Research Grant, Graduate College, University of Mississippi [4x; \$12,000 total]
2013	Graduate Student Council Research Grant, University of Mississippi [\$944]
2013	Linnean Society Grants in Systematics [£1140 (\$1,857)]
2013	Percy Sladen Memorial Fund [£600 (\$907)]
2012	T.H. Roosevelt Memorial Grant, American Museum of Natural History [\$2,000]
2009–2010	Loren G. Hill Zoology Excellence Fund [3x; \$900 total]
2009	GSS Research Grant, University of Oklahoma [\$287]
2009	Robberson Research Grant, Graduate College, University of Oklahoma [\$500]
2009	Graduate Student Research and Activity Grant, University of Oklahoma [\$707]

PRIVATE FOUNDATION RESEARCH AWARDS

2020	Coypu Foundation [\$50,000]—Co-PIs Nathan Lujan & Jonathan Armbruster
2019	Andrew Sabin Family Foundation [\$10,000]—Co-PI Alex Pyron

FELLOWSHIPS

2017	GWU Postdoctoral Research Fellowship [\$51,079.00 (NSF award DEB 1441737 to Co-PI Alex Pyron)]
2016	U.M. Graduate School Dissertation Fellowship [\$16,787]
2012–2013	J. William Fulbright Student Fellowship [\$26,009]

TRAVEL GRANTS & AWARDS

2020	National Postdoctoral Association Travel Award [\$1000]
2019	Florida State University OPDA Travel Award [\$1000]
2015	SSAR Student Travel Award [\$500]

- 2011 American Society of Naturalist’s Student Travel Award [\$500]
- 2011 Orianne Society Student Travel Grant [\$100]
- 2009 GSS Conference and Creative Exhibition Grant, University of Oklahoma [\$250]
- 2010 T.H. Lee Williams International Travel Scholarship [\$1,800]
- 2010 College of Arts and Sciences Excellence in Research Travel Scholarship [\$750]

AWARDS & SCHOLARSHIPS

- 2017 SSE Hamilton Award Finalist [\$500]
- 2017 U.M. Graduate School Class Marshal (*selected for excellence in research*)
- 2014 University of Mississippi 3 Minute Thesis (*on campus finalist*)
- 2009 Robert E. and Mary B. Sturgis Scholarship, College of Arts and Sciences, University of Oklahoma [\$1,200]
- 2009 Zoology Department Graduate Teaching Assistant Award [\$500]

AS SHADOW-PI OR AWARDS TO GRADUATE STUDENTS

- 2023 Friends of the Sunset Zoo Robert Klemm Conservation Scholar Award [\$2000]
—to MS student Jacob Adam
- 2022 Herpetological Conservation International Michael Dee Grant [\$1200]
—to MS student Jacob Adam

OTHER CONTRIBUTIONS

- 2014-2017 *Contributing Personnel*—Gene flow and riverine barriers in the Guiana Shield: a multitaxon test across the Oyapock River (MUStARD). PI: Antoine Fouquet.
– Assist in generating and analyzing RAD-seq data for a CEBA funded project investigating the role of rivers as barriers to gene flow in the Guiana Shield (CEBA, ref. ANR-10-LABX-25-01, 19,800€).
- 2011–2014 *Graduate Research Assistant*—University of Mississippi, Biology Department. PI: Brice Noonan. – Research assistant on NSF funded project investigating patterns of diversification and biogeography of Malagasy ants using NGS technologies (seq-capture and RAD-seq) (DEB award #1120867).

PUBLICATION METRICS

- GOOGLE SCHOLAR: [Link](#); ORCID: [LINK](#)
- PERCENT OF CO-AUTHORS FEMALE OR URM =40%
- PERCENT OF PUBLICATIONS WITH FEMALE OR URM CO-AUTHORS=58%
- PERCENT OF PUBLICATIONS WITH UNDERGRADUATE MENTEE CO-AUTHORS=26%

RESEARCH PUBLICATIONS

(*indicates undergraduate researcher | **indicates high school researcher)

PEER-REVIEWED PUBLICATIONS

- 36. Eliades, S.J., **Colston, T.J.**, Siler, C.D. (2022) Gut microbial ecology of Philippine gekkonids: ecoevolutionary effects on microbiome compositions. *FEMS Microbiology Ecology* 98: fiac124; doi: <https://doi.org/10.1093/femsec/fiac124>.

35. Gebrewold, G., **Colston, T.J.**, Abebe, A., Kourouma, K., Najjemba, R., Mulugeta, D., Lumma, H., Getahun, D., Gindola, Y., Abdella, S., Haile, T., Zolfo, M., Vanlerberghe, V. (2022) Distribution of snake species and snakebites in hotspots of Ethiopia. *Journal of Infection in Developing Countries* 16: 45S-51S; doi: 10.3855/jidc.15973.
34. Gippner, S., Travers, S.L., Scherz, M.D., **Colston, T.J.**, Lyra, M.L., Mohan, A.V., Multzsch, M., Nielsen, S.V., Rancilhac, L., Glaw, F., Bauer, A.M., Vences, V. (2021) A comprehensive phylogeny of dwarf geckos of the genus *Lygodactylus*, with insights into their systematics and morphological variation. *Molecular Phylogenetics and Evolution* 165: 107311; doi: 10.1016/j.ympev.2021.107311.
33. Smith, S.N., **Colston, T.J.**, Siler, C.D. (2021) Venomous snakes reveal ecological and phylogenetic factors influencing variation in gut and oral microbiomes. *Frontiers in Microbiology* 12: 657754; doi:10.3389/fmicb.2021.657754.
32. Eliades, S.J., Brown, J.C., **Colston, T.J.**, Fisher, R.N., Niukula, J., Gray, C.K., Vadada, J., Rasalato, S., Siler, C.D. (2021) Gut microbial ecology of the Critically Endangered Fijian crested iguana (*Brachylophus vitiensis*): effects of captivity status and host reintroduction on endogenous microbiomes. *Ecology & Evolution* 11: 4731–4743; doi:10.1002/ece3.7373.
31. Holding, M.L., Strickland, J.L., Rautsaw, R.M., Hofmann, E.P., Mason, A.J., Hogan, M.P., Nystrom, G.S., Ellsworth, S.A., **Colston, T.J.**, Borja, M., Castaneda-Gaytan, G., Grunwald, C., Jones, J.M., Freitas-de-Sousa, L., Margres, M.J., Grazziotin, F.G., Junqueira-de-Azevedo, I.L.M., Moura-da-Silva, A.M., Zaher, E.H., Gibbs, H.L., Rokyta, D.R., Parkinson, C.L. (2021) Phylogenetically diverse diets favor more complex venoms in North American pitvipers. *Proceedings of the National Academy of Sciences USA* 118(17): e2015579118; doi: 10.1073/pnas.2015579118.
30. Margres, M.J., Rautsaw, R.M., Strickland, J.L., Mason, A.J., Schramer, T., Hofmann, E.P., Stiers, E., Bartlett, D., **Colston, T.J.**, Gilbert, D., Rokyta, D.R., Parkinson, C.L. (2021) The tiger rattlesnake genome reveals how a complex genotype produces the simplest venom phenotype. *Proceedings of the National Academy of Sciences USA*, 118(4): e2014634118; doi:10.1073/pnas.2014634118.
29. Holding, M., Sovic, M.G., **Colston, T.J.**, Gibbs, H.L. (2021) The scales of coevolution: Comparative phylogeography and genetic demography of a venomous snake predator and its ground squirrel prey provide insights into local adaptation. *Biological Journal of the Linnean Society* 132(2): 297–317; doi:10.1093/biolinnean/blaa192.
28. Singhal, S., **Colston, T.J.**, Grundler, M.R., Smith, S.A., Costa, G.C., Colli, G.R., Moritz, C., Pyron, R.A., Rabosky, D.L. (2021) Congruence and conflict in the higher-level phylogenetics of squamate reptiles: an expanded phylogenomic perspective. *Systematic Biology* 70(3): 542–557; doi:10.1093/sysbio/syaa054.
27. *Huff, E.M., *Schonour, R.B., Holding, M.L., Claunch, N.M., Ellsworth, S.A., Hogan, M.P., Wray, K.P., McGivern, J.J., Margres, M.J., **Colston, T.J.**, Rokyta, D.R. (2020) Gradual and discrete ontogenetic changes in venom composition in two rattlesnake species associated with shifts in dietary ecology. *Toxins* 12: 659; doi:10.3390/toxins12100659.
26. **Colston, T.J.**, **Kulkarni, P., Jetz, W., Pyron, R.A. (2020c) Phylogenetic and spatial distribution of evolutionary diversification, isolation, and threat in turtles and crocodilians (non-avian archosauromorphs). *BMC Evolutionary Biology* 20: 81; doi:10.1186/s12862-020-01642-3.
25. **Colston, T.J.**, Smith, M.L., Noonan, B.P., Pyron, R.A. (2020b) Availability of recently described *Ptychadena* (Anura: Ptychadenidae) nomina from Ethiopia. *Zootaxa* 4786(2): 289–294; doi:10.11646/zootaxa.4786.2.11.

24. **Colston, T.J.**, Pyron, R.A., Bauer, A.M. (2020a) A new species of African Snake-Eyed Skink (Scincidae: *Panaspis*) from Ethiopia. *Zootaxa* 4779(2): 190–200; doi: 10.11646/zootaxa.4779.2.2.
23. Vacher, J., Chave, J., Ficetola, F., Sommeria-Klein, G., Tao, S., Thébaud, C., Blanc, M., Camacho, A., Cassimiro, A., **Colston, T.J.**, Dewynter, M., Ernst, R., Gaucher, P., Gomes, J.O., Jairam, R., Kok, P.J.R., Lima, J.D., Martinez, Q., Marty, C., Noonan, B.P., Nunes, P., Ouboter, P., Recoder, R., Trefaut Rodrigues, M., Snyder, A., de Souza, S.M., Teixeira, M., Fouquet A. (2020) Large scale DNA-based survey of frogs in eastern Amazonia suggests a vast underestimation of species richness and endemism. *Journal of Biogeography* 47: 1781–1791; doi: 10.1111/jbi.13847.
22. Ul-Hasan, S., Rodríguez-Román, E., Reitzel, A.M., Adams, R.M.M., Herzig, V., Nobile, C.J., Saviola, A.J., Trim, S.A., Stiers, E.E., Moschos, S.A., Keiser, C.N., Petras, D., Moran, Y., **Colston, T.J.** (2019) Exploring the venom ecosystem: The emerging field of venom-microbiomics and the Initiative for Venom Associated Microbes and Parasites (iVAMP). *Toxicon X* 4: 100016; doi: 10.1016/j.toxcx.2019.100016.
21. Portik, D.M., Bell, R.C., Blackburn, D.C., Bauer, A.M., Baratt, C.D., Branch, W.R., Burger, M., Channing, A., **Colston, T.J.**, et al. (2019) Sexual dichromatism drives diversification within a major radiation of African amphibians. *Systematic Biology* 68: 859–875; doi: 10.1093/sysbio/syz023.
20. Pyron, R.A., Reed, R.N., **Colston, T.J.**, Rochford, M.R. (2019) Morphology and molecular data reveal invasion of Cryptic Golden Tegu, (*Tupinambis cryptus* (Murphy et al. 2016)) in Florida. *BioInvasions Record* 8: 465–470; doi: 10.3391/bir.2019.8.2.30.
19. Weinell, J.L., Branch, W.R., **Colston, T.J.**, Jackman, T.R., Kuhn, A., Conradie, W., Bauer, A.M. (2019) A species-level phylogeny of *Trachylepis* (Scincidae: Mabuyinae) provides insight into their reproductive mode evolution. *Molecular Phylogenetics and Evolution* 136: 183–195; doi: 10.1016/j.ympev.2019.04.002.
18. *Dahn, H.A., Strickland, J.L., *Orosio, A. **Colston, T.J.**, Parkinson, C.L. (2018) Hidden diversity within the depauperate genera of the snake tribe Lampropeltini (Serpentes, Colubridae). *Molecular Phylogenetics and Evolution* 129: 214–225; doi: 10.1016/j.ympev.2018.08.018
17. Arteaga, A., Salazar-Valenzuela, D., Mebert, K., Peñafiel, N., Aguiar, G., Sánchez-Nivicela, J.C., Pyron, R.A., **Colston, T.J.**, Cisneros-Heredia, D.F., Yáñez-Muñoz, M.H., Venegas, P.J., Guayasamin, J.M., Torres-Carvajal, O. (2018) Systematics of South American snail eating snakes (Serpentes, Dipsadini), with the description of five new species from Ecuador and Peru. *Zoo Keys* 766: 79–147; doi: 10.3897/zookeys.766.24523.
16. Gebrewold, G., **Colston, T.J.**, Hurisa, B., Mengesha, A., Abate, S., Urga, K., Dagne, Kifle. (2018) Toxicity evaluation of viper snake venoms and *in vivo* neutralization efficacy test of FAV-AFRIQUE and VECSERA antivenoms. *The Ethiopian Journal of Public Health and Nutrition* 2 (2): 78–82.
15. *Smith, M.L., Noonan, B.P., **Colston, T.J.** (2017b) Correction to: ‘The role of climatic and geological events in generating diversity in Ethiopian grass frogs (Genus *Ptychadena*)’ *Royal Society Open Science* 4: 171389; doi: 10.1098/rsos.171389.
14. *Smith, M.L., Noonan, B.P., **Colston, T.J.** (2017a) The role of climatic and geological events in generating diversity in Ethiopian grass frogs (Genus *Ptychadena*). *Royal Society Open Science* 4: 170021; doi: 10.1098/rsos.170021.
13. **Colston, T.J.** (2017) Gut microbiome transmission in lizards. *Molecular Ecology* 26: 972–974; doi: 10.1111/mec.13987.

12. Ceriaco, L.M.P., Gutierrez, E.E., Dubois, A., [‡]**Colston, T.J.**, *et al.* (2016) Photography-based taxonomy is inadequate, unnecessary, and potentially harmful for biological sciences. *Zootaxa* 4196(3): 435–445; doi: 10.11646/zootaxa.4196.3.9. [‡]supporting co-author/signatory.
11. **Colston, T.J.**, & Jackson, C.R. (2016) Microbiome evolution along divergent branches of the vertebrate tree of life: what's known and unknown. *Molecular Ecology* 25: 3776–3800; doi: 10.1111/mec.13730.
10. Gower, D.J., Wade, E.O.Z., Spawls, S., Böhme, W., Buechley, E., Siykes, D., **Colston, T.J.** (2016) A new large species of *Bitis* Gray, 1842 (Serpentes: Viperidae) from the Bale Mountains of Ethiopia. *Zootaxa* 4093(1):041–063; doi: 10.11646/zootaxa.4093.1.3.
9. Medina, M.F., Bauer, A., Branch, W., Schmitz, A., Conradie, W., Nagy, Z. T., Hibbitts, T.J., Ernst, R., Portik, D.M., Nielsen, **Colston, T.J.**, Kusamba, C., Behangana, M., Rödel, M.O., Greenbaum, E. (2016) Molecular phylogeny of *Panaspis* and *Afroablepharus* skinks (Squamata: Scincidae) in the savannas of sub-Saharan Africa. *Molecular Phylogenetics and Evolution* 100: 409–423; doi: 10.1016/j.ympev.2016.04.026.
8. **Colston, T.J.**, Barão-Nóbrega, J.A.L., Manders, R., Lett, A., *Wilmott, J., Cameron, G., *Hunter, S., Radage, A., Littlefair, E., Williams, R.J., Lopez Cen, A., Slater, K. (2015) Amphibians and reptiles of the Calakmul Biosphere Reserve, México with new records. *Check List* 11(5): 1759; doi: 10.15560/11.5.1759.
7. **Colston, T.J.**, Noonan, B.P., Jackson, C.R. (2015) Phylogenetic analysis of bacterial communities in different regions of the gastrointestinal tract of *Agkistrodon piscivorus*, the cottonmouth snake. *PloS one* 10.6: e0128793; doi: 10.1371/journal.pone.0128793.
6. Nielsen, S.V. & **Colston, T.J.** (2014) The phylogenetic position of Ethiopia's sole endemic and biogeographically enigmatic cordylid lizard, *Cordylus rivae* (Squamata: Cordylidae), and a discussion of its conservation status. *African Journal of Herpetology* 63(2): 166–176; doi: 10.1080/21564574.2014.953606.
5. Henderson, R.W., Pauers, M.J., **Colston, T.J.** (2013) On the congruence of morphology, trophic ecology, and phylogeny in Neotropical treeboas (Squamata: Boidae: *Corallus*). *Biological Journal of the Linnean Society*, 109: 466–475; doi: 10.1111/bij.12052.
4. **Colston, T.J.**, Grazziotin, F.G., Shepard, D.B., Vitt, L.J., Coli, G.R., Henderson, R.W., Hedges, S.B., Bonatto, S., Zaher, H., Noonan, B.P., Burbrink, F.T. (2013) Molecular systematics and historical biogeography of tree boas (Genus *Corallus*). *Molecular Phylogenetics & Evolution*, 66(3): 953–959; doi: 10.1016/j.ympev.2012.11.027.
3. Schlupp, I., **Colston, T.J.**, Joachim, B., Riesch, R. (2013) Translocation of cave fish (*Poecilia mexicana*) within and between natural habitats. *Environmental Biology of Fishes*, 22(2): 228–233; doi: 10.1111/eff.12017.
2. Riesch, R., **Colston, T.J.**, Joachim, B.L., Schlupp, I. (2011) Natural history and life history of the Grijalva gambusia *Heterophallus milleri* Radda, 1987 (Teleostei: Poeciliidae). *Aqua*, 17(2): 95–102.
1. **Colston, T.J.**, Costa, G.C., Vitt, L.J. (2010) Snake diets and the Deep History Hypothesis. *Biological Journal of the Linnean Society*, 101: 476–486; doi: 10.1111/j.1095-8312.2010.01502.x. —undergraduate thesis

SUBMITTED PUBLICATIONS (IN REVIEW)

1. Title, P.O., Singhal, S., Grundler, M.C., Costa, G.C., Pyron, R.A., **Colston, T.J.**, Grundler, M.R., Prates, I., Stepanova, N., Jones, M.E.H., Cavalcanti, L.B.Q., Colli, G.R., Di-Poi, N., Donnelan, S.C., Moritz, C., Mesquita, D.O., Pianka, E.R., Sminth, S.A., Vitt, L.J., Rabosky, D.L. The macroevolutionary singularity of snakes (*submitted to Science*—March 2023).

2. Moura, M.R., Ceron, K., Guedes, J.J.M., Sica, Y.V., Hart, J., Dorman, W., Gonzalez-del-Pliego, P.G., Ranipeta, A., Catenazzi, A., Werneck, F.P., Toledo, L. F., Upham, N.S., Tonini, J.F.R., **Colston, T.J.**, Guralnick, R., Bowie, R.C.K., Pyron, R.A., Jetz, W. A phylogeny-informed characterization of global tetrapod traits addresses data gaps and biases. (*submitted to PLOS Biology*—May 2023).
3. Gerrick, E.R., DeSchepper, L.B., Mechler, C.M., Joubert, L.M., Dunker, F. **Colston, T.J.**, Howitt, M.R. Commensal protists in reptiles display flexible host range and adaptation to ectothermic hosts. (*submitted to mBio*—June 2023).

PUBLICATIONS IN PREPARATION

1. **Colston, T.J.**, Noonan, B.P., França, F.G.R., Jackson, C.R. Unique adaptations in the reptile gut microbiome and its role in host evolution. (*in prep for eLife*).
2. **Colston, T.J.**, Noonan, B. P., França, F.G.R., Jackson, C.R. Investigating the influence of the microbiome on host community assembly using snakes and their gut bacteria. (*in prep for Molecular Ecology*).
3. Ul-Hasan, S., iVAMP Consortium, **Colston, T.J.** A review on the venom microbiome: Its utility within venomics, microbiology, and future directions for emerging research. (*in prep for Frontiers in Ecology & Evolution*).

OTHER PUBLICATIONS

3. Snyder, A., **Colston, T.J.** (2018) Amphibians and reptiles of the Berbice River Camp and White Sands Camp, Guyana. In: Biodiversity Assessment Survey of the Upper Berbice Region, Guyana. BAT Survey Report No. 3. (Eds): Alonso, L.E., Persaud, J., Williams, A. World Wildlife Fund, Georgetown, Guyana. pp 55–71.
2. Snyder, A., **Colston, T.J.**, Skybar, L., Basil, M., Ngala, R., Gordon, D. (2017) Amphibians and reptiles of the Kaieteur Plateau and Upper Potaro River, Guyana. In: *Biodiversity Assessment Survey of the Kaieteur Plateau and Upper Potaro, Guyana*. BAT Survey Report No. 2 (Eds): Alonso, L.E., Persaud, J., Williams, A. World Wildlife Fund, Georgetown, Guyana. pp 73–91.
1. **Colston, T.J.** (2017) Book Review: Natural History of Neotropical Tree Boas (Genus *Corallus*). —Robert W. Henderson *The Quarterly Review of Biology* 92: 123.

SPECIES DESCRIBED

<i>Bitis harenni</i> (Serpentes: Viperidae)	<i>Ptychadena amharensis</i> (Anura: Ptychadenidae)
<i>Dipsas bobridgelyi</i> (Serpentes: Dispadini)	<i>Ptychadena baroensis</i> (Anura: Ptychadenidae)
<i>Dipsas georgejetti</i> (Serpentes: Dispadini)	<i>Ptychadena goweri</i> (Anura: Ptychadenidae)
<i>Dipsas klebbai</i> (Serpentes: Dispadini)	<i>Ptychadena levenorum</i> (Anura: Ptychadenidae)
<i>Dipsas oswaldobaezi</i> (Serpentes: Dispadini)	<i>Ptychadena nuerensis</i> (Anura: Ptychadenidae)
<i>Sibon bevriddgelyi</i> (Serpentes: Dispadini)	
<i>Panaspis annettesabinae</i> (Scincomorpha: Scincidae)	

CONTINUING EDUCATION AND PEDAGOGY

COURSES/CERTIFICATIONS

2021 Virtual Teacher Specialization: UC-Irvine, Division of Continuing Education. Five

module course (45 total hours including a final peer reviewed project).

- Foundations of Virtual Instruction–Certificate Program
- Emerging Trends & Technologies in the Virtual Classroom–Certificate Program
- Advanced Instructional Strategies in the Virtual Classroom–Certificate Program
- Performance Assessment in the Virtual Classroom–Certificate Program

TEACHING & MENTORING EXPERIENCE

INSTRUCTOR

- 2023 BIOL 4428: Ornithology, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 4335: Evolution, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 6990: Graduate Research Seminar, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 3062: Introductory Biology II for Majors, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR
- 2022 BIOL 3061: Introductory Biology I for Majors, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 6990: Graduate Research Seminar, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 3062-D: Introductory Biology II for Majors, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
- 2021 BIOL 3061-D: Introductory Biology I for Majors, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
 BIOL 4925-D: Undergraduate Seminar, Department of Biology, University of Puerto Rico–Mayagüez, Mayagüez, PR.
- 2019–2020 BIS 5936: Bioinformatics (Guest Lecturer), Department of Biological Sciences, Florida State University, Tallahassee, FL.
 Topic— Metagenomic and Microbiome Data Analyses (slides available upon request)
- 2019 BIO 7970: Special Topics in Biology, Reptile Evolution (Guest Lecturer), Villanova University, Villanova, PA.
 Topic—Venom Evolution (slides available upon request).
- 2017 HONR 2175: Global Biodiversity of Reptiles and Amphibians (Guest Lecturer), Department of Biological Sciences, George Washington University, Washington, DC.
- 2016 BISC 301: Evolution (Guest Lecturer), Department of Biology, University of Mississippi, Oxford, MS.
- 2012 BIOL 132: Human Anatomy & Physiology II, NW Community College, Oxford, MS.
- 2012 BIOL 102: Introductory Biology II, NW Community College, Oxford, MS.
- 2011 BIOL 101: Introductory Biology I, NW Community College, Oxford, MS.
- 2011 BIOL 131: Human Anatomy & Physiology I, NW Community College, Oxford, MS.
- 2010 Field Herpetology, Sam Noble Oklahoma Museum of Natural History, Norman, OK.
Teaching Teachers Programs in Science in collaboration with Norman Public Schools.

TEACHING ASSISTANT (# of semesters)

- 2010–2016 Department of Biology, University of Mississippi, Oxford, MS.
- BISC 333 Microbiology (1), BISC 331 Comparative Vertebrate Anatomy (4), BISC 323 Biology of Invasive Species (1).
- 2008–2009 Department of Zoology, University of Oklahoma, Norman, OK.
- BIOL 2234 Human Physiology (1), BIOL 2255 Human Anatomy– cadaver course (2) BIOL 4653 Parasitology (1).
- 2007 Department of Zoology, University of Oklahoma, Norman, OK. [undergraduate TA]
- G4083 Herpetology (1).

RESEARCH MENTORSHIP (see Presentations & Publications for mentee co-authors)

PHILOSOPHY—My philosophy on mentoring trainees is to provide an environment that is both inclusive and welcoming to all, provides the tools necessary to succeed, and fosters their passion for research. In addition to the below list of academic mentees I have trained a multitude of field mentees from a diverse array of backgrounds and cultures in scientific methods for field research; including members of government environmental agencies in Ethiopia, Guyana and Mexico.

	GRADUATE MENTEE INFORMATION	CURRENT POSITION
2022–present	<u>Jacob Adam</u> , University of Puerto Rico at Mayagüez. <i>Major Advisor</i> , MSc committee.	M.Sc. student, UPR Mayagüez
2022–present	<u>Rosemarie Casianos Matos</u> , University of Puerto Rico at Mayagüez. MSc <i>committee member</i> .	M.Sc. student, UPR Mayagüez
2022–present	<u>Laura V. Martinez-Aponte</u> , University of Puerto Rico at Mayagüez. MSc <i>committee member</i> .	M.Sc. student, UPR Mayagüez
2022–present	<u>Wondifraw Adinew</u> , Jimma University, Jimma Ethiopia. Ph.D. <i>committee member</i> .	Ph.D. student, Jimma University
2020–present	<u>Sierra N. Smith</u> , University of Oklahoma. Sierra's dissertation is investigating the role of the microbiome in venomous snakes.	Ph.D. candidate, University of Oklahoma
2022	<u>Jody Michael Barends</u> , University of the Western Cape, South Africa. Ph.D. <i>examining committee</i> (Autecology of the rhombic egg-eater, <i>Dasypeltis scabra</i>).	Ph.D. University of the Western Cape
2018–2022	<u>Samuel J. Eliades</u> , University of Oklahoma. Sam gained extensive experience in microbiome data analyses. His dissertation focused on investigating the impact of the microbiome on <i>in-situ</i> and <i>ex-situ</i> conservation of reptiles.	Ph.D. University of Oklahoma
2021	<u>James S. Dobson</u> , The University of Queensland, Australia. Ph.D. <i>examining committee</i> (Evolution and diversification of the anguimorph lizard venom system).	Ph.D. University of Queensland
2018–2020	<u>Schyler Ellesworth</u> , Florida State University. Schyler received training in bioinformatic data analyses and was awarded a J. William Fulbright Scholarship to Brazil during my mentorship.	Ph.D. candidate, Florida State University

2018–2020	<u>Gunnar Nystrom</u> , Florida State University. Gunnar received training in molecular techniques involved in microbiome data generation and incorporated this into his dissertation work investigating the role of the microbiome in reproduction and defense in scorpions.	Ph.D. candidate, Florida State University
2018–2020	<u>Kylie Lawrence</u> , Florida State University. Kylie gained experience in genomic and transcriptomic data analyses and both field and laboratory techniques for working with venomous reptiles.	Ph.D. candidate, Florida State University
2018–2020	<u>Erin Stiers</u> , Clemson University. (M.Sc. project) Erin's thesis focused on microbiome variation in rattlesnakes with differing venom types.	MSc. Clemson University
2017–2019	<u>Joseph Brown</u> , University of Oklahoma (M.Sc. project). Joey's research focused on conservation efforts of Fiji Island iguanas and Philippine crocodiles, including their associated microbiomes. Significant awards Joey received that I assisted in mentoring were a National Geographic Young Explorer Grant and a J. William Fulbright Fellowship.	Curator in Charge, Hope Zoo, Kingston, Jamaica
2018	<u>Lucas B.Q. Cavalcanti</u> , Universidade Federal da Paraíba, Brazil. Ph.D. <i>examining committee</i> (Diversity and distribution of snakes in NE Brazilian Atlantic Forest).	Private Industry in Brazil
2015–2016	<u>Gahsaw Gebrewold</u> , Addis Ababa University. M.Sc. <i>external committee member</i> (Variation in venom composition from different populations of Ethiopian venomous snakes).	Ethiopian Public Health Institute

UNDERGRADUATE MENTEE INFORMATION

CURRENT POSITION

2023–present	<u>Yeissette M. Burgos-Amengual</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher.	Biology Major (2024) UPR Mayagüez
2022–present	<u>Yoshua Cintron-Alvarado</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher	Biology Major (2023) UPR Mayagüez
2022–present	<u>Veronica G. Bado-Garcia</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher	Biology Major (2024) UPR Mayagüez
2022–present	<u>Rosa M. Rivera-Rivera</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher.	Biology Major (2023) UPR Mayagüez
2022	<u>Amanda Roman-Ramirez</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher. Amanda's project investigated gut microbial ecology of Puerto Rican leaf litter geckos.	MS Program, University of Madrid
2022	<u>Amanda Colon-Mora</u> . University of Puerto Rico at Mayagüez. Directed Studies Undergraduate Researcher. Amanda's project investigated gut microbial ecology of	

Puerto Rican Anoles.

Industry

2019–2020	<u>Claudia Jacobo</u> , Florida State University. Undergraduate Research Opportunity Program Scholar. Claudia's project investigated whether using estimates of prey body size rather than count data impact dietary analyses in snakes.	Industry
2018–2020	<u>Kelsey Hodge</u> , Florida State University. Directed Studies in Biology Undergraduate Researcher. Kelsey gained significant laboratory experience in DNA extraction and analyses of microbiome data from amphibians, reptiles and invertebrates.	Flowers Hospital, Dothan, Alabama
2018–2020	<u>Jason Raiti</u> , Florida State University. Undergraduate Research Opportunity Program Scholar; Directed Studies in Biology Undergraduate Researcher. Jason worked on multiple computational projects including population genetics using genome-scale data and geometric morphometrics in <i>Bothrops moojeni</i> . After this	
2018–2019	work he was awarded a prestigious internship at NASA. <u>Emily Saladrigas</u> , Florida State University. Undergraduate Research Opportunity Program Scholar. Emily used eDNA to investigate detection rate in endangered Ethiopian frogs.	Industry
2018	<u>Pallavi Kulkarni</u> , George Washington University. High School Summer Researcher Program. Pallavi assisted in a macroevolutionary study of turtles & crocodilians where she gained extensive experience (as a high school student) researching trait data in the primary literature.	Industry
2016	<u>John Davidson</u> , U. of Mississippi. Directed Studies in Biology Undergraduate Researcher. John gained computational experience and help to digitize morphological data collected from museum specimens.	University Program
2015	<u>Jamie Thomas</u> , U. of Mississippi. Directed Studies in Biology Undergraduate Researcher. Jamie gained molecular lab experience in DNA extraction and amplification. Her primary project was testing methods for extracting eDNA from swab samples.	Medical School
2013–2015	<u>Megan Smith</u> , U. of Mississippi. Directed Studies in Biology Undergraduate Researcher. Megan gained experience in molecular laboratory methods and phylogenetic systematic analyses. She co-authored two first author papers and was awarded a prestigious NSF GRFP under my tutelage.	Medical School
2012	<u>Clara Vergez</u> , U. of Edinburgh, U.K. Clara gained experience in field methods for surveying reptiles and amphibians, and collecting ecological data.	investigate the impact of forest type on
2012	<u>Jamie Willmott</u> , U. of Southampton, U.K. <i>Dissertation Supervisor</i> . Jamie's undergraduate dissertation	

herpetofaunal

Assistant Professor,
Mississippi State
University

Ph.D., University of
Edinburgh

Environmental
Consultant, U.K.

	distribution in the Calakmul Biosphere Reserve, Campeche, Mexico.	
2012	<u>Sidoney Hunter</u> , U. of Nottingham, U.K. <i>Dissertation Supervisor</i> . Sidoney's dissertation investigated perch preference in a clade of continental anoles in the Calakmul Biosphere Reserve, Campeche, Mexico.	Primary School Teacher, U.K.
2011	<u>Gavin Cameron</u> , U. of Aberdeen, U.K. <i>Dissertation Supervisor</i> . Gavin's dissertation investigated the impact of forest type on herpetofaunal distribution in the Calakmul Biosphere Reserve, Campeche, Mexico.	Environmental Consultant, U.A.E.

PROFESSIONAL SERVICE

Peer Reviewer (Referee for 54 Journals; average 3 reviews/month): *Acta Ethologica*, *Asian Herpetological Research*, *Austral Ecology*, ***Biology Letters***, *Breviora*, *Biological Journal of the Linnean Society*, *Biomolecules*, *Biotropica*, ***BMC Evolutionary Biology***, *Canadian Journal of Zoology*, *Cells*, *Check List*, *Coral Reefs*, *Current Zoology*, *EcoHealth*, *Ecology & Evolution*, *Endangered Species Research*, *Environmtal Microbiology and Environmental Microbiology Reports*, *Evolutionary Ecology*, *FEMS Microbiology Ecology*, ***Functional Ecology***, *Future Microbiology*, *Genomics*, *Global Ecology and Conservation*, *Herpetological Journal*, *Herpetological Review*, *Herpetology Notes*, *Integrative and Comparative Biology*, ***Journal of Biogeography***, *Journal of Heredity*, *Journal of Venomous Animals and Toxins*, *Journal of Zoo Biology*, ***Microbial Ecology***, *Microbiology Open*, *Microbiome*, *Molecular Biology Reports*, ***Molecular Ecology***, *Molecular Ecology Resources*, ***Molecular Phylogenetics and Evolution***, *Nature Conservation*, ***Naturwissenschaften (The Science of Nature)***, *Organisms, Diversity & Evolution*, *PeerJ*, *PlosONE*, ***Proceedings of the Royal Society-B***, *Revista Mexicana de Biodiversidad*, *Royal Society Open Science*, *Scientific Reports*, *South American Journal of Herpetology*, *The Herpetological Bulletin*, *The Southwestern Naturalist*, ***Systematic Biology***, *ZooKeys & Zoologica Scripta*.

2022–Present **Review Editor**, *Frontiers in Amphibian and Reptile Science*.

2022–Present **Committee Member**, IUCN SSG Taxonomy Working Group.

2022–Present **Regional Chair**, IUCN SSG for East and Southern Africa.

2021–Present **Committee Member**, Diversity, Equity & Inclusion Committee, Society for Systematic Biologists (3 year term).

2020–Present **Associate Editor**, *Herpetology Notes*.

2020–Present **Literature Editor**, The Reptile Database (www.reptile-database.org)

Present **Co-founder & Member**, Initiative for Venom Associated Microbes and Parasites (iVAMP; <https://ivamp-consortium.github.io/>).

2017–Present **Assistant Editor**, *Herpetological Conservation Biology*.

2017–Present **Member**, IUCN Snake Specialist Group (former Boa and Python Specialist Group).

2020–2023 **Committee Chair**, Herpetologists League Symposium selections committee.

2023 **Panel Member**, National Science Foundation.

2022 **Award Judge**, Sociedad Nacional de Honor de Biología (Tri-Becca Honors Society).

2022 **External Grant Reviewer**, National Science Center Poland (NCN).

2022 **Guest Editor**, *Frontiers in Ecology and Evolution* Special Edition Research Topic "The Role of the Microbiome in Host Ecology and Evolution."

2022 **Panel Member**, National Science Foundation.

2021 **External Grant Reviewer**, Faculty Research Grants, General Research Office (Dirección General de Investigación - DGI) of the Universidad de las Americas - Ecuador (UDLA).

2021 **Ad-hoc Reviewer**, National Science Foundation, CAREER Award.

2021 **Moderator**, SSB DEI Symposium, 2021 Virtual Evolution Meetings.

2021 **External Ph.D. Thesis Reviewer**, Australia National University.

2021 **Reviewer**, Graduate Student Research Awards, Society for Systematic Biologists.

2018–2020 **Committee Member**, Herpetologists League Symposium selections committee.

2018–2020 **Committee Member**, Florida State University Biological Science/College of Medicine Genomics Core Committee.

2011–2020 **External Grant Reviewer**, Conservation Leadership Programme: Partnership between Birdlife International, Conservation International, Fauna & Flora International and Wildlife Conservation Society.

2020 **External Reviewer**, Swedish Research Council (Vetenskapsrådet), NT12 Ecology, Systematics & Evolution panel.

2020 **External Reviewer**, Ohio University Research Council (OURC) Faculty Grants.

2019 **Ad-hoc Reviewer**, National Science Foundation, CAREER Award.

2019 **Panel Member**, National Science Foundation, DEB Systematics and Biodiversity Science (SBS).

2019 **President**, Florida State University Postdoctoral Association.

2018–2019 **Board Member**, Florida State University Postdoctoral Affairs Advisory Board.

2018–2019 **Vice President**, Florida State University Postdoctoral Association.

2019 **Reviewer**, Mini-ARTS Grant, Society for Systematic Biologists.

2018 **External Grant Reviewer**, Faculty Research Grants, General Research Office (Dirección General de Investigación - DGI) of the Universidad de las Americas - Ecuador (UDLA).

2018 **Award Judge**, Wake Award for Best Student Presentation, Society for Integrative and Comparative Biology.

2018 **External Grant Reviewer**, FONDECYT Regular 2019 Grant Competition, Biology 1, Full Proposal, Chilean National Science and Technology Commission.

2018 **Reviewer**, Graduate Student Research Awards, Society for Systematic Biologists.

2016 **Panel Member**, SSAR workshop on grant writing and funding opportunities. Joint Meetings of Ichthyologists & Herpetologists, New Orleans, LA, USA.

2015–2016 **Biology Graduate Student Association Student Representative**, (*faculty liaison*), University of Mississippi.

2015–2016 **Biology Graduate Student Association Student Representative Treasurer**, University of Mississippi.

2015–2016 **Reviewer**, Herpetologists' League EE Williams Research Grant.

2014–2016 **Graduate Student Council Representative**, (*Biology Senator*), University of Mississippi.

2014 **Contributor**, IUCN's Chameleon Specialist Group, Horn of Africa.

2012–2016 **Member**, University of Mississippi IACUC panel responsible for consultation and training of field and laboratory methods pertaining to handling venomous reptiles.

2010 **Session Moderator**, (Biogeography) 2010 Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists Portland, Oregon, USA.

- 2010 **Zoology Association of Graduate Students Student Representative**, (*faculty liaison*), University of Oklahoma.
- 2010 **Zoology Association of Graduate Students Student Representative**, (*graduate selections committee*), University of Oklahoma.

SYMPOSIA ORGANIZED

- 2022 **"Field Safety & Ethics in Evolution & ecology: Experiences & Tools for Inclusive Practices"**—SSB sponsored symposia (Co-organizer with DEIC). Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists, Cleveland, Ohio.
- 2021 **"Diversifying Evolution"**—SSB sponsored symposia (Co-organizer with DEIC). Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists, (Virtual Conference).

TECHNICAL REPORTS

7. Lujan, N.K., **Colston, T.J.**, Zyskowski, K. (2016) PRELIMINARY REPORT to Guyanan EPA. Survey of ecotourism resources and aquatic and terrestrial ecosystems of the Orinduik Fall and the upper Ireng River drainage, Region 8, Guyana.
6. Snyder, A., & **Colston, T.J.** (2014) FINAL REPORT to WWF & Guyanan EPA. Berbice River, Guyana Biodiversity Assessment Team (BATIII) Survey.
5. **Colston, T.J.**, Snyder, A., Ali, Z. (2014) FINAL REPORT to WWF & Guyanan EPA. Konawaruk River Biodiversity Assessment Team (BATIII) Survey.
4. **Colston, T.J.**, Snyder, A. (2014) FINAL REPORT to WWF & Guyanan EPA. Kaieteur Falls – Upper Potaro Biodiversity Assessment Team (BATII) Survey.
3. **Colston, T.J.**(2013) FINAL REPORT to EWCA and Addis Ababa University. Community assembly in Ethiopian amphibians and reptiles and their associated gut bacteria.
2. **Colston, T.J.**(2013) FINAL REPORT for J. William Fulbright Student Fellowship: Snakes of different scales: community assembly in Ethiopian snakes and their gut bacteria.
1. **Colston, T.J.**(2013) MIDTERM REPORT for J. William Fulbright Student Fellowship: Snakes of different scales: community assembly in Ethiopian snakes and their gut bacteria.

PROFESSIONAL MEMBERSHIPS

American Society of Naturalists
Partners in Amphibian & Reptile
Conservation
Society for the Study of Amphibians &
Reptiles

Society for the Study of Evolution
Society for Integrative & Comparative
Biology
Society of Systematic Biologists
Systematics Association

PRESENTATIONS

INVITED

- 2023 Kansas State University, Manhattan, KS.

2022 Duquesne University, Pittsburgh, PA.

2021 University of Puerto Rico–Mayagüez, PR.
 2021 Kennesaw State University, Kennesaw, GA.
 2021 Mississippi State University, Starkville, MS.
 2021 Austin Peay State University, Clarksville, TN.
 2020 Tallahassee Museum, Tallahassee, FL.
 2020 University of Florida, Florida Museum of Natural History, Gainesville, FL.
 2019 Instituto Butantan, São Paulo, Brazil.
 2019 Universidade Federal do Paraná, Curitiba, Brazil.
 2019 Villanova University, Dept. of Biology, Villanova, PA.
 2018 Florida State University, Dept. of Biological Science, Tallahassee, FL.
 2018 University of North Carolina, Asheville, Dept. of Biology, Asheville, NC.
 2018 USDA Forest Service Southern Research Station, Oxford, MS.
 2018 Samford University, Dept. of Biological and Environ. Science, Birmingham, AL.
 2017 Florida State University, Dept. of Biological Science, Tallahassee, FL.
 2017 The George Washington University, Dept. of Biological Sciences, Washington, DC
 2017 The George Washington University, CCAS, Washington, DC.
 2017 Museo Universidad de Antioquia, Medellín, Colombia.
 2017 Louisiana State University Natural Science Museum, Baton Rouge, LA.
 2016 Guyanan EPA & WWF Guyana (also televised locally) Georgetown, Guyana.
 2015 Biology Department, University of Mississippi, Oxford, MS.
 2015 Austin Herpetological Society, Austin, TX.
 2014 University of Mississippi Graduate College, Oxford, MS.
 2012 Biology Department, University of Mississippi, Oxford, MS.
 2012 University of Mississippi Honors College, Oxford, MS.
 2010 Museum Seminar, Sam Noble Museum & OU Zoology Department, Norman, OK.
 2010 University of Oklahoma, Undergraduate Zoology Association, Norman, OK.
 2010 University of Oklahoma, Zoology Department eco-munch series, Norman, OK.
 2010 III Annual Biology of Vipers Conference (plenary lecture). Pisa, Italy
 2010 University of Oklahoma Darwinathon. Norman, OK.
 2009 Oklahoma City Herpetological Society, Oklahoma City Zoo, OK.
 2008 Oklahoma City Herpetological Society, Oklahoma City Zoo, OK.

CONFERENCE & SYMPOSIA PRESENTATIONS

2023 Burgos-Amengual, Y., **Colston, T.J.** Identification of Microbial Factors Influencing Mucous Toxin Secretions Within the Invasive Cuban Tree Frog (*Osteopilus septentrionalis*). PR-LSAMP Annual Research Symposium, Bayamón, Puerto Rico.
 2023 García, V.G.B., Rolón, A.P., **Colston, T.J.** Monitoring the Spread of IBD in Puerto Rico by Invasive *Boa Constrictor*. PR-LSAMP Annual Research Symposium, Bayamón, Puerto Rico.
 2023 Adam, J.D., **Colston, T.J.** Geographic Occurrence and Taxonomic Distribution of Snake Fungal Disease: A Global Perspective. UPRM Biology Research Symposium, Mayagüez, Puerto Rico.
 2022 Xue, J., Fierros-Romero, G., Jaswal, R., Harvey, E., **Colston, T.J.**, Kumari, R., Lindsay, B., Ali, J., Kranz, S.A., Williams, H.N. New Evidence that Protistan Grazing Reduces Predation by *Halobacteriovorax* in Marine Waters. American Society of Microbiology (ASM Microbe) Meeting, Washington, DC, USA.
 2022 **Colston, T.J.** Host-Microbiome Interactions & Herpetological Systematics at UPRM. Simposio de Investigacion de Biologia. University of Puerto Rico–Mayagüez, Mayagüez, PR.

- 2020 **Colston, T.J.**, Bartlett, D., Hogan, M.P., Rokyta, D.R. The Role of Chromatin Accessibility on Venom Gene Regulation in *Crotalus adamanteus*. The North American Society of Toxinology (Venom Week) Conference, Gainesville, FL, USA.
- 2019 Stiers, E., Strickland, J.L., Seekatz, A.M., **Colston, T.J.**, Parkinson, C.L. The Gut Microbiome in Rattlesnakes with Divergent Venoms. Biology of the Pitvipers III, Rodeo, New Mexico, USA.
- 2019 Holding, M.L, Strickland, J.L. Rhautsaw, R.M., Hofmann, E.P., Hogan, M.P., Nystrom, G., Ellsworth. S., **Colston, T.J.**, Borja, M., Grunwald, C., Castaneda, G., Jones, J., Freitas-de-Sousa, L., Margres, M.M., Grazziotin, F.G., Azevedo, I., Moura da Silva, A., Gibbs, H.L., Rokyta, D.R., Parkinson, C.L. Venom Complexity and Diet Diversity in Rattlesnakes. Biology of the Pitvipers III, Rodeo, New Mexico, USA.
- 2019 **Colston, T.J.**, Ul-Hasan, S. iVAMP: An Initiative for Studying the Venom-associated Microbiome and its Biological Significance. International Meeting of The Society for Integrative and Comparative Biology, Tampa Bay, FL, USA.
- 2018 **Colston, T.J.**, Smith, M.L., Noonan, B.P., Pyron, R.A. Best Practices for Taxonomy in the Molecular Age. Society of Systematic Biologist Standalone Meeting. Columbus, Ohio, USA.
- 2017 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. The Reptile Gut Microbiome: Its Role in Host Evolution and Community Assembly. Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists, Portland, Oregon, USA.
- 2016 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. The Evolution of Squamate Reptile Gut Microbiomes. Joint Meetings of Ichthyologists & Herpetologists, New Orleans, LA, USA.
- 2014 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. Phylogenetic Analysis of Bacterial Communities in Different Regions of the Gastrointestinal Tract of *Agkistrodon piscivorus*, the Cottonmouth Snake. Biology of the Pitvipers 2, Tulsa, Ok, USA.
- 2013 **Colston, T.J.**, Jackson, C.R., Noonan, B.P. Snake Gut Microbial Communities: Ecological and Evolutionary Implications. Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists, Snowbird, Utah, USA.
- 2010 **Colston, T.J.** Biogeography and Phylogeography of *Corallus hortulanus* With a Review of the Genus *Corallus*. Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists. Portland, Oregon, USA.
- 2010 **Colston, T.J.** Evolutionary Shifts in Dietary History of Snakes Impacts Present Day Community Structure. III Annual Biology of Vipers Conference (plenary lecture). Pisa, Italy.

POSTER PRESENTATIONS (*indicates undergraduate researcher)

- 2023 Rivera, R.M., **Colston, T.J.** The Effects of the Sponges of the Demospongiae Class on the Gastrointestinal Microbiome of *Eretmochelys imbricata*. UPRM Biology Research Symposium, Mayagüez, Puerto Rico.
- 2023 García, V.G.B., Rolón, A.P., **Colston, T.J.** Monitoring the Spread of IBD in Puerto Rico by Invasive *Boa Constrictor*. UPRM Biology Research Symposium, Mayagüez, Puerto Rico.
- 2023 Burgos-Amengual, Y., **Colston, T.J.** Identification of Microbial Factors Influencing Mucous Toxin Secretions Within the Invasive Cuban Tree Frog (*Osteopilus septentrionalis*). UPRM Biology Research Symposium, Mayagüez, Puerto Rico.
- 2023 Adam, J.D., **Colston, T.J.** Geographic Occurrence and Taxonomic Distribution of Snake Fungal Disease: A Global Perspective. PR-LSAMP Annual Research Symposium, Bayamón, Puerto Rico.

- 2023 García, V.G.B., Rolón, A.P., **Colston, T.J.** Monitoring the Spread of IBD in Puerto Rico by Invasive *Boa Constrictor*. Sigma Xi Research Day, UPRM, Mayagüez, Puerto Rico.
- 2020 Lawrence, K.C., **Colston, T.J.**, Holding, M.L., Rokyta, D.R. Venom Gland Transcriptomics and Venom Proteomics of the Cottonmouth Snake (*Agkistrodon piscivorus*) Reveals that Geographic Isolation Contributes Little to Venom Diversity. The North American Society of Toxinology (Venom Week) Conference, Gainesville, FL, USA.
- 2020 *Jacobó, C., **Colston, T.J.**, Holding, M.L., Rokyta, D.R. Do Estimates of Prey Body Size Impact Diet Analyses Based Primarily on Count Data? Undergraduate Research Symposium, Florida State University, Tallahassee, FL USA.
- 2019 *Saladrigas, E., **Colston, T.J.**, Holding, M.L., Rokyta, D.R. Utilizing Environmental DNA to Survey for Rare and Endangered Amphibians in the Ethiopian Highlands. Undergraduate Research Symposium, Florida State University, Tallahassee, FL USA.
- 2019 *Raiti, J., **Colston, T.J.**, Holding, M.L., Rokyta, D.R. Utilizing Geometric Morphometrics to Characterize Head-Shape Variation in the Brazilian Lance-head Viper (*Bothrops moojeni*). Undergraduate Research Symposium, Florida State University, Tallahassee, FL USA.
- 2019 *Dye, C.O., Holding, M.L., Davis, M., **Colston, T.J.**, Rokyta, D.R. Testing Secondary Effects of Bergmann's Rule in Pit Vipers. Undergraduate Research Symposium, Florida State University, Tallahassee, FL USA.
- 2019 *Sullivan, S., Holding, M.L., **Colston, T.J.**, Davis, M. Rokyta, D.R. Investigating the Relationship Between Head Shape and Elevation in Black-tailed Rattlesnakes. Undergraduate Research Conference, University of North Florida, Jacksonville, FL USA.
- 2019 *Huff, E., *Schonour, R., Holding, M.L., Ellsworth, S., Margres, M.M., **Colston, T.J.**, Hogan, M.P., Rokyta, D.R. Ontogenetic Shifts in Venom Composition in Two Rattlesnake Species (*Crotalus horridus* and *Crotalus adamanteus*) Occur Gradually. Florida Undergraduate Research Conference, University of North Florida, Jacksonville, FL USA.
- 2018 **Colston, T.J.**, Broe, M., Gibbs, Wray, K.P., Margres, M.J., Lemmon, A.R., Lemmon, E.M. Rokyta, D.R. Genomic Variation in Selection for Toxin and Non-Toxin Loci Across Populations of the Eastern Diamondback Rattlesnake (*Crotalus adamanteus*). Venom Evolution, Function and Biomedical Applications—*Gordon Research Conference: Evolution and Function of Venom Arsenals*, West Dover, VT, USA.
- 2017 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. Characterizing the Squamate Reptile Gut Microbiome. XI Latin American Congress of Herpetology, Puce, Ecuador.
- 2015 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. Evolution of Squamate Reptile Gut Bacterial Communities with a Focus on the Advanced Clade Toxicofera. The Society for the Study of Amphibians and Reptiles (SSAR), Lawrence, KS, USA.
- 2014 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. Phylogenetic Analysis of Bacterial Communities in Different Regions of the Gastrointestinal Tract of *Agkistrodon piscivorus*, the Cottonmouth Snake. Joint Meetings of Ichthyologists & Herpetologists, Chattanooga, TN, USA.
- 2014 *Smith, M.L., Noonan, B.P., **Colston, T.J.** Cryptic Diversity in Ethiopian Amphibians Revealed Through Molecular Data. Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists. Raleigh, NC, USA.
- 2014 **Colston, T.J.**, Noonan, B.P., Jackson, C.R. Phylogenetic Analysis of Bacterial Communities in Different Regions of the Gastrointestinal Tract of *Agkistrodon piscivorus*, the Cottonmouth Snake. University of Mississippi Graduate Student Research Symposium, Oxford, MS, USA
- 2011 **Colston, T.J.**, and Jackson, C.R. Regional Specificity in Snake Gut Microbial Communities: Ecological and Phylogenetic Implications. Joint Annual Meeting of the American Society of

Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists.
Norman, OK, USA

2010 **Colston, T.J.** Complex Origins of Neotropical Diversity: Dispersal and Vicariance in the Tree Boas (*Corallus*). University of Oklahoma Research and Performance Day

2009 **Colston, T.J.** Dietary Shifts in Evolutionary History of Snakes Affects Present Day Community Structure. IV Annual Brazilian Herpetology Congress. Pirenópolis, Brazil.

2008 **Colston, T.J.,** and L.J. Vitt. Dietary Shifts in Snake Evolutionary History. Joint Annual Meeting of the American Society of Naturalists, Society of the Study of Evolution, and the Society of Systematic Biologists. Minneapolis, Minnesota, USA.

PUBLIC OUTREACH EXPERIENCE

- 2021 Girl Scouts of America – Eastern Oklahoma, Brownie Troop 572. Overview of venomous snakes of Oklahoma, safety in the field and natural history.
- 2020 Tots and Trails Nature Science Camp – Presented guest lecture to 50+ K–6th students (in small groups of <10, adhering to physical distance guidelines) on amphibians and reptiles, including live animal presentations.
- 2020 Tallahassee Museum, Museum Mixology Sipping with Scientists Program – Presented guest lecture to public museum listserv advertised to 40,000+ members across a diverse local community followed by a public Q&A session regarding my research in Ethiopia over the past 8 years.
- 2019 Florida State University Young Scholars Program – Program that pairs high school students with academic mentors to develop and conduct research experiments. Final product includes public presentation and research poster publication.
- 2019 Tallahassee Museum Summer Camp Venom Day – Provide public tours of the FSU animal facilities and venom labs, public Q&A on venom and venomous animals.
- 2015–2017 Oxford Mississippi Public Schools & Magnolia Montessori School – I regularly gave invited presentations on multiple topics including Mississippi reptile and amphibian diversity, snake diversity and venomous snake identification, and my dissertation research to primary school students at all age levels (kindergarten–high school).
- 2012–2017 University of Mississippi Biology Graduate Student Association – Led outreach initiatives including public speaking & outreach at university sponsored events to promote the Biology graduate program.
- 2016 Indigenous Peoples of the Upper Ireng River, Guyana – As part of our biodiversity and ecotourism assessment of the region, I conducted outreach and interviews with the local Patamona indigenous inhabitants. These public gatherings included important elders and policy makers, where Q&A helped to open the discussion of the benefits of both sustainable eco-tourism and biodiversity surveys by researchers.
- 2011–2015 Operation Wallacea, Mexico – As lead herpetologist I regularly engaged with the local Mayan community to present research outcomes and benefits from the biodiversity monitoring conducted in the Yucatan.
- 2014 Global Wildlife Conservation and World Wildlife Fund, Guyana – presented public presentation to policy makers and multiple news outlets, including live television interviews, on the research conducted by the GWC & WWF in Guyana.
- 2013–2015 Bale Mountains National Park, Ethiopia – Public outreach and engagement through informational seminars and meetings with community leaders to promote the conservation of local Ethiopian herpetofauna.

2007–2010 Sam Noble Museum of Natural History – Assisted in the organization and public presentation of collections for “Night at the Museum” and multiple public outreach initiatives including presenting to potential donors.

COLLECTIONS EXPERIENCE

2017–Present **Research Associate**, National Museum of Natural History, Smithsonian Institution. – Regularly conduct research using NMNH vertebrate collections.

December 2016–May 2017 **Graduate Curatorial Research Assistant**, University of Mississippi, Department of Biology Herbarium. Supervisor: Lucile McCook – Responsible for catalog quality control and geo-referencing botanical collections.

August 2015–December 2015 **Graduate Curatorial Research Assistant**, University of Mississippi, Department of Biology Museum Collections – Supervised specimen preparation of Ornithology, Herpetology and Mammalogy museum specimens.

October 2012–December 2015 **Research Affiliate**, Department of Zoology and Museum of Natural History, Addis Ababa University, Arat Kilo, Addis Ababa, Ethiopia. Regularly contributed specimens to Herpetology collection. Assisted with various duties including specimen maintenance, cataloging and identification.

August 2009–July 2010 **Graduate Research Assistant**, Sam Noble Oklahoma Museum of Natural History, University of Oklahoma, Norman, OK. Supervisors: Jan Caldwell & Laurie Vitt – Herpetology collection research assistant. Assist in day-to-day activities including specimen preparation, maintenance, identification and loan requests.

January 2008–May 2008 **Graduate Curatorial Assistant**, Division of Herpetology, Sam Noble Oklahoma Museum of Natural History, University of Oklahoma, Norman, OK. Supervisor: Laurie Vitt – responsible for assisting in collections-based research.

February 2006–December 2007 **Undergraduate Collections Volunteer**, Division of Herpetology, Sam Noble Oklahoma Museum of Natural History, University of Oklahoma, Norman, OK. Supervisors: Jan Caldwell & Laurie Vitt.

FIELD RESEARCH EXPERIENCE

SUMMARY OF PROFESSIONAL RESEARCH LOCATIONS AND DATES

Africa: Ethiopia (2012-13, 2015, 2017)

Latin America: Brazil (2007, 2011, 2015, 2019), Colombia (2017), Ecuador (2014), Guyana (2014, 2016), Mexico (2007–2014)

United States: (2006–present) AL, AR, AZ, CA, FL, LA, MS, NM, OK, OR, PR, TX, WA

MAJOR INTERNATIONAL FIELD RESEARCH TRIP PROGRAMS & RESPONSIBILITIES

August 2019 (**Brazil**) – **Herpetological Collections of Passo do Lontra, MS. Financial Support from FAPESP. Project Coordinator Felipe Grazziotin.** Assist in herpetological collections from the Pantanal for the Instituto Butantan.

October 2017 (**Ethiopia**) – **Survey of Reptiles and Amphibians of SE Ethiopia (Bale Mountains). Financial Support from NSF DDIG TJC.** Responsible for all logistical operations and supervision of data collection. Focused on documenting distribution of newly described endemic amphibian species from Smith et al. 2017.

August 2017 (**Colombia**) – **Herpetofaunal Biodiversity Assessment of Previously Inaccessible Areas, Florencia, Colombia. Financial Support from the Coypu**

Foundation to Nathan K. Lujan. Conduct field surveys and make collections of amphibians and reptiles in remote southern Colombia in areas previously inaccessible to researchers due to violence between guerrilla and paramilitary forces. Responsible for coordinating logistical operations and supervision of data collection in collaboration with researchers from the Universidad de Antioquia, Medellin, Colombia.

January 2016 **(Guyana) – Biodiversity Assessment and Ecotourism Potential of the Upper Ireng River, Region 8 Guyana. Financial Support from the Coypu Foundation. Project Coordinator Nathan K. Lujan.** Led herpetofaunal surveys of remote areas of the Ireng River as part of a broader project to assess the biodiversity (aquatic, terrestrial and aerial) present and ecotourism potential of the river for the Guyanese EPA. Made collections of amphibians and reptiles.

May–June 2015 **(Ethiopia) – Survey of Reptiles and Amphibians of SE Ethiopia (Afar, Oromia and Somali Regions). Financial Support from Aaron Bauer (Villanova University) to TJC.** Conduct field surveys and make collections of amphibians and reptiles in Ethiopia's remote and often conflict ridden eastern regions. Responsible for all logistical operations and supervision of data collection including specimen preparation and implementation of lizard thermal tolerance experiments.

September 2014 **(Guyana) Konawaruk River – Konawaruk River Biodiversity Assessment Team (BATII) Survey. Financial Support from Global Wildlife Conservation and World Wildlife Fund. Project Coordinators Leeanne Alonso, Chuck Hutchinson and Aiesha Williams.** Led herpetofaunal surveys of remote areas of the Konawaruk River as part of a broader project to assess biodiversity impact of the long-term gold mining on the river. Made collections of amphibians and reptiles. Expeditions included remote site insertions and extractions via helicopter, small plane and extensive travel on foot.

June 2011–August 2014 **(Mexico, Yucatán) Lead Herpetologist, Operation Wallacea Mexico Project. Supervisor: Kathy Slater** - Leading annual volunteer based biodiversity surveys of the Calakmul Biosphere Reserve in the Yucatán Peninsula. Supervising all reptile and amphibian data collection and mentoring both undergraduate and graduate researchers.

June 2014 **(Ecuador) Staff Herpetologist, Operation Wallacea Ecuador Project, Supervisor: Caroline Acton** – Led volunteer based herpetological surveys of the Santa Lucia Reserve in NW Ecuador.

March 2014 **(Guyana) Kaieteur Plateau - Upper Potaro Biodiversity Assessment Team (BAT II) Survey. Financial Support from Global Wildlife Conservation and World Wildlife Fund. Project Coordinators Leeanne Alonso, Chuck Hutchinson and Aiesha Williams.** Led herpetofaunal surveys of remote areas of the upper Potaro River basin as part of a broader project to assess biodiversity impact of the proposed Amaila Falls hydroelectric dam. Made collections of amphibians, reptiles and arachnids. Expeditions included remote site insertions and extractions via helicopter, small plane and extensive travel both on foot and by boat.

November 2013 **(Ethiopia) Survey of the Highland Reptiles and Amphibians in Bale Mountains National Park. Financial Support from Bale Mountains Lodge to TJC.** Conducted field surveys to remote areas of the park often inaccessible during wet seasons (travel was limited to extreme hikes and/or via horseback) to sample herpetofauna and make collections for the Ethiopian Museum of Natural History (Arat Kilo).

October 2012–June 2013 **(Ethiopia) Community Assembly in Ethiopian Snakes and Their Gut Bacteria. Financial support J. William Fulbright Fellowship to TJC.** Conduct field surveys and make collections of amphibians and reptiles throughout Ethiopia. Led

multiple, month long, field expeditions where I was responsible for all logistical operations and training of local field assistants in addition to data collection. During my Fulbright tenure I visited 8 of Ethiopia's 9 administrative regions.

May 2011 **(Brazil) Survey of Amphibians and Reptiles of Crato, Ceará, Brazil. Financial Support: CNPq. Coordinator: Daniel Mesquita.** Survey and make collections of reptiles and amphibians in a Caatinga/Cerrado contact zone.

January 2009 & 2010 **(Mexico) Graduate Research Assistant, University of Oklahoma, Norman, OK. Supervisor: Ingo Schlupp** - Conduct surveys, field experiments, make live and preserved collections of fish in Tabasco, Mexico.

December 2007–January 2008 **(Mexico) Graduate Research Assistant, Sam Noble Oklahoma Museum of Natural History, University of Oklahoma, Norman, Ok. Supervisor: Gary Schnell** - Conduct field surveys, make museum collections, conduct mark-recapture and radio telemetry studies of small mammals of Colima, Mexico.

Alondra M. Díaz-Lameiro, Ph.D.

Biology Department

University of Puerto Rico at Mayagüez

Email: alondra.diaz@upr.edu - Phone: 787-586-7668 - [Citizenship](#): U.S.A.

EDUCATION

- Ph.D.** 2016 **Binghamton University**, Binghamton, NY.
Ph.D. in Evolution, Ecology, and Behavior
Dissertation: “Natural History Origins and Domestication of South American Camelids, the Alpaca (*Vicugna pacos*) and the Llama (*Lama glama*), Explained through Molecular DNA”
Chair: D.A. Merriwether, **Committee:** M. Parker, A. Fiumera, S. Tammariello
- M.S.** 2011 **University of Puerto Rico**, Mayagüez, PR.
M.S. in Biology
Thesis: “Mitochondrial Phylogeny of *Sphaerodactylus* Species Endemic to Islands in the Mona Channel and its Biogeographical Implications”
Advisor: J.C. Martinez-Cruzado, **Graduate Committee:** T. Oleksyk, F. Bird-Picó
- B.S.** 2007 **University of Puerto Rico**, Mayagüez, PR.
B.S. in Biology

RESEARCH EXPERIENCE

- 2021 – present **Principal Investigator**, Tropical Conservation and Genomic Analysis Laboratory, University of Puerto Rico, Mayagüez.
Population Genomics, Conservation Genomics, Phenotype-Genotype Interactions, Domestication, Genomic Diversity and Selection, Ancient/Museum DNA Sequencing, Mentoring Graduate (2) and Undergraduate Students (5)
- 2019 – 2021 **Research Associate**, Diet and Cancer Laboratory, Towson University, Towson, MD. **PI:** P. Tsuji
Eukaryote microbiomes, Genome Sequencing, Data Analysis, Bioinformatics, Mentoring Graduate and Undergraduate Students
- 2011 – 2016 **Graduate Research Assistant**, Molecular Anthropology Laboratory, Binghamton University, Binghamton, NY. **PI:** D.A. Merriwether.
Ancient DNA, Mitochondrial DNA, Sequencing, Mammal Genetics, Sequence Analysis, Undergraduate Supervision, Laboratory Technician
- 2008 – 2011 **Graduate Research Assistant**, Molecular and Evolutionary Genetics Laboratory, University of Puerto Rico, Mayagüez, PR. **PI:** J.C. Martínez-Cruzado.
Mitochondrial DNA, Sequencing, Animal Genetics, Sequence Analysis, Field Sample Collection, Undergraduate Mentor
- 2007 **Undergraduate Researcher**, NSF-OTS Tropical Ecology Research Experience for Undergraduates, Duke University, NC. **Mentor:** M. Donnelly.
Field Herpetology, Mud Turtle Population Density and Growth Patterns, Poison Dart Frog Abundance and Distribution, Mark and Recapture, Scientific Writing, Experimental Design, Invasive Species Interactions
- 2006 **Undergraduate Researcher**, NSF Tropical Herpetology Research Experience for Undergraduates, Avila University, Kansas City, MO. **Mentor:** R. Powell.
Field Herpetology, Amphibian and Reptile Surveys, Rubber Frog Morphology and Abundance, Anolis Ecology, Scientific Writing, Experimental Design

2005 – 2007	Undergraduate Research Assistant , Molecular and Evolutionary Genetics Laboratory, University of Puerto Rico, Mayagüez, PR. PI: J.C. Martínez-Cruzado. <i>Mitochondrial DNA, Y-Chromosome Microsatellites, Puerto Rican Human Ancestry, Molecular Anthropology</i>
2006 – 2007	Undergraduate Research Assistant , Tropical Herpetology Laboratory & Specimen Collection, University of Puerto Rico, Mayagüez, PR. PI: F. Bird-Pico. <i>Amphibian and Reptile Audio and Visual Surveys, Mark and Realize Methods, Field Ecology, Museum Specimens Management</i>

TEACHING EXPERIENCE

Instructor of Record	
2021 – present	Assistant Professor, University of Puerto Rico at Mayaguez, PR.
Summer 2022	Lecturer, Study Abroad: Introductory Biology in the Caribbean , Towson University, Towson, MD.
2017 – 2021	Lecturer, Introductory Biology for Health Professions, Genomics, Herpetology, Conservation Biology , Towson University, Towson, MD.
2017	Adjunct Professor, Conservation Biology , Towson University, Towson, MD.
2016 - 2017	Adjunct Professor, Biology I: Molecules and Cells , Community College of Baltimore County, Essex, MD.
2016	Adjunct Professor, Fundamentals of Biology , Anne Arundel Community College, Arnold, MD.
2016	Teaching Assistant, Zoology , Binghamton University, Binghamton, NY. Professors: J. Shepherd & C. Miles.
2015	Teaching Assistant, Macroevolution , Binghamton University, Binghamton, NY. Professor: W. Stein.
2014 - 2015	Teaching Assistant, Introduction to Organismal and Population Biology , Binghamton University, Binghamton, NY. Professor: M. Armstrong.
2013	Teaching Assistant, Introduction to Cell and Molecular Biology , Binghamton University, Binghamton, NY. Professor: J. Lawless.
2012	Teaching Assistant, Molecular Ecology , Binghamton University, Binghamton, NY. Professor: M. Parker.
2008 – 2011	Teaching Assistant, Genetics , University of Puerto Rico, Mayagüez, PR. Professor: D. Siritunga, Coordinator: G. Toro.
Advising/Mentoring	
2022 – present	Graduate Advisor , Department of Biology, University of Puerto Rico at Mayaguez, Mayaguez, PR. <i>Currently serve as chair in two Masters student committees and as a member in another seven.</i>
2020 – 2022	Graduate Advisor , Department of Biological Sciences, Towson University, Towson, MD. <i>Served as the thesis advisor to one Masters student, graduated June 2022.</i>

- 2019 – 2021 **Undergraduate Advisor**, Department of Biological Sciences, Towson University, Towson, MD.
Biology majors with varied interest including cell and molecular biology, ecology and evolution, or medical/vet field. Major advisor for 20-30 biology majors.
- 2019 - 2021 **Mentor**, Bridges to the Baccalaureate Program, Towson University, Towson, MD.
Two-month program over the summer, trained community college students in molecular biology techniques such as DNA extraction, PCR, and qPCR. Students engage in independent research, data analysis, and scientific writing.
- 2018 – 2020 **Mentor**, Aberdeen High School Science and Math Academy, Aberdeen, MD.
Mentor of one student per year. Seniors complete an independent research toward their senior capstone project with the guidance of their mentor. Students have worked on projects involving bioinformatics, phylogenetics, and domestication.
- 2011 – 2016 **Undergraduate Coordinator**, Molecular Anthropology Laboratory, Binghamton University, Binghamton, NY. **PI:** D.A. Merriwether.
Train and coordinate 5-8 undergraduate assistants per semester. Students were trained in DNA extraction, PCR, Sequencing, Ancient DNA techniques, and Sequence Data Analysis.
- 2010 – 2011 **Workshop Instructor**, School Yard Habitat Teacher’s Workshop, Partners for Fish and Wildlife Program, U.S. Fish and Wildlife Service, Cabo Rojo, PR. **Coordinator:** Silmarie Padron
Workshops for elementary and middle school teachers, each workshop had 20-40 participants. Some topics included integration of the scientific method and field biology practices into the science curriculum, identification of local flora and fauna, development of curriculum for outside classroom.
- 2009 – 2011 **Workshop Instructor**, Howard Hughes Medical Institute Funded Genetics Workshop for Undergraduates and Teachers, University of Puerto Rico, Mayagüez, PR. **Professor:** D. Siritunga.
Three-week summer workshops for undergraduates and high school teachers, each workshop had 12-15 participants. Some topics included PCR, gel electrophoresis, western blots, and bacterial transformation.

PUBLICATIONS

- Wolfsberger, W., Chhugani, K., Shchubelka, K., Frolova, A., Salyha, Y., Zlenko, O., Arych, M., Dziuba, D., Parkhomenko, A., Smolanka, V., Gümüş, Z.H., Sezgin, E., **Díaz-Lameiro, A.M.**, Toth, V.R., Maci, M., Bortz, E., Kondrashov, F., Morton, P.M., Łabaj, P.P., Romero, V., Hlávka, J., Mangul, S., & Oleksyk, T. K. 2023. Scientists without borders: lessons from Ukraine. **GigaScience**, 12, giad045.
- Perales Macedo, D.M.B., S.C. Díaz Pernet, M.G. Díaz González, G.M. Torres Nieves, C.J. Santos Flores, **A.M. Díaz Lameiro**, and S.A. Locke. 2022. Autochthonous transmission of the Indomalayan parasite, *Transversotrema patialense*, in the Caribbean: molecular, morphological, and experimental evidence. **Experimental Parasitology**, 242:108368.
- Díaz-Lameiro, A.M.**, C.I. Villamil, T. Gamble, B.J. Pinto, A. Herrera-Martínez, R. Thomas, J. Bernstein, J.E. Titus-McQuillan, S.V. Nielsen, E. Agosto-Torres, A.R. Puente-Rolón, F.J. Bird-Picó, T.K. Oleksyk, J.C. Martínez-Cruzado, and J.D. Daza. 2022. A New *Sphaerodactylus* Species (Gekkota: Sphaerodactylidae) from the Northwest Limestone Region of Puerto Rico. **Ichthyology and Herpetology**, 110(3):449-465.

- Díaz-Lameiro, A.M.**, J.G. Kennedy, S. Craig, W. Isbell, P. Stahl, and D.A. Merriwether. 2022. Ancient DNA confirms crossbreeding of domestic South American camelids in two pre-conquest archaeological sites. **Journal of Archaeological Science**, 141:105593.
- Wolfsberger, W.W., N.M. Ayala, S.O. Castro-Marquez, V.M. Irizarry-Negron, A. Potapchuk, K. Shchubelka, L. Potish, A.J. Majeske, L. Figueroa Oliver, **A. Díaz Lameiro**, J.C. Martínez-Cruzado, G. Lindgren, and T.K. Oleksyk. 2022. Genetic diversity and selection in Puerto Rican horses. **Scientific Reports**, 12(1):1-14
- Rodriguez-Gomez, C.A., **A.M. Díaz-Lameiro**, C.S. Berg, R.W. Hendeson and R. Powell. 2017. Relative abundance and habitat use by the frogs *Pristimantis shrevei* (Strabomantidae) and *Eleutherodactylus johnstonei* (Eleutherodactylidae) on St. Vincent. **Caribbean Herpetology**, 58:1-12.
- Díaz-Lameiro, A.M.**, T.K. Oleksyk, F.J. Bird-Pico and J.C. Martinez-Cruzado. 2013. Colonization of islands in the Mona Passage by endemic dwarf geckoes (genus *Sphaerodactylus*) reconstructed with mitochondrial phylogeny. **Ecology and Evolution**, 3(13):4488-4500.
- Díaz-Lameiro, A.M.**, J.L. Herrera, D. Barber, R. Powell and F. Bird-Pico. 2010. *Peltophryne lemur*. **Catalogue of American Amphibians and Reptiles** (878):1–7.
- Díaz-Lameiro, A.M.**, H. Kaiser, and R. Powell. 2008. *Pristimantis shrevei*. **Catalogue of American Amphibians and Reptiles** (844):1–4.
- Hite, J.L., C.A. Rodríguez Gómez, S.C. Larimer, **A.M. Díaz-Lameiro** and R. Powell. 2008. Anoles of St. Vincent (Squamata: Polychrotidae): Population Densities and Structural Habitat Use. **Caribbean Journal of Science**, 44(1):102-115.
- Díaz-Lameiro, A.M.** 2007. Status of the white-lipped mud turtle (*Kinosternon leucostomum*) using long term data from northeastern Costa Rica. In: *La Selva REU 2007: Final Reports*, pp. 19-32. <http://education.tropicalstudies.org/images/downloads/education/undergraduate/coursebooks/REU2007CourseBook.pdf>.
- Díaz-Lameiro, A.M.**, R. Powell, and C.S. Berg. 2007. Colour and pattern polymorphism in *Pristimantis shrevei* and *Eleutherodactylus johnstonei* (Leptodactylidae) on St. Vincent, West Indies. **Herpetological Bulletin**, 101:18-25.

RESEARCH PRESENTATIONS

Invited

- | | |
|------|---|
| 2022 | Guest Speaker , <i>Sphaerodactylus verduluzicola</i> : Meet the new geckolette from Puerto Rico, organized by Asociación de Estudiantes de Biología , University of Puerto Rico at Mayagüez. |
| 2022 | Guest Lecturer , Evolution Stories, Evolution course, University of Puerto Rico at Rio Piedras. |
| 2022 | Guest Speaker , <i>Sphaerodactylus verduluzicola</i> : Meet the new geckolette from Puerto Rico, Serie Boricuas en el Karso: Edición Especial , University of Puerto Rico at Arecibo. |
| 2022 | Guest Speaker , Ancient DNA confirms crossbreeding of domestic South American camelids in two pre-conquest archaeological sites, Molecular Anthropology Practical and Theoretical Course , Pontifical Catholic University of Puerto Rico. |
| 2022 | Seminar Series Speaker , Alpaca Stories: Tails about domestication, archaeology, and molecular ecology, Department of Biology, University of Puerto Rico at Mayagüez. |

2020	Guest Speaker , Genomic Exploration of South American Camelid Domestication: Events Before and After the Spanish Conquest, RO UA First International Workshop in Genomics and Bioinformatics , Romania-Ukraine ENI-Cross Border Cooperation.
2019	Seminar Series Speaker , Domestication on the Andes: The Story of How Humans Domesticated South American Camelids and Managed to Survive in the High Puna, Department of Biological Sciences, Towson University.
2018	Guest Lecturer , Evolutionary Origins and Domestication of South American Camelids, the Alpaca and the Llama Explained through Molecular DNA Methods, Molecular Ecology course, Towson University.
2016	Guest Speaker , Mitochondrial Phylogeny of <i>Sphaerodactylus</i> Species Endemic to Islands in the Mona Passage and its Biogeographical Implications. Caribbean Tropical Ecology in Puerto Rico Course , University of Massachusetts Boston.
2016	Seminar Series Speaker , Evolutionary Origins and Domestication of South American Camelids, the Alpaca and the Llama, Community College of Baltimore County.
2016	Guest Speaker , The impact of Molecular Approaches on the Field of Ecology, Towson University.
Contributed	
2022	Cultural Tendency Toward Inbreeding in Puerto Rican Paso Fino Horses. UPRM Department of Biology Annual Research Symposium , Mayagüez, Puerto Rico.
2018	Domestication in the Andes: The story of how humans domesticated South American Camelids and survived. XV Congress Latin American Association of Biological Anthropology , Mayagüez, Puerto Rico.
2016	Dating the evolutionary history of the Camelidae family. Annual Biology Department Symposium , Binghamton University.
2015	The use of ancient DNA to determine the true origin of domestic South American Camelids. VII World Congress on South American Camelids , Puno, Peru.
2015	Using Ancient DNA to Discover the True Domestication Origins of South American Camelids. American Association of Physical Anthropologist Annual Meeting , St. Louis, MO.
2015	Ancient DNA Analysis of the Evolution and Domestication of South American Camelid, the Alpaca. Annual Biology Department Symposium , Binghamton University.
2013	Mitochondrial Phylogeny of <i>Sphaerodactylus</i> Species Endemic to Islands in the Mona Channel and its Biogeographical Implications. Joint Meeting of Ichthyologist and Herpetologist , Albuquerque, NM.
Poster	
2022	Cataloguing the Fecal Microbiome of Invasive <i>Iguana iguana</i> in Puerto Rico. Forward Research Symposium 2022 , Puerto Rico Science, Technology, and Research Trust, San Juan, PR.
2021	Solving a Rescue Mystery: Do you know who Franklin the Turtle is? Tamara Vallejo-Schmidt Bridges Program Project, 2021 Bridges to Baccalaureate Program Poster Day , Towson University, Towson, MD.

2020	The Comparison of Ancient Sheep DNA Samples to Today's Modern Sheep. Veronica Cook Bridges Program Project, 2020 Bridges to Baccalaureate Program Poster Day , Towson University, Towson, MD.
2020	Analyzing evolutionary and domestication events of Old World camels. Britney Whittington Senior Project. 2020 Gallery Walk, Aberdeen High School Science and Math Academy , Aberdeen, MD.
2019	Seasonal differences in intestinal microbiome diversity of African elephants (<i>Loxodonta africana</i>), American Society of Microbiology – Maryland Branch Meeting , University of Maryland BioPark, Baltimore, MD.
2019	Comparative Analysis of African Bush Elephant (<i>Loxodonta africana</i>) Gut Microbiomes From the Maryland Zoo, Ariel Brown-Wicks Bridges Program Project, 2019 Bridges to Baccalaureate Program Poster Day , Towson University, Towson, MD.
2019	Elephant Endotheliotropic Herpesvirus (EEHV) in African elephants (<i>Loxodonta africana</i>). Christopher Davis Bridges Program Project, 2019 Bridges to Baccalaureate Program Poster Day , Towson University, Towson, MD.
2019	Discovering Genetic Variance in Ancient Sheep from Three Polish Bronze Age Sites, Gives Insight into Human Trading Routes. Mazin Karjekar Senior Project. 2019 Gallery Walk, Aberdeen High School Science and Math Academy , Aberdeen, MD.
2015	Revealing the Domestication of the Alpaca: A Comparative Analysis of Ancient and Modern DNA. VII World Congress on South American Camelids , Puno, Peru.
2015	Origins of Alpaca Domestication. Binghamton University Research Days , Binghamton, NY.
2014	Phylogenetic Discovery of Alpaca Domestication Origins with Ancient DNA. Society of Molecular Biology and Evolution Annual Meeting , San Juan, PR.
2014	Colonization of Islands in the Mona Passage by Endemic Dwarf Geckoes (genus <i>Sphaerodactylus</i>) Reconstructed with a Mitochondrial Phylogeny. Society of Molecular Biology and Evolution Annual Meeting , San Juan, PR.
2010	Mitochondrial Phylogeny of <i>Sphaerodactylus</i> Species Endemic to Islands in the Mona Channel and its Biogeographical Implications. Third Symposium of Puerto Rican Herpetology , University of Puerto Rico, Arecibo Campus, PR.
2009	Status of the White-Lipped Mud Turtle (<i>Kinosternon leucostomum</i>) using long term data from Northeastern Costa Rica. Sigma Xi Poster Day , University of Puerto Rico, Mayagüez Campus, PR.
2007	The Ancestry Y Chromosome in Puerto Rico. American Society of Human Genetics Annual Meeting , San Diego, CA.

FELLOWSHIPS & AWARDS

2023	The Livestock Conservancy Breed Association Microgrant (\$2,000)
2022	PR-INBRE Network Small Instrumentation Awards for Primarily Undergraduate Institutions (\$25,000)
2019	Faculty Development and Research Committee Grant, Towson University, Towson, MD (\$6,000)
2019	Biological Sciences Departmental Research Grant, Towson University (\$5,000)
2016	Recent Advancement in Conservation Genetics Course Scholarship, ConGen 2016. Balaton Limnological Institute, Hungary (\$1,175)

2015	Binghamton Foundation Travel Grant, The Graduate School, Binghamton University, Binghamton, NY (\$500)
2011 – 2014	The Clifford D. Clark Graduate Fellowship Program, Binghamton University, Binghamton, NY (\$21,000 per year)
2014	Szymanski Travel Award, Department of Biological Sciences, Binghamton University, Binghamton, NY (\$500)
2013 - 2016	Graduate Student Organization Travel Grant, Binghamton University, Binghamton, NY (\$1200)

PROFESSIONAL SERVICE

2021 – present	Undergraduate Research Committee, Department of Biology, University of Puerto Rico at Mayagüez
	2022 – present Committee President
2021 – present	Seminar Committee, Department of Biology, University of Puerto Rico at Mayagüez
	2023 – present Events Coordinator
2021 – 2022	Animal House Committee, Department of Biology, University of Puerto Rico at Mayagüez
2020 – present	Reviewer, Herpetological Notes
2019	Undergraduate Research Committee, Fisher College of Science and Math, Towson University
2018 – present	Reviewer, Journal of Herpetology
2017 – 2021	Undergraduate Research Committee, Department of Biological Sciences, Towson University
2017 – 2021	Seminar Committee, Department of Biological Sciences, Towson University
2017 – 2021	Latino Faculty and Staff Association, Towson University
2016 – present	Reviewer, Journal of Heredity
2012 – 2016	Graduate Student Organization, Binghamton University.
	2016 Chair, Grievance Committee
	2015 – 2016 Biology GSO Senator
	2015 – 2016 Elections Committee Member
2012 – 2016	Biology Graduate Student Organization, Binghamton University.
	2014 – 2015 President
	2014 – 2015 Chair, Biology Department Symposium
	Organizing Committee
	2013 – 2014 Secretary

PROFESSIONAL SOCIETIES

2022 – present	Society for the Study of Evolution
2019 – present	American Association for the Advancement of Science
2010 – present	Society for the Study of Amphibians and Reptiles
2019 – 2022	American Society of Ichthyologists and Herpetologists
2018 – 2019	Latin American Association of Biological Anthropology
2015 – 2017	American Genetic Association
2014 – 2015	Society of Molecular Biology and Evolution

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Clara E. Isaza

eRA COMMONS USER NAME (credential, e.g., agency login): CEISAZA

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Universidad de los Andes (Bogotá-Colombia)	BS	1991-1996	Physics
The Ohio State University (Columbus, OH)	PhD	1997-2005	Biophysics
Ponce Health Sciences University (Ponce, PR)	Postdoctoral	2014-2015	Breast Cancer Epigenetics

A. Personal Statement

I did my undergraduate in Physics in Bogotá Colombia (1997) and then moved to Biophysics, finishing my PhD in 2005 from the Ohio State University. Then moved to México and joined the Biology Department at University of Nuevo Leon (UANL) for the next two years. In 2008, I moved to Puerto Rico with my husband. From 2008 to 2014, I could not hold any position because I did not have a work permit, but kept working ad honorem, collaborating with undergraduate as well as master's students from University of Puerto Rico Mayaguez (UPRM), through my collaboration with Dr. Mauricio Cabrera-Ríos a Professor at the Industrial Engineering Department (UPRM). From 2014 to 2015, after my personal and migratory situations were stabilized, I was able to come back to academia holding a formal position as a Postdoctoral Researcher in the laboratory of Dr. Matta at Ponce Health Sciences University (PHSU). In August 2016, I started to work as a half time Assistant Professor at the Public Health Program in PHSU, a year later I started a double appointment at the Basic Sciences Department in the same University, becoming a full time Assistant Professor. In 2022 I moved to University of Puerto Rico Mayaguez, Department of Biology.

In my academic career, mentoring has been an important activity. I started tutoring during high school. In college I was a TA for physics classes' recitations and laboratories. Through graduate school, at least half of the time I was a TA for Biology or Biochemistry. During the PhD, I also was responsible for training new students that came into the laboratory.

My research work has been mostly on biological data analysis for different affections of human health and the possible relationships between them and viral infections. Through the different projects we have run, I have worked with over 70 undergraduates, eight MS, and 10 PhD students.

All the projects I have worked on were designed to work with students as a transdisciplinary research group, and their success has reflected students' success. I am extremely interested in continuing to collaborate with students from different academic fields and at different stages of their academic careers, a rewarding part of research for me.

B. Positions, Scientific Appointments, and Honors

2006 - 2008 Assistant Professor (yearly contract), Immunology and Virology Laboratory, Biological Sciences Department (FCB), Universidad Autonoma de Nuevo Leon (UANL), San Nicolás de los Garza, N.L

2007 - 2008 Universidad Autonoma de Nuevo Leon PAICYT Research Grant. Grant, PI, Study of the sequential activation of apoptotic caspases as a response to the treatment of HeLa cells with IMMUNEPOTENT CRP, Mexico

2014 - 2015 Post-Doctoral Researcher Professor Matta's Group, Ponce Health Science University, Ponce, PR

2015 - 2016 Lecturer Ponce Health Sciences University, Public Health Program, Ponce, PR

2016 - 2022 Assistant Professor Ponce Health Sciences University, Public Health Program, Ponce, PR

2017- 2022 Assistant Professor Ponce Health Sciences University, Basic Sciences Department, Ponce, PR

2022- Assistant Professor University of Puerto Rico Mayaguez, Biology Department, Mayaguez, PR

2007 PROMEP Grant (Mexican Secretary of Education), PI, Effect on the expression of apoptotic proteins as a response of cancer cells to IMMUNEPOTENT CRP treatment, December 2007 – December-2009, PROMEP 2523, \$308.500 pesos (\$30.000 U.S. dollars).

2009 Best Poster in Engineering, Physics and Mathematics. Annual Biomedical Research Conference for Minority Students 2009, Phoenix, AZ. Comparative Study of Different Data Envelopment Analysis (DEA) Models to Detect Biomarkers Across Different Cancer Experiments, J. García, M.L. Sánchez-Peña, C.E. Isaza, M. Cabrera-Ríos (Presenter J. García).

2012 Second Place in Poster Presentations in the Biological Sciences. Emerging Researchers Conference in STEM, Atlanta, GA. Meta-analysis: The Search for Potential Cancer Biomarkers in Common Between Multiple Microarray Experiments. J Pérez-Morales, M Pérez, E Jaramillo, CE Isaza, M Cabrera-Ríos (Presenter J. Pérez-Morales)

2014 Training and travel Award, Bioinformatics training MARC Bioinformatics Summer Institute at the Pittsburgh Supercomputing Center, participation award.

2014 Best Poster in Cancer Biology. 2014 NSF Emerging Researchers National Conference in STEM, Washington, DC. Literature-based Evidence for Potential Colon and Cervical Cancer Biomarkers: Optimization-guided biological discovery. JI Irizarry-Nieves, M Cabrera-Ríos, CE Isaza, P Santiago. (Presenter JI Irizarry-Nieves)

2015 Training and travel Award, Bioinformatics training MARC Bioinformatics Summer Institute at the Pittsburgh Supercomputing Center, participation award.

2015 Second Place in Basic Sciences Poster Presentation, Ponce Health Sciences University & Ponce Research Institute 11th Annual Scientific Conference. MiRNAs Associated with DNA Repair Capacity in Puerto Rican Women with Breast Cancer. Jaime L. Matta, Clara Isaza*, Carmen Ortiz, Erick Suárez, and Luisa Morales. (Presenter)

2015 Second Place in Undergraduate Student Paper Competition 2015 IEOM Conference, Orlando, FL. Characterization of Alzheimer's disease: An Operations Research Approach, Y. Cruz, Y. Santiago, V. Gonzalez, C. Isaza, M. Cabrera (Presenter Y. Cruz)

2017 Outstanding Poster Presentation Award ABRCMS 2017, Phoenix AZ. Uncovering the biological commonalities between Dengue and Parkinson's Disease. María F. Carrera, Mauricio Cabrera-Rios, Clara E. Isaza. (Presenter MF Carrera)

C. Contributions to Science

As an undergraduate I studied Physics and got interested in the application of the physics principles to life sciences. Following that interest, during the last year as an undergraduate and part of the following year I volunteered to work with a research group in Bogota-Colombia. This group, led by Dr. Juan Carlos Briceño, was investigating hemosubstitutes for heart surgery. During that time I was able to participate in one published paper: Description of a project for the production and evaluation of oxygen-carrying hemosubstitutes.

- Briceño JC, Rincón IE, Vélez JF, García A, Castro I, Arias M, Velásquez C, Anzola ML, Matallana M, Isaza CE, Arcos MI. Artif Cells Blood Substit Immobil Biotechnol. 1997 Sep;25(5):473-9.

For the doctorate I switched to Biophysics. Professor Michael K. Chan was my advisor. The focus of my research was protein structure and function, using crystallography and enzymatic assays. We were studying metalloproteins, two oxygen sensors from bacteria and two metalloproteases one from bacteria and one from

protozoa. At that time we were looking to gain information about the proteins mechanism to proposed roles. Our vision was that that information could later be of used while searching ways to control those organisms. From that work four papers were published, two as first author, one as shared first author, and one as second:

- Isaza CE, Zhong X, Rosas LE, White JD, Chen RP, Liang GF, Chan SI, Satoskar AR, Chan MK. A proposed role for Leishmania major carboxypeptidase in peptide catabolism. *Biochem Biophys Res Commun*. 2008 Aug 15;373(1):25-9.;
- Isaza CE, Silaghi-Dumitrescu R, Iyer RB, Kurtz DM Jr, Chan MK. Structural basis for O₂ sensing by the hemerythrin-like domain of a bacterial chemotaxis protein: substrate tunnel and fluxional N terminus *Biochemistry*. 2006 Aug 1;45(30):9023-31;
- Lee MM*, Isaza CE*, White JD, Chen RP, Liang GF, He HT, Chan SI, Chan MK. Insight into the substrate length restriction of M32 carboxypeptidases: characterization of two distinct subfamilies. *Proteins*. 2009 Nov 15;77(3):647-57)
- Hao B, Isaza C, Arndt J, Soltis M, Chan MK. Structure-based mechanism of O₂ sensing and ligand discrimination by the FixL heme domain of *Bradyrhizobium japonicum*. *Biochemistry*. 2002 Oct 29;41(43):12952-8.
- Book chapter: Carboxypeptidase Taq (Chapter 279). *Handbook of Proteolytic Enzymes*. Volume 1. Third Edition. Edited by Neil D. Rawlings and Guy S. Salvesen. 2013 Elsevier Ltd

I moved to Mexico in 2005 and joined the UANL in 2006. There I became interested in apoptosis, caspases, and calpains. I had the opportunity of running a protein research unit, mentoring students and teaching. From the undergraduate students that volunteered to work with me, two decided to take the undergraduate Thesis option and both went to graduate school. Thanks to an interdisciplinary collaboration with Dr. Mauricio Cabrera-Ríos, then at the Graduate Program in Systems Engineering (UANL), I co-advised two master students from the Mechanical and Electric Department (FIME). From the work at UANL there are four papers: In vitro effects of bovine dialyzable leukocyte extract (bDLE) in cancer cells

- Franco-Molina MA, Mendoza-Gamboa E, Miranda-Hernández D, Zapata-Benavides P, Castillo-León L, Isaza-Brando C, Tamez-Guerra RS, Rodríguez-Padilla C. *Cytotherapy*. 2006;8(4):408-14;
- Bovine dialyzable leukocyte extract modulates cytokines and nitric oxide production in lipopolysaccharide-stimulated human blood cells. Franco-Molina MA, Mendoza-Gamboa E, Castillo-Tello P, Isaza-Brando CE, García ME, Castillo-León L, Tamez-Guerra RS, Rodríguez-Padilla C. *Cytotherapy*. 2007;9(4):379-85
- Antiangiogenic and antitumor effects of IMMUNEPOTENT CRP in murine melanoma. Franco-Molina MA, Mendoza-Gamboa E, Zapata-Benavides P, Castillo-Tello P, Isaza-Brando CE, Zamora-Avila D, Rivera-Morales LG, Miranda-Hernández DF, Sierra-Rivera CA, Vera-García ME, Tamez-Guerra RS, Rodríguez-Padilla C. *Immunopharmacol Immunotoxicol*. 2010 Dec;32(4):637-46
- The use of Central Composite Designs to Improve Cytotoxicity Data Generation: A Case Study. Isaza CE, Rodriguez C, Uribe L, Pérez H, Salinas J, Cabrera-Ríos M. *IIE Transactions on Healthcare Systems Engineering* 1:4 (2011) 226-231.
- The collaboration with Dr. Cabrera-Ríos continued after he moved to University of Puerto Rico, Mayaguez (UPRM) and we co-advised another Masters Student from the Department of Industrial Engineering. The collaboration has provided me with the opportunity to work through the Applied Optimization Group with undergraduates from the Industrial Engineering as well as the Biology Departments from UPRM. The last five publications from this collaboration are:
- An Optimization-Driven Analysis Pipeline to Uncover Biomarkers and Signaling Paths: Cervix Cancer. Lorenzo E, Camacho-Caceres K, Ropelewski AJ, Rosas J, Ortiz-Mojer M, Perez-Marty L, Irizarry J, Gonzalez V, Rodríguez JA, Cabrera-Rios M, Isaza C. *Microarrays (Basel)*. 2015 Jun;4(2):287-310.
- Multiple criteria optimization joint analyses of microarray experiments in lung cancer: from existing microarray data to new knowledge. Camacho-Cáceres KI, Acevedo-Díaz JC, Pérez-Marty LM, Ortiz M, Irizarry J, Cabrera-Ríos M, Isaza CE. *Cancer Med*. 2015 Dec;4(12):1884-900.
- Biological Signaling Pathways and Potential Mathematical Network Representations: Biological Discovery through Optimization. Isaza C, Rosas JF, Lorenzo E, Marrero A, Ortiz C, Ortiz MR, Perez L, Cabrera-Rios M. *Cancer Med*. doi:10.1002/cam4.1301

- Baseline Detection of Potential Cancer Biomarkers with Linear Models from Microarray Experiments. Rivera EM, Irizarry Z, Sánchez-Peña, Cabrera-Ríos M, Isaza CE. *Cancer Studies*. 2017; 1(1):4
- Cruz-Rivera YE, Perez-Morales J, Santiago YM, Gonzalez VM, Morales L, Cabrera-Rios M, Isaza CE. A Selection of Important Genes and Their Correlated Behavior in Alzheimer's Disease. *J Alzheimers Dis*. 2018;65(1):193-205.
- V Díaz-Pacheco, F González-Román, CE Isaza, T Richardson, R Whalin, Cabrera-Ríos, Individual Response and Recovery: A Learning Experience from Hurricane Maria, *Journal of Emergency Management* (2021) 19:2, 1-9 <https://doi.org/10.5055/jem.0548>
- Narváez-Bandera, I., Suárez-Gómez, D., Isaza, C. E., & Cabrera-Ríos, M. (2022). Multiple Criteria Optimization (MCO): A gene selection deterministic tool in RStudio. *PloS one*, 17(1), e0262890. <https://doi.org/10.1371/journal.pone.0262890>

SEAN A. LOCKE
CURRICULUM VITAE

EDUCATION

PhD (Biology), Concordia University, Montreal, QC 2010

MSc (Sciences de l'eau), Institut National de la Recherche Scientifique–Eau (INRS–Eau), Sainte-Foy, QC 2001

BSc (Biology), Dalhousie University, Halifax, NS 1998

PROFESSIONAL EXPERIENCE

Associate professor, Biology department, University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico, July, 2019 – present.

Assistant professor, Biology department, University of Puerto Rico at Mayagüez, Mayagüez, Puerto Rico, January, 2015 – June, 2019.

Postdoctoral fellow, Biodiversity Institute of Ontario, University of Guelph, Guelph, ON, Canada, July, 2013 – December, 2014.

Postdoctoral fellow (NSERC Visiting Fellow), Aquatic Biodiversity Section, St. Lawrence Centre, Environment Canada, Montreal, QC, Canada, March, 2010 – March, 2013.

Assistant in parasitology, Fluvial Ecosystem Research Section, St. Lawrence Centre, Environment Canada, Montreal, QC, Canada, 2003 – 2005.

PEER-REVIEWED PUBLICATIONS

2023

49. Caffara M, Tedesco P, Davidovich N, **Locke SA**, Gustinelli A, King R, Nuytten M, Nuzzo M, Fioravanti ML. Advancing understanding of the taxonomy and diversity of the genus *Contracaecum* in the great white pelican (*Pelecanus onocrotalus*). *Parasitology Research*, 122 (1), 315-331.

2022

48. Perales Macedo DM, Díaz Pernet SC, Díaz González MG, Torres Nieves, GM, Santos Flores CJ, Díaz Lameiro AM, **Locke SA**. 2022. Autochthonous transmission of the Indomalayan parasite, *Transversotrema patialense*, in the Caribbean: molecular, morphological, and experimental evidence. *Experimental Parasitology*, 242, 108368.
47. Díaz Pernet S, Brant S, **Locke SA**. 2022. First integrative study of the diversity and specificity of metacercariae of *Posthodiplostomum* Dubois, 1936 from native and introduced fishes in the Caribbean. *Parasitology* 149 (14), 1894-1909.
46. Ebbs ET, Loker ES, Bu L, **Locke SA**, Tkach V, Devkota R, Flores V, Pinto H, Brant SV. 2022. Phylogenomics and diversification of Schistosomatidae using targeted sequence capture of ultra-conserved elements. *Pathogens* 11 (7), 769
45. Cancel Villamil J, **Locke SA**. Fish assemblage response to removal of a low-head dam in the lower reach of a tropical island river. *Freshwater Biology*. 67(5): 926-937

2021

44. Marcogliese DJ, **Locke SA**. 2021. Infection of *Diplostomum* spp. in invasive round gobies in the St. Lawrence River, Canada. *Journal of Helminthology*. 95: e64
43. Bouchard É, Schurer JM, Kolapo T, Wagner B, Massé A, **Locke SA**, Leighton P, Jenkins EJ. 2021. Host and geographic differences in prevalence and diversity of gastrointestinal helminths of foxes (*Vulpes vulpes*), coyotes (*Canis latrans*) and wolves (*Canis lupus*) in

Québec, Canada. *International Journal for Parasitology: Parasites and Wildlife*. 16: 126-137

42. **Locke SA**, Drago FB, López-Hernández D Chibwana FD, Núñez V, Van Dam AR Achinelly MF, Johnson PTJ, de Assis JCA, de Melo AL, Pinto HA. 2021. Intercontinental distributions, phylogenetic position and life cycles of species of *Apharyngostrigea* (Digenea, Diplostomoidea) illuminated with morphological, experimental, molecular and genomic data. *International Journal for Parasitology*. 51: 667-683

2020

41. Babaran D, Arts MT, Botelho RJ, **Locke SA**, Koprivnikar J. 2020. Prospective enzymes for omega-3 PUFA biosynthesis found in endoparasitic classes within the phylum Platyhelminthes. *Journal of Helminthology* 94: e212.
40. Caffara M, **Locke SA**, Echi PC, Halajian A, Benini D, Tedesco P, Fioravanti ML. 2020. A new species of *Clinostomum* Leidy, 1856 based on molecular and morphological analysis of metacercariae from African siluriform fishes. *Parasitology Research*. 119(3): 885-892.
39. Calhoun DM, Esfahani E, **Locke SA**, Moser WM, PTJ Johnson. 2020. How parasite exposure and time interact to determine infections of *Australapatemon burti* (Trematoda: Digenea) in its intermediate leech host (*Erpobdella* sp.) (Hirudinea: Erpobdellidae). *Experimental Parasitology*. 219: 108002.
38. **Locke SA**, Drago FB, Núñez V, Souza GTR, Takemoto RM. 2020. Phylogenetic position of *Diplostomum* spp. from New World herons based on complete mitogenomes, rDNA operons and DNA barcodes, including a new species with partially elucidated life cycle. *Parasitology Research*. 119, 2129-2137.
37. Núñez V, Lunaschi LI, **Locke SA**, Drago FB. 2020. Morphological and molecular data for *Leucochloridium* (*Papillioleucochloridium*) *pulchrum* (Trematoda: Leucochloridiidae) recorded for the first time in Argentina. 2020. *Revista Argentina de Parasitología*. 9(2): 19-25.
36. Queiroz MS, López-Hernández D, **Locke SA**, Pinto HA, Anjos LA. 2020. Metacercariae of *Heterodiplostomum lanceolatum* (Trematoda: Proterodiplostomidae) found in *Leptodactylus podicipinus* (Anura: Leptodactylidae) from Brazil: a morphological, molecular and ecological study. 2020. *Journal of Helminthology*. 94: e66.
35. Vieira Alves P, Alves de Assis JC, López-Hernández D, Pulido-Murillo EA, de Melo AL, **Locke SA**, Pinto HA. 2020. A phylogenetic study of the cecal amphistome *Zygocotyle lunata* (Trematoda: Zygocotylidae), with notes on the molecular systematics of Paramphistomoidea. *Parasitology Research*. 119(8): 2511-20.

2019

34. Caffara M, **Locke SA**, Halajian A, Luus-Powell WJ, Benini D, Tedesco P, Kasembele GK, Fioravanti ML. 2019. Molecular data show *Clinostomoides* Dollfus, 1950 is a junior synonym of *Clinostomum* Leidy, 1856, with redescription of metacercariae of *Clinostomum brienti* n. comb. *Parasitology*. 146(6): 805-13.
33. López-Hernández D, **Locke SA**, Alves de Assis JC, Drago FB, de Melo AL, Rabelo ÉML, Pinto HA. 2019. Molecular, morphological and experimental studies of cercariae from five species of Diplostomoidea (Trematoda: Digenea) infecting *Biomphalaria straminea* (Mollusca: Planorbidae) in Brazil. *Acta Tropica*. 199: 105082.
32. **Locke SA**, Caffara M, Barčák D, Tedesco P, Fioravanti ML, Li W. 2019. A new species of *Clinostomum* Leidy, 1856 in East Asia based on genomic and morphological data. *Parasitology Research*. 118(12): 3253-65.

2018

31. Li WX, Zou H, Wu SG, Xiong F, Li M, Ma XR, Marcogliese DJ, **Locke SA**, Wang GT. 2018. Richness and diversity of communities of *Dactylogyrus* spp. in the wild and farmed goldfish *Carassius auratus*. *Journal of Parasitology*. 104(4): 353-8.

30. **Locke SA**, Van Dam A, Caffara M, Pinto HA, López-Hernández D, Blanar C. 2018. Validity of the Diplostomoidea and Diplostomida (Digenea, Platyhelminthes) upheld in phylogenomic analysis. *International Journal for Parasitology*. 48(13): 1043-59.
 29. López-Hernández D, **Locke SA**, de Melo AL, Rabelo ÉML, Pinto HA. 2018. Molecular, morphological and experimental assessment of the life cycle of *Posthodiplostomum nanum* Dubois 1937 (Trematoda: Diplostomidae) from Brazil, with phylogenetic evidence of paraphyly in the genus *Posthodiplostomum* Dubois, 1936. *Infection, Genetics and Evolution*. 63: 95-103.
 28. Valadão MC, Silva BCM, López-Hernández D, Araújo JV, **Locke SA**, Pinto HA. 2018. A molecular phylogenetic study of the caecal fluke of poultry, *Postharmostomum commutatum* (= *P. gallinum*) (Trematoda: Brachylaimidae). *Parasitology Research*. 117(12): 3927-34.
- 2017
27. Blasco-Costa I, **Locke SA**. 2017. Life history, systematics and evolution of the Diplostomoidea Poirier, 1886: progress, promises and challenges emerging from molecular studies. *Advances in Parasitology* 98: 167-225.
 26. Caffara M, **Locke SA**, Echi PC, Halajian A, Benini D, Luus-Powell WJ, Tavakol S, Fioravanti ML. 2017. A morphological and molecular study of Clinostomid metacercariae from African fish with a redescription of *Clinostomum tilapiae*. *Parasitology* 144(11): 1519-29.
 25. Gordy MA, **Locke SA**, Rawlings T, Lapierre AR, Hanington PC. 2017. Molecular and morphological evidence for nine species in North American *Australapatemon* (Sudarikov, 1959): a phylogeny expansion with description of the zygoecercous *Australapatemon mclaughlini* n. sp. *Parasitology Research* 116(8): 2181-98.
- 2016
24. Caffara M, **Locke SA**, Cristanini C, Davidovich N, Markovich MP, Fioravanti ML. 2016. A combined morphometric and molecular approach to identifying *Euclinostomum heterostomum* metacercariae (Digenea: Clinostomidae). *Journal of Parasitology* 102(2): 239-48.
 23. Marcogliese DJ, **Locke SA**, Gélinas M, Gendron AD. 2016. Variation in parasite communities in spottail shiners (*Notropis hudsonius*) linked with precipitation. *Journal of Parasitology* 102(1): 27-36.
- 2015
22. Chibwana, FD, Nkwengulila G, **Locke SA**, McLaughlin JD, Marcogliese DJ. 2015. Completion of the life cycle of *Tylodelphys mashonense* (Sudarikov 1971) (Digenea: Diplostomidae) with DNA barcodes and rDNA sequences. *Parasitology Research* 114(10): 3675-82.
 21. Kuhn JA, Kristoffersen R, Knudsen R, Jakobsen J, Marcogliese DJ, **Locke SA**, Primicerio R, Amundsen P-A. 2015. Parasite communities of two three-spined stickleback populations in subarctic Norway – effects of a small spatial-scale host introduction. *Parasitology Research* 114(4): 1327-39.
 20. **Locke SA**, Al-Nasiri FS, Caffara M, Drago F, Kalbe M, Lapierre AR, McLaughlin JD, Nie P, Overstreet RM, Souza GTR, Takemoto RM, Marcogliese DJ. 2015. Diversity, specificity and speciation in larval Diplostomidae (Platyhelminthes: Digenea) in the eyes of freshwater fish, as revealed by DNA barcodes. *International Journal for Parasitology* 45(13): 841–55.
 19. **Locke SA**, Caffara M, Marcogliese DJ, Fioravanti ML. 2015. A large-scale molecular survey of *Clinostomum* (Digenea, Clinostomidae). *Zoologica Scripta* 44(2): 203-7.
 18. Otachi EO, **Locke SA**, Jirsa F, Fellner C, Marcogliese DJ. 2015. Morphometric and molecular analysis of *Tylodelphys* sp. metacercariae (Digenea: Diplostomidae) from the vitreous humor of four fish species from Lake Naivasha, Kenya. *Journal of Helminthology* 89(4): 404-14.

17. Van Steenkiste N, **Locke SA**, Castelin M, Marcogliese DJ, Abbott C. 2015. New primers for DNA barcoding of digeneans and cestodes (Platyhelminthes). *Molecular Ecology Resources* 15(4): 945-52.

2014

16. Aponte V, **Locke SA**, Gentes M-L, Giroux J-F, Marcogliese DJ, McLaughlin JD, Verreault J. 2014. Effect of habitat use and diet on the gastro-intestinal parasite community of an avian omnivore from an urbanized environment. *Canadian Journal of Zoology* 92(7): 629-36.
15. **Locke SA**, Bulté G, Marcogliese DJ, Forbes MF. 2014. Altered trophic pathway and parasitism in a native predator (*Lepomis gibbosus*) feeding on introduced prey (*Dreissena polymorpha*). *Oecologia* 175(1): 315-24.
14. **Locke SA**, Marcogliese DJ, Valtonen ET. 2014. Vulnerability and diet breadth predict larval and adult parasite diversity in fish of the Bothnian Bay. *Oecologia* 174(1): 253-62.
13. Ondrejicka DA, **Locke SA**, Morey K, Borisenko AV, Hanner RH. 2014. Status and prospects of DNA barcoding in medically important parasites and vectors. *Trends in Parasitology* 30(12): 582-91.

2013

12. Désilets HD, **Locke SA**, McLaughlin JD, Marcogliese DJ. 2013. Community structure of *Diplostomum* spp. (Digenea: Diplostomidae) in eyes of fish: evidence for interspecific interactions? *International Journal for Parasitology* 43(11): 929-39
11. **Locke SA**, Bulté G, Forbes MR, Marcogliese DJ. 2013. Estimating diet in individual pumpkinseed sunfish *Lepomis gibbosus* using stomach contents, stable isotopes and parasites. *Journal of Fish Biology* 82(2): 522-37.
10. **Locke SA**, McLaughlin JD, Marcogliese DJ. 2013. Predicting the similarity of parasite communities in freshwater fishes using the phylogeny, ecology and proximity of hosts. *Oikos* 122(1): 73-83.

2012

9. Ferguson JA, **Locke SA**, Font WF, Steinauer ML, Marcogliese DJ, Cojocar C, Kent ML. 2012. *Apophallus microsoma* n. sp. from chicks infected with metacercariae from coho salmon (*Oncorhynchus kisutch*) and review of the taxonomy and pathology of the genus *Apophallus* (Heterophyidae). *Journal of Parasitology* 98(6): 1122-32.
8. Larrat S, **Locke SA**, Dallaire AD, Fitzgerald G, Marcogliese DJ, Lair S. 2012. Fatal aerosacculitis and pneumonia associated with *Eucoleus* sp. (Nematoda: Capillaridae) in the lungs of a peregrine falcon (*Falco peregrinus*). *Journal of Wildlife Diseases* 48(3): 832-4.
7. **Locke SA**, Lapierre AR, Byers K, Proctor H, McLaughlin JD, Marcogliese DJ. 2012. Molecular and morphological evidence for the Holarctic distribution of *Urogonimus macrostomus* (Rudolphi, 1803) Monticelli, 1888 (Digenea: Leucochloridiidae). *Journal of Parasitology* 98(4): 880-2.
6. **Locke SA**, Levy M, Marcogliese DJ, Ackerman S, McLaughlin JD. 2012. The decay of parasite community similarity in ring-billed gulls (*Larus delawarensis*) and other hosts. *Ecography* 35(6): 530-8.

2011

5. Caffara M, **Locke SA**, Gustinelli A, Marcogliese DJ, Fioravanti ML. 2011. Morphological and molecular differentiation of *Clinostomum complanatum* and *Clinostomum marginatum* (Digenea: Clinostomidae) metacercariae and adults. *Journal of Parasitology* 97(5): 884-91.
4. **Locke SA**, McLaughlin JD, Lapierre AR, Johnson PTJ, Marcogliese DJ. 2011. Linking larvae and adults of *Apharyngostrigea cornu*, *Hysteromorpha triloba* and *Alaria mustelae* (Diplostomoidea: Digenea) using molecular data. *Journal of Parasitology* 97(5): 846-51.

2010

3. **Locke SA**, McLaughlin JD, Dayanandan S, Marcogliese DJ. 2010. Diversity and specificity in *Diplostomum* spp. metacercariae in freshwater fishes revealed by cytochrome c oxidase I and internal transcribed spacer sequences. *International Journal for Parasitology* 40(3): 333-43.

2. **Locke SA**, McLaughlin JD, Marcogliese DJ. 2010. DNA barcodes show cryptic diversity and a potential physiological basis for host specificity among Diplostomoidea (Platyhelminthes: Digenea) parasitizing freshwater fishes in the St. Lawrence River, Canada. *Molecular Ecology* 19(13): 2813-27.

2009

1. Moszczynska A, **Locke SA**, McLaughlin JD, Marcogliese DJ, Crease TJ. 2009. Development of primers for the mitochondrial cytochrome c oxidase I gene in digenetic trematodes (Platyhelminthes) illustrates the challenge of barcoding parasitic helminths. *Molecular Ecology Resources* 9 (suppl. 1): 75-82.

MANUSCRIPTS UNDER REVIEW or IN PREPARATION

Ebbs E, Loker E, **Locke SA**, Davis N, Tkach V, Brant S. Legacy parasite collections reveal species-specific population genetic patterns among three species of zoonotic schistosomes (Trematoda: Schistosomatidae). In preparation following decision of “revise and resubmit” at *Molecular Ecology*. Manuscript MEC-21-1101, *Authorea* preprint of original submission at DOI: 10.22541/au.163352156.62491828/v1

Seymour M, **Locke SA** [35th author], ... Hebert PDN. Arthropod beta-diversity is spatially and temporally structured by latitude. In preparation

TEACHING

University of Puerto Rico at Mayagüez (2015-present):

Animal Parasitology, with laboratory (many times, 12-40 undergraduate students)

Introductory Biology I (atom to cell) (many times, including three times partly or fully online, 40 undergraduate students)

Introductory Biology II (organismal) (many times, including twice online, 40 undergraduate students)

Zoology (three times, 20-40 undergraduate students)

Seminar (twice, 12 undergraduate students)

Disease Ecology (once, six students, graduate and undergraduate)

Advanced Parasitology (four times, once online)

Research methods (once, five graduate students)

Concordia University (2008-2012):

Evolutionary Ecology of Parasites (team-taught, once, five students, graduate and undergraduate)

Form and Function of Organisms (team-taught, once, 120 undergraduate students)

FUNDING

2023

National Science Foundation (NSF), Division of Environmental Biology (DEB), Award 1845021-003 “INTERN DCL: Fish Survey in a National Wildlife Refuge for the Development of Food and Sport Fishery (Dear Colleague Letter: Non-Academic Research Internships for Graduate Students (INTERN) Supplemental Funding Opportunity, NSF 21 - 013)” (sole PI) \$ 29 850

2021

XSEDE (NSF) computational and data storage resources. Award DEB200021 renewal. “Assembly and phylogenetic analysis of parasitic worm genomes to address higher taxonomic issues in the Digenea (Platyhelminthes, Trematoda)” (PI with one co-PI) \$ 688 (in-kind)

NSF, DEB, Research Experiences for Post-baccalaureate Students (REPS). Award 1845021-002 “Two targeted projects on Heterophyidae: larval helminths in alien snails, and phylogenomics of *Scaphanocephalus* Jägerskiöld (1904)” (sole PI) \$38 100

2020

XSEDE (NSF) computational and data storage resources. Award DEB200021. “Assembly and phylogenetic analysis of 40 parasitic worm genomes to address higher taxonomic issues in the Digenea (Platyhelminthes, Trematoda)” (PI with one co-PI) \$3 177 (in-kind)

NSF, DEB, Research Experiences for Undergraduates (REU). Award 1845021-001 “Opportunistic characterization of larval Heterophyidae (Platyhelminthes, Digenea)” (sole PI) \$7 250

2019

NSF, DEB, Award 1845021 “CAREER: Higher systematics and co-evolution in the Diplostomoidea (Platyhelminthes, Digenea)” (sole PI) \$743 560

2017

XSEDE (NSF) computational and data storage resources. Award BIO170048. “Phylogeny of Diplostomoidea” (PI with one co-PI) \$2 970 (in-kind)

2016

Puerto Rico Science, Technology and Research Trust. Award 2016-00080. “Dimensions of biodiversity in pathogens of Puerto Rican wildlife” (sole PI) \$70 000

United States Fish and Wildlife Service. Cooperative Agreement F16AC00898. “Baseline sampling of biotic assemblages and physicochemical parameters upstream and downstream of riverine barriers” (sole PI) \$54 976

2015

Competitive internal grant, University of Puerto Rico at Mayaguez, Faculty of Arts and Sciences. “*Fondos Semillas*” (sole PI) \$3 500

2013

National Geographic, Committee for Research and Exploration. Grant 9330-13. “Diversity, specificity and phylogeny of the Diplostomoidea (Platyhelminthes: Digenea), parasites of aquatic wildlife” (sole PI) \$20 855

OTHER CONTRIBUTIONS (non-peer reviewed)

- Santos-Flores CJ, **Locke SA**. 2020. *Peces de agua dulce nativos de Puerto Rico*. División de comunicaciones y publicaciones del Programa Sea Grant de la Universidad de Puerto Rico. Publication UPRSG-B-254, ISBN 978-1-881719-63-2, 94 pp.
- Locke SA**. 2015. Barcoding the deadliest animals on earth. *Barcode Bulletin* 6(1), 14-15.
- Locke SA**, Marcogliese DJ. 2015. Barcoding the Diplostomoidea (Platyhelminthes: Digenea). *Genome* 58(5): 248 (conference proceeding).
- Locke SA**, Marcogliese DJ. 2005. *A Summary Report on Swimmer's Itch in Quebec*. Scientific and Technical Report ST-234E. Environment Canada – Quebec Region, Environmental Conservation Branch, Saint Lawrence Centre, 30 pp.

Selected talks

2023

40th Scientific Meeting of the Association of Marine Laboratories of the Caribbean, St. Kitts.

2020

American Fisheries Society, 150th annual meeting, virtual.

2018

Caribbean Ecological Field Office, U.S. Fish & Wildlife Service, Boquerón, PR.
American Fisheries Society, Southern Chapter, Restoring Water Flows Symposium, Hotel Intercontinental, San Juan, PR.

2017

American Society of Parasitologists annual meeting. 26 June – 1 July. Hilton, San Antonio, TX.
Forward Grantees' Symposium, Universidad del Este, Carolina, PR.

2016

Department of Biology, University of Puerto Rico, Río Piedras, San Juan, PR.
American Fisheries Society, Southern Chapter, Conservation and Biodiversity Symposium, Hotel Intercontinental, San Juan, PR.

MENTORSHIP

Graduate students:

University of Puerto Rico at Mayagüez

Committee member:

Cristian J. Arvelo Galera (MSc, ongoing)
Antonio Camacho Flores (MSc, inactive)
Lance Heinemann (MSc, 2021)
Marlys Massini Espino (MSc, 2018)
Neisha Gonzalez Hernandez (MSc, 2020)
Ruben Irizarry Feliciano (MSc, inactive).

Major advisor:

Johann Cancel Villamil (MSc, 2019)
Sandra Diaz Pernet (MSc, 2022).
Jacob Lopez Cruz (MSc, inactive)
Gabriel Torres Nieves (MSc, ongoing)
Diana Perales Macedo (MSc, ongoing)

Nova Southeastern University

Michael Nakama (MSc, 2018). Committee member.

Concordia University

Angela Rose Lapierre (MSc, 2011). I was a postdoc with unofficial role comparable to co-supervision

Hubert Désilets (MSc, 2013). Postdoc with unofficial role comparable to co-supervision (see Désilets, Locke et al. 2013. *Int J Parasitol*, in publication list)

Université du Québec à Montréal

Veronica Aponte (MSc, 2013). Postdoc with unofficial role comparable to committee membership (see Aponte, Locke et al. 2014. *Can J Zool*, in publication list)

Undergraduate students:

University of Puerto Rico at Mayagüez

María Díaz González (2020-22; awarded Puerto Rico Louis Stokes Alliance for Minority Participation [PR-LSAMP] scholarship for work in my lab); Diana Perales Macedo (2019-21; twice awarded PR-LSAMP scholarship for work in my lab); Gustavo Ujaque-Santiago (2022); Jeaneanet Díez-Rodríguez (2022); Brian Arce Negrón (2018); Raquel Castillo López (2018); Dólimar Roldan Vélez (2018); Claudia Esteves Crespo (2018); Vanesa Torres González (2018); Antonio de la Cruz Ramos (2017); Verónica Román Oliveras (2017, 2018); Jonathan López Duran (2017); Juan Figueroa (2016); Juliana Nieves Rivera (2016); Guillermo Ruiz Tello de Meneses (2016); Ramon Calero Ayala (2016, 2017); Teresa Del Rio Montesinos (2016); Cristina Cruz (2015); Joshua Freytes Martínez (2015, 2016); Pedro Irizarry Plaza (2015); Eliud Padilla Laureano (2015); Jessica Matta Jordán (2015); Angelica Alvarado Torres (2015).

SERVICE

Member, Editorial Board, *Comparative Parasitology*, Helminthological Society of Washington, (2022 – present).

Member, Editorial Board, *Food and Waterborne Parasitology*, Elsevier (2021 – present).

Chair, Institutional Animal Care and Use Committee (IACUC), University of Puerto Rico at Mayagüez (2019 – present).

Member, Personnel Committee, Biology Department, University of Puerto Rico at Mayagüez (2020 – present).

Mentor for new faculty, UPRM Biology Department (2021 – present).

Panelist. Obtaining the NSF CAREER award workshop for new faculty, UPRM, October 2021

Panelist. Orientation for new faculty, UPRM, August 2021.

Ad hoc associate editor, *Caribbean Journal of Science*, 2020.

Member, Graduate Studies Committee, Biology Department, University of Puerto Rico at Mayagüez, 2019 – present.

Member, Animal Housing Facility Oversight Committee, Biology Department, University of Puerto Rico at Mayagüez, 2018 – present.

Member, Departmental Seminar Committee, Biology Department, University of Puerto Rico at Mayagüez, 2018 – present.

Member, Organizing Committee, Annual Undergraduate Research Symposium, Biology Department, University of Puerto Rico at Mayagüez, 2016-present.

Reviewer, Faculty Proposals for Teaching Release for Research and Creative Endeavours, Faculty of Arts and Science, University of Puerto Rico at Mayagüez, 2019.

Member, Membership Committee, American Society of Parasitologists (term 2016-2020).

Moderator (Genetics and eDNA session), American Fisheries Society, Southern Chapter, Hotel Intercontinental, San Juan, PR, 2018.

Judge (Best Student Poster), American Fisheries Society, Southern Chapter, Hotel Intercontinental, San Juan, PR, 2018.

Judge (student presentations), Fifth Undergraduate Research Symposium, Biology Department, University of Puerto Rico at Mayagüez, 2015.

Alternate member, Nominating committee, American Society of Parasitologists (term 2015-2016).

Member, Best student presentation and travel grant awards committee, American Society of Parasitologists (term 2013-2015).

Member, Best student presentation and student travel grant awards committee, Annual Midwest Conference of Parasitologists, 2013, 64th Annual Meeting, Purdue University, Indianapolis, MI.

CERTIFICATIONS

Online teaching and distance education (Professional Enrichment Center, UPRM)

Principles & Techniques of Electrofishing, USFWS

PADI open-water and advanced SCUBA

Pleasure Craft Operator

Freshwater Fish Identification (Royal Ontario Museum)

Curriculum vitae
Yadira Malavez-Acevedo, Ph.D.

HC 1 Box 7045, Moca, PR 00676
Phone: 614-282-6596 E-mail: yadira.malavez@upr.edu

Education

The Ohio State University Ph.D. - Molecular, Cellular and Developmental Biology Thesis: Molecular Mechanisms of Caspase-3 Regulation in the Execution of Cell Death. Research Area: Molecular Biology	Columbus, OH 2012
University of Puerto Rico M.S. - Food Science and Technology Thesis: Detection of <i>Campylobacter jejuni</i> in a hatchery of Puerto Rico Research Area: Food Microbiology	Mayaguez, PR 2005
University of Puerto Rico B.S. Microbiology	Humacao, PR 2002

Work Experience

University of Puerto Rico	Mayaguez, PR
Assistant Professor: Industrial Biotechnology Program and Department of Biology (Tenured Track)	07/01/2023 – present
<u>Courses:</u> Introduction to Industrial Bacteriology (BIND-3005), Food Microbiology Laboratory (BIOL-4366), and Industrial Biotechnology Seminar (BIOL-4890). - Responsible for lecture, syllabus preparation, test construction, grading, and student supervision. <u>Other Responsibilities:</u> - Submit federal proposals and actively participate in department committees and meetings.	
University of Puerto Rico Assistant Professor: Department of Biology (Tenured Track)	Arecibo, PR 08/01/2022 – 06/30/2023
<u>Courses:</u> Industrial Bacteriology Lecture and Laboratory (BIOL-3917/3918), Food Microbiology (BIOL-3926), and Bioinformatic Seminar (BIOL-3910). - Responsible for lecture, syllabus preparation, test construction, grading, and student supervision. <u>Other Responsibilities:</u> - Submitted federal proposals and actively participated in department committees and meetings. - Liaison for the Industry University Research Center (INDUNIV) Consortium at UPR Arecibo.	
University of Puerto Rico Assistant Professor: Department of Natural Sciences (Contract)	Aguadilla, PR 01/10/2013 – 07/31/2022
<u>Courses:</u> Microbiology (BIOL-3705), Undergraduate Research (BIOL-3108), Cellular and Molecular Biology (lecture/laboratory BIOL-4018/4019), General Biology laboratory I /II (BIOL-3013/3014), Introduction to Biomedical Sciences (BIOL-3005), and Biological Sciences (CIBI-3002). - Responsible for lecture, syllabus preparation, test construction, grading, and student supervision. <u>Other Responsibilities:</u> - Submitted federal proposals (as Project Director and Co-PD) to attract external funding. - Actively participated in department committees and meetings and extracurricular activities.	
Interamerican University of Puerto Rico Faculty: Department of Science and Technology (Contract)	Arecibo, PR 8/15/2012 – 11/28/2013

Courses: Cellular and Molecular Biology (BIOL 4604), Molecular Biotechnology Laboratory (BIOT3250), Tissue Culture and Technical Applications (BIOT 4620), Genetics (BIOL 2155), Operational Biotechnology I/II (BIOT 4801/4802).

- Responsible for lectures, syllabus preparation, test construction, and grading.
- Coordinated seminars offered by biotechnology experts from local biotechnology companies.

Research Experience

University of Puerto Rico
Department of Natural Sciences
Research:

Aguadilla, PR
8/2015 - 2022

- **2018-present: Characterization of *Staphylococcus aureus* from dairy cattle with subclinical mastitis.** Planned experiments to isolate *S. aureus*, evaluated antibiotic resistance and amplified genes for toxin production. Analyzed biofilm formation capacity of the isolates.
- **2017-present: Evaluation of antimicrobial resistance in *E. coli* strains isolated from cattle and calves from different management systems.** Developed experiments to isolate Shiga toxin-producing *Escherichia coli* (STEC) from dairy cattle. Analyzed the antibiotic resistance and amplified genes for Shiga-toxin production. Performed whole genome sequencing and bioinformatic analysis.
- **2017-present: Incidence and characterization of Methicillin Resistant-*Staphylococcus aureus* in retail meat from Puerto Rico.** Designed experiments to isolate *Staphylococcus aureus* and Methicillin-Resistant *Staphylococcus aureus* (MRSA) from surfaces and retail meat. Evaluated the antibiotic resistance and used PCR to amplify genes for 16S, virulence factors such as thermonuclease, hemolysin, and toxin production
- **2016-2018: Isolation and characterization of Methicillin-Resistant *Staphylococcus aureus* (MRSA) strain from environmental surfaces.** Delineated experiments to detect *S. aureus* contamination of surfaces. Evaluated the antibiotic resistance of strains. Confirmed *S. aureus* isolates by amplifying the 16S gene and their capacity to produce toxins by PCR.
- **2015-2018: Isolation and characterization of plant extracts as sources of antimicrobial agents.** Isolated plant extracts from *Tamarindus indica*, *Genipa americana*, and *Curcuma longa*. Evaluated their antimicrobial activity against bacteria and yeast strains. Identified the Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC).

Student impact: Taught **126 students** how to establish a hypothesis, develop an experimental design, and write a research proposal. The students' findings were shared in posters (Total: 23) and oral formats (Total: 14) at local, national, and international scientific conferences with my mentoring and guidance.

Pennsylvania State University
Visiting Professor
Department of Food Sciences

State College, PA
Summer 2017 and 2018

Research 2017: Characterization of factors that affect the O-Type identification of *E. coli* strains by whole genome sequencing.

Research 2018: Identification of virulence and resistance genes of *E. coli* strains from dairy farms with different management systems from Pennsylvania by whole genome sequencing.

- Whole genome sequencing and bioinformatic analysis of *E. coli* isolates.

The Ohio State University
Graduate Research Associate

Columbus, OH
6/2006 – 3/2012

Research: Regulation of apoptosis through the phosphorylation of caspase-3 by PKC δ .

Designed and conducted *in vitro* and *in vivo* experiments to identify caspase-3 phosphorylation sites.

- Performed site-directed mutagenesis and cloned the genes into bacterial and mammalian expression vectors to overexpress caspase-3 wild-type and mutants for protein purification (bacteria) and test the effect in breast cancer cell lines exposed to the chemotherapeutic treatment.

Research: Analysis of human monocyte subpopulations apoptosis and inflammatory pathways.

- Isolated human monocytes subpopulations from blood, analyzed differences in the expression of PKC proteins by Western blot, apoptosis by flow cytometry, and TNF- α response by ELISA.

Federal Research Support

Ongoing Research Support

1. **2022 – 2025:** Improving scientific instrumentation for student success in Puerto Rico (ISISS-PR). U.S. Department of Agriculture (USDA). Award: **\$200,000** UPR Arecibo. Role: Project Director and Principal Investigator (PD/PI). USDA 2022-04475
2. **2022 – 2027:** Strengthening Teaching and Advancing Research Partnerships: Reinforcing the STEM Workforce (STARp). National Science Foundation (NSF). Award: **\$800,000** Role: PD/PI. NSF 2122203.
3. **2021 – 2025:** Puerto Rico Antibiotic Resistance Surveillance in Retail Food (PR-ARS). Agency: Food and Drug Administration (FDA). Award: **\$728,000.** Role: PD/PI. FDA U01FD007453-01
4. **2023 – 2027:** Mitigating antimicrobial resistance in the Puerto Rico dairy chain through research and training of farmers and next-generation scientists. Total Award Pennsylvania State University: \$1,000,000. UPR Arecibo: **\$450,000.** Role: Co-Principal Investigator (Co-PI). Submitted: September 2022. Will start 08/2023.

Previous Research Support

1. **2018 – 2022:** Research and Undergraduate Training in Agricultural Sciences (RUTAS). USDA. **\$247,530** UPR Aguadilla. Role: Co-PI. Impact: 20 students. USDA 2018-38422-28570
2. **2016 – 2021:** Encouraging careers in food security and safety: A multi-institutional collaborative approach for success in Puerto Rico (ECaFSS). USDA. Total subaward UPR Aguadilla: **\$262,147.** Role: Co-PI. Impact: 70 students. USDA 2016-38422-25541
3. **2016 – 2018:** Promoting local research and internship experiences in the U.S. for undergraduate students of two campuses of the University of Puerto Rico. USDA. Award: **\$148,000** UPR Mayaguez. Role: Co-PI. Impact: 8 students. USDA 2016-70004-25658
4. **2016 – 2018:** Promoting Distance Education in Out-of-Classroom Experiences for Students of Two Campuses of the University of Puerto Rico. USDA. Award: **\$175,000** UPR Mayaguez. Role: Co-PI. Impact: Improved Wi-Fi accessibility in classrooms and external areas in the Department of Natural Sciences at UPR Aguadilla. USDA 2016-70004-25656
5. **2015 – 2017:** Piping Students to Graduate School by Increasing Undergraduate Research Opportunities in Two Campuses of the University of Puerto Rico. USDA. Award: **\$162,958** UPR Mayaguez. Role: Collaborator. Impact: 8 UPR Aguadilla. USDA 2015-70004-24167
6. **2015 – 2017:** Distance Education as a Tool for Shortening the Gap Between Two Campuses of the University of Puerto Rico. USDA. Award: **\$136,000** UPR Mayaguez. Role: Collaborator. Impact: 20 faculty of Natural Sciences at UPR Aguadilla. USDA 2015-70004-24171

Peer-Reviewed Publications

For an updated list of my publications: <https://sciprofiles.com/profile/2884206>

1. **Malavez, Y.,** Nieves-Miranda, S.M., Loperena-Gonzalez, P., Padín-Lopez, A.F., Xiaoli, L., and Dudley, E. Exploring Antimicrobial Resistance Profiles of *E. coli* Isolates in Dairy Cattle: A Baseline Study across Dairy Farms with Varied Husbandry Practices in Puerto Rico. Microorganisms. (Manuscript was submitted on August 2023).
2. **Malavez, Y.,** Loperena-Gonzalez, P., Nieves-Miranda, S.M., Vazquez-Rodriguez, E., Centeno-Velez, C., Xiaoli, L., and Dudley, E. 2022. Virulence Potential of *Escherichia coli* Isolates from a Beef Farm in Puerto Rico. ASM Microbiology Resource Announcements. e00443-22. <https://doi.org/10.1128/mra.00443-22>
3. **Malavez Y.** 2016. Using the Undergraduate Research Course as a Tool to Develop Scientific Proficiency at the University of Puerto Rico Aguadilla. North American Colleges and Teachers of Agriculture (NACTA). 60(1): 158.
4. **Malavez Y.,** Voss O.H., Gonzalez-Mejia M.E., and Doseff A.I. 2014. Distinct contribution of Protein Kinase Cδ and Protein Kinase Cε in the lifespan and immune response of human blood monocyte subpopulations. Immunology. 144: 611 – 620. <https://doi.org/10.1111/imm.12412>

5. **Malavez Y.** 2011. Molecular Mechanisms of Caspase-3 Regulation in the Execution of Cell Death. Doctoral dissertation. The Ohio State University, OH. (Thesis Dissertation). http://rave.ohiolink.edu/etdc/view?acc_num=osu1331142346
6. **Malavez Y.,** Gonzalez-Mejia M.E., and Doseff A.I. 2009. PRKCD (Protein Kinase C, delta). Atlas of Genetics and Cytogenetics in Oncology and Haematology. 1: 28 – 42. DOI: 10.4267/2042/44382
7. **Malavez, Y.** 2003. Detection of *Campylobacter jejuni* in a hatchery of Puerto Rico. Masters Dissertation. University of Puerto Rico, Mayaguez, PR. UPRM Repository. <https://hdl.handle.net/20.500.11801/978>

Peer-Reviewed Poster Publications

1. **Malavez, Y.*** (June 2016). Using the undergraduate research course as a tool to develop scientific proficiency in the University of Puerto Rico - Aguadilla. (Poster presentation). **University of Hawaii at Manoa, Honolulu, HI.**
2. **Malavez, Y.***, Voss, O.H., Kamran, H., and Doseff, A.I. (October 2011) PKC δ regulates cell death and survival through the phosphorylation of caspase-3 (Poster presentation). 10th Annual DHLRI Research Day. **The Ohio State University, Columbus, OH.**
3. **Malavez, Y.***, Voss, O.H., Federico, M.B., Kamran, H., and Doseff, A.I. (May, 2011). PKC δ dependent phosphorylation of caspase-3 modulates its enzymatic activity and cell death (Poster presentation). 13th OSU-Comprehensive Cancer Center Annual Scientific Meeting. **The Ohio State University, Columbus, OH.**
4. **Malavez, Y.***, Voss, O.H., Federico, M.B., Kamran, H., Brahimaj, B., and Doseff, A.I. (October 2010). Phosphorylation of caspase-3 regulates apoptosis through a complex regulatory network (Poster presentation). 5th Annual Pulmonary Research Day. **The Ohio State University, Columbus, OH.**
5. **Malavez, Y.***, Voss, O.H., Kamran, H., and Doseff, A.I. (November, 2009). Regulation of caspases-3 activity by PKC δ phosphorylation (Poster presentation). 4th Annual Pulmonary, Allergy, Critical Care, and Sleep Research Day. **The Ohio State University, Columbus, OH.**
6. **Malavez, Y.***, Voss, O.H., Kamran, H., and Doseff, A.I. (October 2009). Regulation of caspases-3 activity by PKC δ phosphorylation (Poster presentation). Cell Death Meeting. **Cold Spring Harbor Laboratories. Cold Spring Harbor, NY.**
7. **Malavez, Y.***, Voss, O.H., Doolittle, J., and Doseff, A.I. (February 2008). Regulation of caspase-3 by PKC δ (Poster presentation). 10th OSU-Comprehensive Cancer Center Annual Scientific Meeting. **The Ohio State University, Columbus, OH.**
8. **Malavez, Y.***, Voss, O.H., Doolittle, J., and Doseff, A.I. (September 2008). PKC δ dependent phosphorylation of caspase-3 modulates cell death during innate immune response (Poster presentation). 3rd Annual Pulmonary, Allergy, Critical Care, and Sleep Research Day. **The Ohio State University, Columbus, OH.**
9. **Malavez, Y.***, Voss, O.H., and Doseff, A.I. (October, 2007). The role of caspase-3 phosphorylation in apoptosis (Poster presentation). OSUCCC Molecular Biology and Cancer Genetics Retreat. **Mohican Resort and Conference Center, Perrysville, OH.**
10. **Malavez, Y.***, Voss, O.H., and Doseff, A.I. (September, 2007). Regulation of caspase-3 activation by PKC δ phosphorylation (Poster presentation). 2nd Annual Pulmonary, Allergy, Critical Care, and Sleep Research Day. **The Ohio State University, Columbus, OH.**
11. **Malavez, Y.***, Rodriguez, F.J., Sastre, M., and Del Llano, A.M. (March, 2002). Quantitative analysis of the DNA fragmentation using the VisComet program and epifluorescence microscopy (Poster presentation). Potpourri of Science in the Clinical and Research Scenarios. Puerto Rico Society for Microbiologists. **University of Puerto Rico, Bayamon, PR.**

* Indicates Presenter

Oral Presentations and Invited Seminars

1. **Malavez, Y.*** (August 2023). Antimicrobial resistance and its global significance. Welcome activity for Freshman Industrial Biotechnology. **University of Puerto Rico at Mayagüez.** Attendance: 85 students.

2. **Malavez, Y.*** (March, 2022). Antimicrobial and Pathogenic Profile Analysis of Fecal *E. coli* Isolates from Farms of Puerto Rico. Symposium for Faculty Research, Artistic Creation, and Community Service. **University of Puerto Rico at Cayey, Cayey, PR.** Attendance: 20 students, 4 Faculty.
3. **Malavez, Y.*** (March, 2022). Antimicrobial-Resistant Bacteria from Puerto Rico: Sources and Potential Health Threat. Faculty Development Day. Virtual Conference for the Department of Natural Sciences, **University of Puerto Rico at Aguadilla. Virtual Conference.** Attendance: 85 students, 10 Faculty, and 3 staff.
4. **Malavez, Y.*** (March, 2022). Sources of multidrug-resistant bacteria in Puerto Rico. Virtual Conference. Industrial Microbiology Student Chapter, Puerto Rico Society for Microbiologist Mayaguez Chapter. **Virtual Conference for students from the University of Puerto Rico at Mayaguez.** Attendance: 62 students.
5. **Malavez, Y.*** (May, 2021). How to keep our food safe from microorganisms. A virtual workshop for high school students. Proposal: Encouraging Careers in Food Security and Safety: A Multidisciplinary Approach for Success in Puerto Rico (ECaFSS). **Virtual workshop.** Attendance: 49 students.
6. **Malavez, Y.*** (May, 2020). How to develop a professional curriculum vitae: a key to success. (Hands-on workshop for undergraduate students). Proposal: ECaFSS. Department of Natural Science, Laboratory R-218. **University of Puerto Rico at Aguadilla, Aguadilla, PR.** Attendance: 29 students.
7. **Malavez, Y.*** (May, 2019). Genetically Modified Organisms (GMOs): What are They and How to Identify them. (Hands-on workshop for high school students). Proposal: ECaFSS. **University of Puerto Rico at Aguadilla, Aguadilla, PR.** Attendance: 10 students.
8. **Malavez, Y.*** (November, 2018). Writing your curriculum vitae: a key step in your career. (Workshop for undergraduate students). Proposal: ECaFSS. Department of Natural Science, Laboratory R-218. **University of Puerto Rico at Aguadilla, Aguadilla, PR.** Attendance: 30 students.
9. **Malavez, Y.*** (August, 2018). Genetically Modified Organisms (GMOs): What are They and How to Identify them. (Hands-on workshop for high school students). Proposal: ECaFSS. Department of Natural Science, Laboratory R-218. **University of Puerto Rico at Aguadilla, Aguadilla, PR.** Attendance: 20 students.
10. **Malavez, Y.*** (May, 2017). New technologies for online course design. (Hands-on workshop for faculty). Proposal: Distance Education as a Tool for Shortening the Gap Between Two Campuses of the University of Puerto Rico. **Marriott Hotel, Aguadilla, PR.**
11. **Malavez, Y.*** and Jimenez E.* (May, 2017). Interactive Moodle workshop for the preparation of online courses. (Hands-on workshop for faculty). Proposal: Distance Education as a Tool for Shortening the Gap Between Two Campuses of the University of Puerto Rico. **Interamerican University, San German, PR.**
12. **Malavez, Y.*** (August, 2016). Managing online courses in UPRAg Virtual. (Workshop for faculty). Proposal: Distance Education as a Tool for Shortening the Gap Between Two Campuses of the University of Puerto Rico. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**

* Indicates Presenter

Mentees Peer-Reviewed Poster Publications

1. Vargas-Maldonado, N.P.*, Gonzalez-Munoz, E., Babilonia Acevedo, S.N., Rodriguez-Lasalle, A., and **Malavez, Y.** (March 2020). Antibiotic resistance and biofilm formation of *Staphylococcus aureus* isolated from cattle with subclinical mastitis in Puerto Rico. Annual Biomedical Research Conference for Minority Students (ABRCMS). **Virtual Conference.**
2. Loperena-Gonzalez, P.N, Nieves-Miranda S.M., Lopez-Padin, A.F., Yoder, K., **Malavez, Y.** and Dudley, E.G. (November 2019). Whole genome sequencing and bioinformatics analysis of *E. coli* isolates from different farm management systems in Puerto Rico. Allegheny Branch American Society for Microbiology, ABASM. **Saint Francis University, Loretto, PA.** Awarded 1st place.
3. Gonzalez-Munoz*, E., Vargas-Maldonado, N.P., Babilonia Acevedo, S.N., Jimenez-Caban, E. Gonzalez-Martinez, G.M., and **Malavez, Y.** (July, 2019). Antibiotic resistance and virulence factor profile of *Staphylococcus aureus* strains isolated from cattle with subclinical mastitis. 55th Annual

Meeting Caribbean Food Crops Society. Convention Center of Barcelo **Bavaro Beach Hotel, Punta Cana, DR.**

4. Quintana-Acevedo, L.* and **Malavez, Y.** (May, 2019). Characterization of virulence genes of Methicillin-Resistant *Staphylococcus aureus* isolated from retail meat from Puerto Rico. 66th Biology Honor Society βββ District Convention. **University of Puerto Rico. Candelero Beach Resort, Humacao, PR. Awarded Second Place.**
5. Loperena-Gonzalez, P.*, and Malavez, Padin-Lopez, A.*, and **Malavez, Y.** (May, 2019). Evaluation of antimicrobial resistance in *E. coli* strains isolated from cattle and calves from different management systems. XIX Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
6. Quintana-Acevedo, L.* and **Malavez, Y.** (May, 2019). Characterization of virulence genes of Methicillin-Resistant *Staphylococcus aureus* isolated from retail meat from Puerto Rico. XIX Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
7. Goyco-Blas, J., Nieves, Miranda, S.M., Quiles-Perez, C.J., Velez-Morales Kenneth, **Malavez, Y.**, and. Dudley, E. (November 2018). Genome Sequencing for Rapid Detection of Virulent Resistant *E. coli*. Allegheny Branch American Society for Microbiology, ABASM. **Gettysburg College, Gettysburg, PA.**
8. Quiles-Perez, C.J.*, Perez-Torres C.J, and **Malavez, Y.** (May, 2018). Evaluation of potential risks of contamination with *Staphylococcus aureus* in a university campus athletic facility. 2018 Biology Honor Society βββ National Convention. **Asilomar State Park, Monterey Bay, CA.**
9. Quintana-Acevedo, L.*, and **Malavez, Y.** (May, 2018). Incidence and characterization of Methicillin-Resistant *Staphylococcus aureus* in retail meat from Puerto Rico. 2018 Biology Honor Society βββ National Convention. **Asilomar State Park, Monterey Bay, CA.**
10. Mendez-Acevedo M. *, Quiles-Perez CJ, Perez-Torres CJ and **Malavez, Y.** (May, 2018). Environmental identification of *Staphylococcus aureus* in bathrooms located in a university campus. 2018 Biology Honor Society βββ National Convention. **Asilomar State Park, Monterey Bay, CA.**
11. Badillo-Chico, P.*, Miranda-Torres, M.*, and **Malavez, Y.** (April, 2018). Antimicrobial Effect of *Genipa americana* Plant Extracts Against Bacteria and Fungi XVIII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR**
12. Quiles-Perez, C.J.*, Perez-Torres C.J, and **Malavez, Y.** (April, 2018). Environmental identification of *Staphylococcus aureus* in bathrooms located on a university campus. XVIII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
13. Quintana-Acevedo, L.* and **Malavez, Y.** (April, 2018). Incidence and characterization of Methicillin Resistant-*Staphylococcus aureus* in retail meat from Puerto Rico. 65th Biology Honor Society βββ District Convention. **University of Puerto Rico at Rio Piedras, San Juan, PR.**
14. Badillo-Chico, P.*, Miranda-Torres, M.*, and **Malavez, Y.** (March, 2017). Antimicrobial effect of *Genipa americana* plant extracts against multi-drug resistant bacteria and fungi. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
15. Hernandez-Arbelo, I.M.* and **Malavez, Y.** (March, 2017). Prevalence of the community-associated methicillin Resistant *Staphylococcus aureus* in a university campus of Puerto Rico. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
16. Perez-Gonzalez, C.* and **Malavez, Y.** (March, 2017). Analysis of the antibacterial and antioxidant properties of *Curcuma longa*. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
17. Quintana-Acevedo, L.* and **Malavez, Y.** (March, 2017). Incidence of Methicillin Resistant *Staphylococcus aureus* retail meat from Puerto Rico. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
18. Rodriguez-Martir, K.M.*, Vendrell-Martinez, M.*, Rosado-García, A., and **Malavez, Y.** (March, 2017). Assessment of the antibacterial activity of the *Tamarindus indica*. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
19. Quintana-Acevedo, L.* and **Malavez, Y.** (March, 2017). Incidence of Methicillin Resistant *Staphylococcus aureus* retail meat from Puerto Rico. 64th Biology Honor Society βββ District Convention. **Costa Bahia Hotel & Convention Center. Guayanilla, PR.**

20. Pedraza-Gonzalez, J.* and **Malavez, Y.** (June, 2016). Antibacterial activity of *Genipa americana* fruit against *Staphylococcus aureus*. 2016 βββ National Convention. **Bethel University, St. Paul, MN.**
21. Vendrell-Martinez, M.*, Rodriguez-Martir, K.M., and **Malavez, Y.** (June, 2016). Antibacterial activity of *Tamarindus indica* against Gram-positive bacteria. 2016 βββ National Convention. **Bethel University, St. Paul, MN.**
22. Rodriguez-Martir*, K.M., Vendrell-Martinez, M. and **Malavez, Y.** (June, 2016). Assessment of *Tamarindus indica* antimicrobial activity against Gram-negative bacteria. 2016 βββ National Convention. **Bethel University, St. Paul, MN. Awarded Second Place.**
23. Loperena-Medina S.H.*, Rodriguez-Hernandez J.M.*, Ramos-Cardona J.C.*, López-Hernandez S.L., Valle-Valentín L.G., Valentín R., Ramos-Ramos C., and **Malavez Y.** (April, 2016). Elucidation of cell death mechanisms after hyperthermia and chemotherapeutic treatments using the Comet Assay. XVI Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**

* Indicates Presenter

Mentees Oral Presentations

1. Nieves-Lebron, J., Centeno-Velez, C.N., Vega-Quinones, E.M., **Malavez, Y.** 2023. Antibiotic Resistance in *Campylobacter* spp. from Puerto Rico's Retail Meat: A Bioinformatic Approach to Raise Awareness. Annual Meeting 2023 and Student Symposium. Puerto Rico Society of Microbiologists, American Society for Microbiology (ASM). Pontifical Catholic University, Ponce, PR.
2. Muniz-Rosa, A.M.* and **Malavez, Y.** (April, 2021). Characterizing antibiotic resistance and virulence genes of Methicillin-Resistant *Staphylococcus aureus* isolated from retail beef in Puerto Rico XX Undergraduate Research Symposium. **Virtual Conference.**
3. Colon-Seguino, N., Muñoz-Rosa, A.M., Quiñones-Barreto, M.J.*, Quiñones-Velazquez, A., Dudley, E.G., and **Malavez, Y.** (April, 2021). Comparison of antimicrobial resistance genes of *E. coli* strains isolated from calves in conventional and organic dairy farms. XX Undergraduate Research Symposium. **Virtual Conference.**
4. Centeno-Velez, C.N.*, Padilla-Casiano, Z.J., Sanchez-Egipciano, G.A., Dudley, E.G., **Malavez, Y.** (April, 2021). Bioinformatic analysis of virulence genes of *Escherichia coli* isolated from cattle. (Oral). XX Undergraduate Research Symposium. **Virtual Conference.**
5. Roldan, E., Vazquez, E., Loperena-Gonzalez, P., Padin-Lopez, A., Nieves, S.M., Dudley, E.G., and **Malavez, Y.** (April 2021). Evaluation of antimicrobial resistance, virulence, and pathogenic profile of *E. coli* strains isolated from fecal matter of cattle and calves from farms with different management systems in Puerto Rico. 2021 Virtual Junior Technical Meeting (JTM) and the Puerto Rico Interdisciplinary Scientific Meeting (PRISM). **Virtual Conference.**
6. Hernandez-Arbelo, I.M.* and **Malavez, Y.** (May, 2019). Identification and characterization of MRSA isolated on a university campus in Puerto Rico. 66th Biology Honor Society βββ District Convention. University of Puerto Rico. **Candelero Beach Resort, Humacao, PR.**
7. Babilonia Acevedo, S.N., Rodriguez Lassalle, A.N.*, Vargas-Maldonado, N.P., Gonzalez-Munoz, E.*, and **Malavez, Y.** (May, 2018). Detection of *Staphylococcus aureus* associated to subclinical mastitis in bovine milk from Puerto Rico, its resistance to antibiotics, and biofilm formation. 38th Puerto Rico Interdisciplinary Scientific Meeting and 53rd ACS Junior Technical Meeting. **University of Puerto Rico at Mayaguez, Mayaguez, PR.**
8. Hernandez-Arbelo, I.M.* and **Malavez, Y.** (May, 2019). Virulence and resistance profile of MRSA isolated on a university campus in Puerto Rico. XIX Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
9. Nieves-Miranda, S.M.*, Padin-Lopez, A., Loperena-Gonzalez, P., and **Malavez, Y.** (April, 2018). Whole genome sequencing and bioinformatics analysis in highly resistant *E. coli* isolates. (Oral). XIX Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
10. Hernandez-Arbelo, I.M.* and **Malavez, Y.** (April, 2018). Antibiotic resistance profile of Methicillin-Resistant *Staphylococcus aureus* strains isolated from a university campus. 52nd ACS Junior Technical Meeting and 37th Puerto Rico Interdisciplinary Scientific Meeting. Ana G. Mendez University System. **University of Turabo, Gurabo, PR.**

11. Quiles-Perez, C.J.*, Perez-Torres C.J., and **Malavez, Y.** (April, 2018). Universities' athletic facilities as a source of contamination for Methicillin-Resistant *Staphylococcus aureus*. 52nd ACS Junior Technical Meeting and 37th Puerto Rico Interdisciplinary Scientific Meeting. Ana G. Mendez University System. **University of Turabo, Gurabo, PR.**
12. Mendez-Acevedo, M.*, Quiles-Perez, C.J.*, Perez-Torres C.J., and **Malavez, Y.** (April, 2017). Environmental identification of *Staphylococcus aureus* in bathrooms located on a university campus. XVII Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**
13. Rodriguez-Martir K.M.*, Martinez-Vendrell M., Rios-Cordero S.A., Ramos-Mercado A.D., **Malavez Y.** (April 2016) Evaluation of the antibacterial activity of *Tamarindus indica*. Junior Technical Meeting (JTM) and the Puerto Rico Interdisciplinary Scientific Meeting (PRISM). **Pontifical Catholic University of Puerto Rico, Ponce, PR.**
14. Rodriguez-Martir K.M.*, Martinez-Vendrell M.*, Rios-Cordero S.A., Ramos-Mercado A.D., **Malavez Y.** (April, 2016). Evaluation of the antibacterial activity of *Tamarindus indica*. XVI Undergraduate Research Symposium. **University of Puerto Rico at Aguadilla, Aguadilla, PR.**

* Indicates Presenter

Professional Service

- Liaison for the Industry University Research Center (INDUNIV) Consortium. UPR Arecibo, PR.	2022
- Member of the Research Committee. Department of Biology. UPR Arecibo, PR.	2022
- Member of the “Committee Evaluación de Simulaciones y Tecnología de Apoyo”. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2021 - 2022
- Member of the Academic Activities and Co-Curricular Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2018 - 2022
- Undergraduate Research Symposium Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2012 - 2022
- Reviewer. Prepare and Protect: Safer Behaviors in Laboratories and Clinical Containment Settings, Sean G. Kaufman; Emerging Infectious Diseases. ASM Press, Washington, DC; Wiley, Hoboken, NJ, USA; ISBN: 978-1-683-67014-8.	2021
- Member of the Research Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2016 - 2017
- Proctor for the Academic Competency Test. University of Puerto Rico, Aguadilla, PR.	2015 - 2017
- Coordinator of the Undergraduate Research Symposium. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2015 - 2017
- Coordinator of the Molecular Biology Laboratory (BIOL- 4019). Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2015 – 2016
- Member of the Assessment Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2014 - 2016
- Reviewer. Proposal entitled “Estudio de las propiedades físicas, químicas y microbiológicas de la miel producida en Puerto Rico”. Programa FIDTA. Agriculture Experimental Station. UPR Mayaguez.	2015
- Member of the Biology Assessment Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2014 - 2015
- Judge for the Science Fair of the Aguadilla School District. Department of Natural Science. University of Puerto Rico, Aguadilla, PR.	2014
- Member of the Academic Activities Committee. Department of Natural Sciences. University of Puerto Rico, Aguadilla, PR.	2012- 2013

Honors and Awards

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| 1. ECaFSS Award: Recognition for commitment, leadership, dedication, and valuable contribution to the ECaFSS project. Encouraging Careers in Food Security and Safety: A Multidisciplinary Approach for Success in Puerto Rico (ECaFSS). Cabo Rojo, Puerto Rico. | 2021 |
| 2. Johnson Award. 2016 Beta Beta Beta National Convention. University of Puerto Rico at Aguadilla, Zeta Lambda Chapter. Oral presentation: Assessment of Tamarindus indica antimicrobial activity against Gram negative bacteria (2 nd Place to Keishla M. Rodriguez-Martir, Mario Vendrell-Martinez, and Yadira Malavez).
URL: https://www.jstor.org/stable/26528360 | 2016 |
| 3. National Heart, Lung, and Blood Institute (NHLBI) Fellowship. Molecular Mechanisms of Apoptosis in Monocytes. National Institute of Health (NIH). R01 HL075040-02S1 | 2007-2010 |
| 4. USA Funds, Access to Education Scholarships | 2003 |

Skills and Techniques

Molecular Biology, Microbiology, and Biotechnology

- | | |
|---|---|
| <ul style="list-style-type: none"> - Site-directed mutagenesis of genes and cloning - Transformation of vectors in bacteria for gene expression to produce recombinant proteins - Transfection of vectors in human cells for chemotherapeutic treatment and <i>in vitro</i> assays - Detection of genes by PCR - RNA expression by RT-PCR - Silencing of gene expression by siRNA - Microscopy (light, immunofluorescence, and confocal microscopy) - Bacteria isolation from food and environment and characterization by culture, biochemical tests, and genetic profiling. - Microtiter biofilm formation assay. - Western blot - Immunoprecipitation of proteins - Phosphorylation enzymatic assays | <ul style="list-style-type: none"> - Bacteria gene expression induction with IPTG for protein purification - Protein purification by affinity chromatography for 6x-His Tagged proteins through a Ni²⁺ bead column and elution with Imidazole - Electroporation of mammalian cells - Monocyte isolation from blood - Cell-free system for kinetic assays - Flow cytometry - Antibiotic resistance: Disk diffusion method, Minimum inhibitory concentration (MIC), and minimum bactericidal concentration (MBC) - Enzyme-Linked Immunosorbent Assay (ELISA) - Immunostaining |
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Bioinformatics, Computer Software, and Other Tools

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| <ul style="list-style-type: none"> - Bioinformatic: FDA CFSAN single nucleotide polymorphism pipeline, Pathogen Detection (NCBI), Imaging software: NIH Image J, Adobe Photoshop, and Adobe Illustrator | <ul style="list-style-type: none"> - Statistical analysis: GraphPad Prism - Operative systems: Windows and Mac OS - Microsoft: Word, Excel, Publisher, and PowerPoint |
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Languages

- Spanish and English (speak, write, and read)

Affiliations

- | | |
|--|---|
| <ul style="list-style-type: none"> - American Society for Microbiology - Beta, Beta, Beta National Honor Society | <ul style="list-style-type: none"> - Puerto Rico Society for Microbiologist - The American Society for Cell Biology |
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References

Available upon request.

CURRICULUM VITAE

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e-mail: sandral.maldonado@upr.edu

EDUCATION

Certification Virtual Educator, *Enseñanza a Distancia, Centro de Recursos para la Educación a Distancia*, June 15, 2020.

Ph.D. Plant Pathology, concentration in Mycology, Cornell University, 2001. **Aerobiology of the wheat scab fungus, *Gibberella zeae*: discharge, atmospheric dispersal, and deposition of ascospores.** 80pp.

M.S. Biology, UPR-M, 1997. **Composting process and degradation of organic material including used motor oil with *Aspergillus niger* Link.** 40pp.

B.S. Industrial Microbiology, University of Puerto Rico- Mayagüez Campus (UPR-M), 1993.

PROFESSIONAL MEMBERSHIPS

Sociedad Puertorriqueña de Micología (SPM). Secretary (November 2019- June 2021)

PROFESSIONAL EXPERIENCE

Associate Director and Coordinator, Graduate Program, Department of Biology, UPR-M, since January 2023.

Indoor air quality evaluations on Building of Biology, UPR-M, 2008-2022. *Ad Hoc*.

Professor, Department of Biology, UPR-M, since 2012.

Associate Professor, Department of Biology, UPR-M, 2005- 2012.

Curator, Mycological Collection, Department of Biology Herbarium (MAPR) since 2005 *Ad Hoc*.

Assistant Professor, Department of Biology, UPR-M, 2001- 2005.

Inventory of Mycological Resources at *Bosque del Pueblo*, Adjuntas, PR, 1996-97 *Ad Hoc*.

Instructor, Department of Biology, UPR-M, 1996-97.

Quality Control Technician, Becton-Dickinson, Cayey, PR, 1996.

Graduate Teaching Assistant, Department of Biology, UPR-M, 1993-96.

PRESENTATIONS AND CONFERENCES

Maldonado-Ramírez, S.L. 2023. *Conversatorio Profesionales Ecología y Conservación*. Invited as panelist by the *Asociación Estudiantes de Biología* (AEB), Department of Biology, UPRM. March 17, 2023.

Maldonado-Ramírez, S.L. and M.L. Jiménez Cartagena. 2023. *Feria Estudios Graduados UPR*. Centro de Estudiantes, UPRM. March 17, 2023.

Noel-Torres, R. and **S.L. Maldonado-Ramírez**. 2022. Isolation of fungal endophytes in foliar tissue of grass used for grazing small ruminants. PRISM/JTM, UPRH. April 9, 2022.

Maldonado-Ramírez, S.L. Invited conference *Sociedad Estudiantes Microbiología Industrial* (SEMI) on *Origen, importancia e impacto de las nubes de polvo del Desierto del Sahara que llegan a Puerto Rico*. Department of Biology, UPRM. September 17, 2020.

Maldonado-Ramírez, S.L. Conference/workshop Helix Alpha Society on *Métodos de muestreo para calidad de aire de interior*. Department of Biology, UPRM. March 12, 2020.

Maldonado-Ramírez, S. L. Recorrido por el laboratorio de investigación. *Asociación Estudiantes de Biología* (AEB), Department of Biology, UPRM. February 20, 2020.

Delgado. C., K.L. Pérez-Medina and **S.L. Maldonado-Ramírez**. *Endófitos en *Stahlia monosperma* (Cóbana negra) planta nativa de Puerto Rico*. SPM Poster Day 2019. *Pontificia Universidad Católica de Puerto Rico* (PUCPR), Ponce. November 16, 2019. Poster.

López, C., S. Luciano-Rodríguez, K. Majed-Dávila and **S.L. Maldonado-Ramírez**. *Muestreo para la identificación de hongos alérgenos y patógenos en el interior del Edificio de Biología utilizando el Andersen Sampler*. SPM Poster Day 2019. Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce. November 16, 2019. Poster.

Pérez-Medina, K.L. and **S.L. Maldonado-Ramírez**. Evaluation of conservation strategies by the presence of Gasteromycetes at the United States Fish and Wildlife Service at Cabo Rojo, PR. SPM Poster Day 2019. Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce. November 16, 2019. Poster.

Vélez Rodríguez, Z., H. Torres Pratts and **S.L. Maldonado-Ramírez**. 2019. Use of drones for the recovery of fungal spores from the lower atmosphere. SPM Poster Day 2019. Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce. November 16, 2019. Poster.

Maldonado-Ramírez, S. L. *¿Corren los hongos peligro de extinción?* Asociación Estudiantes de Biología (AEB), Department of Biology, UPRM. August 29, 2019. Oral presentation.

Zapata Ortiz, M. and **S.L. Maldonado Ramírez**. *Análisis aero micológico de esporas fúngicas aeronavegantes en la región suroeste de Puerto Rico*. 2019 Biology Research Symposium. Department of Biology, UPRM. May 9, 2019.

Maldonado-Ramírez, S.L. Invited conference for National Honor Society ($\beta\beta\beta$) on *Integración de conceptos en la micología y su aplicación en la investigación*. Department of Biology, UPRM. November 20, 2018.

Vélez Rodríguez, Z., H. Torres Pratts and **S.L. Maldonado-Ramírez**. 2018. Use of drones for the recovery of fungal Spores from the lower atmosphere. Forward Research and Innovation Summit 2018. Sheraton Hotel, Convention District, San Juan PR. November 10, 2018. Poster.

Pérez-Medina, K.L. and **S.L. Maldonado-Ramírez**. *Diversity of Macromycetes at Las Salinas, Cabo Rojo PR. Simposio de Bosque Seco y Lagunas Hipersalinas. Centro Interpretativo de las Salinas de cabo Rojo, Cabo Rojo*. April 13, 2018. Oral presentation.

Maldonado-Ramírez, S.L. Invited conference/workshop *Sociedad Estudiantes Microbiología Industrial (SEMI) on Métodos de muestreo para calidad de aire de interior*. Department of Biology, UPRM. March 20, 2018.

Maldonado-Ramírez, S.L. Invited conference for National Honor Society ($\beta\beta\beta$) on *Relevancia de los hongos en la calidad de aire de interior*. Department of Biology, UPRM. February 22, 2018.

Maldonado-Ramírez, S. L. Workshop for *Asociación Estudiantes de Biología (AEB)*, Lewe Chapter, on Identification of macroscopic fungi. Department of Biology, UPRM. September 12, 2017.

Noguera Colón, A.J., V.M. Nazario Ayala, P.N. Brull Hayes and **S.L. Maldonado Ramírez**. *Captura de micoflora viable en el interior del Edificio de Biología utilizando el Andersen Sampler. XVIII Simposio de Micología, Universidad Interamericana, San Germán*, April 22, 2017. Poster.

Sánchez Martínez, E., G. Rosado Rodríguez and **S.L. Maldonado Ramírez**. Yeast associated with Desmosponges from Puerto Rico. *XVIII Simposio de Micología, Universidad Interamericana, San Germán* April 22, 2017. Poster.

Ruiz-Arocho, J.A., **S.L. Maldonado Ramírez** and C.J Santos Flores. *Tipos de hongos cultivables transportados por Erythrodiplax umbrata (Odonata:Libellulidae)*. *XVIII Simposio de Micología, Universidad Interamericana, San Germán* April 22, 2017. Poster.

Carrera-Martínez, R., G. Rosado Rodríguez and **S.L. Maldonado Ramírez**. Inventory of cultivable fungi from fresh casts of the earthworm *Yusisia olgae* (Annelida:Benhamiidae): preliminary results. *XVIII Simposio de Micología, Universidad Interamericana, San Germán* April 22, 2017. Poster.

Maldonado-Ramírez, S.L. Workshop for *Sociedad Estudiantes Microbiología Industrial (SEMI) on Relevancia de los hongos en la calidad de aire de interior*. Department of Biology, UPRM. September 29, 2016.

Maldonado-Ramírez, S.L. and H. Rivera Jiménez. *Relevancia de los hongos en la calidad de aire de interior*. Sponsored by an HHMI Grant of Nanette Diffoot, PI. Department of Biology, UPRM. May 11, 2016. Oral presentation.

Fumero Nazario, S., P. N. González and **S.L. Maldonado Ramírez**. *Listado del genero Auricularia en el área oeste de Puerto Rico. VI Simposio de Investigación Subgraduada en Biología*. Department of Biology, UPRM. April 30, 2016. Oral presentation.

Orta, G., M. Rivera De Jesús and **S.L. Maldonado Ramírez**. *Estudio aerobiológico de hongos cultivables en el Edificio de Biología en UPR-Mayagüez. VI Simposio de Investigación Subgraduada en Biología*. Department of Biology, UPRM. April 30, 2016. Oral presentation.

Carrera Martínez, R. and **S.L. Maldonado Ramírez**. Cultivable fungi from fresh casts of *Yuisia olgae* (Annelida: Oligochaeta: Achantodrilidae). *VI Simposio de Investigación Subgraduada en Biología*. Department of Biology, UPRM. April 30, 2016. Oral presentation.

González Colón, P.N. and **S.L. Maldonado Ramírez**. *Inventario preliminar del género Auricularia en el área oeste de Puerto Rico XVII Simposio de Micología, Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce*. April 23, 2016. Oral presentation.

Rivera Jiménez, H.J., Carrera Martínez, R. and **S.L. Maldonado Ramírez**. *Hongos asociados a ramas del cactus Pilosocereus royenii infestados con la chinche barinosa Hypogeococcus pungens en la Reserva de Pesca y Vida Silvestre en Cabo Rojo, Puerto Rico. XVII Simposio de Micología, Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce*. April 23, 2016. Poster.

Rivera De Jesús, M., K. Hidalgo, M. Fuentes and **S.L. Maldonado Ramírez**. *Estudio aerobiológico de hongos cultivables en el Edificio de Biología en UPR-Mayagüez. VI Simposio de Investigación Subgraduada en Biología*. Department of Biology, UPRM. April 23, 2016. Oral presentation. **Awarded Second Place as Best Oral Presentation.**

Rodríguez D., González P.N. and **S.L. Maldonado Ramírez**. *Hongos asociados a lesiones en hojas de plantas de la familia Moraceae. XVII Simposio de Micología, Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce*. April 23, 2016. Poster.

Maldonado-Ramírez, S.L., K.L. Pérez Medina and Z. Vélez Rodríguez. Workshop for personnel and volunteers at United States Fish and Wildlife Refuge, Cabo Rojo, Puerto Rico on Collection and identification of macroscopic fungi, Fish and Wildlife Refuge, Cabo Rojo. April 2, 2016.

Maldonado-Ramírez, S.L. Workshop for *Sociedad Estudiantes Microbiología Industrial (SEMI)* on Collection and identification of macroscopic fungi at Biology forested area for 10th and 11th graders, Department of Biology, UPRM. April 1, 2016.

Maldonado-Ramírez, S. L. Workshop for Undergraduate Research Symposium entitled *Como preparar tu resumen*. Department of Biology, UPR-M. March 15, 2016.

Rivera De Jesús, M.A., M.L. Fuentes Rivera, K.M. Hidalgo Vargas and **S.L. Maldonado-Ramírez**. *Aerobiological study of the UPRM Biology Building during the August 2015 Semester. JTM/PRISM 2016. Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce*. March 5, 2016. Oral presentation

Pérez-Medina, K., H.J. Rivera-Jiménez and **S.L. Maldonado-Ramírez, S.L.** Molecular analysis of endophytes in *Oplonia spinosa*, an endemic plant in Guajataca, Puerto Rico. JTM/PRISM 2016. *Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce*. March 5, 2016. Oral presentation.

Maldonado-Ramírez, S. L and H. Torres-Pratts. Specialized training entitled *Isolation, culture and characterization of molds associated to pharmaceutical environment*. QA Signaling and Microbiology Laboratory at Pfizer, Guayama, PR. October 31, 2015.

Maldonado-Ramírez, S. L. Workshop for *Asociación Estudiantes de Biología (AEB)* on Identification of macroscopic fungi at Biology forested area, Department of Biology, UPRM. October 24, 2015.

Maldonado-Ramírez, S.L. and P. González. *Relevancia de los hongos en la calidad de aire de interior*. Sponsored by an HHMI Grant of Nanette Diffot, PI. Department of Biology, UPRM. May 14, 2015. Oral presentation.

Rivera Jiménez, H.J. and **S.L. Maldonado-Ramírez**. *Hongos asociados a raíces de Oplonia spinosa. XVI Simposio de Micología, UPR-Mayagüez*. May 9, 2015. Poster.

Carrera, R. and **S.L. Maldonado-Ramírez**. *Diversidad de hongos cultivables asociados a tumores provocados por Hypogeococcus pungens y lesiones en Pilosocereus royenii. XVI Simposio de Micología, UPR-Mayagüez*. May 9, 2015. Oral presentation.

Rivera Jiménez, H.J. and **S.L. Maldonado Ramírez**. *Detección de asociaciones micorrízicas en las raíces de Oplonia spinosa*. Third Microbiology Student Research Symposium in Microbiology. Department of Biology, UPRM. October 25, 2014. Poster.

Pérez Medina, K.L., Rivera Jiménez, H. and **S.L. Maldonado Ramírez**. Comparison of fungal diversity from *Oplonia spinosa*, an endemic plant from Guajataca and Isabela, Puerto Rico. Third Microbiology Student Research Symposium in Microbiology. Department of Biology, UPRM. October 25, 2014. Poster. **Awarded Third Place as Best Poster.**

Rivera Jiménez, H.J. and **S.L. Maldonado Ramírez**. *Impacto de la presencia de Cycas revoluta en las comunidades de hongos en un ambiente interior. XV Simposio de Micología, Turabo University*. April 26, 2014. Poster.

Rivera Jiménez, H.J., Pérez Medina, K.L. and **S.L. Maldonado Ramírez**. *Detección de asociaciones micorrízicas en las raíces de Oplonia spinosa. IV Simposio de Investigación Subgraduada en Biología*. Department of Biology, UPRM. May 3, 2014. Oral presentation.

- Maldonado-Ramírez, S.L.** *Los bongos y su relevancia en la calidad de aire de interior*. Sponsored by an HHMI Grant of Nanette Diffoot, PI. Department of Biology, UPRM. May 15, 2013. Oral presentation.
- Ortiz Casiano, Y. and **S.L. Maldonado-Ramírez**. *Crecimiento de Eurotium en pesticida*. XIV Simposio de Micología, UPR-Aguadilla. April 20, 2013. Poster.
- Díaz Miranda, O. and **S.L. Maldonado-Ramírez**. *Hongos miceliales asociados al deterioro de la madera*. XIV Simposio de Micología, UPR-Aguadilla. April 20, 2013. Poster.
- Valle Rodríguez, G. and **S.L. Maldonado-Ramírez**. Airborne fungal spores and pollen from a tropical urban area in Mayagüez, Puerto Rico. XIV Simposio de Micología, UPR-Aguadilla. April 20, 2013. Poster.
- Pacheco Benítez, J. and **S.L. Maldonado-Ramírez**. *Evaluación parcial de la micoflora en el edificio de Biología*, UPR-M. XIV Simposio de Micología, UPR-Aguadilla. April 20, 2013. Poster.
- Cruz-Salcedo, E., Aponte, C.M and **S.L. Maldonado-Ramírez**. *Hongos asociados a esponjas epibiontes en raíces de Rhizophora mangle de Cayo Enrique en La Parquera, Lajas, Puerto Rico*. III Simposio de Investigación Subgraduada en Biología. Department of Biology, UPRM. May 4, 2013. Oral presentation.
- Maldonado-Ramírez, S.L.** *Calidad de aire de interior y cuartos limpios*. BioTalents Workshop. Department of Biology, UPRM. March 9, 2013.
- Osorio-Quintero, C. and **S.L. Maldonado-Ramírez**. Entomofauna asociada a macrohongos comestibles de los bosques de Río Abajo y La Olimpia en Puerto Rico. Turabo University. September 7, 2012.
- Maldonado-Ramírez, S.L.** *Aerobiología: integración de conceptos y experimentación en la investigación subgraduada*. Turabo University. September 7, 2012.
- Maldonado-Ramírez, S.L.** *Calidad de aire de interior*. BioTalents Workshop. Department of Biology, UPRM. March 31, 2012.
- Maldonado-Ramírez, S.L.** *Aerobiología en nuestro diario vivir*. Invited conference for *Asociación Estudiantes Tecnología Médica*. November 17, 2011.
- Maldonado-Ramírez, S.L.** *Trabajos de investigación en el laboratorio B-218-A*. Invited conference for the National Honor Society of Biology (βββ). November 4, 2010. Oral presentation.
- Maldonado-Ramírez, S.L.** *Conversatorio Marino Programa Sea Grant. Centro de Información del Programa Sea Grant*. September 9, 2010.
- Hernández-Mantilla, A. and **S.L. Maldonado Ramírez**. *Hongos macroscópicos en zonas boscosas urbanas de Puerto Rico*. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. Poster.
- Marrero-Berrios, I. and **S.L. Maldonado Ramírez**. In vitro culture and studies on the submerged angiosperm *Thalassia testudinum*. XII Simposio de Micología. Interamerican University- Aguadilla, PR. May 1, 2010. **Awarded Second Place as Best Oral Presentation.**
- Mercado-Lebrón, K., Andón-Sánchez, N., and **S.L. Maldonado Ramírez**. *Inventario preliminar de mixomicetos en áreas boscosas urbanas de Puerto Rico*. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. Poster.
- Pacheco, S. and **S.L. Maldonado Ramírez**. Communities of endophytic fungi within young, mature, and senescent leaves of *Carica papaya* L. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. Poster.
- Ramírez-Martínez, L. and **S.L. Maldonado Ramírez**. *Identificación de bongos endófitos asociados a Dracontium polyphyllum*. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. Poster.
- Rodríguez, W. R. Román, and **S. L. Maldonado-Ramírez**. Inventory of clinically important yeasts from water treatment plants and forest soils in Puerto Rico. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. **Awarded Second Place as Best Poster Presentation.**
- Rosado-Rodríguez, Gualberto, R. Rivera-González, and **S.L. Maldonado Ramírez**. An update on mycelial fungal diversity associated to leatherback sea turtle (*Dermochelys coriacea*) nests in the Mayagüez-Añasco bay complex shoreline, western Puerto Rico. XII Simposio de Micología, Interamerican University- Aguadilla, PR. May 1, 2010. Oral presentation.
- Maldonado-Ramírez, S.L.** *Soy micólogo, ¿y ahora qué hago?* Invited conference for the National Honor Society of Biology (βββ). February 23, 2010.

- Zapata Martínez, I., R. Román, and **S.L. Maldonado-Ramírez**. Isolation of important clinic yeasts on water treatment plants and Puerto Rican forests. *XI Simposio de Micología*, UPR-RCM, May 2, 2009. **Awarded Best Poster Presentation.**
- Román, R., Ortíz, M., Morales, C., G. Morell, A. Benítez, J. Uzcategui, and **S.L. Maldonado-Ramírez**. Halotolerant endophytic fungal diversity in seagrass beds of *Thalassia testudinum*. *XI Simposio de Micología*, PR- RCM, May 2, 2009. Poster.
- Natal Molina, G., C. Román Abrams, and **S.L. Maldonado-Ramírez**. *Inventario de hongos miceliales asociado a suelos de la Cueva de los Culebrones en la Reserva Mata de Plátano, Arecibo*. *XI Simposio de Micología*, UPR-RCM. May 2, 2009. Poster
- Rivera González, R., F. Rodríguez Berrios, G. Rosado Rodríguez, and **S.L. Maldonado-Ramírez**. *Diversidad de hongos miceliales asociados a los nidos de la tortuga marina Dermochelys coriácea (tinglar) en el complejo de bahías Mayagüez-Añasco, Puerto Rico*. *XI Simposio de Micología*, UPR-RCM. May 2, 2009. **Awarded Best Oral Presentation.**
- Quevedo Nazario, J.A., G. Rosado-Rodríguez, and **S.L. Maldonado Ramírez**. Vertical distribution of viable fungal spores in the lower atmosphere of an urban zone in Puerto Rico. *XI Simposio de Micología*, UPR-RCM. May 2, 2009. Oral.
- Acevedo Matos, Julio and **S.L. Maldonado Ramírez**. Temporal distribution of mycelial fungi in an industrial zone at Mayagüez, PR. *XI Simposio de Micología*, UPR-RCM. May 2, 2009. Oral presentation
- Maldonado-Ramírez, S. L.** Four-mini workshops on the roles of fungi for Fifth Grade students of *Academia Inmaculada Concepción*. UPR-M. April 24, 2009.
- Zapata Martínez, I., R. Román, and **S.L. Maldonado-Ramírez**. Isolation of important clinic yeasts on water treatment plants and Puerto Rican forests. BioMinds Annual Poster Day. Bioprocess and Development and Training Center. Mayagüez, PR. March 21, 2009.
- Maldonado-Ramírez, S. L.** *Aerobiología: conceptos básicos y aplicaciones y casos de estudio*. Programa Graduado en Ciencias Ambientales, Universidad del Turabo, Gurabo, PR. March 21, 2009. Conference.
- Zapata Martínez, I., R. Román, and **S.L. Maldonado-Ramírez**. Isolation of important clinic yeasts on water treatment plants and Puerto Rican forests. 29th Puerto Rico Interdisciplinary Scientific Meeting. UPR-RP. March 14, 2009. Oral presentation.
- Maldonado-Ramírez, S. L.** Interview on *Radio Casa Pueblo* 1020 AM on Workshop for sixth grade students of Washington Irving School on Identification of Macroscopic Fungi at *Bosque de la Olimpia*. *Casa Pueblo de Adjuntas*, PR. February 6, 2009.
- Maldonado-Ramírez, S. L.** Workshop, Sixth Grade students of *Escuela Washington Irving* on Identification of Macroscopic Fungi at *Bosque de la Olimpia*. *Instituto Comunitario de Biodiversidad y Cultura Casa Pueblo de Adjuntas*, PR. February 6, 2009.
- S.L. Maldonado-Ramírez** and R. Montalvo Rodríguez. Endophytic microbial diversity in seagrass beds of *Thalassia testudinum* and *Syringodium filiforme* from Cabo Rojo, Lajas, and Vieques, Puerto Rico Third Caribbean Sea Grant Symposium. Eugene Francis Room, UPR-M. October 8, 2008. Oral presentation.
- Rodríguez-Minguela, C., **S.L. Maldonado-Ramírez**, and R. Montalvo Rodríguez. Molecular ecology of antimicrobial resistance traits in bacterial and fungal populations from critical coastal habitats impacted by sewage, animal waste, and wastewater treatment plant discharges. Third Caribbean Sea Grant Symposium. Eugene Francis Room, UPR-M. October 8, 2008. Oral presentation.
- Maldonado-Ramírez, S.L.** Conference on *Proyectos de Investigación Laboratorio de Aerobiología y Hongos Endófitos*. Sponsored by *Sociedad Estudiantes Microbiología Industrial*, Biology Building, UPR-M. October 14, 2008.
- Maldonado-Ramírez, S.L.** and R. Montalvo Rodríguez. Endophytic microbial diversity in seagrass beds of *T. testudinum* and *Syringodium filiforme* from Cabo Rojo, Lajas, and Vieques, PR. Microbiology/Microbial Ecology Roundtable, Sea Grant Program. Sea Grant Library, UPR-M. August 28, 2008. Oral presentation.
- Santiago, A.I., G. Morell Rodríguez, and **S.L. Maldonado-Ramírez**. Interactions among the endophytic microflora associated to the foliar tissue of *Thalassia testudinum* (Hydrocharitaceae). Annual Meeting of the Mycological Society of America, Penn State University. August 10-13, 2008. Poster
- Román, R., Ortíz, M., Morales, C., G. Morell, A. Benítez, J. Uzcategui, and **S.L. Maldonado-Ramírez**. Halotolerant endophytic fungal diversity in sea grass beds of *Thalassia testudinum*. Annual Meeting of the Mycological Society of America, Penn State University. August 10-13, 2008. Poster
- Morell Rodríguez, G., Torres-Pratts, H., Román, R., Ortiz, M., Morales, C. and **Maldonado-Ramírez, S.L.** Endophytic fungal diversity in sea grass beds of *Thalassia testudinum* from sampling sites with different anthropogenic activity histories. Annual Meeting of the Mycological Society of America, Penn State University. August 10-13, 2008. Oral presentation.
- González, N., G. Morell Rodríguez, **S.L. Maldonado-Ramírez**, S.L. Franqui Román, and L.V. Morales Sáez. 2008. *First*

report of fungal endophytes from *Dracontium polyphyllum* at Hacienda Buena Vista, Ponce, PR. X Simposio de Micología, UT-Caguas, PR. May 3, 2008. Poster.

Morales, C., G. Morell Rodríguez, and **S.L. Maldonado-Ramírez**. 2008. *Comparación de microflora aeronavegante en playa Los Tubos en Manatí y playa Puerto Nuevo en Vega Baja*. X Simposio de Micología, UT-Caguas, PR. May 3, 2008. Poster.

Morell Rodríguez, G., **S.L. Maldonado-Ramírez**, D. China, and G. Breckon. 2008. *Fungal collection at the MAPR herbarium*. X Simposio de Micología, UT-Caguas, PR. May 3, 2008. Poster.

Santiago, A.I., G. Morell Rodríguez, and **S.L. Maldonado-Ramírez**. 2008. *Interactions among the endophytic microflora associated to the foliar tissue of Thalassia testudinum (Hydrocharitaceae)*. X Simposio de Micología, UT-Caguas, PR. May 3, 2008. Oral presentation.

Quevedo Nazario, J.A., G. Rosado-Rodríguez, and **S.L. Maldonado Ramírez**. Vertical distribution of viable fungal spores in the lower atmosphere of an urban zone in Puerto Rico. 3rd International Symposium on Environment. May 22-25, 2008. Athens, Greece. Abstract accepted for presentation, but cannot attend meeting.

González-Santiago, N., G. Morell Rodríguez, and **S.L. Maldonado-Ramírez**. Endophytic mycelial fungi from leaves of *Dracontium polyphyllum*. Sigma Xi XIII Poster Day. Chemistry Building, UPR-M. April 10, 2008. Poster

Morales, C. and **S.L. Maldonado-Ramírez**. *Comparación de flora fungal entre dos playas del área metropolitana*. Sigma Xi XIII Poster Day. Chemistry Building, UPR-M. April 10, 2008. Poster

Román, R. and **S.L. Maldonado-Ramírez**. Endophytic fungal diversity in sea grass beds of *Thalassia testudinum* in Cabo Rojo, Lajas, and Vieques island. 43rd ACS Junior Technical Meeting and 28th Puerto Rico Interdisciplinary Scientific Meeting, UPR-Arecibo. March 8, 2008. Oral presentation..

Acevedo Matos, J. and **S.L. Maldonado-Ramírez**. Temporal distribution of mycelial fungi in an industrial zone at Mayagüez, PR. 43rd ACS Junior Technical Meeting and 28th Puerto Rico Interdisciplinary Scientific Meeting, UPR-Arecibo. March 8, 2008. Oral presentation.

Maldonado-Ramírez, S.L. and G. Morell Rodríguez. Workshop for fourth and fifth grade students on Collection and Identification of Macroscopic Fungi. *De la Universidad a la montaña: experiencias universitarias para estudiantes del ICBC en la Escuela Washington Irving de Adjuntas*. Casa Pueblo, Adjuntas, PR. November 2, 2007.

Maldonado-Ramírez, S.L. *Comparación de la diversidad de hongos endofitos en praderas de Thalassia testudinum en Cabo Rojo, Lajas y Vieques, Puerto Rico*. Department of Biology, UPR-M. September 25, 2007. Oral presentation.

Román, R., Ortíz, M., Morales, C., G. Morell, and **S.L. Maldonado-Ramírez**. Halotolerant endophytic fungal diversity in sea grass beds of *Thalassia testudinum* from Cabo Rojo, Puerto Rico. Halophiles-2007. International Congress Exploring Life at High Salinity. September 2-6, 2007. Colchester, UK. Abstract accepted for presentation, but cannot attend meeting.

Couto-Rodríguez, M. A. Martínez, L. Cuebas, **S.L. Maldonado-Ramírez**, and R. Montalvo-Rodríguez. Endophytic prokaryotic diversity in sea grass beds of *Thalassia testudinum* from Cabo Rojo, Lajas, and Vieques, Puerto Rico. 107th General Meeting of the American Society for Microbiology. Toronto, Canada. May 21-25, 2007. Poster.

Natal-Molina, G. and **S.L. Maldonado-Ramírez**. Inventory of fungal pathogens from Puerto Rico included in the fungal collection at the University of Puerto Rico Herbarium-Mayagüez Campus (MAPR). IX Simposio de Micología. Pontificia Universidad Católica de Puerto Rico (PUCPR), Ponce. May 5, 2007. Poster.

Neste-Gallisa, K. and **S.L. Maldonado-Ramírez**. *Hongos mitosporicos en la baja atmósfera del pueblo de Hormigueros, Puerto Rico*. IX Simposio de Micología. PUCPR, Ponce. May 5, 2007. Poster.

Quevedo Nazario, J.A., G. Rosado-Rodríguez, and **S.L. Maldonado Ramírez**. *Distribución vertical de esporas de hongos miceliales en la baja atmósfera en una zona suburbana en Hormigueros, Puerto Rico*. IX Simposio de Micología. PUCPR, Ponce. May 5, 2007. Poster.

Rivera-Santos, Y. and **S.L. Maldonado-Ramírez**. *Inventario de Gasteromycetes en Puerto Rico*. IX Simposio de Micología. PUCPR,

Ponce. May 5, 2007. Poster

Román, R., Ortíz, M., Morales, C., G. Morell, and **S.L. Maldonado-Ramírez**. Comparison of endophytic fungal diversity in sea grass beds of *Thalassia testudinum* from Cabo Rojo, Lajas, and Vieques, Puerto Rico. IX *Simposio de Micología*. PUCPR, Ponce. May 5, 2007. Poster.

Velázquez, R. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endofitos en Eucalyptus globulus*. IX *Simposio de Micología*. PUCPR, Ponce. May 5, 2007. Poster.

Couto, M., A. Martínez, **S.L. Maldonado-Ramírez**, and R. Montalvo-Rodríguez. Endophytic microbial diversity in seagrass beds of *Thalassia testudinum* from Cabo Rojo, Lajas, and Vieques, PR. Sigma Xi XII Poster Day. UPR-M. April 26, 2007.

Natal-Molina, G. and **S.L. Maldonado-Ramírez**. Inventory of fungal pathogens from Puerto Rico included in the fungal collection at the UPR Herbarium-Mayagüez Campus. Sigma Xi XII Poster Day. Chemistry Building, UPR-M. April 26, 2007.

Narváez del Pilar, V. and **S.L. Maldonado Ramírez**. *Estudio aerobiológico de esporas de hongos viables en el Edificio de Biología UPR-RUM*. Sigma Xi XII Poster Day. Chemistry Building, UPR-M. April 26, 2007.

Neste-Gallisa, K. and **S.L. Maldonado-Ramírez**. *Hongos mitospóricos en la baja atmósfera del pueblo de Hormigueros, Puerto Rico*. Sigma Xi XII Poster Day. Chemistry Building, UPR-M. April 26, 2007.

Velázquez, R. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endofitos en Eucalyptus globulus*. Sigma Xi XII Poster Day. Chemistry Building, UPR-M. April 26, 2007.

Maldonado-Ramírez, S.L. Workshop for graduate and undergraduate students on Poster Preparation Using Power Point. Department of Biology, UPR-M. April 18, 2007.

Maldonado-Ramírez, S.L. Workshop for fourth and fifth grade students on Collection and Identification of Macroscopic Fungi. *Cuarto Encuentro Universitario para Estudiantes Investigadores del Instituto Comunitario de Biodiversidad y Cultura/ Casa Pueblo*, Adjuntas. Department of Biology, UPR-M. March 29, 2007.

Maldonado-Ramírez, S. L. *Importancia del herbario y la colección de hongos*. Student Chapter SPM-RUM. November 9, 2006. Oral presentation.

Maldonado-Ramírez, S.L. and R. Montalvo-Rodríguez. Endophytic Microbial Diversity in Sea Grass Beds of *Thalassia testudinum* and *Syringodium filiforme* from Cabo Rojo, Lajas and Vieques, Puerto Rico. 2nd Annual Symposium for Coastal and Marine Applied Research. Department of Biology, UPR-M, October 5, 2006. Oral presentation.

Maldonado-Ramírez, S. L. and G. Morell Rodríguez. *Colección e identificación de hongos macroscópicos en la Hacienda Buena Vista, Ponce*. September 26, 2006. Oral presentation.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. Isolation of bioactive compounds from endophytic fungi from *Thalassia testudinum* in Cabo Rojo, Puerto Rico. 3rd Latin American and Caribbean Biotechnology Congress. Mayagüez Resort and Casino, September 21-22, 2006.

Rosado, M.C. and **S.L. Maldonado-Ramírez**. Isolation of bioactive compounds of Endophytic mycelial fungi from leaves of the neem tree (*Azadirachta indica*). 3rd Latin American and Caribbean Biotechnology Congress. Mayagüez Resort and Casino, Mayagüez, PR. September 21-22, 2006. Poster.

Espola, M. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endofitos miceliales en Thrinax morrisii* H. Wendl. en *el Bosque Estatal de Susúa, Sabana Grande, Puerto Rico*. IX *Congreso Latinoamericano de Botánica*. Santo Domingo, Dominican Republic. June 18-25, 2006. Poster

Malavé Vega, S. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endofitos miceliales cultivables en la hierba marina Thalassia testudinum en Playa Buyé, Cabo Rojo, Puerto Rico*. IX *Congreso Latinoamericano de Botánica*. Santo Domingo, Dominican Republic.

June 18-25, 2006. Poster.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Aislamiento de compuestos bioactivos de hongos endófitos miceliales recuperados de Thalassia testudinum en Cabo Rojo, Puerto Rico. IX Congreso Latinoamericano de Botánica*. Santo Domingo, Dominican Republic. June 18-25, 2006. Poster.

Malavé Vega, S. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endófitos miceliales cultivables en la hierba marina Thalassia testudinum en Playa Buyé, Cabo Rojo, Puerto Rico. VIII Simposio de Micología*. Interamerican University Ponce. May 6, 2006. Poster.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Aislamiento de compuestos bioactivos de hongos endófitos miceliales recuperados de Thalassia testudinum en Cabo Rojo, Puerto Rico. VIII Simposio de Micología*. IU-Ponce. May 6, 2006. Poster.

Ortiz, Luis A. and **S.L. Maldonado-Ramírez**. Aerobiological studies of mitosporic fungi occurring on the lower atmosphere in Hormigueros, PR. *VIII Simposio de Micología*. IU-Ponce. May 6, 2006. Poster.

Quevedo Nazario, J.A. and **S.L. Maldonado-Ramírez**. *Diversidad de esporas de hongos miceliales en la baja atmósfera recuperadas utilizando aviones piloteados mediante control remoto. VIII Simposio de Micología*. IU-Ponce. May 6, 2006.

Rivera, Y., A. Rivera Valentín, R. Rivera Valentín, and **S.L. Maldonado-Ramírez**. Identification of fungal spores inside the newly constructed Biology building at the University of Puerto Rico, Mayagüez. *VIII Simposio de Micología*. IU-Ponce. May 6, 2006.

Tirado Costacamps, A. and **S.L. Maldonado-Ramírez**. Isolation and identification of mitosporic fungal endophytes from healthy foliar tissue of *Goetzea elegans* Wydler. *VIII Simposio de Micología*. IU-Ponce. May 6, 2006.

Malavé Vega, S. and **S.L. Maldonado-Ramírez**. *Catastro de hongos endófitos miceliales cultivables en la hierba marina Thalassia testudinum en Playa Buyé, Cabo Rojo, Puerto Rico. XXIII Simposio de Ecología Tropical: Puerto Rico, tesoro ecológico del Caribe*. Biology Building, UPR-M. April 25, 2006.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Aislamiento de compuestos bioactivos de hongos endófitos miceliales recuperados de Thalassia testudinum en Cabo Rojo, Puerto Rico. XXIII Simposio de Ecología Tropical: Puerto Rico, tesoro ecológico del Caribe*. Biology Building, UPR-M. April 25, 2006.

Ortiz, L.A. and **S.L. Maldonado-Ramírez**. Aerobiological studies of mitosporic fungi occurring on the lower atmosphere in Hormigueros, Puerto Rico. *XXIII Simposio de Ecología Tropical: Puerto Rico, tesoro ecológico del Caribe*. Biology Building, UPR-M. April 25, 2006.

Quevedo Nazario, J.A. and **S.L. Maldonado-Ramírez**. *Diversidad de esporas de hongos miceliales en la baja atmósfera recuperadas utilizando aviones piloteados mediante control remoto. XXIII Simposio de Ecología Tropical: Puerto Rico, tesoro ecológico del Caribe*. Biology Building, UPR-M. April 25, 2006.

Tirado Costacamps, A. and **S.L. Maldonado-Ramírez**. Isolation and identification of mitosporic fungal endophytes from healthy foliar tissue of *Goetzea elegans* Wydler. *XXIII Simposio de Ecología Tropical: Puerto Rico, tesoro ecológico del Caribe*. Biology Building, UPR-M. April 25, 2006.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Aislamiento de compuestos bioactivos de hongos endófitos miceliales recuperados de Thalassia testudinum en Cabo Rojo, Puerto Rico*. Sigma Xi XI Poster Day. Chemistry Building, UPR-M. April 6, 2006.

Ortiz, L.A. and **S.L. Maldonado-Ramírez**. Aerobiological studies of mitosporic fungi occurring on the lower atmosphere in Hormigueros, Puerto Rico. Sigma Xi XI Poster Day. Chemistry Building, UPR-M. April 6, 2006.

Quevedo Nazario, J.A. and **S.L. Maldonado Ramírez**. *Diversidad de esporas de hongos miceliales en la baja atmósfera recuperadas utilizando aviones piloteados mediante control remoto*. Sigma Xi XI Poster Day. Chemistry Building, UPR-M. April 6, 2006.

Tirado Costacamps, A. and **S.L. Maldonado-Ramírez**. Isolation and identification of mitosporic fungal endophytes from

healthy foliar tissue of *Goetzia elegans* Wydler. Sigma Xi XI Poster Day. Chemistry Building, UPR-M. April 6, 2006.

Rosado, M. C. and **S.L. Maldonado-Ramírez**. Isolation of endophytic mycelial fungi from leaves of *Azadirachta indica*. 41st ACS Junior Technical Meeting and 26th Puerto Rico Interdisciplinary Scientific Meeting, UPR- Cayey. March 11, 2006.

Soto-Luciano, G. and **S.L. Maldonado-Ramírez**. Identification of fungal endophytes from leaves of *Dendrobium* spp. 41st ACS Junior Technical Meeting and 26th Puerto Rico Interdisciplinary Scientific Meeting, UPR- Cayey. March 11, 2006.

Maldonado-Ramírez, S.L. Series of five 30-minute workshops on collection and identification of macroscopic fungi at *V Retorno de Julian Chirí, Bosque del Pueblo, Adjuntas*, PR. March 9, 2006.

Maldonado-Ramírez, S.L. Workshop for teachers on *Fermentations mediated by fungi: production of wine, beer and bread*. GLOBE Program. Department of Chemistry, UPR-M. October 8, 2005.

Maldonado-Ramírez, S.L. Workshop for teachers on *Collection and Identification of Macroscopic fungi*. GLOBE Program. Department of Chemistry, UPR-M. September 10, 2005.

Acosta, S. and **S.L. Maldonado-Ramírez**. Endophytic fungi in *Aglaonema commutatum*. *VII Simposio de Micología*, UPR-M. April 23, 2005. Poster

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Fungal endophytes from healthy tissue of Thalassia testudinum*. *VII Simposio de Micología*, UPR-M. April 23, 2005. Poster

Maldonado-Ramírez, S.L. *Colección de Hongos de la Universidad de Puerto Rico- Mayagüez: mantenimiento, importancia y proyecciones futuras for Asociación Estudiantes de Biología*. Eugene Francis, UPR-M. April 7, 2005. Oral presentation.

Maldonado-Ramírez, S.L. Workshop for teachers on *Indoor Air Quality and Sick Building Syndrome*. Department of Industrial Engineering, UPR-M. April 2, 2005.

Maldonado-Ramírez, S.L. *La hifa: unidad estructural que define un estilo de vida*. PUCPR-Mayagüez. March 15, 2005. Oral presentation.

Acosta, S. and **S.L. Maldonado-Ramírez**. Endophytic fungi in *Aglaonema commutatum*. 25rd Puerto Rico Interdisciplinary Scientific Meeting, UPR-M. March 12, 2005. Oral presentation.

Morell Rodríguez, G. and **S.L. Maldonado-Ramírez**. *Fungal endophytes from healthy tissue of Thalassia testudinum*. 25rd Puerto Rico Interdisciplinary Scientific Meeting, UPR-M. March 12, 2005. Oral presentation.

Maldonado-Ramírez, S.L. *Estudios sobre hongos endófitos asociados a Thalassia testudinum en el área oeste de Puerto Rico. Seminario Taller "Estudios micológicos en Centroamérica: futuro de la micología en la región"* Ciudad de Panamá, Panamá. March 3, 2005. Oral presentation.

Maldonado-Ramírez, S.L. *Colección de Hongos de la Universidad de Puerto Rico en Mayagüez: importancia y proyecciones futuras. VII Reunión de Herbarios de Mesoamérica y el Caribe*. Ciudad de Panamá, Panamá. February 28, 2005. Oral presentation.

Maldonado-Ramírez, S.L. Conference on fungal endophytes. Department of Biology, UPR-M. February 3, 2005. Oral presentation.

Maldonado-Ramírez, S.L. Field guide, field trip to *Bosque del Pueblo, Adjuntas*, PR. November 19, 2004.

Maldonado-Ramírez, S.L. Aerobiology, *Sociedad Estudiantes de Microbiología Industrial*. Department of Biology, UPR-M. October 18, 2004. Oral presentation.

Maldonado-Ramírez, S.L. Workshop for teachers on *Fermentations mediated by fungi: production of wine, beer and bread*. Sponsored by GLOBE Program. Department of Chemistry, UPR-M. November 6, 2004.

Maldonado-Ramírez, S.L. Workshop for teachers on *Indoor Air Quality and Sick Building Syndrome*. Sponsored by GLOBE

Program. Department of Chemistry, UPR-M. September 4, 2004.

Maldonado-Ramírez, S.L. *Summer Internship for Teachers of the Department of Education.* Sponsored by Bristol-Myers Squibb Manufacturing Co (presented at the Tropical Mycology Laboratory) Department of Biology, UPR-M. Jun 15 to Jul 14, 2004.

Espola Sepúlveda, M., A. Rivera Valentín, and **S.L. Maldonado-Ramírez.** Fungi associated with the tropical *Thrinax morrisii* in Susúa Forest, *Sabana Grande*, PR. *XXIII Simposio de Flora y Fauna del Caribe*, UPR-Humacao. April 30, 2004. Poster

Morell-Rodríguez, G. and **S. L. Maldonado-Ramírez.** *Muestreador aereo portable utilizado para determinar la incidencia de esporas en la baja atmósfera del área oeste de Puerto Rico.* *XXIII Simposio de Flora y Fauna del Caribe*, UPR-Humacao. April 30, 2004. Poster

Virella Pérez, C., S. Malavé Vega, and **S.L. Maldonado-Ramírez.** Fungal endophytes in *Aglaonema commutatum*. *XXIII Simposio de Flora y Fauna del Caribe*, UPR-Humacao. April 30, 2004. Poster

Espola Sepúlveda, M., A. Rivera Valentín, and **S.L. Maldonado-Ramírez.** Fungi associated with the tropical *Thrinax morrisii* in Susúa Forest, *Sabana Grande*, PR. *VI Simposio de Micología*. IU-Arecibo, PR. April 24, 2004. Poster

Maldonado-Ramírez, S.L. *Aerobiología del bongo causante del blanqueamiento de la cabeza del trigo, Gibberella zeae.* Oral presentation. *VI Simposio de Micología*. IU-Arecibo, PR. April 24, 2004. Poster

Morell-Rodríguez, G. and **S. L. Maldonado-Ramírez.** *Muestreador aereo portable utilizado para determinar la incidencia de esporas pigmentadas en la baja atmósfera del área oeste de Puerto Rico.* *VI Simposio de Micología*. IU-Arecibo, PR. April 24, 2004. Poster

Virella Pérez, C., S. Malavé Vega, and **S.L. Maldonado-Ramírez.** Fungal endophytes in *Aglaonema commutatum*. *VI Simposio de Micología*. IU-Arecibo, PR. April 24, 2004. Poster

Espola Sepúlveda, M., A. Rivera Valentín, and **S.L. Maldonado Ramírez.** Fungi associated with the tropical *Thrinax morrisii* in Susúa Forest, *Sabana Grande*, PR. IX Sigma Xi Poster Day, Department of Chemistry, UPR-M. April 1st, 2004. Poster

Morell-Rodríguez, G. and **S.L. Maldonado-Ramírez.** *Muestreador aereo portable utilizado para determinar la incidencia de esporas pigmentadas en la baja atmósfera del área oeste de Puerto Rico.* IX Sigma Xi Poster Day, Department of Chemistry, UPR-M. April 1st, 2004. Poster

Virella Pérez, C., S. Malavé Vega, and **S.L. Maldonado-Ramírez.** Fungal endophytes in *Aglaonema commutatum*. IX Sigma Xi Poster Day, Department of Chemistry, UPR-M. April 1st, 2004. Poster

Morell-Rodríguez, G. and **S.L. Maldonado-Ramírez.** *Muestreador aereo portable utilizado para determinar la incidencia de esporas pigmentadas en la baja atmósfera del área oeste de Puerto Rico.* 24th Puerto Rico Interdisciplinary Scientific Meeting, UPR- Humacao. March 13, 2004. Oral presentation.

Simpson-Hernández, J. and **S.L. Maldonado-Ramírez.** *Nueva evidencia sobre la presencia de hongos endofitos en Thalassia testudinum.* 24th Puerto Rico Interdisciplinary Scientific Meeting, UPR-Humacao. March 13, 2004. Oral presentation.

Maldonado-Ramírez, S.L. *Taller académico sobre hongos macroscópicos. Retorno del Julián Chiví. Bosque del Pueblo, Adjuntas*, PR. March 5, 2004.

Maldonado-Ramírez, S.L. Conference on Aerobiology for Industrial Microbiology students. Department of Biology, UPR-M. March 4, 2004.

Maldonado-Ramírez, S.L. *Mini-taller hongos macroscópicos. Ruta Quetzal 2003. Bosque del Pueblo, Adjuntas*, PR. July 5, 2003.

Valentín Cruz, José A. and **S.L. Maldonado-Ramírez.** *Hongos miceliales a lesiones en tejido de Orchidaceae.* *V Simposio de Micología*, UT-Caguas, PR. May 5, 2003. Poster

Pérez Aponte, B.M. and **S.L. Maldonado-Ramírez.** *Preliminary studies of airborne fungi in Vega Baja, Puerto Rico.* *V Simposio de Micología*, UT-Caguas, PR. May 10, 2003. Poster

Maldonado-Ramírez, S.L. 2003. *Aerobiología del bongo causante del blanqueamiento de la cabeza de trigo: descarga, dispersión atmosférica y depósito de ascosporas.* Department of Crop Protection, UPR-M. Oral presentation.

Iglesias-Torres, E. and **S.L. Maldonado-Ramírez.** *Mycelial fungi associated to disease in three orchid species* 23rd Puerto Rico Interdisciplinary Scientific Meeting, UPR-Río Piedras. April 26, 2003. Oral presentation.

Leiva-Nieves, J. and **S.L. Maldonado-Ramírez.** *Preliminary studies of fungal endophytes in Thalassia testudinum.* 23rd Puerto Rico

Interdisciplinary Scientific Meeting, UPR-Río Piedras. April 26, 2003. Oral presentation.

Lozada, C. and **S.L. Maldonado-Ramírez**. *Airborne fungi in the Cabo Rojo area*. 23rd Puerto Rico Interdisciplinary Scientific Meeting, UPR-Río Piedras. April 26, 2003. Oral presentation.

Pérez-Perocier, M. and **S.L. Maldonado-Ramírez**. 2003. *Estudio aerobiológico en el area suroeste de Puerto Rico*. 23rd Puerto Rico Interdisciplinary Scientific Meeting, UPR-Río Piedras. April 26, 2003. Oral presentation.

Iglesias-Torres, E. and **S.L. Maldonado-Ramírez**. 2003. *Hongos asociados a lesiones en orquídeas*. Long-Term Ecological Research; Third Annual Public Symposium. UPR-Río Piedras. Poster.

Maldonado-Ramírez, S.L. 2002. *Saprophytic fungi at Bosque del Pueblo*. Bosque del Pueblo Assambly, Adjuntas, PR. Oral presentation.

Maldonado-Ramírez, S.L. 2002. *Aerobiología del bongo causante del blanqueamiento de la cabeza de trigo: descarga, dispersión atmosférica y depósito de ascoporas*. Department of Biology, UPR-M. Oral presentation.

Maldonado-Ramírez, S.L. 2002. *Aerobiología: conceptos y aplicaciones*. Conference BIOS '02. Department of Biology, UPR-M.

Maldonado-Ramírez, S.L. 2002. *Aerobiology Workshop K-12 teachers*. Bioscience TEST. Department of Chemistry, UPR-M.

Maldonado-Ramírez, S.L. 2001. *Enfermedades en las orquídeas*. Conferencia para la Sociedad de Horticultura, Cabo Rojo, PR.

Maldonado-Ramírez, S.L. 2001. *Conference on Aerobiology*. Marc/Sloan. Department of Biology, UPR-M.

Maldonado-Ramírez, S.L. and G.C. Bergstrom. 2000. *Temporal patterns of ascospore discharge by Gibberella zeae from colonized corn stalks under natural conditions*. Pp 159-162. In: Proceedings of the 2000 National Fusarium Head Blight Forum. Michigan State University Printing, East Lansing, MI.

Maldonado-Ramírez, S.L., G.C. Bergstrom, and E.J. Shields. 1999. *Use of remote piloted vehicles in aerobiological studies of Gibberella zeae*. Pp 93-95. In: Proceedings of the 1999 National Fusarium Head Blight Forum. MSU Printing, MI.

PUBLICATIONS

Pérez Medina, K.L., H. Torres-Pratts and **S.L. Maldonado-Ramírez**. 2022. Are Gasteromycetes silent helpers in habitat conservation? **Caribbean Journal of Sciences** 53:18-36. *Included as one of the top and trending articles published in BioOne Complete journals, April 2023.*

Rivera Jiménez, H.J. and **S.L. Maldonado Ramírez**. 2021. Changes in the endophytic fungal community associated with *Pilosocereus royenii* (Cactaceae) infested by the invasive *Hypogeococcus* sp. (Hemiptera: Pseudococcidae). **Caribbean Journal of Sciences** 51(1): 50-64.

Rosado-Rodríguez, G., **S.L. Maldonado Ramírez** and E. Otero. 2020. Cultivable filamentous fungi associated with demosponges from La Parguera Cays, southwestern Puerto Rico. Submitted to Fungal Ecology on October 2020.

Vélez Rodríguez, Z., H. Torres Pratts and **S.L. Maldonado-Ramírez**. 2020. Use of drones to recover fungal spores and pollen from the lower atmosphere. **Caribbean Journal of Sciences** 50(1):159-170.

Rosado-Rodríguez G., E. Sánchez-Martínez, **S.L. Maldonado-Ramírez** and E. Otero E. 2019. *Cultivable yeasts associated with demosponges from Puerto Rico*. **Studies in Fungi** 4(1): 153–161.

Ríos Colón, R.I., E.L. Valentín Hernández and S.L Maldonado-Ramírez. 2019. Endophytic fungi in bromeliads: a preliminary survey. **JOUST, The Journal of Undergraduate Research Student**. 5(1):1-4.

González Colón, P.N. and **S. L. Maldonado-Ramírez**. 2017. Characterization data sheet for the genus *Auricularia*. **Current Research in Environmental and Applied Mycology**. 7(2): 90-93.

Rivera-Meléndez, E.M. and **S. L. Maldonado-Ramírez**. 2016. Isolation and characterization of endophytic fungi in *Dionaea muscipula*. **JOUST, The Journal of Undergraduate Research Student**. 4(1): 1-4.

Carrera-Martínez, R. and **S. L. Maldonado-Ramírez**. 2016. Cultivable fungi associated with tumors caused by *Hypogeococcus*

pungens in *Pilosocereus royerii*: a first report. **JOUST, The Journal of Undergraduate Research Student**. 3(2): 1-4

Rosado-Rodríguez, G. and **S. L. Maldonado-Ramírez**. 2016. Mycelial fungal diversity associated with the leatherback sea turtle (*Dermochelys coriacea*) nests from Western Puerto Rico. **Chelonian Conservation and Biology**. 15(2): 265-272.

Maldonado-Ramírez, S.L. 2015. *Manual Ejercicios de Laboratorio Taxonomía y Morfología de Hongos* (BIOL 6637). 77 Pp. Non peer-review publication to facilitate the execution of laboratory practices.

Rivera Jiménez, H.J. and **S.L. Maldonado Ramírez**. 2014. Detection of mycorrhizae in *Oplonia spinosa*. **JOUST, The Journal of Undergraduate Research Students**. 2(1): 10-16.

Pérez Medina, K.L. and **S.L. Maldonado Ramírez**. 2014. Cryptic microfungi in *Oplonia spinosa*. **JOUST, The Journal of Undergraduate Research Student**. 2(1): 3-9.

Buxeda, R., Saliceti-Piazza, L., Romañach, R.J., Ríos, L. and **Maldonado-Ramírez, S.L.** 2014. A cross-disciplinary educational model in biomanufacturing to sustain a competitive workforce ecosystem. **International Journal of Social, Management, Economics and Business Engineering**. 8(7): 2143-2147.

Maldonado-Ramírez, S.L. 2012. *Manual Ejercicios de Laboratorio Introducción a la Micología* (BIOL 3785). 86 Pp. Non peer-review publication to facilitate the execution of laboratory practices (revised version).

Maldonado-Ramírez, S.L and C. Rivera. 2012. *Manual Ejercicios de Laboratorio Aerobiología* (BIOL 3775). 56 Pp. Non peer-review publication to facilitate the execution of laboratory practices (revised version, including new exercises).

Maldonado-Ramírez, S.L. 2010. *Manual Ejercicios de Laboratorio Introducción a la Micología* (BIOL 3785). 86 Pp. Non peer-review publication to facilitate the execution of laboratory practices.

Maldonado-Ramírez, S.L and C. Rivera. 2009. *Manual Ejercicios de Laboratorio Aerobiología* (BIOL 3775). 56 Pp. Non peer-review publication to facilitate the execution of laboratory practices.

Rosado-Rodríguez, G. and **S. L. Maldonado-Ramírez**. 2007. First report of *Leptosphaerulina crassiasca* (Ascomycota) in Puerto Rico. **Journal of Agriculture of the Agricultural Experiment Station**. 91(1-2): 47-48.

Borges, S., M. Alfaro, **S. Maldonado**, and A. Santiago. 2006. A study of earthworms of the Bosque del Pueblo, Puerto Rico. **Caribbean Journal of Sciences**. 42(3): 366-370.

Maldonado-Ramírez, S.L and C. Rivera. 2009. *Manual Ejercicios de Laboratorio Micología* (BIOL 5765). 59 Pp. Non peer-review publication to facilitate the execution of laboratory practices.

TD Bruns, M Blackwell, I Edwards, AFS Taylor... **Maldonado-Ramírez, S. L....**, 2008. Preserving accuracy in GenBank. *Science*, 319(5870):1616.

Maldonado-Ramírez, S. L., Schmale, D.G. III, Shields, E.M., and Bergstrom, G.C. 2005. The relative abundance of viable spores of *Gibberella zeae* in the planetary boundary layer suggests the role of long-distance transport in regional epidemics of Fusarium head blight. **Agricultural and Forest Meteorology**. 132:20-27.

Maldonado-Ramírez, S. L. and H. Torres-Pratts. 2005. Occurrence of *Clathrus cf. crispus* (Basidiomycota:Clathraceae) on decomposing leaves of *Rhizophora mangle*. **Caribbean Journal of Sciences**. 41(2):357-359.

Maldonado-Ramírez, S. L. 2001. Aerobiology of the wheat scab fungus, *Gibberella zeae*: discharge, atmospheric dispersal and deposition of ascospores. PhD Dissertation, Cornell University, Ithaca, NY. 80pp.

Maldonado-Ramírez, S. L. and G.C Bergstrom. 2000. Temporal patterns of ascospore discharge by *Gibberella zeae* from colonized corn stalks under natural conditions. *National Fusarium Head Blight*. Pp 159-162.

Maldonado-Ramírez, S. L. G.C Bergstrom and EJ Shields – 1999. Use of remote piloted vehicles in aerobiological studies

of *Gibberella zeae*. National Fusarium Head Blight Forum, Pp. 93-95.

Hill, G.T., N.A. Mitkowski, L. Aldrich-Wolfe, L.R. Emele, D.D. Jurkonie, A. Ficke, **S. Maldonado-Ramírez**, S.T. Lynch, and E.B. Nelson. 2000. Methods for assessing the composition and diversity of soil microbial communities. **Applied Soil Ecology**. 15:25-36.

Betancourt, C., S. Cantrell, **S.L. Maldonado-Ramírez** and H. Torres. 1997. Evaluación de los hongos saprofitos del Bosque del Pueblo en Adjuntas, Puerto Rico. Technical Report, 29pp.

Maldonado-Ramírez, S. L. 1996. Composting process and degradation of organic material including used motor oil with *Aspergillus niger* Link. MS Thesis, University of Puerto Rico-Mayagüez Campus, Mayagüez, PR. 40pp.

AWARDS/ HONORS RECEIVED

The publication ***Are Gasteromycetes Silent Helpers in Habitat Conservation?*** by Pérez Medina et al., was included in the selective "Top & Trending Research" articles published in BioOne Complete journals, April 2023.

Funds from PR-LSAMP Program to sponsor Richard J. Noel Torres (undergraduate student) to do research under my supervision (August 2021- May 2022).

Selected as ***Counselor for Womens on Natural Sciences*** (WINS) student association, UPR-M Chapter. September 2021.

Invited to collaborate with a group of mycologists on a chapter on edible fungi of Puerto Rico for a book entitled ***Avances, Hongos Comestibles y Desarrollo Sustentable en Latinoamérica***, sponsored by Fundación Fungicosmos. March 2021.

Invited as ***Evaluator Academic Discharge Proposals***, Dean of Arts and Sciences, UPR-M. March 2021.

Elected Secretary, *Sociedad de Micología Puertorriqueña* (SPM) 2020-2021. November 16, 2019.

Selected to be part of the **Editorial Board** of ***Avances***, a publication sponsored by the Dean of Arts and Sciences, UPR-M. May 2018.

Participated as an **Invited Reviewer for Research/Creative Proposals** to be sponsored by the Dean of Arts and Sciences, UPR-M. May 2018.

Member of the **11th International Mycological Congress Organizing Committee**, Puerto Rico Branch since April 2016.

Diversity of macromycetes at the US Fish and Wildlife Services, Cabo Rojo. January 2016-December 2017. \$1,700.00 for materials.

Seed Money funds for a proposal entitled ***Aplicación de tecnología dron para la captura de polen y particulado fúngico aeronavegante*** (2015-16).

Editorial Board of the Athens Journal of Sciences. Since December 2014.

Recognition for support and mentoring of Biotechnology Program students at *Gala Vigésimo Aniversario Programa Biotecnología*, University of Puerto Rico, Mayaguez Campus. November 3, 2014.

Approval of new course entitle ***Cryptic Fungi in Plant Tissue (BIOL 5019)***. 2016. Faculty of Arts and Sciences, UPR-M.

Seed Money funds for a proposal entitled ***Micoflora asociada al arbusto espinoso endémico de Puerto Rico, Oplonia spinosa y su relación con Atlantea tulita, una mariposa endémica en posible riesgo de extinción*** (2013-14).

Invited judge for ***6th NEA Science Day***. UPR-M. February 7, 2013.

Invitation to continue previous research on ascospore discharge patterns in *Gibberella zeae*. Dr. Gary C. Bergstrom (2012)

Research funds (\$1,000) for Elis M. Cruz Salcedo. Sponsored by HHMI August 2012- May, 2013.

NIH Grant Writing Initiative Award. December 2011-May 2012. UPR-M.

Invited reviewer for Current Microbiology (2010 and 2011), *Revista de Biología Tropical* (2009) and *Revista Latinoamericana de*

Micología (various) on research papers related to fungal endophytes.

Elected President, *Sociedad Puertorriqueña de Micología* (2011-2012). *XII Simposio de Micología*, Interamerican University-Aguadilla, PR. May 1, 2010.

Participated in the initial stages of the development of the Management Plan for the Protected Area in Hacienda Buena Vista in Ponce. November 6, 2009.

Funds, BioMinds Program to sponsor undergraduate research student Ileana Marrero (August 2009- January 2011).

Funds from PR-LSAMP Program to sponsor Ileana Marrero and Jose Robles (undergraduate students) to do research under my supervision (January-May 2009).

Funds from MARC/SLOAN Program to sponsor Cariane Morales (undergraduate student) to do research under my supervision (January 2009- May, 2010).

Funds from BioMinds Program to sponsor three undergraduate students (Harriel Acosta, Isabelita Martínez, and Coraly Morales) to do research under my supervision.

C. Rodríguez-Minguela (PI), R. Montalvo-Rodríguez, and **S. L. Maldonado-Ramírez**. *Molecular Ecology of Antimicrobial Resistance Traits in Bacterial and Fungal Populations from Critical Coastal Habitats Impacted by Sewage, Animal Waste, and Wastewater Treatment Plant Discharges* Sea Grant Program \$152,740. From 2008-2010.

Funds for undergraduate research for Marie C. Rosado to work in a project entitled *Isolation of bioactive compounds of endophytic mycelial fungi from leaves of the neem tree (Azadirachta indica)*. Sponsored by the Biotechnology Program, UPR-M. \$1,000.

Summer research funds from ALACiMa Program to sponsor two students from *Programa de Preparación de Maestros* working on mycelial fungal endophytes from leaves of red mangrove (*Rhizophora mangle*) and white mangrove (*Laguncularia racemosa*). \$2,000.

J. D. China (PI), G. Breckon, and **S. L. Maldonado-Ramírez**. *Upgrading and Internet Publication of the Herbarium of the Department of Biology at the University of Puerto Rico at Mayagüez (MAPR)*. NSF \$162,171. From 2006-2008.

Maldonado-Ramírez, S. L. (PI) and R. Montalvo Rodríguez (Co- PI). *Endophytic microbial diversity in seagrass beds of *Thalassia testudinum* and *Syringodium filiforme* from Cabo Rojo, Lajas, and Vieques, Puerto Rico*. Sea Grant Program \$75,298. From 2006-2008.

Research funds from ALACiMa to sponsor the graduate research of Alexis Tirado entitled *Diversity and distribution of endophytic fungi in foliar tissue of *Goetzia elegans*, an endangered plant species in Puerto Rico*. 2005. \$5,000.

Invited to participate as Co-PI in a proposal entitled *Undergraduate Students Enhancing Earth System Science in K-12 Schools and Informal Community Education*, in response to the request for proposals: NASA Research Announcement number NN-H-04-Z-YO-006-N. September 2004.

Approval of a new course entitled ***Introduction to Mycology (BIOL 3785)***. 2006. Faculty of Arts and Sciences, UPR-M.

Seed Money funds for a proposal entitled *Estudios sobre la diversidad de hongos endofitos y exudados en la hierba marina *Thalassia testudinum** for the academic year 2004-05.

Release time (3crds for 2004-05) to continue research activities on project entitled *Estudios sobre la diversidad de hongos endofitos y exudados en la hierba marina *Thalassia testudinum**.

Elected President, *Sociedad Puertorriqueña de Micología* (2005-2006). *Sociedad Puertorriqueña de Micología*, Interamerican University, Arecibo, PR.

Approval of a course entitled ***Aerobiology (BIOL 3775)***. 2004. Faculty of Arts and Sciences, UPR-M.

Panel Reviewer for the U.S. Department of Homeland Security Center for Post-Harvest Food Protection and Defense Merit Review. March 9-11, 2004.

Book Review for *Mycologia*. Book entitled “*Tropical Mycology Vol 2: Micromycetes*” by R. Watling, J.C. Frankland, A.M.

Ainsworth, S. Isaac, and C.H. Robinson. February 2004.

Maldonado-Ramírez, S.L. 2002- 04. Undergraduate Research-RETO Department of Biology, UPR-M.

Seed Money funds for a proposal entitled. *Temporal trends and environmental factors associated with the diversity and abundance of airborne fungi in three suburban sites in the West coast of Puerto Rico*. Research and Development Center, UPR-M. 2002

Bergstrom, G.C., **S.L. Maldonado-Ramírez** and D.M. Gadoury. 2000. Factors affecting release of *Gibberella zeae* ascospores. U.S. Wheat and Barley Scab Initiative.

Maldonado-Ramírez, S.L. 2000. Anonymous Donor Fellowship. Cornell University. Ithaca, N.Y.

Maldonado-Ramírez, S.L. 1998-2000. Minority Student Fellowship. Cornell University. Ithaca, N.Y.

THESIS SUPERVISED

- Rosado-Rodríguez, Gualberto. 2020. *Cultivable filamentous fungi associated with demosponges from La Parguera Cays, southwestern Puerto Rico*. (co-president of PhD graduate committee).
- Pérez Medina, Kiara. 2019. *Inventory of Agaricomycetidae and Phallomycetidae at the United States Fish and Wildlife Service Refuge (USFWLS) in Cabo Rojo, Puerto Rico*.
- Rivera Jiménez, Héctor J. 2019. *Cambios en la comunidad de hongos endófitos de Pilosocereus royenii por la infestación de Hypogeococcus pungens en la Reserva de pesca y Vida Silvestre en Cabo Rojo, Puerto Rico*.
- Vélez Rodríguez, Zuleimary. 2018. *Uso de drones para la recuperación de esporas de hongos en la baja atmosfera*.
- González Colon, Paola. 2018. *Caracterización morfológica y molecular del género Auricularia en zonas boscosas del oeste de Puerto Rico*.
- Natal-Molina, Gloria. 2013. *Inventario de hongos asociados a suelo enriquecido con guano de murciélago en Cueva de los Culebrones, en la Reserva Mata de Plátano (Arecibo, Puerto Rico)*.
- Osorio-Quintero, Catherine. 2013. *Entomofauna asociada a macrohongos comestibles de los bosques de Susua, Río Abajo y La Olimpia en Puerto Rico*.
- Román-Juliá, Roberto O. 2011. Fluconazol resistance in yeast populations from coastal habitats impacted by sewage and wastewater discharges.
- Rosado-Rodríguez, Gualberto. 2011. Mycelial fungal diversity associated with leatherback sea turtle (*Dermochelys coriacea*) nests in the Mayagüez-Añasco Bay Coast, Western Puerto Rico.
- Acevedo-Matos, Julio O. 2009. *Distribución temporal de hongos miceliales en una zona industrial en Mayagüez, Puerto Rico*.
- Morell-Rodríguez, Gloriner. 2008. Potential of fungal endophytes from *Thalassia testudinum* Bank ex K.D. Koenig as producers of bioactive compounds.
- Malavé-Vega, Selimar. 2006. *Catastro de hongos endófitos miceliales cultivables en hojas de la hierba marina Thalassia testudinum en playa Bayé, Cabo Rojo, Puerto Rico*.
- Espola-Sepúlveda, Marian. 2005. Catastro de hongos endófitos miceliales en *Thrinax morrisii* H. Wendl. en el Bosque Estatal de Susúa, Sabana Grande, Puerto Rico.
- Gaztambide-Alameda, Idarnis. 2005. *Distribución vertical de Glomerella cingulata (Colletotrichum gloeosporioides) sobre una siembra comercial de gandul (Cajanus cajan L.)*.
- Arroyo-Rojas, Marylee. 2004. *Catastro de hongos miceliales en las estructuras de anidaje de la cotorra puertorriqueña, Amazona vittata vittata, en el Bosque de Río Abajo en Arecibo, Puerto Rico*.
- Padilla-Luciano, Yanitza. 2004. *Presencia de hongos miceliales termotolerantes y termofílicos en el vertedero de Lajas, Puerto Rico, prestando especial interés a Aspergillus fumigatus*.

OTHER PROFESSIONAL ACTIVITIES

- Research:** Various meetings with MedSciences Inc. coordinated by Dr. Matías Cafaro to explore the opportunity to produce an Allergen Catalog for Puerto Rico. March-May 2019.
- Construction of a laboratory webpage by José I. Reyes Soto available since December 2018 at <https://laboratoriomicologia.wixsite.com/misitio>.
- Collaborative research entitled *Identification of bioactive compounds of endophyte fungi from Alpinia zerumbet* in collaboration with Dra. Walleska De Jesús Bonilla (PI), Chemistry Department, UPR-Aguadilla Campus. August-December 2018.

Attended the workshop entitled *Assessing the Global Conservation Status of Fungi*. Sponsored by International Mycological Congress, Convention Center, San Juan, PR. July 16, 2018.

Diversity of macromycetes at the US Fish and Wildlife Services, Cabo Rojo. Since September 15, 2015. US Fish and Wildlife Services, Cabo Rojo.

Research on cryptic mycoflora (mycorrhizae and endophytes) associated to *Oplonia spinosa* in collaboration with two undergraduate students.

Research on mycoflora associated to *Atlantea tulita* and *Oplonia spinosa* in collaboration with Dr. Hernán Torres Pratts and five undergraduate students

In vitro culture and studies on the submerged angiosperm Thalassia testudinum undergraduate research (Ileana Marrero).

Molecular Ecology of Antimicrobial Resistance Traits in Bacterial and Fungal Populations from Critical Coastal Habitats Impacted by Sewage, Animal Waste, and Wastewater Treatment Plant Discharges (2008-2010)

Fungal endophytes from leaves of Dracontium polyphyllum.

Upgrading and Internet Publication of the Herbarium of the Department of Biology at the University of Puerto Rico at Mayagüez (MAPR) (2006-2008).

Endophytic microbial diversity in sea grass beds of Thalassia testudinum and Syringodium filiforme from Cabo Rojo, Lajas and Vieques, Puerto Rico for Sea Grant Program (2006-2008).

Analysis of the mycelial fungi associated to the nesting structures of the Puerto Rican parrot *Amazona vitata vitata* at El Yunque Avairy (*Ad hoc* 2005-06).

Temporal trends and environmental factors associated with the diversity and abundance of airborne fungi in the Hormigueros area (2004-2007).

Studies on diversity of fungal endophytes and their exudates in *Thalassia testudinum*.

Fungal endophytes from leaves of the neem tree (*Azadirachta indica*) and *Eucalyptus globulus*.

Fungal endophytes from leaves of red mangrove (*Rhizophora mangle*) and white mangrove (*Laguncularia racemosa*).

Teaching: **General Biology I and II for majors** (BIOL 3061-3062), **Botany [majors** (BIOL 3417) and **non-majors** (BIOL 3435)], **Microbiology for non-majors** (BIOL 3725), **Introduction to Medical Mycology** (BIOL 3745), **General Microbiology** (BIOL 3770), **Aerobiology** (BIOL 3775), **Introduction to Mycology** (BIOL 3785), **History of Biology** (BIOL 4005), **Economic Mycology** (BIOL 4746), **Special Problems in Zoology I and II** (BIOL 4901- 4902), **Undergraduate Seminar** (BIOL 4925), **Special Problems in Botany I and II** (BIOL 4995- 4996), **Mycology** (BIOL 5765), **Taxonomy and Morphology of Fungi** (BIOL 6637), **Advanced Mycology** (BIOL 6642), **Research** (BIOL 6990) and **Special Studies in Biology I and II** (BIOL 6991- 6992).

Student Training: During my twenty years at UPR-M I have mentored around 200 undergraduate students on research, most of them *ad honorem*, and supervised more than 25 graduate students.

Other activities:

1. Member of: Graduate Studies Committee (Biology Department)
2. Member of: Strategic Plan Committee (Biology Department), Charles Darwin Medal and Graduate Committee.
3. Attended three (3) online workshops on **Ley 238** (*Personas con Impedimentos*). Sponsored by *Centro para la Excelencia Académica* (CEA- UPRRP). September 28, 2021.
4. Member of a committee in charge of search for the new Director of Biology since August 2020.
5. Indoor Air Quality evaluation on selected areas of the General Library at UPR-M after Student Strike, Summer 2017.
6. Attended workshop entitled *Beyond Academia: Maximizing Research Impact*. Department of Business Administration, UPR-M.

February 12, 2016.

7. Workshop on Indoor Air Quality sponsored by SEMI, March 4, 2015.
8. Chasing activity sponsored by the AEB, Biology Department. February 24, 2015
9. Description of a new course entitled **Cryptic Fungi**, October 2014.
10. Conducting partial periodical indoor air quality assessments on the Biology Building, UPR-M. Since 2010
11. Mentor for Hernán Torres and Yaniel Soto for Science Fair projects in 2013. *Academia Inmaculada Concepción*, Mayagüez, PR. They won 1st Place at his school and at the Regional Competition in the Microbiology Section.
12. Mentor for Kevin Mora for Science Fair projects in 2011. *Academia Inmaculada Concepción*, Mayagüez, PR. Kevin won 2nd Place at his school.
13. Mentor for Suzette Sánchez for Science Fair projects in 2011. *Jardines de Ponce* High School, Ponce, PR. Suzette won 1st Place at her school.
14. Mentor for Darel A. Febles for Science Fair projects in 2011. Junior High at Ponce, PR. Darel won 2nd Place at his school.
15. Training of students on internship program at BDTC (2010-2011).
16. Representative of the Graduate Studies Department for the defense of Emmanuel Feliciano Justiniano, Department of Soils and Agronomy, UPR-M. December 17, 2010.
17. Representative of the Committee of Graduate Studies and Research for the defense of Ivelisse Irizarry Caraballo at Turabo University, April 6, 2010.
18. Mentor for Ruth Martell for Science Fair project in 2010 entitled *Cinammomum verum* as a natural fungicide. The student was awarded 1st Place at her school and selected to represent Puerto Rico at the nationals in San Diego, California in May 2010.
19. Collaborator and consultant in the preparation of ***Guía de Hongos Fideicomiso de Conservación de Puerto Rico***, published on May, 2009.
20. Mentor for Christopher Padilla and Genesis Serrano for Science Fair projects in 2009. Christopher won 1st Place at his school.
21. Consulted by Sue González related to MS research on indoor air quality project at *Universidad Interamericana, San Germán*. October, 10, 2008.
22. Small research grant submitted to The Procter & Gamble Fund Higher Education Grant Program on the prevalence of medically important yeast in recreational beaches in Puerto Rico (denied).
23. Organized a workshop entitled ***How to keep a laboratory notebook*** in collaboration with Sindia M. Rivera, PhD Candidate from Chemical Engineering (UPR-M) for graduate and undergraduates under my supervision. August 14, 2008.
24. Consultant for four mycological evaluations at the Bioprocess Development and Training Complex, Guanajibo Industrial Park, Mayagüez, PR. March 21, June 6, and October 14, 2008 and March 23, 2009.
25. Moderator at 43rd ACS Junior Technical Meeting and 28th Puerto Rico Interdisciplinary Scientific Meeting (PRISM), UPR-Arecibo. March 8, 2008.
26. Representative of the Graduate Studies Department for the defense of Brandi Renee Todd, Department of Marine Sciences, UPR-M. February 21, 2008.
27. Invited to participate in the *Proyecto Comunitario Agro-Eco-Turístico del Barrio Río Hondo*, Mayagüez, PR. February 6, 2008.
28. Representative of the Graduate Studies Department for the defense of Alex E. Mercado Molina, Department of Marine Sciences, UPR-M. November 28, 2007.
29. Staff member, Global Registry of Biodiversity Repositories.
30. Consultant. Mycological evaluation of *Biblioteca Dennis Soto*, *Universidad Adventista de las Antillas*, Mayagüez, PR. September 23, 2007.
31. Mentor for Ruth M. Velázquez and Yashaira Vélez. June-July, 2006. Sponsored by ALACiMa. Department of Biology, UPR-M.
32. Representative of the Graduate Studies Department for the defense of Aracelis Cardona, Department of Chemistry. May 5, 2006. UPR-M.
33. Representative of the Graduate Studies Department for the defense of Juan Calle, Department of Crop Protection. July 14,

2005. UPR-M

34. *Summer Internship for Teachers of the Department of Education*. June 2-30, 2005. Sponsored by Bristol-Myers Squibb Manufacturing Co, Department of Biology, UPR-M.
35. Mentor for Alexis Tirado. June-July, 2005. Sponsored by ALACiMa. Department of Biology, UPR-M.
36. **Graduate students advised in a 20-years period: 16**
37. **Undergraduate research advised in a 22-years: more than 250.**
38. **Invited reviewer for the** Caribbean Journal of Science, UPR-M, Agricultural Experiment Station, UPR-M, and *Revista Iberoamericana de Micología*.
39. **Undergraduate Research Symposium Committee**, Biology Department, since January 2010.
40. **Personnel Committee**, Biology Department, UPR-M, since August 2005 and elected President on September 2008.
41. **Award Committee**, Biology Department, UPR-M (President from 2004-2009).
42. **Strategic Plan Committee**, Biology Department President since January 2009.
43. Coordinator of the efforts to revise the Undergraduate Curriculum in Microbiology (2006-2008).
44. **Ad hoc APS Young Professional Committee**. 2003-2004. APS.
45. **Panel Reviewer for Seed Money Funds**. 2003-2004. UPR-M.

Arturo A. Massol Deyá, Ph.D.

Arturo A. Massol-Deyá is from the mountainous area of Puerto Rico in the municipality of Adjuntas where his parents founded the community-based organization Casa Pueblo. Massol-Deyá grew up in this project and chairs its Board of Directors since 2007. This community-based project was responsible for protecting the central region and its critical watersheds from an open pit mining proposal and later from a massive gas pipeline. Instead, new forest units, El Bosque del Pueblo and Bosque La Olimpia were designated and have been ever since managed by the community initiative, thus changing the Island's forestry policy, and catalyzing an increase of protected areas from a mere 3.7% to a current 8% of its surface. A graduate of the public school system (1986) and the University of Puerto Rico (1990), he obtained his doctoral degree from Michigan State University in 1994. Since then, he has been a faculty member at the University of Puerto Rico Mayagüez. After the impact of Hurricane Maria through Puerto Rico on September 20, 2017, Dr. Massol-Deyá, together with Casa Pueblo, has led a community aid response that aims to change the energy landscape of a country dependent on fossil fuels to one based on renewable energy sources.

**1994-present Professor University of Puerto Rico, Department of Biology,
Mayagüez, PR 00680-9012**

Professional Preparation

University of Puerto Rico, Humacao B.S. – 1990

Michigan State University, Microbial Ecology Ph.D. – 1994

Northern Arizona University, Honorary Degree in Humane Letters - 2023

Selected Publications

Massol-Deyá, A. 2023. Casa Pueblo: Community Struggles for Social Development and Protection of Natural Resources. *In* 'Decolonizing Paradise'. Peter Lang. 83-124.

Massol-Deyá, A. 2022. Democracia y energía: Desafiando la economía de los combustibles fósiles por un país propio. Ediciones Callejón. 146pp.

Massol-Deyá, A. 2021. La revolución energética: un modelo de autogestión, sustentabilidad, y soberanía comunitaria en Puerto Rico. *In* 'Las Réplicas del Desastre'. Ediciones Callejón. 321-330.

Massol-Deyá, A. 2020. Ciencia para la insurgencia. Ediciones Callejón. 281pp.

Massol-Deyá, A. 2020. Autosuficiencia energética como paso hacia la descolonización de Puerto Rico. *In* 'Descolonizar la paz: entramado de saberes, resistencias y posibilidades Volumen conmemorativo del 25 aniversario Cátedra UNESCO de Educación para la Paz / UPR'. 379-387.

Massol-Deyá, A. 2020. Solidaridad: combustible de la autogestión comunitaria. *In* 'NOSotros'. Isla Negra Editores. 124-133.

Massol-Deyá, A. 2020. Our Energy for Our Country. *Scenario Journal 07: Power*.

Massol-Deyá, A. 2019. Our Energy Insurrection. *In* 'Aftershocks of Disaster: Puerto Rico Before and After the Storm' Haymarket Books, 298-307.

Massol-Deyá, A. 2019. The Energy Insurrection. *In* 'Voices from Puerto Rico' Red Sugarcane Press, 93-98.

- Massol-Deyá, A., J. C. Stephens and J. L. Colón. 2018. Renewable energy for Puerto Rico. *Science* 362 (6410): 7.
- Massol-Deyá, A. 2018. Amores que luchan. Ediciones Callejón, 253pp.
- Massol Deyá, A. 2018. De la autogestión a la insurgencia energética: Una historia de supervivencia, resistencia y gobernanza comunitaria. 87 Rev. Jur. UPR 648.
- Massol-Deyá, A., E. González, J. Delgado, A. Dragoni y A. Massol-Deyá. 2018. Casa Pueblo y la transformación de la política forestal desde la autogestión comunitaria. In 'Ambiente y Democracia' Editorial UPR, pp. 106-129.
- Díaz, E., D. Pérez, J. Delgado, and A. Massol-Deyá. 2018. Longitudinal survey of lead, cadmium, and copper in seagrass *Syringodium filiforme* from a former bombing range (Vieques, Puerto Rico) *Toxicol Rep* 5:6-11.
- R. A. Sanford, D. Wagner, Q. Wu, J. C. Chee-Sanford, S. H. Thomas, C. Cruz-García, G. Rodríguez, A. Massol-Deyá, K. K. Krishnani, K. M. Ritalahti, S. Nissen, K. T. Konstantinidis and F. E. Löffler. 2012. Unexpected nondenitrifier nitrous oxide reductase gene diversity and abundance in soils. *Proc Natl Acad Sci USA*. 109(48): 19709–19714.
- Valentín-Vargas, A., G. Toro-Labrador, and A. A. Massol-Deyá. 2012. Bacterial Community Dynamics in Full-Scale Activated Sludge Bioreactors: Operational and Ecological Factors Driving Community Assembly and Performance. *Plos One* 7(8):e42524.
- Ara-Rojas, S. and A. Massol-Deyá. 2007. Bacterial diversity in a fluidized bed bioreactor (FBR) treating gasoline-contaminated groundwater. *Revista Argentina de Microbiología*. 39(4):243-51.
- Massol-González, A., A. Andromache-Johnnidis, A. Massol-Deyá. 2008. The Evolution of Casa Pueblo, Puerto Rico: From Mining Opposition to Community Revolution. *Gatekeeper*, 137b:1- 20.
- Rodríguez-Martínez, E., E.X. Pérez, C.W. Schadt, J. Zhou, and A. Massol-Deyá. 2006. Microbial Diversity and Bioremediation of a Hydrocarbon-Contaminated Aquifer in Vega Baja, Puerto Rico. *International Journal of Environmental Health*. 3(3):292-300.
- Massol-González, A., E. González, A. Massol-Deyá, T. Deyá Díaz, and T. Geoghegan. 2006. Bosque del Pueblo, Puerto Rico: How a fight to stop a mine ended up changing forest policy from the bottom up. Policy that works for forests and people no. 12. International Institute for Environment and Development, London. 130pp.
- Massol, A., D. Pérez, E. Pérez, M. Berrios, and E. Díaz. 2005. Trace elements analysis in forage samples from a US Navy bombing range (Vieques, Puerto Rico). *Int. J. Environ. Res. Public Health*. 2(2):263-266.
- Massol-Deyá, A., R. Muñiz, M. Colón, J. Graulau, and N. S. Tang. 2005. Microbial Community Structure of Pentachlorophenol Contaminated Soils as Determined by Carbon Utilization Patterns. *Caribbean Journal of Science* 41:138-146.
- Massol-Deya, A. y E. Diaz. 2003. Trace elements composition in forage samples from various anthropogenically impacted areas in Puerto Rico. *Carib. J. Sci*. 39:215–220.
- Massol-Deya, A., R. Weller, L. Rios-Hernandez, R. F. Hickey, and J. M. Tiedje. 1997. Succession and convergence of biofilm communities in fixed-film reactors treating benzene, toluene, and p-xylene contaminated groundwater. *Applied and Environmental Microbiology*. 63:270-276.
- Massol-Deya, A., J. Whallon, R. F. Hickey, and J. M. Tiedje. 1995. Channel structures in aerobic biofilms of fixed-film reactors treating contaminated groundwater. *Applied and Environmental Microbiology*. 61:769-777.

Tiedje, J. M., R. A. Sanford, and A. Massol. 1995. Advantages and disadvantages of consortia in bioremediation. *In* Bioremediation: the Tokyo '94 Workshop'. OECD, Paris pp 357-367. Tiedje, J. M., S. M. Thiem, A. Massol-Deya, J. O. Ka, and M. R. Fries. 1995. Tracking Microbial Populations Effective in Reducing Exposure. *Environmental Health Perspectives*. 103:117-120. Massol-Deya, A., J. Whallon, R. F. Hickey, and J. M. Tiedje. 1994. Biofilm architecture: a fortuitous engineering feature. *ASM News*. 60(8):467 and cover.

RAFAEL R. MONTALVO-RODRIGUEZ Ph.D.

University of Puerto
Rico Biology Dept.
Box 9000 Mayagüez, PR 00681-9000
email: rafael.montalvo@upr.edu

EDUCATION

May 2003

Doctor of Philosophy Major in Microbiology

University of Nebraska

Lincoln, Nebraska

May 1996

Master in Science Majoring in Microbiology

University of Puerto Rico, Mayaguez Campus,

Mayaguez, Puerto Rico

May 1993

Bachelor in Science Majoring in Industrial Microbiology

University of Puerto Rico, Mayaguez Campus,

Mayaguez, Puerto Rico

INTERNATIONAL COMMITTEES

*** International Committee on the Systematics of Prokaryotes**

- Elected member of the subcommittee **on the Taxonomy of the family *Halobacteriaceae***

- Elected member of the subcommittee **on the Taxonomy of the family *Halomonadaceae***

*** Organizer and President of the International Committee for the 11th
Conference on Halophilic Microorganisms “Halophiles 2016”**

Meeting was held in San Juan, Puerto Rico May 22-27, 2016

WORK EXPERIENCE

July 2013 to present

Full Professor

Biology Department

University of Puerto Rico, Mayaguez Campus

Mayaguez, PR

July 2008 to February 2010

Associate Chair and Graduate Program Coordinator

Biology Department

University of Puerto Rico, Mayaguez Campus

Mayaguez, PR

July 2006 to June 2013

Associate Professor

Biology Department

University of Puerto Rico, Mayaguez Campus

Mayaguez, PR

May 2003 to June 2006

Assistant Professor

Biology Department

University of Puerto Rico, Mayaguez Campus

Mayaguez, PR

August 1996 to May 2003

Instructor

Biology Department

University of Puerto Rico, Mayaguez Campus

Mayaguez, PR

Courses taught at UPRM:

- General Biology (Biol 3051 and Biol 3052)
- Introduction to Biological Sciences I (CIBI 3031)
- Introduction to Biotechnology (Bind 3005)
- Cell Physiology (Biol 3010)
- Genetics (Biol 3300)
- General Microbiology for Majors (Biol 3770)
- Industrial Microbiology (Biol 4367)
- Microbial Physiology (Biol 4368)
- Microbiology of Water and Sewage (Biol 4735)
- General Microbiology lab. (Biol 3770L)
- Microbial Ecology lab. (Biol 4365L)
- Medical Mycology lab. (Biol 3745L)
- Bacterial Diversity (Biol 6650)
- Bacterial Diversity lab. (Biol 6650L)
- Bacterial Physiology (Bota 6006)
- Bacterial Physiology lab. (Bota 6006L)

- Special topics in Archaea (Biol 6993)
- Research (Biol 6990)
- Seminar (Biol 4925)
- Special Problems in Biology (Biol 4901 and Biol 4902)
- Organic Chemistry Laboratory (Chem 3031L)

December 1990 to December 1991

Laboratory Assistant and Bacteria Collection Keeper
University of Puerto Rico, Mayaguez Campus

PUBLICATIONS

Montalvo-Rodríguez, R and Maupin-Furlow J. (Eds.). 2020. Genetics of Halophilic Microorganisms. ISBN 978-3-03928-955-4 (Hbk); ISBN 978-3-03928-956-1 (PDF) <https://doi.org/10.3390/books978-3-03928-956-1> Pages: 216 Published: July 2020. © 2020 by the authors; CC BY licence. MDPI Books.

Zayas-Rivera J, Rivera-Lopez Y, Velázquez-Méndez M, Romero-Oliveras N, **Montalvo-Rodríguez R**. 2020. Draft Genome Sequence of a Novel Species of *Halococcus* (Strain IIIV-5B), an Endophytic Archaeon Isolated from the Leaf Tissue of *Avicennia germinans*. *Microbiol Resour Announc*. 2020 May 21;9(21):e00421-20. doi: 10.1128/MRA.00421-20. PMID: 32439678; PMCID: PMC7242680.

Montalvo-Rodríguez R, Maupin-Furlow JA. 2020. Insights through Genetics of Halophilic Microorganisms and Their Viruses. *Genes* (Basel). 2020 Apr 2;11(4):388. doi: 10.3390/genes11040388. PMID: 32252451; PMCID: PMC7230515.

Rodriguez-Medina J, Kim HG, Castro J, Contreras CM, Glon CL, Goyal A, Guo BY, Knowles S, Lin JC, McGuinness CL, Sorkin E, Stefani J, Yegireddi SJ, Chaganti S, Cui D, Deck SL, Deokule Y, Douglas H, Kenaston M, O'Brien A, Patterson E, Schoppa N, Tran Vo D, Tran K, Tran T-L, Pérez-Irizarry V, Carrasquillo-Nieves K, **Montalvo-Rodríguez R**, Yao AI, Albeck JG, Facciotti MT, Nord AS, Furrow RE. 2020. Draft genome sequences of 16 halophilic prokaryotes isolated from diverse environments. *Microbiol Resour Announc* 9:e01540-19. <https://doi.org/10.1128/MRA.01540-19>.

Banciu HL, Enache M, **Montalvo-Rodríguez R**, Oren A, Ventosa A. 2019. Ecology and physiology of halophilic microorganisms - Thematic issue based on papers presented at Halophiles 2019 - 12th International Conference on Halophilic Microorganisms, Cluj-Napoca, Romania, 24-28 June, 2019. *FEMS Microbiol Lett*. 2019;366(23)

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- Current Microbiology (Springer)
- Journal of Basic Microbiology (Wiley)
- International Journal of Systematic and Evolutionary Microbiology

(the official publication of the International Committee on Systematics of Prokaryotes and the Bacteriology and Applied Microbiology Division of the International Union of Microbiological Societies)

- Bergey's Manual of Systematics of Archaea and Bacteria (John Wiley & Sons, Ltd.)
- Microbial Ecology (Springer)
- Life (MDPI)
- Catalysts (MDPI)
- Marine Drugs (MDPI)
- Molecules (MDPI)
- Frontiers in Pharmacology
- Cellulose (Springer)
- Microbial Cell Factories (Springer Nature)
- Archives of Microbiology (Springer Nature)
- Marine Life Science & Technology (Springer)
- FEMS Microbiology Letters
- Extremophiles
- Frontiers in Bioscience-Elite

Guest Editor:

Special Issue "Proceedings from the 11th Conference on Halophilic Microorganisms Halophiles 2016" Life (MDPI)

http://www.mdpi.com/journal/life/special_issues/halophiles_2016

Special Issue "Genetics of Halophilic Microorganisms"
Genes (MDPI)

http://www.mdpi.com/journal/genes/special_issues/halophilic_microorganisms

THEMATIC ISSUE ON Halophilic Microorganisms

FEMS Microbiology Letters (<https://academic.oup.com/femsle>)

<http://www.halophiles.eu/thematic-issue-on-halophilic-microorganisms/>

ORAL PRESENTATIONS, POSTERS AND WORKSHOPS

May 2016 (Posters) Presented at the 11th International Conference on Halophilic Microorganisms "Halophiles 2016"

Functional Gene Diversity of the Cabo Rojo Salterns Using Metagenomics

Mr. Ricardo Couto (University of Puerto Rico-Mayagüez Campus)

Ms. Nicole Feliberty (University of Puerto Rico-Mayagüez Campus)

Ms. Daliana Campos (University of Puerto Rico-Mayagüez Campus)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

***Halorubrum tropicale* sp. nov., a Novel Halophilic Archaeon Isolated from the Solar Salterns in Cabo Rojo, Puerto Rico**

Ms. Sofía María Saavedra Collado (University of Puerto Rico-Mayagüez)
Mr. Rubén L. Sánchez-Nieves (University of Puerto Rico-Mayagüez)
Mr. Roy Joel Rodríguez-Carrero (University of Puerto Rico-Mayagüez)
Prof. Antonio Ventosa (University of Sevilla, Department of Microbiology and Parasitology, Faculty of Pharmacy)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez)

***Haloarcula rubripromontorii*, sp. nov., a Novel Halophilic Archaeon from the Cabo Rojo Solar Salterns.**

Mr. Roy Joel Rodríguez-Carrero (University of Puerto Rico-Mayagüez Campus)
Mr. Rubén L. Sanchez-Nieves (University of Puerto Rico-Mayagüez Campus)
Ms. Sofia Maria Saavedra-Collado (University of Puerto Rico-Mayagüez Campus)
Prof. Antonio Ventosa (University of Sevilla, Department of Microbiology and Parasitology, Faculty of Pharmacy)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Difference in Glycosyl Hydrolase Expression at Different Carbon Sources in the Haloarcheon *Halogeometricum borinquense*; a Possible Carbon Catabolite Repression System

Mr. Aldo Salazar-Morales (University of Puerto Rico-Mayagüez Campus)
Ms. Mara Cuebas-Irizarry (University of Puerto Rico-Mayagüez Campus)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Isolation and Purification of Agarases from Marine, Saline and Hypersaline Environments in Puerto Rico

Mr. Miguel X. Oyola-Rivera (University of Puerto Rico-Mayagüez Campus)
Ms. Giovanna Santiago-Pieretti (University of Puerto Rico-Mayagüez Campus)
Mr. Bryan J. Rodríguez-Colón (University of Puerto Rico-Mayagüez Campus)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Microbial Diversity of Hypersaline Fraternidad Lagoon in Cabo Rojo, Puerto Rico

Ms. Jariselle Pietri-Toro (University of Puerto Rico-Mayagüez)
Ms. Coralís Rodríguez-García (University of Puerto Rico-Mayagüez)
Mr. Ricardo Couto-Rodríguez (University of Puerto Rico-Mayagüez)
Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez)

Metagenomic Analysis of Prokaryotic Communities from Hypersaline Environments in Cabo Rojo, Puerto Rico

Ms. Coralís Rodríguez García (University of Puerto Rico-Mayagüez Campus)

Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Diversity of Halophilic Archaeal Populations Capable of Growing in Simple Carbon Sources from the Solar Salterns of Cabo Rojo, Puerto Rico

Mr. Rubén L. Sánchez-Nieves (University of Puerto Rico-Mayagüez Campus)

Mr. Roy Joel Rodríguez-Carrero (University of Puerto Rico-Mayagüez Campus)

Ms. Sofía María Saavedra-Collado (University of Puerto Rico-Mayagüez Campus)

Dr. R. Thane Papke (University of Connecticut, Department of Molecular and Cell Biology, 06269 Storrs)

Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Molecular and Biochemical Characterization of a Novel α -glucosidase (MalA) from the Halophilic Archaeon *Haloquadratum walsbyi*

Ms. Mara Cuebas-Irizarry (University of Puerto Rico-Mayagüez Campus)

Mr. Ricardo Irizarry-Caro (University of Texas Southwestern Medical Center)

Mrs. Carol López-Morales (University of Puerto Rico-Mayagüez Campus)

Dr. Rafael Montalvo-Rodríguez (University of Puerto Rico-Mayagüez Campus)

Diversity of Halophilic and Halotolerant Prokaryotic Endophytes from the Mangrove *Avicennia germinans* at the Solar Salterns of Cabo Rojo, Puerto Rico

Ms. Jéysika Zayas-Rivera, (University of Puerto Rico-Mayagüez Campus)

Ms. Jessalyn Pla-Tenorio, (University of Puerto Rico-Mayagüez Campus)

Mr. Cristian Vázquez-Collado, (University of Puerto Rico-Mayagüez Campus)

Dr. Rafael Montalvo-Rodríguez, (University of Puerto Rico-Mayagüez Campus)

May 2015 (Poster)

Mara F. Cuebas-Irizarry, L. M. Rodríguez-Dávila, J. M. Pietri-Toro, M.C. Abreu-Díaz, **R. Montalvo- Rodríguez**. “Initial Studies to Understand Regulation of Glycosyl Hydrolase Expression in the Halophilic Archaeon *Halogeometricum borinquense*” American Society for Microbiology – 115th General Meeting, May 2015, New Orleans, LA.

July 2014 (Poster)

Mara F. Cuebas-Irizarry, Eduardo L. Tosado-Rodríguez, Miguel X. Oyola-Rivera, Robertson Thane Papke and **Rafael Montalvo-Rodríguez**. “Characterization of Microbial Populations Responsible for Nitrification at The Solar Salterns of Cabo Rojo, Puerto Rico” International Union for Microbiological Societies Congress (IUMS 2014), July 2014, Montreal, Canada.

Coralis del M. Rodríguez-García and **Rafael Montalvo-Rodríguez**. “Microbial diversity of hypersaline lagoons in Puerto Rico using culture-independent techniques”. International Union for Microbiological Societies Congress (IUMS 2014), July 2014, Montreal, Canada.

Miguel X. Oyola-Rivera¹, Eduardo L. Tosado Rodríguez¹, **Rafael Montalvo-Rodríguez**¹

¹University of Puerto Rico, Mayagüez Campus, Biology Department. “**ISOLATION AND PURIFICATION OF AGARASES FROM THE CABO ROJO SALTWORKS**”

International Union for Microbiological Societies Congress (IUMS 2014), July 2014, Montreal, Canada.

Eduardo L. Tosado-Rodríguez, **R. Montalvo-Rodríguez** “Autotrophic Lifestyle at Hypersaline Environments: abundance and diversity of the biotin dependent acetyl CoA carboxylase using culture dependent and culture independent approaches” International Union for Microbiological Societies Congress (IUMS 2014), July 2014, Montreal, Canada.

June 2013 (Poster)

Eduardo L. Tosado-Rodríguez, M. X. Oyola, J. Clavel, A. Acevedo, **R. Montalvo-Rodríguez** “Determination of Microbial Populations Responsible for Ammonia Oxidation at Saline Environments in Cabo Rojo, Puerto Rico”. **Halophiles Conference 2013 in Storrs, CT, USA (Selected best poster presentation of the conference)**

Santiago-Correa, J., **R. Montalvo-Rodríguez**. Glycosyl Hydrolase Expression in the Halophilic Archaeon *Halogeometricum borinquense*: a Signature of Catabolite Repression-like System. **Halophiles Conference 2013 in Storrs, CT, USA**

May 2013 (poster)

Santiago-Correa, J., Badillo, K.M., **R. Montalvo-Rodríguez**. Partial Characterization of a beta-glucosidase from *Halogeometricum borinquense*. **ASM 113th General Meeting Meeting Denver, Colorado.**

Tosado-Rodríguez E., M. X. Oyola, J. Clavell, L. Alemán, **R. Montalvo-Rodríguez** “Characterization of Microbial Populations Responsible for Ammonia Oxidation in Saline Environments from Cabo Rojo, Puerto Rico”. **ASM 113th General Meeting Meeting Denver, Colorado.**

Miguel X. Oyola, J. Clavell, L. Alemán, Eduardo L. Tosado-Rodríguez, **R. Montalvo-Rodríguez** “Isolation and Characterization of Ammonia Oxidizing Organisms in Marine, Saline and Hypersaline Environments”. **ASM 113th General Meeting Meeting Denver, Colorado.**

April 2013 (Poster)

Eduardo L. Tosado-Rodríguez, M. X. Oyola, J. Clavell, L. Alemán, **R. Montalvo-**

Rodríguez “Characterization of Microbial Populations Responsible for Ammonia Oxidation in Saline Environments from Cabo Rojo, Puerto Rico”. **1st Puerto Rico Society of Microbiologists Symposium “Passing the Torch of Research and Ethics to the Next Generation” Puerto Rico Society of Microbiologists Symposium (ASM Branch)**

March 2013 (Poster)

Eduardo L. Tosado-Rodríguez, M. X. Oyola, J. Clavell, L. Alemán, **R. Montalvo-Rodríguez** “Characterization of Microbial Populations Responsible for Ammonia Oxidation in Saline Environments from Cabo Rojo, Puerto Rico”. **33th Puerto Rico Interdisciplinary Scientific Meeting (PRISM)**

February 2013 (Poster)

Eduardo L. Tosado-Rodríguez, **R. Montalvo-Rodríguez** “Characterization of Microbial Isolates Capable of Ammonia Oxidation and Autotrophic Growth of Saline Environments from Cabo Rojo, Puerto Rico”. **North East Alliance Science Day 6th NEA Science Day**

October 2012 (Poster)

Eduardo L. Tosado-Rodríguez, **R. Montalvo-Rodríguez** “Characterization of Microbial Populations Responsible for Ammonia Oxidation in Saline Environments from Cabo Rojo, Puerto Rico”. **NASA Puerto Rico Space Grant Consortium**

March 2009 (Poster)

Rivera Calo J, G. Jiménez and **R. Montalvo-Rodríguez**. Extremophilic Diversity in Mangrove’s Rhizosphere; a source of putative novel microorganisms with biotechnological potential. **Biominds Research Day UPRM**

Velazquez A., G. Dávila, P. Sánchez and **R. Montalvo-Rodríguez**. Recombinant Expression of Glycosyl Hydrolase Genes from Hyperthermophiles Isolated from Puerto Rico and Their Possible Role in Biotechnology. **Biominds Research Day UPRM**

November 2008 (Poster)

Rivera Calo J., G. Jimenez and **R. Montalvo-Rodríguez**. Extremophilic Diversity in Mangrove’s Rhizosphere; a source of putative novel microorganisms with biotechnological potential. Annual Biomedical Research Conference for Minority Students.

October 2008 (Oral Presentation by Dr. Sandra Maldonado)

Maldonado S. and Rafael Montalvo (co-PI). Endophytic Microbial Diversity in Sea Grass Beds of *Thalassia testudinum* from Cabo Rojo, Lajas and Vieques, Puerto Rico. 3rd Symposium for Coastal and Marine Applied Research. Sea Grant at UPRM

October 2008 (Poster)

Castro Z, C. Rodríguez and **R. Montalvo-Rodríguez**. Distribution of Integrins Among Extreme Environments in Puerto Rico. **AAAS General Meeting Rio Piedras PR**

Lopez, C. and **R. Montalvo-Rodríguez**. Catabolite Repression in the Extremely Halophilic Archaea. **AAAS General Meeting Rio Piedras PR**

September 2008 (Poster)

Sánchez-Porro C, R. de la Haba, N. Soto-Ramírez, M. Carmen-Márquez, **R. Montalvo-Rodríguez** and A. Ventosa. *Kushneria aurantia* gen. nov. sp. nov. A novel member of the family Halomonadaceae. **Extremophiles 2008, Cape Town South Africa.**

August 2008 (Poster)

Maldonado-Ramírez, S; **R. Montalvo (6th author)**. Interactions among the endophytic microflora of foliar tissue of *Thalassia testudinum*. Mycological Society of America. State College, Pennsylvania

June 2008 (Poster)

C. Sánchez-Porro, N. Soto Ramírez, **R. Montalvo-Rodríguez**, and A. Ventosa. *Halobacillus mangrovi*, *Kushneria (Halomonas) avicenniae* y *Kushneria aurantia*, nuevas bacterias halófilas aisladas del manglar negro. **XII Reunión del Grupo de Taxonomía Filogenia y Biodiversidad Microbiana. Tarragona, España**

May 2008 (Poster)

C. Sánchez-Porro, N. Soto-Ramírez, **R. Montalvo-Rodríguez**, and A. Ventosa. Bacterias halófilas en las salinas de Cabo Rojo, Puerto Rico. VIII Reunión Red Nacional Microorganismos Extremófilos. **Universidad de Sevilla España**

May 2008 (Poster)

Mara Couto-Rodríguez, Agnes Martínez, Lorena Cuebas, Sandra Maldonado-Ramírez and **R. Montalvo-Rodríguez** DIVERSITY OF PROKARYOTIC ENDOPHYTES IN SEA GRASS BEDS OF *THALASSIA TESTUDINUM* FROM CABO ROJO, LAJAS AND VIEQUES, PUERTO RICO **108th ASM General Meeting 2008 in Boston, MA**

March 2008

Seminar: Microbial Diversity Associated with the Leaf Surface of *Avicennia germinans* at the Solar Salterns of Cabo Rojo. Department of Biology Seminar Series

May 2007 (Posters)

Nelís Soto Ramírez, Ernie X. Pérez Karinna Amodóvar, and **R. Montalvo Rodríguez**

A survey of halophilic aerobic prokaryotes associated to the leaf surface of *Avicennia germinans* at the Solar Salterns of Cabo Rojo, Puerto Rico **107th ASM General Meeting 2007 in Toronto, Canada**

Mara Couto-Rodríguez, Agnes Martínez, Lorena Cuebas, Sandra Maldonado-Ramírez and **R. Montalvo-Rodríguez** ENDOPHYTIC PROKARYOTIC DIVERSITY IN SEA GRASS BEDS OF *THALASSIA TESTUDINUM* FROM CABO ROJO, LAJAS AND VIEQUES, PUERTO RICO **107th ASM General Meeting 2007 in Toronto, Canada**

Aned M. Burgos Figueroa, Joan Marcano, Patricia Sánchez, Carlos Torres and **Rafael Montalvo Rodríguez** Bacterial Diversity Present at the Alkaline Thermal Waters of Coamo, Puerto Rico **107th ASM General Meeting 2007 in Toronto, Canada**

February 2007

Seminar: Extremophiles from Puerto Rico. SEMI University of Puerto Rico Mayaguez

September 2006 (Poster)

Aned M. Burgos Figueroa, Zilka Varela Torres, Joan Marcano, Carlos Torres and Rafael Montalvo Rodríguez. DETERMINATION OF THE PROKARYOTIC COMMUNITY OF THE COAMO'S ALKALIPHILIC THERMAL WATERS. **Extremophiles 2006 conference in Brest, France**

May 2006 (Poster)

Nelís Soto Ramírez, Karinna Amodóvar, and Rafael Montalvo Rodríguez MODERATELY HALOPHILIC AEROBIC PROKARYOTIC DIVERSITY PRESENT IN THE LEAF SURFACE OF *AVICENNIA GERMINANS* **106th ASM General Meeting 2006 in Florida, USA.**

May 2006 (Poster)

Aned M. Burgos Figueroa, Zilka Varela Torres, Joan Marcano, Carlos Torres and Rafael Montalvo Rodríguez. DETERMINATION OF THE PROKARYOTIC COMMUNITY OF THE COAMO'S ALKALIPHILIC THERMAL WATERS. **106th ASM General Meeting 2006 in Florida, USA.**

July 2005 (Poster)

Greethen Díaz-Muñoz and **Rafael Montalvo Rodríguez**. Determination of the Fungal Diversity Present at a Hypersaline Environment in Cabo Rojo, Puerto Rico by Phylogenetic Analysis of Isolates and Environmental rRNA Genes Clones Libraries. **International Union of Microbiological Societies General Meeting in San Francisco.**

September 2004 (Poster)

Aned M. Burgos Figueroa, Natalia Ramos Hernández and **Rafael Montalvo Rodríguez**. STUDY OF THE PROKARYOTIC COMMUNITY OF A SOLAR SALTERN USING 16S rDNA AMPLIFICATION OF TOTAL POPULATION GENOMIC DNA. **Latin American and Caribbean Biotechnology Congress 2004 in Mayagüez, P.R.**

September 2004 (Poster)

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Fungal communities present at the solar salterns of Cabo Rojo, Puerto Rico determined by internal transcribed spacers (ITS) regions of rRNA genes clone libraries. **Extremophiles 2004 Conference in Maryland, USA.**

July 2004

Workshop offered at the Star Partners Conference offered by NASA's "Solar Terrestrial Probes" y "Living With a Star" programs. Workshop offered to High School Teachers from Puerto Rico and the United States at Anchorage, Alaska

May 2004 (Poster)

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Taxonomical Studies of Fungi Isolated from a Hypersaline Environment in Cabo Rojo, Puerto Rico. **103rd ASM General Meeting 2004 in New Orleans, USA.**

April 2004 (Poster)

Iehsus Flores Pérez and **Rafael Montalvo Rodríguez**. DETERMINATION OF GLYCOSYL HYDROLASE ACTIVITY IN HALOPHILIC MICROORGANISMS ISOLATED FROM THE SOLAR SALTURNS OF CABO ROJO PUERTO RICO. **SIGMA Xi IX Poster Day 2004 at UPRM in Mayagüez, P.R.**

Aned M. Burgos Figueroa, Natalia Ramos Hernández and **Rafael Montalvo Rodríguez**. STUDY OF THE PROKARYOTIC COMMUNITY OF A SOLAR SALTERN USING 16S rDNA AMPLIFICATION OF TOTAL POPULATION GENOMIC DNA. **SIGMA Xi IX Poster Day 2004 at UPRM in Mayagüez, P.R.**

Arianne Vicens Rivera, Aned Burgos Figueroa and **Rafael Montalvo Rodríguez**. Characterization of Halophilic Microorganisms Isolated from a Solar Saltern in the Dominican Republic. **SIGMA Xi IX Poster Day 2004 at UPRM in Mayagüez, P.R.**

January 2004

Workshop: "Extremophiles" for the STP/LWS Pre-Service and In-Service Professional Development program. Sponsored by NASA's "Solar Terrestrial Probes" y "Living With a Star" programs. Workshop offered in Springfield, Massachusetts

July 2003

Workshop for High School Teachers from Puerto Rico and the US; **Title “Extremophiles, in search for life in other planets”**. **Sponsored by NASA - Goddard Space Flight Center**. Workshop offered in San Juan, PR.

June 2003

Workshop for High School Teachers; Title “The importance of **extremophiles** in Microbiology”. Sponsored by Bristol-Myers Squibb. Workshop offered at the University of Puerto Rico Mayaguez Campus.

April 2003 (Poster)

Tania Rodríguez, Aned Burgos Figueroa, and **Rafael Montalvo Rodríguez**. ISOLATION AND CHARACTERIZATION OF A HALOPHILIC MICROORGANISM FROM THE SOLAR SALTERNS OF CABO ROJO, PUERTO RICO. **SIGMA Xi IX Poster Day 2003 at UPRM in Mayagüez, P.R.**

Suzette Vélez Rivera, Myrna Ortiz Ruiz, Joaquín Rodríguez Torres and **Rafael Montalvo Rodríguez**. ISOLATION AND CHARACTERIZATION OF THE MICROFLORA PRESENT AT THE UNDERGROUND THERMAL WATERS OF COAMO, PUERTO RICO. **SIGMA Xi IX Poster Day 2003 at UPRM in Mayagüez, P.R.**

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Characterization of Filamentous Fungi from the Solar Salterns of Cabo Rojo, Puerto Rico. **SIGMA Xi IX Poster Day 2003 at UPRM in Mayagüez, P.R.**

Marian Quiñones Rodríguez, Wildaomaris Gonzalez Ruiz, and **Rafael Montalvo Rodríguez**. HALOPHILIC MICROFLORA PRESENT IN THE SALT CRYSTALS ON THE *LAGUNCULARIA RACEMOSA* AND *AVICENNIA GERMINANS*'S LEAVES. **SIGMA Xi IX Poster Day 2003 at UPRM in Mayagüez, P.R.**

October 2002 (Poster)

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Isolation and Characterization of Filamentous Fungi from the Solar Salterns of Cabo Rojo, Puerto Rico **Latin American and Caribbean Biotechnology Congress 2002 in Mayagüez, P.R.**

June 2002

Workshop for High School Teachers; Title “Introducing Biotechnology in the classroom”. Sponsored by Bristol-Myers Squibb. Workshop offered at the University of Puerto Rico Mayaguez Campus.

April 2002 (Poster)

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Isolation and Characterization of Filamentous Fungi from the Solar Salterns of Cabo Rojo, Puerto Rico. **SIGMA Xi IX Poster Day 2002 at UPRM in Mayagüez, P.R.**

January 2002 (Poster)

Greetchen M. Díaz-Muñoz and **Rafael Montalvo-Rodríguez**. Isolation and Characterization of Filamentous Fungi from the Solar Salterns of Cabo Rojo, Puerto Rico. **Industrial Advisory Board Meeting 2002 in Mayagüez, P.R.**

May 1999

Haseltine C., R. Montalvo-Rodriguez, E. Bini, A. Carl and P. Blum. (Poster presentation). A global gene regulatory system of the **hyperthermophilic archaeon *Sulfolobus solfataricus***. 99th General Meeting of the American society for Microbiology. Chicago, IL.

April 1996

Poster Presentation at the Sigma Xi Student Day
University of Puerto Rico, Mayaguez Campus

March 1996

Oral presentation at the Third Congress on Biotechnology (Caribbean Society of Biotechnology)
Title: Taxonomic studies on halobacteria from the solar salterns of Cabo Rojo, Puerto Rico

March 1996

Oral Presentation at the National Alliance of Research Centers of Excellence. Eighth Annual Conference at Nashville, Tennessee. Title: Taxonomic studies on halobacteria from the solar salterns of Cabo Rojo, Puerto Rico

May 1994

Poster Presentation at the American Society for Microbiology (ASM) Annual Convention at Las Vegas, Nevada. Title: Isolation of Halophilic Bacteria from the Solar Salterns of Cabo Rojo, Puerto Rico.

March 1994

Oral Presentation at the American Chemical Society (ACS) Technical Meeting at UPRM. Title: Different types of Halophilic Bacteria in the Salterns of Cabo Rojo.

May 1993

Oral Presentation at Río Grande Plantation at Río Grande, Puerto Rico.RCMS Program. Title: Isolation of Halophilic Bacteria from the solar Salterns of Cabo Rojo, Puerto Rico.

GRADUATE STUDENTS SUPERVISED AND THESES TITLES

Greetchen Díaz Muñoz 2006. *Fungal Diversity Present at a Hypersaline Environment in Cabo Rojo, Puerto Rico, Determined by Characterization of Isolates and Analysis of Environmental rRNA Genes Clones Libraries.*

Nelis Soto Ramírez 2007. *A Survey of Halophilic Aerobic Prokaryotes Associated to the Leaf Surface of Avicennia Germinans at the Solar Salterns of Cabo Rojo, Puerto Rico.*

Aned Burgos Figueroa 2007. *A Survey of the Alkalithermophilic Prokaryotic Diversity from the Hot Spring Waters in Coamo Puerto Rico.*

Mara Couto Rodríguez 2009. *Endophytic Prokaryotic Diversity Associated with Sea Grass Beds of Thalassia testudinum from Cabo Rojo, Lajas, and Vieques, Puerto Rico.*

Carol López Morales 2010. *Initial Approaches Towards the Understanding of Catabolite Repression in Halophilic Archaea and the Characterization of an alpha-glucosidase (Maltase) from Haloquadratum walsbyi.*

Gina Jiménez Santiago. 2011. *Halophilic microbial diversity associated with the roots of black mangrove, Avicennia germinans*

Zenaida Castro Díaz. 2012. *Detection of Integron-encoded Integrases in Environments with Moderate Anthropogenic Impact from Puerto Rico*

Eduardo L. Tosado Rodríguez 2016. *Phylogenetic and Taxonomical Characterization of Microbial Populations Putatively Capable of Autotrophic Ammonia Oxidation from Marine, Saline and Hypersaline Environments at the Cabo Rojo Salterns, Puerto Rico.*

Coralis del M. Rodríguez García 2016. *Analysis of Prokaryotic Communities Using 16S rDNA Pyrosequencing from Hypersaline Environments at Cabo Rojo, Puerto Rico*

Ruben Sanchez Nieves. 2017. *Diversity of the Cabo Rojo solar saltern utilizing culture-dependent methods and description of two novel species*

Mara Cuebas Irizarry. 2017. *Initial studies to understand glycosyl hydrolase expression and regulation in the Halophilic archaeon Halogeometricum borinquense*

Miguel Oyola Rivera. 2017. *Partial Purification of Agarases from Halophilic Microorganisms Isolated from Marine and Hypersaline Environments in Puerto Rico.*

Ricardo L. Couto Rodríguez. 2018. *Analysis of the Metabolic and Microbial Diversity of the Solar Salterns in Cabo Rojo using Metagenomics.*

Patricia A. Reyes González. 2018. *Microbial Diversity of Puerto Rican Artisan Cheese Assessed by Metagenomics.*

Jéysika Zayas Rivera. 2018. *Microbial Diversity of Halotolerant and Halophilic Endophytes from the Mangrove Avicennia germinans Located at the Solar Salterns of Cabo Rojo, Puerto Rico*

AWARDS

2003

Ten Outstanding Young People of Puerto Rico Award (TOYP) in the Science and Technology field. Award granted by the Junior Chamber of Puerto Rico at San Juan, Puerto Rico

1997

GEMS Scholarship Epscor (Research Award)

1990 to 1993

Honor Student of the Arts and Sciences Faculty at the University of Puerto Rico, Mayaguez Campus

1990 to 1993

University of Puerto Rico Honor Roll

ORGANIZATIONS

2005 to 2008

Member of Society for Applied Microbiology

2004 to 2009

Member of International Society for Extremophiles

2004 to 2006

Member of International Society for Salt Lake Research

1994 to 2020

Member of the American Society for Microbiology

CURRICULUM VITAE

NAME	Alberto R. Puente Rolón	
CITIZENSHIP	U.S.A.	
PERMANENT ADDRESS	P.O. Box 1023 Arecibo, PR. 00613-1023 Telephone: 787-449-6254 E-mail: alberto.puente@upr.edu Research Gate ID: Alberto R. Puente-Rolón Physical address: Urb. El Paraíso, 21 Querubín Arecibo, P.R. 00614	
WORK ADDRESS	Universidad de Puerto Rico Recinto Universitario de Mayagüez Departamento de Biología. Carr. 108, Barrio Miradero Km 1.3 (entrada hacia el Zoológico de Puerto Rico) Mayagüez, Puerto Rico	
BIRTH DATE AND PLACE	November 26, 1970 Ponce, Puerto Rico	
EDUCATION	Doctor of Philosophy Tropical Ecology Department of Biology University of Puerto Rico, Rio Piedras Campus Course Work: 58 credits Thesis: 06 credits Master of Science Biology Department of Biology University of Puerto Rico, Mayagüez Campus Course Work: 24 credits Research Hours: 06 credits	May, 2012 May, 1999

Bachelor of Science Biology Department of Biology University of Puerto Rico, Mayagüez Campus Course Work:	December, 1994 147 credits
High School Dr. Pila Ponce, Puerto Rico	May 1988

GRADUATE COURSE WORK

Doctor of Philosophy:
Advance Ecology, Biometry, Tropical Biology, Natural History of Puerto Rico, Landscape Ecology, Invertebrates of Puerto Rico, Plant Taxonomy, Doctoral Seminar, Advance Research, Stable Isotope in Ecology, ArcGIS use in Environmental Sciences

Dissertation Research:
Reproductive Ecology, Fitness and Management of the Puerto Rican Boa (*Epicrates inornatus*, Boidae)

Master of Science:
Population Ecology, Research Methods, Biometry, Plant Ecology, Behavioral Ecology, Population Genetics, Graduate Seminar, Specials Studies in Biology, Zoogeography, Herpetology

Thesis Research:
Foraging Behavior, Home Range, Movements and Activity Patterns of *Epicrates inornatus* (Boidae) at Mata de Plátano Reserve in Arecibo, Puerto Rico.

WORKSHOPS

17th Best Practices Conference on Teaching and Learning (BPC): Practical Approaches in STEM Education and	October, 2018
Faculty workshop: Supporting applicants for prestigious fellowships Anfiteatro 2, building Domingo Marrero Nieves (DMN) of Facultad de Estudios Generales, UPR Río Piedras	August, 2018
Writing Successful Grant Proposal	August, 2018

16th Best Practices Conference on Teaching and Learning	March, 2018
Amphibian Husbandry Training Course Amphibian Ark, ZOODOM Santo Domingo, RD	February, 2012
Workshop Guide to Minimizing Impacts of Development to Marine and Coastal Resources: From Project Design to Permitting NOAA Coral Reef Conservation Program San Juan, P. R.	February, 2010
Workshop in Management of Creeks and Rivers Implementation of management strategies on creeks and rivers. Department of Natural and Environmental Resources San Juan, P.R.	March, 2009
Workshop in Program Distance and Patch Occupancy North Carolina State University Department of Natural and Environmental Resources San Juan, P.R.	August, 2008
Workshop in Restoring Tidal Hydrology, Restoring Down Barriers National Oceanic and Atmospheric Administration Restoration Center and Coastal Services Center Charleston, South Carolina	January 2008
Workshop in Radio-telemetry Techniques (<i>Instructor</i>) Fisheries Research Laboratory Department of Natural and Environmental Resources Cabo Rojo, P.R.	November, 2007
Workshop in Mark Software Use University of Puerto Rico/NC State University Mayagüez Campus	May, 2007
Workshop in Ecology and Management of Wetlands and Waterbirds Mississippi State University Department of Natural and Environmental Resources San Juan, P.R.	December, 2006
Workshop in Radio-telemetry Techniques Mississippi State University Tall Timbers Research Station, Florida	July, 1995

Workshop in Marine Turtles Research and Management April, 1994
University of Puerto Rico
Mayagüez Campus

FELLOWSHIPS

U. S. Fish and Wildlife Service Summer Faculty Fellowship Program. August, 2013
Panama City, Florida

SHORT COURSES

Project Leaders Course August, 2007
Increase effectiveness in developing and managing projects
financed through Federal Assistance grant programs.
U.S. Fish and Wildlife Service
Department of Natural and Environmental Resources
San Juan, P.R.

Ecología de Sistemas Amazónicos May, 2005
Organization for Tropical Studies
Iquitos, Perú

Biodiversity Assessment and Monitoring for Adaptive June, 2001
Management Course
Smithsonian Institution
Washington, U. S.

Environmental Leadership Course September, 2001
Smithsonian Institution
Washington, U.S.

Tropical Reef Ecology Course August, 2001
North Carolina State University
Gladstone, Australia

GIS and GPS Techniques Applied to Biology August, 1996
University of Puerto Rico
Mayagüez Campus

EXPERIENCE

University of Puerto Rico Mayaguez Campus

Associate Professor

August 2016-Present

Taught lectures

Taught lecture and laboratory sections in Evolution, General Biology I, General Biology II, Animal Behavior, Behavioral Ecology, Ornithology.

Interamerican University of Puerto Rico

MSEIP Proposal Director

January 2016-June 2016

Improvement of the Effectiveness of the Biology and Biotechnology Program through the Integration of Active Learning and Undergraduate Research Experiences in the Curriculum

Organize and coordinate meetings with faculty, students and other project participants to discuss progress in the attainment of project objectives

Supervise, evaluate and approve all budget expenditures during the project

Communicate with and send reports to the U.S. Department of Education as needed/required

Work with the support of Inter American University's Central Administration, External Resources Office and Internal Audit Office to ensure compliance with the requirements of the agency.

Interamerican University of Puerto Rico

Assistant Professor

August 1999-June 2016

Taught lectures assigned by the Director of the Science and Technology Department

Taught lecture and laboratory sections in Evolution, Zoology, Biostatistics, Research Methods, The Man and its Environment, General Biology I, General Biology II, Science, Technology & Environment.

University of Massachusetts Boston, International Program

Winter Section Assistant Professor

January 2015, 2014, 2013, 2012

Taught lectures for the Caribbean Tropical Ecology Course in Puerto Rico

Taught lectures on topics of particular focus during the course include the following areas: major ecosystems of the neotropics, evolution of tropical island faunas, history of disturbance and land use in the Caribbean and conservation of Caribbean species

Department of Natural and Environmental Resources

Terrestrial Resources Division
San Juan, P.R.

Project Leader

September 2008-July 2010

Coordinate activities of the Project Technical Guidance for Wildlife Conservation in Puerto Rico.

Write scientific proposals that meeting the Wildlife Restoration Program requirements to obtain financial support for the project.

Coordinate duties of the team of 5 biologists.

Provide technical assistance on wetland restoration projects to government agencies (e.g., U.S. Fish and Wildlife Service), non-profit organizations (e.g., Puerto Rico Conservation Trust), and private entities.

Assist other PRDNER units (i.e., Division of Reserves and Refuges, Coastal Zone, and the Bureau of Forest Service) in the planning and implementation of wetland restoration projects.

Assist the PRDNER Water Plan Office in the development of a protocol to rank rivers in terms of their overall ecological integrity (*Heritage Rivers Program*).

Assist the PRDNER Bureau of Consultations and Endorsements in the development of a protocol based on biological, physical, and geomorphologic features for identification of small streams that are not included in topographic maps.

Member of the Interagency Habitat Conservation Committee (PRDNER, U.S. Fish and Wildlife Service, U.S. Natural Resources Conservation Service, and U.S. Forest Service): A joint effort to implement conservation practices on private lands as dictated by federal programs (e.g., Partners for Fish and Wildlife, Coastal, Stewardship, and Farm Bill Programs).

Work with landowners to protect and conserve habitat for trust species (e.g., the endangered Puerto Rican Plain Pigeon and Puerto Rican Parrot).

Evaluate environmental documentation (e.g., Environmental Assessments and Environmental Impact Statements) regarding development projects from the wildlife perspective and provide recommendations for mitigation.

Assist in ecological assessments of properties proposed for acquisition by PRDNER.

Participate in the committee for the designation of the critical habitat for the Coquí Llanero (*Eleutherodactylus juanariveroi*).

Department of Natural and Environmental Resources

Terrestrial Resources Division
San Juan, P.R.

September 2005-August 2008

Wildlife Biologist

Biologist working in activities of the Project Technical Guidance for Wildlife Conservation in Puerto Rico.

- Provide technical assistance on wetland restoration projects to government agencies (e.g., U.S. Fish and Wildlife Service), non-profit organizations (e.g., Puerto Rico Conservation Trust), and private entities.
- Assist other PRDNER units (i.e., Division of Reserves and Refuges, Coastal Zone, and the Bureau of Forest Service) in the planning and implementation of wetland restoration projects.
- Assist the PRDNER Water Plan Office in the development of a protocol to rank rivers in terms of their overall ecological integrity (*Heritage Rivers Program*).
- Assist the PRDNER Bureau of Consultations and Endorsements in the development of a protocol based on biological, physical, and geomorphologic features for identification of small streams that are not included in topographic maps.
- Member of the Interagency Habitat Conservation Committee (PRDNER, U.S. Fish and Wildlife Service, U.S. Natural Resources Conservation Service, and U.S. Forest Service): A joint effort to implement conservation practices on private lands as dictated by federal programs (e.g., Partners for Fish and Wildlife, Coastal, Stewardship, and Farm Bill Programs).
- Work with landowners to protect and conserve habitat for trust species (e.g., the endangered Puerto Rican Plain Pigeon and Puerto Rican Parrot).
- Evaluate environmental documentation (e.g., Environmental Assessments and Environmental Impact Statements) regarding development projects from the wildlife perspective and provide recommendations for mitigation.
- Assist in ecological assessments of properties proposed for acquisition by PRDNER.
- Participate in the committee for the designation of the critical habitat for the Coquí Llanero (*Eleutherodactylus juanariveroi*).

Interamerican University of Puerto Rico

Arecibo Campus

August 2002-May 2003

Coordinator for the Center of Education, Conservation and Environmental Interpretation.

- Coordinate activities at the university focused in education, conservation and environmental interpretation
- Develop short research projects on microbiology. I developed projects focused on the external bacterial flora of reptile species such as the Puerto Rican giant anole (*Anolis cuvieri*), the Puerto Rican racer (*Alsophis portoricensis*) and the Puerto Rican boa (*Epicrates inornatus*). I also develop a study on cave microbiology, studying the diversity and density of bacteria in a temperature gradient in a hot cave.
- Duties include the development of projects, supervision of students, revision of reports and presentations.
- Participate in the development and establishment of a recycling program at the institution.

Turabo University

Gurabo Campus

January, 2003- May, 2004

Instructor

Taught lectures assigned by the Director of the Biology Department

Taught lecture and laboratory sections in Ecology and Animal behavior

Private Consultant

Ciales, P.R.

July 1998 – August 2005

Wildlife Biologist

Work as private consultant in wildlife species for private landowners

Conduct endangered wildlife and flora surveys in areas where development projects were proposed.

Conduct flora and fauna surveys at the sites where development projects were proposed.

Write technical reports.

Develop of protection protocols for endangered snake species present at the development sites.

North Carolina State University and U.S. Fish and Wildlife Service, Caribbean Field Office.

Arecibo, P.R.

August 1999 – January 2004

Wildlife Biologist

Conduct research is on the effects of translocation as a management technique on the endangered Puerto Rican boa (*Epicrates inornatus*).

Search and capture individuals of *Epicrates inornatus*

Conduct radio telemetry to determine habitat use, movements, and causes of mortality of radio-marked snakes

Use of Global Positioning System unit to obtain positions of radio-marked snakes.

Analyze data and write progress and final reports.

Department of Natural and Environmental Resources

Terrestrial Resources Division

July- 2000- July 2001

San Juan, P.R.

Wildlife Consultant

Serve as consultant to the PRDNER in the status and distribution of the VI Boa (*Epicrates monensis granti*)

Perform night active search to detect the presence of the Virgin Island Boa

Epicrates monensis granti in Puerto Rico in two locations on the east part of the island.
At each localities each founded snaked was capture and measured.
Analyze data and prepare final report .

Cooperative Agreement between University of Puerto Rico and the Department of Natural and Environmental Resources

Ciales and Florida municipalities, P.R.

May 2000 – September 2001

Research Assistant

Participate as biologist in flora surveys

Survey the study areas to locate rare and endangered plant species.
Collect plant specimens, visit to herbariums and plant photography.

Toledo Zoo

Mona Island

January 2001- January 2001

Research Assistant

Participate as biologist in the monitoring activities of populations of the Mona Island Boa (*Epicrates monensis monensis*)

Nighth surveys to look for the Mona Island Boa (*Epicrates monensis monensis*).
Capture and measure of individuals as well as implantation of passive integrated transponders (pit-tags) under the skin of the snakes

North Carolina State University

Ciales

January 1997 – August 1999

Research Assistant

Participate as biologist in the study of habitat suitability of forest in Puerto Rico and the importance of shade coffee plantations to the conservation of native bird fauna.

Identification of endemic, native and migratory birds by sight and ear
Use of mist nets for capture and mark birds with bands
Application of different bird census techniques
Collection and identification of plant species
Conduct studies on plant phenology
Characterize habitat at the study areas
Entry data on excel spreadsheets

Bird Breeding Census Organization

University of Puerto Rico in Humacao

May 1998 – June 1998

Research Assistant

Participate in census in the areas selected by the organization

Conduct bird census following the methodology developed by the organization

Identification of endemic, native and migratory birds by sight and ear

Data entry to summarize data.

University of Puerto Rico

Mayagüez Campus

January 1994 – May 1997

Teaching Assistant.

Taught lectures assigned by the Director of the Biology Department

Taught laboratory lectures in general zoology and biological sciences courses.

Toledo Zoological Society

La Cordillera Natural Reserve

June 1996 – June 1996

Research Assistant.

Participate as biologist in the monitoring activities of populations of the Virgin Island Boa (*Epicrates monensis granti*)

Night surveys, capture and identification of the Virgin Island Boa (*Epicrates monensis granti*).
Implantation of passive integrated transponders (pit-tags) under the skin of the snakes.

C.S.A. Associates

Utua/Arecibo

May 1994 – August 1994

Field Biologist

Collect data related to endangered flora for the preparation of the impacts assessment of the highway PR-10 construction

Conduct search for endemic and endangered flora in the northern karst region

Location of plant populations in aerial photos and topographic maps

Preparation of reports.

University of Puerto Rico

Mayagüez Campus

August 1992 - August 1993

Research Assistant

Participate in visits throughout the island looking for the presence of the PR boa (*Epicrates inornatus*)

Conduct day and night surveys to locate the PR Boa (*Epicrates inornatus*)

Capture and marking of snakes using scale clipping

Take measurements of snout vent length, tail length, weight of the captured snakes

Take fecal and saliva samples of the snakes.

OTHER VOLUNTEER EXPERIENCE

Plant, Invertebrates and Bird Responses to Manipulation of Moist Soil Habitat at Humacao Wildlife Reserve.

2002, Mississippi State University.

Duties included bird census, sampling soil and plant communities, taking measures of pH, salinity, and conductivity at the study sites.

White-chicked Pintail (*Anas bahamensis bahamensis*) Hen and Brood Survival, Movement and Habitat Use in Puerto Rico.

2002, Mississippi State University.

Duties include search for nest, capture and transmitter attachment to adults and newborns and radiotracking of individuals.

Puerto Rican Parrot (*Amazona vittata*) Census.

1999, US Fish and Wildlife Service, Río Grande PR.

Duties include census of the Puerto Rican parrot and nest behavior observations.

Yellow Shoulder Black Bird (*Agelaius xanthomus*) Census.

1998, Puerto Rico Department of Natural and Environmental Resources, Cabo Rojo, PR.

Duties include application of bird census techniques, counting individuals and preparation a report of the results of the census route.

Habitat description and comparison of the Puerto Rican Demon or Guajón, (*Eleuterodactylus cooki*) at two localities in the eastern part of Puerto Rico,

1998, University of Puerto Rico.

Duties include night survey for the specie, capture and toe clipping individuals, tasking snout vent length and habitat measurements for the characterization of the area.

Behavioral ecology of the Puerto Rican giant lizard (*Anolis cuvieri*): Home range and movement patterns in the Cambalache State forest.

1997, University of Puerto Rico.

Duties include night search and capture of the PR Giant lizard, taking measurements of snout vent length and tail.

Movements, Activity Patterns and Habitat Use of the Endangered Yellow Shouldered Blackbird (*Agelaius xanthomus*) in southwestern Puerto Rico.

1997, University of Puerto Rico Mayagüez Campus.

Duties included radiotracking of yellow shoulder black birds, census and behavioral observations.

Wading bird predation in tropical mangrove swamps: implications to juvenile fish population dynamics.

1994, North Carolina State University.

Duties survey of juvenile fish species, bird census and behavioral observations of wading birds.

Leatherback (*Dermochelys coriacea*) Night Patrol

1994, Puerto Rico Department of Natural and Environmental Resources, Añasco, PR.

Duties include night patrol of Tres Hermanos beach and measuring of leatherbacks eggs.

Leatherback (*Dermochelys coriacea*) Night Patrol

1993, US Fish and Wildlife Service, Culebra PR.

Duties include night patrols of Brava and Resaca beach.

Puerto Rican Nightjar (*Caprimulgus noctiterus*) Census.

1990, Puerto Rico Department of Natural and Environmental Resources, Guánica, PR.

Duties include the identification by sound and quantification of individuals during night census.

PEER-REVIEWED PUBLICATIONS

Reynolds, R.G., R.W. Henderson, L.M. Díaz, T.R. Rodriguez-Cabrera, and **A.R. Puente-Rolón**. 2023. Boas of the West Indies: Evolution, Natural History, and Conservation. Comstock Publishing Associates, Ithaca, NY. [[link](#)]

Ríos-López, N., **Puente-Rolón, A. R.**, Angeli, N. F., Vega-Castillo, S., and Dávila-Casanova, D. Amphibians and their history, distribution, and conservation in Puerto Rico and the Virgin Islands. Chapter 21 in Part 5. The Conservation, Demise, and Biogeography of Amphibians in the Caribbean, in Volume 9 of Status and Decline of Amphibians:

Western Hemisphere, edited by Neftalí Ríos-López and Harold Heatwole. Series: Amphibian Biology. Pelagic Press, Exeter, UK. in press.

Alondra M. Díaz-Lameiro, Catalina I. Villamil, Tony Gamble, Brendan J. Pinto, Alexandra Herrera-Martínez, Richard Thomas, Justin M. Bernstein, James E. Titus-McQuillan, Stuart V. Nielsen, Eliacim Agosto-Torres, **Alberto R. Puente-Rolón**, Fernando J. Bird-Picó, Taras K. Oleksyk, Juan Carlos Martínez-Cruzado, Juan D. Daza "A New Species of *Sphaerodactylus* (Gekkota: Sphaerodactylidae) from the Northwest Limestone Region of Puerto Rico," *Ichthyology & Herpetology*, 110(3), 449-465.

Reynolds, R.G., **A.R. Puente-Rolón**, and A.J. Geneva. Natural history of the newly discovered and critically endangered Silver Boa (*Chilabothrus argentum*; Squamata; Boidae). *Caribbean Naturalist*. No. 88 (2022)

López-Hernández, Diana and **Puente-Rolón, Alberto R.** 2021. The effect of Hurricane María on the richness and calling activity of the *Eleutherodactylus* assemblages of the Carite State Forest, Puerto Rico. *Biotropica*. 53: 1664-1672

López-Hernández, Diana, **Puente-Rolón, Alberto R.** and Fernando J. Bird-Picó. 2021. Identification of Habitat Features Associated with Site Occupancy of *Eleutherodactylus richmondi* at the Carite State Forest in Puerto Rico. *Caribbean Naturalist* 84: 1-18.

López-Hernández, Diana, Muñiz-Torres, Aura, Rodríguez-Rivera, Kenneth and **Puente-Rolón, Alberto**. 2020. Behavioral Changes in Tadpoles of the Antillean White Lipped Frog (*Leptodactylus albilabris*) in the Presence of a Predator: Habitat Use Preference and Activity Levels. *Caribbean Journal of Science*. 50. 132. 10.18475/cjos.v50i1.a14.

Aungst, E.R, **A.R. Puente-Rolón**, and R.G. Reynolds. 2020. Genetic diversity in U.S. captive populations of the endangered Puerto Rican Boa, *Chilabothrus inornatus*. *Zoo Biology* 39: 205-213.

Vega-Castillo, S. I., Collazo, J.A., **Puente-Rolón A. R.** and E. Cuevas. Influence of Habitat Structure and Prey Abundance on Occupancy and Abundance of Two Anole Ecomorphs, *Anolis cristatellus* and *Anolis krugi*, in Secondary Karst Forest in Northern Puerto Rico. *Journal of Herpetology*. 54: 107-117.

Santiago-Suliveras, G., Crespo-Zapata, J.D., Ríos-López, N., and **A. R. Puente-Rolón**. 2019, *Xenochrophis vittatus* (Striped Keelback). Diet and Distribution. *Herpetological Review* 50: 604

Reynolds, R.G., **A.R. Puente-Rolón**, A.L. Castle **, M. van de Schoot, and A. J. Geneva. 2018. Herpetofauna of the Cay Sal Bank, Bahamas and phylogenetic relationships of *Anolis fairchildi*, *Anolis sagrei*, and *Tropidophis curtus* from the region. *Breviora* 560 1-19

- Reynolds, R.G., **A.R. Puente-Rolón**, J.P. Burgess, and B.O. Baker. 2018. Rediscovery and a redescription of the Crooked-Acklins Boa, *Chilabothrus schwartzi* (Buden, 1975), comb. nov. **Breviora** 558: 1-16
- Winchell K. M., E. J. Carlen, **A.R. Puente-Rolón** and L. J. Revell. 2017. Divergent habitat use of two urban lizard species. *Ecology and Evolution*: 1-11
- Dowdy K.D., J. A., Collazo, K. Pacifici, J. Brian, **A.R. Puente-Rolón** and A. J. Terando. 2017. Occupancy and Abundance of *Eleutherodactylus* Frogs in Coffee Plantations in Puerto Rico. *Herpetologica*: Vol. 73 (4)
- Dowdy K. E, J.A Collazo, K. Pacifici, J. Brian, **A.R. Puente-Rolón** and A. J. Terando. 2017. Occupancy and index of abundance of *Eleutherodactylus wightmanae* and *E. brittoni* along elevational gradients in west central Puerto Rico. *Caribbean Naturalist* 40: 1-18.
- Puente-Rolón, A. R.**, Vega-Castillo, S. I., Stemberg, L and E. Cuevas. 2016. Diet Comparison of Free-Ranging and Cave-Associated Puerto Rican Boas, *Chilabothrus inornatus* (Reinhardt, 1843) (Reptilia: Boidae), Using Stable Carbon and Nitrogen Isotopes. *Life: The Excitement of Biology* 4(2) : 88-99
- Reynolds, R. G., **Puente-Rolón, A. R.**, Geneva, A.J., Aviles-Rodríguez, K. J. and N.C. Herrmann. 2016. Discovery of a Remarkable New Boa from the Conception Island Bank, Bahamas. *Breviora*, 549(1):1-19
- Reynolds, R. G., Collar, D.C. Pasachnik, S.A., Niemiller, M.L., **Puente-Rolón, A.R.** and L. J. Revell. 2016. Ecological Specialization and Morphological Diversification in Greater Antillean Boas. *Evolution*, In Review.
- Winchell, K. M., Reynolds R.G., Prado-Irwin, S. **Puente-Rolón, A. R.** and L. J. Revell. 2016. Phenotypic Shifts in Urban Areas in the Tropical Lizard *Anolis cristatellus*. *Evolution* 70-5: 1009–1022
- Berentsen, A. R., García-Cancel, J.G., Díaz-Negrón E.M., Díaz-Marrero O.A., **Puente-Rolón, A.R.**, Reed, R.N., and K. C. Vercauteren. 2015. *Boa constrictor*, note on distribution. *Herpetological Review* 46(4):572
- Reynolds, R.G., **Puente-Rolón, A. R.**, Platenberg, R. and Revell LJ_2015. Large divergence and low diversity suggest genetically informed conservation strategies for the endangered Virgin Islands Boa (*Chilabothrus monensis*). *Global Ecology and Conservation* 3:487-502.
- Herrera-Montes, A., Ríos-Dróz, B., **Puente-Rolón, A. R.**, Ríos-López, N. 2015. *Xenochrophis vittatus* (Striped Keelback): Geographic Distribution note. *Herpetological Review* 46(1):64

Reynolds, R.G., **Puente-Rolón, A. R.**, Barandarian, M. and Revell, L. J. 2014. Hispaniolan boa (*Chilabothrus striatus*) on Vieques Island, Puerto Rico. *Herpetology Notes* 7:121-122

Reynolds, R.G., **Puente-Rolón, A. R.**, Koodzaika, K. and T. Butler-Smith. 2013. Isolation and characterization of 23 novel polymorphic microsatellite markers from the endangered Puerto Rican boa (*Chilabothrus inornatus*) using paired-end Illumina shotgun sequencing. *Conservation Genetic Resources*. DOI 10.1007/s12686-013-0016-4

Reynolds, R.G., Niemiller, M. L, Hedges, S.B., Dornburg, A.R., **Puente-Rolon, A. R.**, Revell, L. J. 2013. Molecular phylogeny and historical biogeography of West Indian boid snakes (*Chilabothrus*). *Mol. Phylogenet. Evol.* 68: 461-470

Puente-Rolón, A. R., Reynolds, R. G., Revell, L. J. 2013. Preliminary Genetic Analysis Supports Cave Populations as Targets for Conservation in the Endemic Endangered Puerto Rican Boa (Boidae: *Epicrates inornatus*). *PLoS ONE* 8(5): e63899. DOI:10.1371/journal.pone.0063899

Reynolds, G. R., **Puente-Rolón, A. R.** , Reed, R. N and L. J. Revell. 2012. Genetic analysis of a novel invasion of Puerto Rico by an exotic constricting snake. *Journal of Biological Invasions*. DOI 10.1007/s10530-012-0354-2

Govender Y, Muñoz, M.C., Ramírez Camejo, L.A., **Puente-Rolón, A. R.** , Sternberg, L., Cuevas, E. 2012. Stable isotope analysis of diet for the green Iguana (*Iguana iguana*) in Puerto Rico. *Journal of Herpetology* 46 (2): 167-170.

Vega-Castillo, S. and **A. R. Puente-Rolón**. 2011. *ANOLIS SPECIES, FRUGIVORY*. *Herpetological Review* 42 (4): 598-599.

Crews, Sarah; **Puente-Rolón, A. R.**; Rutstein, Elliot and Gillespie, Rosemary. A comparison of populations of island and adjacent mainland species of Caribbean Selenops (Araneae: Selenopidae) spiders. *Mol. Phylogenet. Evol.* (2009), DOI:10.1016/j.ympev.2009.10.012.

Joglar, Rafael L.; Álvarez, Alberto O.; Mitchell Aide, T.; Barber, Diane; Burrowes, Patricia A.; García, Miguel A.; León-Cardona, Abimael; Longo, Ana V.; Pérez-Buitrago, Néstor; **Puente, Alberto**; Ríos-López, Neftalí; Tolson, Peter J. 2007. Conserving the Puerto Rican herpetofauna. Vol. 4 (4): 327-345.

Ríos-López, Neftalí and **Alberto R. Puente-Rolón**. 2007. *Anolis cuvieri* Reproductive ecology. *Herpetological Review* 38 (1): 73–75.

Puente-Rolón A. R. and F. J. Bird-Picó. 2004. Foraging Behavior, Home Range, Movements and Activity Patterns of *Epicrates inornatus* (Boidae) at Mata de Plátano Reserve in Arecibo, Puerto Rico. *Caribbean Journal of Science*. Vol. 40 No. 3: 343-352

Lugo, A.E., L. Miranda-Castro, A. Vale, T. López, E. Hernández-Prieto, A. García-Martinó, **A.R. Puente-Rolón**, A.G. Tossas, D. A. McFarlane, T. Miller, A. Rodríguez, J. Lundenberg, J. Thomlinson, J. Colón, J.H. Schellekens, O. Ramos and E. Helmer. 2001. Puerto Rican Karst A Vital Resource. General Technical Report WO-65. United States Department of Agriculture, Forest Service. 100 pp.

Puente-Rolón, A. R. 2000. *Arrython exigum*. Diet. *Herpetological Review* 38 (1): 73–75.

Miranda-Castro, L., **A. R. Puente-Rolón** and S. I. Vega-Castillo. 2000. First List of Vertebrates of Los Tres Picachos State Forest, Puerto Rico, with Data on Relative Abundance and Altitudinal Distribution. *Caribbean Journal of Science*, Vol. 36, No. 1-2, 117-126.

Alvarez-Ruíz, M. V. L. Santiago y **A. R. Puente**. 1990. El Bosque de Guánica como recurso de investigación científica. *Acta Científica*. Vol. 4-Num. 1-3, 3-6.

ACADEMIA

Served as graduate committee member and representative of the graduate school in thesis research projects and oral examinations of students from the Department of Biology, University of Puerto Rico, Mayagüez Campus, Interamerican University UMASS Boston and the Metropolitan University.

PROFESSIONAL AFFILIATIONS

Society for the Study of Amphibians and Reptiles
Wildlife Conservation Society
Snake Ecology Group
IUCN Boas and Pythons Specialist Group
DRNA Climate Change Committee
Iniciativa Herpetológica, Inc.
Caribbean Partners for Amphibian and Reptile Conservation
Interagency Wildlife Committee
Caribbean Landscape Conservation Cooperative

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University of Puerto Rico at Mayagüez
Biology Department
P.O Box 9000 Mayagüez, Puerto Rico 00681-9000
Work: (787) 832-4040 exts. 2874, 3944
E-mails: carlos.rios5@upr.edu

Webpages: <http://biology.uprm.edu/facultad/?prof=79>
<http://www.cohemis.uprm.edu/gemspr/>
<http://www.uprm.edu/biology/profs/rios/index.htm>

- Programa MARC: <http://academic.uprm.edu/marc/>
- SACNAS: https://www.youtube.com/watch?v=z2OT1JoWyZE&list=PLSTYnN-PxG8YF57akTqGF4lf7angTWeh_&index=9&app=desktop
- [Curriculum vitae](#)
- ORCID – <https://orcid.org/0000-0002-3685-0838?lang=en>
- LINKEDIN – <https://ca.linkedin.com/pub/carlos-rios-velazquez/55/aaa/5b9>
- RESEARCH GATE – https://www.researchgate.net/profile/Carlos_Rios-Velazquez
- My NCBI (my bibliography): <https://www.ncbi.nlm.nih.gov/myncbi/carlos.rios-velazquez.1/bibliography/public/>
- CienciaPR: <https://www.cienciapr.org/en/user/2246/biblio>

ACADEMIC BACKGROUND

- 2001 – **Post Doctoral Studies**, NIDCR, National Institutes of Health Bethesda, Maryland. Advisor: Dr. Stephen Leppla
- 2000 – **PhD in Bacteriology** University of Wisconsin-Madison, Madison, Wisconsin
Advisor: Dr. Timothy Donohue
- 1993 – **Master in Sciences in Biology** University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico. Advisor: Dr. Carlos Betancourt
- 1989 – **Bachelor in Science in Industrial Microbiology** University of Puerto Rico, Mayagüez Campus, Mayagüez, Puerto Rico.
- 1989 – **Teacher License for Secondary School Education in Sciences** from the Department of Education of PR as a part of a University of Puerto Rico, Mayagüez Campus Program.

GENERAL PROFILE

My undergraduate and graduate training have allowed me to perform research studies with a diverse group of microbes, including fungi, bacteria, and viruses; combined with the molecular and physiological understanding of their biological processes to test their potential for solving problems. The Microbial Biotechnology and Bioprospecting (MBB) laboratory, established by me in 2001 at UPR-Mayagüez seeks the detection of activities with biomedical and biotechnological application from microorganisms in different environments using functional genomics (metagenomics), and combinatorial chemistry technology. Also, the MBB laboratory has focused on using microbiological, biochemical, physiological, and molecular approaches to isolate, and identify cultivable microbes such as purple-non sulfur phototrophic bacteria, cyanobacteria, and bioluminescent bacteria among others. The expertise in metagenomics developed in my laboratory has allowed the developed of libraries from multiple environments such as water reservoirs, rives, caves, hot-spring, compost, snail microbiomes and new research is being done in holothurians. Also, the MBB has been involved in the development of several workshops' metagenomics for investigators, teachers, and faculty in different educational institutions in Puerto Rico. This includes collaborations with colleagues in different disciplines. Through the MBB I had the opportunity to train over 500 students from Biology, Microbiology, Physics and Biotechnology baccalaureates and so far, twenty-one graduate students have obtained their MS. I was part of the NSF funded Microbial Observatory at Cabo Rojo Salterns and have performed research in metagenomics supported by USDA-CSREES. I have been actively involved as a research mentor of students in MARC/Sloan, Louis Stokes Alliance for Minority Participation (PR-LSAMP mentor and science coordinator), Biominds, RISE, STEP UP, and BRIDGE programs. Some of the undergraduate students have also been able to participate with me in programs such as Faculty and Students Team (FaST: NSF, DOE at Lawrence Berkeley National Laboratory), Computational and Systems Biology initiative (CSBi: Howard Hughes at Massachusetts Institute of Technology) and Mastering Metagenomics at University of Wisconsin-Madison and Yale University. Also, I have been the advisor/mentor of several students' organizations such as the Industrial Biotechnology Student Organization, the Honor Society in Biology BBB, SACNAS-RUM, Astrobiology, Exobiology Student Association, and international Genetic Engineered Machines (iGEM-RUM). I am the CoPD of the MARC program and was the CoPi of the RISE2BEST program at UPR-Mayagüez, specifically as Coordinator of the Responsible Conduct of Research component in the latter. I always have been actively involved in supervising teachers as part of the preparation program, performing educational research and pedagogically, designing activities and experiences for students, teachers, and faculty at different levels. Finally, I am part University Institute of Community Development faculty, where I have been actively linking different courses to community service using the Participative Action Investigation.

KEY ACHIEVEMENTS

- Developed a research lab. (Microbial Biotechnology and Bioprospecting) that has trained more than 500 undergraduate students in active research.

- Establish the MBB laboratory as an educational and research center for the students, faculty/teachers, and general public to be aware and understand emerging disciplines such as Metagenomics, Astrobiology, Geomicrobiology, Synthetic Biology.
- Developed an expertise in metagenomics and have generated an impressive collection of metagenomic libraries from diverse environments in Puerto Rico that has allowed several collaborations in different departments at UPR-M and with other educational systems and universities at PR and USA.
- Developed initiatives to train college/school students and faculty/teachers in metagenomics, Biotechnology, Research Ethics, Mentoring and Teamwork.
- Actively supported the development of scientific fairs and research participation of students in scientific fairs.
- Also, and in collaboration with other faculty from different educational centers, the generation and establishment of novel pedagogical models to develop of research skills and advance and engage students at college level and K-12 into research investigation.
- Developed platforms (SCiTeCC, CIENTEC, ABTech) at different levels to disseminate research and educational topics, to network and exchange knowledge.

ACADEMIC APPOINTMENTS, POSITIONS AND EMPLOYMENTS

- 2016 – present UPRM-Arts and Science College representative of the University Institute for Community Development.
- 2016 - 2023 UPRM-MARC program Director
- 2016 – 2018 UPR-M BRIDGES program co-director
- 2015 – 2016 Science Mentoring Coordinator of PRLSAMP at UPR-Mayaguez.
- 2011 – present Faculty resource of the Food Science Technology Master Program at UPR-M.
- 2012 – present **Full Professor** at University of Puerto Rico at Mayagüez
- 2010 – 2015 Responsible Conduct of Research (RCR) Coordinator in the RISE2BEST program at UPR-M.
- 2010 – 2015 Member Mastering Metagenomics Advisory Board. Yale University.
- 2010 – 2014 UPR-M Industrial Biotechnology **Program Coordinator**
- 2011 – 2011 Member INDUNIV, BioAlliance Cluster.
- 2010 – 2013 Advisory Board member of the Building Research Infrastructure and Capacity (BRIC) program: "Strengthening Interdisciplinary Research and Training at UPR Cayey".
- 2007 - 2009 **Professor** Biotechnology I: Introduction to Biotechnology: Certificate in Industrial Biotechnology Techniques. UPR-Humacao
- 2007 – present **faculty** of the University Institute for the Community Development.
- 2005 – 2010 – **Co-Director** - Center for Hemispherical Cooperation in Research and Education in Engineering and Applied Sciences (CoHemis). University of Puerto Rico at Mayagüez (CoHemis).
- 2007 – 2012 Advisor - **Society for the Advancement of Chicanos/Latinos and Native American in Science (SACNAS)**, UPR-M chapter.
- 2007 **NSF Panel Reviewer** – Microbial Interaction and Bioprocesses

2006 – 2010 **Science Mentoring Coordinator** – PR-LSAMP at UPR-Mayaguez.

2006 **Professor Biotechnology II: DNA analysis: Certificate in Industrial Biotechnology Techniques. UPR-Humacao**

2004 – 2005 **Biotechnology Advisory Board.** Council for Superior Education in Puerto Rico (CES).

2003 – 2011 **Associate Professor** at University of Puerto Rico at Mayagüez.

2002 - present **President of the Scientific Review Committee.** Southwestern Educational Society (SESO) Mayagüez, PR.

2001 – present Teacher Preparation Program; **teacher-student practicum school Supervisor.**

2001 – 2005 **Advisory Board.** Industrial Biotechnology Program. University of Puerto Rico at Mayagüez.

2001 - 2003 **Assistant Professor** at University of Puerto Rico at Mayagüez

2001 – present **Advisory Board** Industrial Biotechnology Program UPR-Mayagüez

2001- 2008 **Advisor** of the Caribbean Association of Industrial Biotechnology, Jr. Chapter

2000 - present **Professor at the Science and Math Upward Bound Program at the Inter American University of Puerto Rico at Ponce Campus.** (courses taught: Research Methods, and Science and Technology Topics)

2001 **Post-Doctoral Fellow**, National Institutes of Health, Maryland

1994 - 1995 **Faculty at Pontifical Catholic University of PR at Ponce** (courses taught include: Microbiology for nursing, general Biology and lab, Biological Sciences). **Advisor** of the Zeta Delta Chapter of the honor Society Beta Beta Beta.

1993 **Faculty at Inter American University of PR at Arecibo** (courses taught: Virology, Microbiology and lab, Microbiology for nursing, Seminar, the Human Being and the Environment and lab, General Biology and lab.)

1992 - 1995 **Qualified Assessor on the Academy of Scientific Research for Talented Students (AICET).**
Inter American University, San Germán Campus

1992 **Inter American Laboratory Technician** University, Ponce Campus.

1991 – 1994 **Professor of Biology, Advance Biology and Research Methods at Upward Bound Science and Math Program.**
Inter American University, San Germán Campus

1990 - 1993 **Instructor of Molecular and Cellular Biology, Virology, Immunology, Biological Sciences, General Microbiology, Microbial Ecology.**
University of Puerto Rico, Mayagüez Campus

1990 - 1992 **Qualified Assessor on Academy of Scientific Research for Talented \ Teachers and Students (AICMET).**
Inter American University at Ponce Campus.

1989 - 1990 **Research Assistant** at Oak Ridge National Laboratories

1985 - 1989 **Microbiology Collection Curator,** University of Puerto Rico, Mayagüez Campus

1988 **Research Assistant,** Temple University School of Medicine.

CREATIVE WORK ACTIVITIES:

Member of the Asociación de Escritores de Mérida (AEM) and the cultural space: “*Parnassus Patria de Artistas*” where several of his poems have been recognized in the topics of social issues, healing in poems/prose, and Autumn and Summer love. His work has been presented and published in different sources such as: *Cadencias en dos tiempos recital*, *El Periplo de las Mariposas anthology* (2015), *Alquimia en el telar de las palabras anthology* (2016), *Memorias del Mar anthology* (2017), *El viaje y los muros del paraíso* (2018). Virtual book: *Letras Enfoque Social*, *El Vicio del Tintero*, *la Magna feria internacional del libro Eugenio María de Hostos* and the *IX Festival Internacional de Poesía en Todas Partes*, País de papel No. 4 (2018) and País de papel No. 5 (2021) among others.

In 2015, Dr. Ríos Velázquez published his first virtual poetry book entitled: *Aires de Cambio* (http://issuu.com/amarisw04/docs/libro_virtual_carlos_rios_velazquez).

In 2016 was interview at “Talento Escondido” and a podcast was done of one of the poems in *Barricadas vivencias*:

<http://www.jyestudio.com/talentoescondido/poesia/desdelaventana/>

In 2016, he has published the first printed book: *Barricadas vivencias*.

Poem in “Revista País de Papel Nro. 4” with a audio, Reading one of the poems:

<http://www.escriitoresmerida.com.ve/escriitores/carlosriosvelazquez.php#.Ya7iM2DMJPY>

Courses designed and offered at UPR-Mayaguez:

1. Biol 5760 – Bacterial Genetics Lab.
2. Biol 6008 – Prokaryotic Molecular genetics and Gene Regulation
3. Biol 6003 – Biology and Technology of Plasmids
4. Biol 6004 – Biology and Technology of Plasmids lab.
5. Biol 6011 – Principles of Metagenomics
6. Biol 6012 – Principles of Metagenomics lab.
7. Biol 6018 – Principles and Applications of Synthetic Biology.
8. Biol xxxx – Lab. of Principles and Applications of Synthetic Biology.

Courses offered at UPR-Mayaguez:

1. Biol 3051 – General Biology I
2. Biol 4368 – Microbial Physiology
3. Biol 5758 – Bacterial Genetics
4. Biol 3300 – Genetics
5. Biol 3770 - Microbiology

OTHER ACADEMIC ACTIVITIES:

2014 Co-developer of: An Introductory Biotechnology course for secondary school. Offered at the Center of Educative Opportunities of Mayagüez (CROEM), Mayaguez, Puerto Rico.

2014 Developer of an academic Certificate in Biotechnology names: *Biotechnology for everybody...* as part of the Continued Education and Professional Studies Program (DECEP) at the University of Puerto Rico at Mayaguez.
<https://www.youtube.com/watch?v=KJFLgejosX4>
https://upr.edu20.org/visitor_catalog_class/show/195810

2012 – 2014 Organizer and Coordinator of the Applied Biotechnology (ABTech):
a. ABTech 2012 – Bioenergy
b. ABTech 2013 – Drug development
c. ABTech 2014 – Regenerative Medicine

2006 – 2010- Editor of the Newsletters: CoHemis Al día, CoHemisférico, and Colegiales Conquistar España.

2006 – 2010 Organizer and Coordinator of the Science and Technology Conferences (SciTeCC):
a. SciTeCC 2010 – Biomimetics
b. SciTeCC 2009 – Applied Metagenomics
c. SciTeCC 2008 - Astrobiology
d. SciTeCC 2007 - Bioprospecting
e. SciTeCC 2007 - GeoMicrobiology
f. SciTeCC 2006 – Systems Biology

2006 – 2010 co-organizer and Co-Coordinator of the Science and technology Symposium at the Upward Bound Program at Inter American University at Ponce Campus CIENTEC):

- a. CIENTEC 2007 – Conservation and Natural Resources
- b. CIENTEC 2006 – Understanding Life and the Discovery of Life
- c. CIENTEC 2004 – Integrating technology in Research and Scientific Formation
- d. CIENTEC 2003 - Integrating Technology and Health
- e. CIENTEC 2002 – Integrating Science and Technology

2006-2014 Organizer and Coordinator of Students and Teachers Summer Camp in Science Technology (**BETTeR-IC** and Science Technology, Environment and Community Service (**BETTeRT_IC+**).

UPR-M COMMITTEES:

2016 – present -Miembro Comité Ad Hoc para responder a la Certificación 12 (2014- 2015) de la Junta Administrativa que estableció la “Política para operacionalizar el componente de Servicio Comunitario en la Universidad de Puerto Rico”.

2016 – 2017 – Miembro Comité Ad Hoc de Investigadores creado por certificación del Senado Académico # 16-74 para atender asuntos relacionados a las preocupaciones de los investigadores con respecto a la AMEX, el CID y la Investigación

2008 – 2011; 2012 – 2021 Personnel Committee member

2012 – Ad-Hoc Committee to evaluate and bring a list of recommendations to implement CRECE 21 project.

2008 – 2010 Comité Proponer políticas, mecanismos, y planes de acción para el desarrollo y la investigación de estudios graduados en el Recinto.

2007 – 2008 Institutional Committee for Faculty Evaluation.

2005 – present Institutional Biosafety Committee at UPRM.

2005 – 2022 Researchers at UPR-M.

2005 – 2007 Graduate Committee

2005 – 2008, 2013, 2019 - 2022 Assessment Committee, President 2022)

RESEARCH ACTIVITIES

Graduate advisor of the following students/research at the University of Puerto Rico at Mayagüez:

Master Students graduated from my lab.:

Giovanni López: 2004. *Collibia* sensu lato of the Central and Western Regions of Puerto Rico: Biotechnological Capabilities, Characterization and Identification Using Traditional and Molecular Techniques. (<http://grad.uprm.edu/tesis/lopezferrer.pdf>).

Alberto González: 2004. Morphometric and Molecular Analysis of the *mabouia-brooki haitianus* Complex (Sauria: Gekkonidae) at the Western-Central Region of Puerto Rico. (<http://grad.uprm.edu/tesis/gonzaleznegron.pdf>). (This thesis was in collaboration with Dr. Jaime Acosta from the Biology Department).

María F. Rojas: 2005. Characterization and Potential Transductional Capabilities of *Rhodobacter sphaeroides* Bacteriophages, Isolated from Water Samples from the Southwestern Areas in Puerto Rico.

(Bacteriófagos Específicos para *Rhodobacter sphaeroides*: Aislamiento, Caracterización y Potenciales Transductores. (<http://grad.uprm.edu/tesis/rojasduran.pdf>)

Michelle Rivera: 2005. Isolation and Characterization of Novel Antimicrobial Agents Producing Microbes and Generation of Metagenomic Libraries from Diverse Forest Soils in Puerto Rico. <http://grad.uprm.edu/tesis/riverarivera.pdf>.

Ana Argüello López: 2007. Isolation and identification of cyanobionts to coralloid roots of Cicads from the several *Zamia* species in Puerto Rico. <http://grad.uprm.edu/tesis/arguellolopez.pdf>.

Yaliz Loperena: 2008. Development of Physiological and Molecular techniques for the identification of *Cryptococcus neoformans*. <http://grad.uprm.edu/tesis/loperenaalvarez.pdf>.

Juan Vega: 2009. Isolation and Characterization of Photosynthetic Purple Non-Sulfur Bacteria from Phytotelmata of Several Plants in Puerto Rico. <http://home.uprm.edu/tesis/vegasepulveda.pdf>

Vanessa Cardona: 2010. Molecular Analysis, Physiological Study and Biotechnological Capabilities of Blue Pigmented Bacteria from Puerto Rico. <http://home.uprm.edu/tesis/cardonacardona.pdf>

Ricardo Burgos: 2010. Isolation of Interacting Peptides to *Bacillus anthracis* Lethal toxin (LF) by T7 Phage Display. <http://home.uprm.edu/tesis/burgos.muñiz.pdf>

Josué Malavé: 2011. Development of Biosensors Using Bioluminescent Bacteria from Marine Environments in Puerto Rico.

Kristina Soto: 2011. Characterization of Purple Non-sulfur Bacteria Isolated from the Tropical Hypersaline Microbial Mats from the Cabo Rojo Salterns.

Irimar Torres: 2012. Generation of Large-insert Metagenomic Libraries from Subtropical Hypersaline Microbial Mats and their Screening for Antibiotic Resistance.

Albin Cardona: 2015. Isolation of Lethal Factor peptide Interaction partners using Phage Display using new Human cDNA libraries.

Frank Ferrer: 2015. Development of Metagenomic Libraries from Dry Forest Soils in Guanica and screening for antibiotic resistance. (his training and research thesis was developed completed in my lab).

Edgar Ferrer: 2015. Unraveling Potential BioMedical Bioremediation activity using metagenomics.

Laura del Valle 2016: Novel antimicrobial agents detection and analysis using metagenomic libraries from water reservoirs.

Wilmer Rodríguez 2017: Identification of antimicrobial agents producing microbes using cultivable and genomic approaches.

Karlen Correa 2017: Detection and microbiological and molecular characterization of *Vibrio parahaemolyticus* in the clam *Phacoides (Lucina) pectinatus* (Gmelin, 1791) and the oyster *Crassostrea rhizophorae* (Guilding, 1828) from the southwest coast of Puerto Rico.

Robert Rabelo 2018: Development of a terrestrial Snail Microbiome and search for functional activities.

Jesie Rullán 2019: Identification and Biotechnological Potential of Novel Purple Non-Sulfur Bacteria (PNSB) from Aquatic Environments in Puerto Rico.

Franklin Román 2020: Molecular characterization of genomes of bacteriophages specific to anoxyphototrophic bacteria.

Edwin Rivera: Food Science Bioprospect: Microbial Amylolytic Degradation of Rice Using Culture Dependent and Independent Approaches.

Current Graduate Students:

Angélica González: Isolation of specific bacteriophages for bacterial strains with biomedical impact.

Flavio Rodríguez: Isolation of Anthrax Toxin Lethal Factor Interacting Partners Using Human Heart T7 Phage Display cDNA Libraries.

Luis Morales: Isolation and characterization of thermotolerant clones from metagenomic libraries generated from soil samples from Centralia, USA.

Angel Rubio: Characterization of Purple non-sulfur bacteria capable of producing antimicrobial agents.

Moisés De Jesús: Isolation, Identification and Molecular characterization of *Rhodobacter sphaeroides* bacteriophages.

HONORS

- 2022 *Herminio Lugo Lugo Award*, Awarded by the Beta Beta Beta Honor Society distinguishing the research, the education, and the promotion of scientific activity among the students as well as bringing support to the Tribetas.
- 2020 Accepted to be member of the Sigma Xi, The Scientific Research Honor

Society.

2019 Member Faculty Research and Education Development (FRED) and participant at the

mock Grant Review Panel for the NSF-funded program, Washington, DC at the Annual Meeting of the American Society for Cell Biology. Faculty mentored by me: Dr. Yaliz Loperena, Pontifical Catholic University at Mayaguez Campus.

2018 *Herminio Lugo Lugo Award*, Awarded by the Beta Beta Beta Honor Society distinguishing the research, the education, and the promotion of scientific activity among the students as well as bringing support to the Tribetas.

2017 American Society for Microbiology Microbe Minority Travel Award. New Orleans.

2016 One of the distinguished “Playero” citizens from La Playa de Ponce. Carnaval de Vegigantes de la Playa de Ponce.

2015 SACNAS Distinguished Scientist Award. The National Diversity in STEM Conference, Washington D.C.

2015 Awarded as one of the “Faces of Bioscience in Puerto Rico”. INDUNIV & PR BioAlliance – Bio Week Annual Event.

2015 Induction Ceremony Acts Dedication, Biology Honor Society BBB Zeta Alpha Chapter.

2015 Recognition as the President of the Scientific Review Committee (IRB) at SESO., Southwestern.

2013 Lilly’s grant to the our lab. as the research laboratory that hosted Miss Nerymar Ortiz, as the recipient of the Dr. Frank M. Deane Passion for Science award.

2012 Dr. Arturo L. Carrión Award (A Pioneer in Microbiology in Puerto Rico). Given by the

Puerto Rico Microbiology Society. Distinguishing the humanism, integrity, and passion

for the profession, as well as the contribution for research in the Microbiology Field, and

education in science at all levels.

2010 Dedication of the Honor Society BBB Zeta Alpha Chapter Induction Ceremony Acts.

2009 *Herminio Lugo Lugo Award*, Awarded by the Beta Beta Beta Honor Society distinguishing the research, the education, and the promotion of scientific activity among the students as well as bringing support to the Tribetas.

2009 *MERCK Health Innovation Award 2009*, Category of Education, as Adjunct member of the University Institute for the Community Development.

2007 Dedication of the Yauco’s High School Club Quantum Induction Ceremony Acts.

2007 Dedication of the Industrial Microbiology Student Society Induction Ceremony Acts.

2007 Newsletter: La Voz de la Playa de Ponce. Reseña Biográfica (noviembre)

2007 Recognition to the members of the Advisory boards of the Council for Superior Education in Puerto Rico (CES).

2006 Co-Chair session: Multidisciplinary Approaches to Biological and Computational Systems Research. - Society for Advancement of Chicanos and Native Americans (SACNAS).

- 2005, 2006, 2007, 2008, 2009, 2010, 2011, Recognition as the President of the Scientific Review Committee (IRB) at SESO.
- 2005 Computational and System Biology initiative (CSBi) awardee. Massachusetts Institutes of Technology (MIT).
- 2005 Dedication of the Industrial Biotechnology Student Society Induction Ceremony Acts.
- 2003 NSF/DOE **Faculty and Students Team Program** (FaST) awardee, LBLN, Berkeley. The research involved the analysis of microbial community structure in chromium contaminated soils using biochemical [Phospholipid fatty acid analysis (PLFA)], and Molecular techniques (DNA isolation from soil, rDNA amplification, generation of rDNA libraries, T-RFLP, and rDNA microarrays).
- 2003 Dedication of the Industrial Biotechnology Student Society Induction Ceremony Acts.
- 2002 **Institute for teaching and mentoring, Bridges Scholar Awardee**, Virginia
- 2001 NSF/DOE **Faculty and Students Team Program** (FaST) awardee, LBLN, Berkeley.
- 2000 **Chair's Award**. University of Wisconsin-Madison Microbiology Department.
- 1999 **Vilas Professional Development Award**. Madison-Wisconsin.
- 1998 **Predoctoral Fellowship for Minority Students, National Research Service Award** (NRSA), 1FGM19382.
- 1996 **Advanced Opportunity Fellowship** (AOF). Graduate School, Univ. of Wisconsin-Madison, Spring 1996.
- 1992 **Student Society of Industrial Microbiology "Carlos Ríos Velázquez Award"**
- 1989 **Medal of excellence in teaching**, Teachers Association of Puerto Rico.

SELECTED PEER-REVIEWED PUBLICATIONS.

EDUCATIONALLY FOCUSED

Rios-Velazquez, C., R. Cox, and T.J. Donohue. 2001. Characterization of *Rhodobacter sphaeroides* cytochrome *c*₂ proteins with altered heme attachment sites. *Archives of Biochemistry and Biophysics*. 389: 234-244.

Rios-Velazquez, C., Collier R., and T.J. Donohue 2003. Features of *Rhodobacter sphaeroides* CcmFH. *Journal of Bacteriology*. 185:2: 422-431.

Lopez G.J., and **C. Rios-Velazquez**. 2005. A non-toxic Scanning Electron Microscopy Method to Study the Reproductive Structures of Agaricales Using Simple Fixation in the Field. *Caribbean Journal Science*. 41:857-860.

Rios-Velazquez, C., R. Robles-Suarez, A.J. Gonzalez-Negron, and I. Baez- Santos. 2006. The Delta Cooperative Model: a Dynamic and Innovative Team-Work Activity to Develop Research Skills in Microbiology. *Microbiology Education*. 7:20-27.

Rios-Velazquez, C. "Constructing knowledge" actively in Bacterial genetics Using Synthetic Biology. 2006. Focus on Microbiology Education (FOME). Vol 13, 1: 10-12.

Rios-Velazquez, C., L. Casillas-Martinez and P., T., Visscher. 2007. Learning Geomicrobiology as a team using microbial mats, a multidisciplinary approach. *Journal of Biology and Microbiology Education* Vol 8: 28 - 35.

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Rabelo-Fernandez R.J., K. Santiago, L. Morales-Vale and **C. Rios-Velazquez**. 2018. The metagenome of *Caraculus marginella* gut microbiome using culture independent approaches and shotgun sequencing. *J. Data in Brief*. 16, 501-505. <https://doi.org/10.1016/j.dib.2017.11.043>.

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Rabelo-Fernandez R.J. and **C. Rios-Velazquez**. 2021. Model Construction Activity for Introducing Students to Microbiome and Metagenomic Fields. *Journal of Microbiology and Biology Education*. 22(2); e00107-21. <https://doi.org/10.1128/jmbe.00107-21>.

Rodriguez-Reyes M.G. and **C. Rios-Velazquez**. 2021. Stool microbiome dataset of the critically endangered Puerto Rican parrot (*Amazona vittata*). *Data in Brief*. 37, 107175. <https://doi.org/10.1016/j.dib.2021.107175>.

Alan D. Levine, PhD; Nicolas Sluis-Cremer, PhD; Edwin E. Traverso Avilés, PhD; Orestes Q. González, PhD; **Carlos Ríos-Velázquez**, PhD; Patricia Ortiz-Bermúdez, PhD; Robert Ross, PhD; Alan E. Greenberg, MD, MPH. Rustbelt. 2023. Investigators for the Next Generation (RING) Program: The Rustbelt Center for AIDS Research (CFAR) Diversity, Equity and Inclusion Pathway Initiative. *JAIDS: Journal of Acquired Immune Deficiency Syndromes*

Book: Ríos-Velázquez C., and L. Casillas. In W. Gonzalez, Colon D.A., and Feliu M.I. Ciencia Boricua: Ensayos y Anécdotas del Científico Puerto Rico. Edic. Callejon, 1^{ra} Ed. P46 and P66. 235pp.

The two essays in the book:

1. Bibliotecas metagenómicas: Descubriendo y conservando las riquezas microbianas en los bosques puertorriqueños. P 46.
2. Tapetes Microbianos: Invaluable Tesoro Científico y Ambiental Puertorriqueño. P 66

Book: Herrera-Sandoval G. M., H. Félix-Rivera, A. C. Padilla-Jimenez, M. Balaguera-Gelves, C. A. Ortega-Zúñiga, L. C. Pacheco-Londoño, O. M. Primera-Pedrozo, P. M. Fierro, **C. Ríos-Velázquez** and S. P. Hernández-Rivera. 2013 Synthesis and Characterization of Silver Nanoparticles and Nanostructures for SERS Applications. Chapter 4 in I. Armentano and J. Maria Kenny (Eds). Nanotechnology Science and Technology, Materials Science and Technologies, Nanotechnology and MEMS, Materials Science, Technology and Engineering. pp.59-100. ISBN: 978-1-62808-402-3

REGISTERED GENES IN GENBANK:

Kristina Soto and Carlos Ríos-Velazquez: 2016

Accession numbers: KU992635, KU992636, KU992637, KU992638, KU992639, KU992640, KU992641, KU992642, KU992643, KU992644, KU992645, KU992646, KU992647, KU992648, KU992649, KU992650, KU992651, KU992652, KU992653, KU992654, KU992655, KU992656, KU992657.

Vanessa Cardona and C. Ríos-Velazquez: 2010

Accession numbers: HM488363, HM488362, HM488361.1, HM488360.1, HM488359.1, HM488358.1, HM488357.1, HM488356.1, HM488355.1, HM488354.1, HM236170.1, HM236169.1

Juan Vega and C. Ríos-Velázquez: 2008

Accession numbers: FJ036904, FJ036905, FJ036906, FJ036907, FJ036908, FJ036909, FJ036910, FJ036911, FJ036912, FJ036913, FJ036914, FJ036915, FJ036916, FJ036917, FJ036918, FJ036919, FJ036920, FJ036921, FJ036922, FJ036923, FJ036924, FJ036925, FJ036926, FJ036927, FJ036928, FJ036929.

Loperena Yaliz, Acevedo A. and C. Ríos-Velazquez: 2008

Accession numbers: EU402428, EU402435, EU402429, EU402436, EU402430, EU402437, EU402431, EU402432, EU402438, EU402433, EU402439, EU402434, EU402440.

Argüello López, Ana and C. Ríos-Velázquez. 2007

Accession numbers: EF424121, EF424122, EF424123, EF424124, EF424125, EF424126, EF424127, EF424128, EF424129, EF424130, EF424131, EF424132, EF424133, EF424134, EF424135.

López-Ferrer, G. and C. Ríos-Velázquez. 2004.

Accession numbers: AY8482953, AY842957, AY842954, AY842952, AY822014, AY842955, AY842958, AY842956.

González-Negrón, A. J. and C. Ríos-Velázquez. 2004.

Accession numbers: AY854091, AY854092, AY854093, AY854094, AY854095, AY854096.

Ríos-Velázquez, C., Horwitz, G.J. and Donohue, T.J. 2000. Accession number: AF321136.

Rhodobacter sphaeroides maturation protein CcmF (*ccmF*) and maturation protein CcmH (*ccmH*) genes, complete cds; and enoyl-CoA-hydratase-like protein gene, partial cds.

RESEARCH COLLABORATIONS (SYNERGISMS) and AFFILIATIONS

Synergistic Activities:

1. Establishing the first formal Microbial Biotechnology and Bioprospecting laboratory in Puerto Rico promoting research and educational collaborations among different disciplines. Collaboration agreements have been developed with agencies such as Naval Surface Warfare Center Indian Head Explosive Ordnance Disposal Technology Division (Nswc Iheodtd; Ncrada - Nswciheodtd - 19 - 145). Collaborations have been established with colleagues from UPR-Mayaguez (Chemistry department at UPR-M using SERS and nano particles technology to detect microorganisms) and other UPR campuses, and different educational systems in PR like SUAGM, UIA and PUCPR.
2. In collaboration with faculty/teachers from different centers and programs, such as Upward Bound programs, CROEM and SESO educational centers; activities like mentorship, modules and educational research experiences have been developed, focused on pedagogical strategies novel models to engage students/teachers (K-12) into research, making them aware of emerging disciplines such as Biotechnology, Metagenomics, Astrobiology, Geomicrobiology, and Synthetic Biology among others.
3. Collaboration with the University Institute for Community Development, using the Participative Action Investigation, community leaders-faculty and students work together to bring science to the communities in Puerto Rico.
4. Reviewer for the following journals: J Microbiology and Biology Education, Data in Brief, Chemosphere.

Collaborators and Other Affiliations:

Collaborators and Co-Editors—L. Casillas (U Puerto Rico); W. Ramirez (U Puerto Rico); E. Fazoli (U Puerto Rico), J. Perez-Jimenez (Turabo, Puerto Rico), S. Cantrel (Turabo, Puerto Rico), J. Handelsman (Yale), T. Torok (LBNL, Berkeley), T. Hazen (LBNL, Berkeley), M. Sasanfar (MIT), R. Robles (UNE, Puerto Rico), I. Baez (UIA, Puerto Rico), J. Acevedo (PCUPR, Puerto Rico), A. Santiago (PCUPR, Puerto Rico), M. Marvassi (PCUPR, Puerto Rico), P. Ortiz (U Puerto Rico), S. Hernandez (U. Puerto Rico), L. Williamson (UW-Madison), T. Donohue (UW-Madison), S. Borges (U Puerto Rico), T. Isenbarger (UW-Madison), P. Ren, (Wadsworth Center, Albany), A. Ruiz (U Puerto Rico), V. Chaturvedi (Wadsworth Center, Albany), L. Garriga (U. Puerto Rico), J Schellekens (U. Puerto Rico), J. Ramirez Vick (U. Puerto Rico), W. Frey (U. Puerto Rico), J. Garcia-Arraras (U. Puerto Rico).

Graduate and Postdoctoral Advisors—C. Betancourt U Puerto Rico); T. Donohue (UW-Madison); S. Leppla (NIH).

Research and Educational support:

1. MARC U-STAR Program, University of Puerto Rico-Mayaguez
Transitional MARC-U-STAR-UPRM toward a Diversity Enhancement restructuring
NIH-MARC (3T34GM008419-30S1)
06/01/2021 – 05/31/2023
Role on Project: MPD-PI 1.0 summer
to increase the number of undergraduate students from participating academic programs (Biology, Industrial Biotechnology Industrial Biotechnology, Chemistry and Chemical Engineering) who enter a PhD or MD/PhD program in Biomedical Sciences.
2. MARC U-STAR Program, University of Puerto Rico-Mayaguez
NIH-MARC (5T34GM008419-25)
06/01/2016 – 05/31/2021
Role on Project: MPD-PI 1.0 summer
Research training grant for undergraduate students in the field of biomedical sciences.
3. MARC U-STAR Program, University of Puerto Rico-Mayaguez
NIH-MARC (5T34GM008419-25)
06/01/2015 – 05/31/2016
Role on Project: PI (due to request change in program director due to retirement*)
1.0 summer
Research training grant for undergraduate students in the field of biomedical sciences.
4. Bridge to the Doctoral Degree: University of Puerto Rico to University of Medicine and Dentistry of New Jersey.
NIH – (R25 GM058389-15)
06/01/2015 – 05/31/2016

Role on Project: Co-PI (due to request change in program director for one year due to sabbatical of the PI) , 1.0 summer

To increase the number of participating UPR-M students, and to increase the number who transition to Ph.D. programs, specifically at UMDNJ.

5. NIH: RISE Enhancing Biomedical Sciences and Biomedical Engineering in Science and Technology (RISE2BEST). 5.1 M. (Role: CoPI).
6. 0455620: NSF Microbial Observatories (MO) Program. Cabo Rojo Salterns \$1,339,000; 02/01/05 to 02/01/10. Microbial Observatory (Role: Co-PI).

Main focus in understanding the Geomicrobiology and Geochemistry of Microbial Mats at the Cabo Rojo Salterns

7. *USDA-CSREES: Geomicrobiological and Metagenomic Studies (GeMS) of Puerto Rican Soils. \$275,000; 01/09/08 – 31/08/09. (Role:PI). This grant is running for one more year as a non-cost extension.*

Generation of Metagenomic libraries from Rainy and Dry Forests, determine Diversity, and searching for new activities with medical and Biotechnological Applications.

8. 0629377: NSF Graduate Education in Research Ethics for Scientist and Engineers. \$214, 038; 01/01/07 to 01/01/08. (Role:Co-PI).

Working with faculty in the Humanities, Engineering and Biology we have Developed strategies to teach research ethics to faculty, graduate and Undergraduate students and secondary school students as part of the outreach Program.

9. NASA Detection, Isolation, and Characterization of Metal and Radiation Resistant Geo-Microbes (MaRRS-GeMs) from Extreme Environments. \$29,922; 05/01/07-04/30/08. (Role:PI).
6. Novel magnetic Bio-nano-composite for removal of toxic species from water. (Role:Co-PI).– BioSEI interdisciplinary proposals. \$90,000.
7. Biotechnology for Educational Training in Teams through Research and Interdisciplinary Centers Summer`Camp. (Role-Pi)- Funding from Alianza para el Aprendizaje de las Ciencias y las Matemáticas (AlACiMa) \$11,000 (2006), \$15,000 (2007), The following Summer camp have been developed by proposals to other sponsors: \$24,725 (2008), (2009), \$26,400 (2011), \$ \$26,400 (2012).

The BETTeR-IC summer camp from 2011 – present, known as BETTeR-IC + because it incorporates Science, Technology, Community Service and Environment.
<http://cohemis.uprm.edu/summercamp/>.

8. Novel Molecular Interaction Proteins with the Ántrax Letal Factor (LF) PI-MBRS-SCORE. 2005 – 2006. 10,000.

RESEARCH PRESENTATIONS: POSTERS (actualizado solo hasta 2020)

June 2020 - Carlos Rios-Velazquez. Story-Telling as an Lecture Engagement, Service, and Science Communication Tool in a Microbial Physiology Course. June 2020, On-line due to COVID-19.

Presenter: Session: Virtual 477 - POM01 Microbiology Education
four students from the lab presented posters.

June 2018. Carlos Rios-Velazquez and Patricia Ortiz Bermudez. Promoting Actively Learning Engagement of Basic Principles of Biotechnology as a Team. ASM Annual Meeting 2018. San Francisco California.

four students from the lab presented posters.

June 2017 - Carlos Rios-Velazquez, Reynaldo Robles-Suarez and Ivan Baez-Santos. Engaging Communities Actively in Learning About Microbes in Action. ASM Microbe, June 2017; New Orleans, USA.

nine students from the lab presented posters, three were also selected for oral, and one was selected as ono of the outstanding abstract in the meeting.

April 2016 – Tercer Simposio: Simposio Entre Islas y Continentes: Transformación Universitaria desde la Perspectivas de las Comunidades. UPR-Ponce. **Ciencia, Tecnología y Arte en las Comunidades: un proyecto de acción y transformación Universidad-Comunidad.**

March 2016 – **Soluciones científicas para el mundo en el suelo Boricua: La Bioprospección en Puerto Rico.** 10mo Aniversario Ciencia Puerto Rico. Museo d Vida Silvestre. San Juan, Puerto Rico.

March 2016 - Ninth Symposium Frontiers in Environmental Microbiology: Tropical Bioprospecting Venture.

Six students from the lab presented posters.

May 2015 - **Biotechnology for Everybody: an Opportunity to have a Taste of a Main Player in the Knowledge-Based Economy.** American Society for Microbiology 115th General Meeting. New Orleans, Louisiana. **(Carlos Ríos-Velázquez)**

Also, 13 students from my lab. presented posters.

May 2015 - **BIND 5006: A pilot capstone course to integrate industry and academia in the Industrial Biotechnology Program curriculum at the UPR-Mayagüez.** American Society for Microbiology 115th General Meeting. New Orleans, Louisiana. (Patricia Ortiz-Bermúdez, and **Carlos Ríos-Velázquez**)

- May 2015 - **An Introductory Biotechnology course for secondary school.**
American Society for Microbiology 115th General Meeting. New Orleans, Louisiana. (C. Ramos Álvarez, A. Rodriguez Rivera, B.M. Cabrera. **C. Rios-Velazquez.**
- May 2014 - **A perfect partner: A basic metagenomics laboratory for Undergraduate and graduate students. American Society for Microbiology 114th General Meeting. Boston, Massachusetts. Also, 10 students from my lab. presented posters.**
- May 2013 - **8 students from my lab. presented posters.**
- May 2012 - **The Nomads Information Centers: Bringing the Colors of Biotechnology Actively to the University Community. American Society for Microbiology 112th General Meeting. San Francisco, California. Also, 3 students from my lab. presented posters.**
- May 2011 – **Unraveling the Ecological Molecular and Biotechnological Potential of the Microbial Mats Thru GeoMicrobiology and Metagenomics: A Short Course for Undergraduates. American Society for Microbiology 111th General Meeting. New Orleans. Also, 7 students from my lab presented posters.**
- May 2010 – **GeMS of Puerto Rican Forrest 2: Engaging Students Actively in Analyzing Metagenomic libraries for Diversity and Functionality. American Society for Microbiology 110th General Meeting. San Diego, California. Also, 3 students from my lab presented posters.**
- May 2009 – **Biol 4994: A New Metagenomic Course for Undergraduate Students. American Society for Microbiology 109th General Meeting. Philadelphia, Pennsylvania. Also, 7 students from my lab presented posters.**
- May 2008 – **Engaging Students Actively in Metagenomics Studies of Puerto Rican Forests Soils. American Society for Microbiology 108th General Meeting. Boston Massachusetts. Also, 6 students from my lab presented posters**
- May 2007 – **BETTeR-IC: Teaching and Learning Biotechnology Actively and as a team. American Society for Microbiology 107th General Meeting. Toronto Canada. Also, 3 students from my lab presented posters.**
- May 2006 – **Delta Cooperative Model team Structure Variants: Design for the students and re-designed by them. American Society for Microbiology 106th General Meeting Orlando, Florida. Also, 3 students from my lab presented posters.**
- September 2006 – **Third Latin American and Caribbean Biotechnology Congress. Mayagüez Resort, Mayagüez, P.R.**

May 2005 - **American Society for Microbiology 105th General Meeting** Atlanta, Georgia.

March 2005 – **Western Alliance to Expand Student Opportunities Research Conference.** Temple, Arizona.

September 2005 – **Second Latin American and Caribbean Biotechnology Congress.** Mayagüez Resort, Mayagüez, P.R.

December 2004 - **American Society of Cell Biology.** San Francisco. CA.

May 2004 - **American Society for Microbiology 104th General Meeting** New Orleans, Louisiana.

December 2003 – **American Society of Cell Biology.** San Francisco. CA.

May 2003 - **Molecular Display: The chemistry set for Proteins and small molecules,** Cambridge, MA.

March 2003 – **Western Alliance to Expand Student Opportunities Research Conference.** Temple, Arizona.

November 2002 – **First Latin American & Caribbean Biotechnology Congress.** Mayagüez Resort, Mayagüez, P.R.

August 2000, 1999, 1998, 1997, 1996 - **Kenneth B. Raper symposium,** University of Wisconsin-Madison

May 2000 - **American Society for Microbiology 100th General Meeting** Los Angeles, California

August 1999 - **Molecular Genetics of Bacteria and Phage Meeting** University of Wisconsin-Madison

May 1999 - **American Society for Microbiology 99th General Meeting** Chicago, Illinois

March and April 1999 - **Department of Microbiology Recruitment Weekend** University of Wisconsin-Madison

April 1999 - **MANRRS Annual Conference,** Virginia

May 1998 - **American Society for Microbiology 98th General Meeting** Atlanta, Georgia

July 1998 - **Research Poster Fair**, University of Wisconsin-Madison

SPECIAL SEMINARS AND WORKSHOPS OFFERED: (actualizado solo hasta 2020)

June 2020 Second Synthetic Biology Summer Camp.SynBio 101: *Viaje panorámico a través de la Biología Sintética, para el rediseño de la maquinaria de la vida en la solución de problemas.... Taller En línea debido a COVCID-19.*

Jan 2020 (Team work). Taller trabajo en equipo en como parte de las actividades August 2020 para el Seminario Estrategias para el Desarrollo de las comunidades. (as part of the UPR-M - University Institute of Community Development.

Jan 2019 (Team work). Taller trabajo en equipo en como parte de las actividades August 2019 para el Seminario Estrategias para el Desarrollo de las comunidades. (as part of the UPR-M - University Institute of Community Development.

Feb. 2020 Charla BBB. Un Viaje Panorámico de Beta a Beta...Una invitación a momentos no tecnológicos, descubriendo los retos del futuro...

Oct. 2019. Responsible Conduct of Research, RCR) offered to the undergraduate student from the UPR Mayaguez RISE-E-BASE program.

April 2019. ROTARAC y ALPHA HELIX. Investigación 101: A look inside Biology Research.

June 2019 Synthetic biology Summer Camp. UPR-Mayaguez.

Workshop-Talk 1: Unraveling Synthetic Biology: A panoramic view in ways to redesign the life machinery in order to solve problems...

Workshop-Talk 2: Teamwork

Second Semester 2018-2019: STEM workshops for K-12 students as part of the B-STR3EAM project, focused on the Aguada Municipality.

1. Workshop 1: Ciencia y Arte en acción: Desde la herencia hasta la vida microscópica...
Feb.16, March 2, April 6
Schools: Esc. Juana Rosario, Esc. Aquilino Cabán
2. Workshop 2: Ciencia y Arte en acción: Descubriendo la vida microscópica
Schools: Esc. Juana Rosario, Esc. Aquilino Cabán
Feb.23, March 9, April 6

3. Workshop 3: Ciencia y Arte en acción. Estamos hechos por células...Resolviendo retos a nivel celular
Schools: Esc. Juana Rosario, Esc. Aquilino Cabán
March 30, April 13
4. Workshop 4: Ciencia y Arte en acción: Ciencias emergentes y en equipo...
Tema 4: Astrobiología y Geomicrobiología
Schools: Esc. Juana Rosario, Esc. Aquilino Cabán
March 16, April 23
5. Workshop 5: Investigando a través de la ingeniería genética.
Schools: Esc. Juana Rosario, Esc. Aquilino Cabán
April 27
6. Workshop 6 - 7: For parents, May 4 2019, Ciencia y Arte en Acción: La vida, la herencia y los microbios...
7. Workshop 7: For elementary school students: Ciencia y Arte en Acción:
School: Ligia meléndez
La vida y la herencia and Los microbios y yo.

June 2019 Synthetic biology Summer Camp. UPR-Mayaguez.
Workshop-Talk 1: Unraveling Synthetic Biology: A panoramic view in ways to redesign the life machinery in order to solve problems...
Workshop-Talk 2: Teamwork

October 2019. Synthetic biology Caribbean Talk. UPR-M Business administration Auditorium.
Talk 1: ***Viaje panorámico a través de la Biología Sintética.***
Talk 2: ***Develando la Biología Sintética - Rediseñando la maquinaria de la vida para la solución de problemas...***

October 2019. Workshop in Synthetic Biology for High school teachers. Synthetic Biology Week. UPR-Mayaguez.
Talk: ***Redesigning the teaching-learning process through Synthetic Biology.***

October 2019. High School Training in Molecular Biology Laboratory Techniques. UPR-M Biology Department.

June 2016 and 2017 Worskshop: “Ciencias y Microbios en Acción” (Science and Microbes in Action). Community Summer Camp Eduvertido. Caín Bajo Community in San Germán.

March 2016 and 2017. Se diseñaron y coordinaron talleres junto con mis estudiantes graduados y el programa de Biotecnología Industrial en el tercer: Puerto Rico STEM’s Up to the Challenge. La misma se presentaron actividades sobre nuestras áreas de investigación en el laboratorio a maestros y estudiantes de todo Puerto Rico. Centro de Convenciones Dr. Pedro Roselló en Miramar, PR. Un total de ocho de mis estudiantes participaron del mismo.

April 2016 and 2017 - Se diseñó y presentó junto a mis estudiantes del laboratorio un taller en Plaza Las Américas como parte del EcoExploratorio Museo de Ciencias de Puerto Rico: Feria Planeta Digital. Participaron 12 estudiantes del lab. entre estudiantes graduados y subgraduados.

April 2016 - April 2016 – Tercer Simposio: Simposio Entre Islas y Continentes: Transformación Universitaria desde la Perspectivas de las Comunidades. UPR-Ponce. Panel “Proyectos Emblemáticos: arte, infraestructura, agricultura y cultura en la autogestión comunitaria”. Charla: **Ciencia Tecnología y Arte en las Comunidades...**

March 2016 - Ninth Symposium Frontiers in Environmental Microbiology: Tropical Bioprospecting Venture. Integrated Boricua's Bioprospecting models: One Bioprospects, various answers and much more questions...

September 2015 – co-coordinator of co-author of the proposal to develop a short course in Biotechnology to personnel of Lilly del Caribe, Guayama, P.R. Also offered the workshop named: Biotechnology Basics.

2014 - Talk and workshop entitled: "Science and Biotechnology: discovering the world through a different glass ..." at the Inter-American University, Aguadilla, PR.

October 2014 - Ponencia lo fue: Three stories, three vinculations, three action and transformation projects: School, University, Community”. Second Latin American Congress in Research in Education. Focus on: Leadership with Human Quality in the Education. EDP University San Juan.

September 2014 – Participation in the panel: The transition from college to the University. In the BioSciences week sponsor by AMGEN in the activity: “Science...the legacy for future scientific generations...” for precollege teachers in Puerto Rico.

April 2014 - Mentor and student’s expectations, mentoring strategies, and both, mentor and student’s responsibilities. Undergraduate Research Education and Training Program (URGREAT), funded by NIH-MBRS-RISE and institutional funds from Universidad del Este.

April 2013 - Unraveling Activities and Diversity through Metagenomics as an Emergent Science...InterAmerican University at Arecibo Campus.

April 2013 - Ciencias emergentes: el mundo a través de un cristal distinto... Primer Cientec : Mujeres en la Ciencia. Universidad InterAmericana en Ponce.

May 2012 - Macro to Micro: Unraveling Our Island from a Microbiologist Perspective... Casa Olímpica, Viejo San Juan. ASM-Puerto Rico.

April 2012 - Metagenomica: Ciencias emergentes: Perspectivas tecnológicas y retos para el futuro... Noveno CIENTEC 2012. Universidad Interamericana, Recinto de Ponce.

April 2012 - Bioprospectos y Biología Sintética: Ciencias emergentes: Perspectivas tecnológicas y retos para el futuro.... Noveno CIENTEC 2012, Universidad Interamericana, Recinto de Ponce.

March 2012 - Exploring peer review and conflict of interest: case discussion/analysis and online resources. Offered by Carlos Rios Velazquez and William Frey.

October 2011 – 26th Annual Conference AAAS. LOS GENES Y EL MEDIO AMBIENTE. Develando genes con actividades de impacto ambiental y social usando metagenómica. UPR-M.

October 2011– Coordinator and organizer of the concurrent educational session of the 26th Annual Conference AAAS.

Topics:

For teachers: *Taller sobre (¿genes y el medio ambiente? para maestro/as y futuros/as maestros/as de escuela superior*

For elementary school: *Pescando Genes de diversos ambientes en Puerto Rico: descubriendo actividades que ayudan a la sociedad.*

For intermediate school students: *Bioinformática—genes—salud: Descubriendo y relacionando genes in silico.*

For high school students: *Biología Sintética: Usando genes como partes para construir prototipos que resuelvan problemas ambientales.*

September 2011 – **Research ethics: Light in a world of grey situations.** UPR-M to AMP students.

August – 2011 Unraveling Activities with Applications in Biotechnology Thru Metagenomics. 43rd World Chemistry Congress IUPAC 2011IUPAC. (Class-workshop).

April 2011 - 11^{mo} Simposio de investigación subgraduada. **La Ética en la investigación científica: luz en un mundo de situaciones grises.** UPR-Aguadilla.

April 2011 – RISE2BEST program participants. **La Ética en la investigación científica:**

luz en un mundo de situaciones grises. UPR-Mayaguez.

March 2011 – Doing Research Responsively: An introduction to RCR via case analysis. UPR-Mayaguez.

March 2010 - VII Congreso Educativo de **Tecnología Medica. Tecnologías emergentes en genómica y proteómica funcional: accedando nuevos grupos microbianos y nuevas funciones con aplicaciones biomédicas y biotecnológicas**

July de 2007, 2008, 2009. 2011. Campamento de verano CoHemis **BeTTER-IC** and **BeTTER-IC+**. Seminars and workshops in:

- i. How to prepare a poster presentation**
- ii. Team work**
- iii. Emerging Disciplines**
- iv. What Biotechnology is about?**

September 2009. NSF-ATE Tropical Biotechnology Forum semana de las Biociencias. Turabo University - CETA

June 2007, 2008, 2009, 2011 summer workshops: **Genetic engineering technology applied in molecular microbiology.** UPR-M

First and Second semester 2007, 2008, 2009, 2010, 2011. **Workshop in team working. Strategies for the Community Development.** Institute for the Community Development. UPR-Mayagüez.

Septiembre 2008 – Team Work. Society of Hispanic Professionals Engineers.

June 2008- team Working. División de Educación Continua y Estudios Profesionales. UPR-RP. (Workshop)

May, 2008 – Metagenomics. Estudiantes y Maestros de la Esc. Luis Muñoz Marín en Yauco Club Quantum.

April 2008 – Biology Department Seminar: Microbial Biotechnology and Biodiscoveries at B-266 Searching for the seen and unseen in the microbial world. UPR-Mayaguez.

March 2008 – Taller Ética en La Investigación. CROEM. UPR-Mayagüez.

February 2008 – Pedagogical Demonstration: Priming the Pump Empowering Engineering and Business Faculty and Graduate Students to teach Ethics in their Classes. Association for practical and profesional ethics Estudiantes y profesionales del área.

January 2008 – ¿Cómo preparar poster científico?. BBB Zeta Alpha Chapter. UPR-M.

January 2008 – Plantas carnívoras: Hermosas y delicadas plantas para nuestro jardín, una atracción fatal. Sociedad de Horticultura del Oeste.

June 2007 – Unraveling Bioprospects with Applications in Microbial BiotechnologyASM-PR. Looking back and the future: The next 50 years.

2007 – “Sampling and Testing for Fecal Coliform and Enterococci in Fresh and Sea Waters”. Organizer and speaker.

December 2007 – Segundo Residencial Académico: Pescando Genes en Los Bosques de Puerto Rico. Alianza en Matemáticas y Ciencias Maestros de Escuelas de PR.

October 2007 – Generation of Biological Prototypes and Implementing Synthetic Biology in the Classroom. UPR-M.

September 2007 – La biotecnología en nuestro diario vivir. UPR-Humacao, AMGEN, El nuevo día educador, BioAlliance Maestros de escuela.

September 2007 – Searching Professional Success through Academic Decision. SACNAS UPRM.

September 2007 – Pescando genes en los bosques de PR First Team Meeting for Geomicrobiology and Metagenomic Studies of Puerto Rican Soils. USDA-CSREES Estudiantes UPR-M y Humacao.

September 2007 – Compartiendo experiencias de mentoría efectiva: El proceso de desarrollar a nuestros mentoreados. URGREAT-MBRS-RISE Estudiantes subgraduados y mentores del programa (Workshop).

June 2007 – Ética en las Ciencias e Ingeniería. Upward Bound Program Science and Math and Regular at UIA Ponce.

June 2007 – Preparation of a scientific poster. Programa de Biotecnología Industrial, AMGEN .Estudiantes escuelas secundarias.

June 2007 – Team Building Skills. Programa de Biotecnología Industrial, AMGEN. Estudiantes escuelas secundarias.

November 2006 – Using data Bases in the Research Laboratory. PUCPR.

October 2006 – Where to Start doing research in Computational and Systems Biology: an educational prism. SACNAS UPR-M.

July 2006 – Charla sobre ética y clonación: **¿Dónde estamos y quiénes somos?, ¿qué es bueno o malo?** en Iglesia Pentecostal en Cidra.

June 2006 – Uso de Herramientas en Genómica y Proteómica Funcional para el Desarrollo de Biomarcadores y el Descubrimiento d Nuevos Agentes Quimioterapéuticos. MBRS-RISE Universidad del Este en Carolina.

May 2006 – Desarrollando destrezas en investigación mediante el innovador modelo cooperativo delta. Asociación Caribeña de Programas TRIO.

April 2006 – Dos jardines, dos tiempos, dos historias. Sociedad de Horticultores del Oeste.

April 2006 – Astrobiología: Modelos microbianos. UIA-Ponce.

Winter 2006 – *Origen, Evolución y desarrollo de la Química, Ingeniería y Biotecnología industrial. Biotecnología: Un futuro prometedor.* Iniciación Estudiantes: Asociación Estudiantil: Common Horinzons of Engineering & Science Students.

October 2005 – *La Biotecnología y sus Aplicaciones Interdisciplinarias.* K-12 teachers, ALACiMa

September 2005 – *Conociendo la Biotecnología a través de...Open House to Secondary Schools. Biotechnology Week UPRM.*

July 2005 – **Discussion Panel: Professional Development Seminar Series on Academic Careers.** Massachusetts Institute of Technology. Cambridge, MA.

June 2005 – **Workshop: How to prepare a Scientific Poster?**. First Biotechnology Summer Camp in Puerto Rico. UPR-Mayagüez.

June 2005 – **Workshop: Team work.** First Biotechnology Summer Camp in Puerto Rico. UPR-Mayagüez.

May, 2005 – **Workshop: Genetic Engineering Techniques Applied in Molecular Microbiology.** UPR-Mayagüez.

May 2003, 2004 and 2005 – **Workshop: Scientific method.** Upward Bound Science and Math program. Inter American University at Ponce.

March 2005 – Integrando Investigación y Educacion en Microbiologia. Biology Department Seminar Series. UPRM

June 2004 – **Visiting the invisible universe: from a pin head...**High School Teachers from the GLOBE program: UPR-Mayagüez.

June 2004 – **The DNA as the genetic material: Human genome and the use of bioinformatics databases.** UPR-Mayagüez.

April 2004 – **Workshop: The DNA as the genetic material, and the use of molecular tools in forensic sciences.** 6th Symposium of Scientific Research. Guayanilla.

April 2004 – **Breaking the barriers of imaginable: Discovering the universe of invisibles inhabitants.** 6th Symposium of Scientific Research. Guayanilla.

April 2004 – **Development of de biomarkers and novel antimicrobial agents using functional genomics technology.** UPR-Mayagüez.

December 2003 – **Workshop in DNA isolation and manipulation.** Faculty of the Inter American University at Arecibo Puerto Rico.

December 2003 – **Future of the biological research in plants?** Sociedad de Horticultores del Oeste.

December 2003 – **General concepts, methods, and strategies to clone DNA fragments.** UPR-Mayagüez.

November 2003 – **Molecular Technology Against Bioterrorism.** Ortho Biologics.

November 2003 – **Workshop: Basic concepts, applications and isolation of DNA.** Educational Center Science on Wheels. UPR-Mayagüez.

September 2003 – **Development of environmental libraries and their used in diversity studies.** Science and Technology School. Turabo University of Puerto Rico.

September 2003 – **What to consider at the moment to choose a graduate school, and a research Project.** Industrial Biotechnology Student Society Seminar Series.

August 2003 – **The use of Phage display as a technique to develop biomarkers.** Pontifical Catholic University of Puerto Rico.

May 2003 – **Development of biomarkers for toxins or toxin-producing microorganism by using T7 phage display.** Seed Money Resear4ch Symposium. UPR- Mayagüez.

April 2003 – **Microbiology as a biological weapon, and a tool of peace.** 5th Symposium of Scientific Research. Guayanilla.

March 2003 – **Development of environmental libraries and their used in diversity studies.** Ponce School of Medicine.

February 2003 – **The use of “Phage Display” as a proteomic and combinatorial chemistry for the designing of biomarkers.** UPR-Mayagüez, UPR-Humacao.

January 2003 – **Assessment as Instrument for an Effective Learning.** Inter American University of Puerto Rico at Ponce Campus.

June 2002 – **Designing New Alternatives (DNA) for the new generations: Bringing Biotechnology to the classroom.** UPR-Mayagüez.

May 2002 – **Biotechnology at a Glance.** INDUNIV: Forum for Innovation

May 2002 – **The use of functional proteomics for the development of biomarkers.** Cuarto Congreso de Tecnología Médica

May 2002 – **Biotechnology** (Bios’02). UPR-Mayagüez

April 2002 – **Biotechnology and Science in the XXI Century.** 4th Symposium of Scientific Research. Guayanilla.

April 2002 – **The Pleiades of the Microbial Universe.** Industrial Microbiology Student Society Initiation Ceremony.

April 2002 – **Biotechnology as a tool in a changing world.** UI-Ponce First CIENTEC symposium.

April 2002 – **Disciplines in science and technology that are revolutionized the way of solving problems and formulating new questions.** 49th Tri-Beta Convention. UPR-Mayagüez.

March 2002 – **Biotechnology: Science and technology for problem solving and generation of important questions.** Workshop Upward Bound Science and Math Program (UI-San Germán).

March 2002 – **Biotechnology as a tool in different disciplines.** Sociedad de Horticultores del Oeste.

January 2002 – **Entrepreneur opportunities in Biotechnology.** UPR-Mayagüez

January 2002 – **“Phage Display” as a combinatorial chemistry (functional genomic) technique for the drug development.** UPR-Mayagüez

December 2001 – **Panel: The use of Microbiology as a biological weapon.** UPR-Arecibo.

December 2001 – **Biotechnology: Diverse routes, the same goal...** First Primer Industrial Biotechnology Faculty retreat.

November 2001 – Bioterrorism: **The incorrect use of Microbiology. The use of Microbiology as a biological weapon.** Science Club Induction Ceremony Guest Speaker Colegio CESO.

November 2001 – **“Phage display” as a biotechnological tool in the discipline of functional proteomics for the detection of protein-protein interactions.** Microbiology Symposium: Biotec 2001. UPR-Arecibo

November 2001 – **Anthrax: weapon of war, tool of peace.** Inter American University at Ponce: Cientec Symposium.

September 2001 – **Biotechnology.** New Industrial Biotechnology incoming student seminar series.

September 2001 – **What to consider at the moment to choose a graduate school, and a research Project.** Industrial Biotechnology Student Society Seminar Series.

September 2001 – **“Proteomics”: “phage display” as a technique to detect protein – protein interactions.** Industrial Biotechnology Association Seminar series.

September 2001 – **Technology at the service of Biology: What to ask, and how to answer?** Biotechnology day. University of Puerto Rico at Mayaguez. Mayagüez, Puerto Rico.

September 2000 – **Characterization and topological analysis of the *Rhodobacter sphaeroides* cytochrome *c*- maturation proteins, CcmF and CcmH.** National Institute of Health, Maryland.

July 2000 – **Topological studies of CcmF y CcmH in *Rhodobacter sphaeroides* and their function in *c* type cytochrome maturation.** University of Puerto Rico at Mayaguez. Mayagüez, Puerto Rico.

March 2000 – **Role of Ccm proteins in *c*-type cytochrome maturation.** University of Wisconsin-Madison. Madison, Wisconsin.

October 1999 – ***Rhodobacter sphaeroides* cytochromes: CcmF y CcmH as maturation factors.** University of Puerto Rico at Mayaguez. Mayagüez, Puerto Rico.

October 1999 – **From the University to the research project: how to choose a place and a project to obtain a graduate degree.** University of Puerto Rico at Mayaguez. Mayagüez, Puerto Rico

April 1999 – **Host factors and amino acid sequence that contribute to covalent heme attachment in *c*-type cytochromes.** University of Wisconsin-Madison. Madison, Wisconsin.

April 1998 – **Properties of *Rhodobacter sphaeroides* cytochrome *c* maturation proteins CcmF and CcmH.** University of Wisconsin-Madison. Madison, Wisconsin.

June 1994 – **Secretion of Intercellular of Proliferation Controllers in Bacteria. XVII Scientific Investigation Congress.** Interamerican University of Puerto Rico, San Juan, Puerto Rico.

MEMBER OF THE FOLLOWING ORGANIZATIONS

Association of Science Teachers of Puerto Rico (2004)

Horticulture Society of the West (2002-2011)

Support staff 2002 – 2004

Vice-president 2004, 2007, 2010

President 2008

Minorities in Agriculture Natural Resources and Related Sciences (MANRRS)

American Society for Microbiology (ASM; since 1985)

Association of Future Teachers (AFM; since 1992)

Honors Societies:

Beta Beta Beta Advisor at Zeta Delta Chapter 1994-1995; Zeta Alpha since 2010-2014 and 2017-present.

Member of **Phi Kappa Phi** since 1987

Sigma XI - 2020

Student Society of Microbiology (SEMI)

= President (1986), vice-president (1986), founder member (1985)

Society for the Advancement of Chicanos/Latinos and Native American ins Science (SACNAS).

= Member (2006)

= Founder, student chapter at UPR-Mayagüez (SACNAS-UPR-M)(2007-present).

= Advisor 2007 - 2012

Goals Inspiration Values and Education (GIVE), UPR-Mayaguez, Advisor 2010

AEXO: Astrobiology and Exobiology Association

= Advisor 2015 – present

International Genetically Engineered Machine (iGEM-RUM)

= Advisor 2017 – present

Dr. Luis A. Ríos-Hernández

Full Professor
Biology Department
University of Puerto Rico at Mayagüez
E-mail: luis.rios5@upr.edu

A. Professional Preparation

University of Puerto Rico, Humacao	Biology	B. S. / 1992
University of Oklahoma, Norman, OK	Microbiology	Ph.D./ 2003
University of Oklahoma, Norman, OK	Microbiology	PostDoc/2004-2006

B. Languages

First language: **Spanish**, excellent oral, writing, reading skills.

Second language: **English**, excellent oral, writing, reading skills.

Other language: **Polish**, work in progress rudimentary level: one year living in Gdańsk with part time formal courses.

C. University Appointments

2003-04 –**Assistant Professor**, Science and Technology, U. del Turabo, Gurabo, Puerto Rico.

2004-06- **Postdoctoral fellow**, University of Oklahoma, Dr. M. McInerney's laboratory.

2006-09– **Assistant Professor**, Biology Department, UPR-Mayagüez, Puerto Rico.

2009-16 - **Associate Professor**, Biology Department, UPR-Mayagüez, Puerto Rico.

2015-16 **Fulbright Scholar**, University of Gdańsk, Poland.

2016 –present -**Full Professor**, Biology Department, UPR-Mayagüez, Puerto Rico.

D. Other significant positions

2008- Summer- Biologist ORD-National Exposure Research Laboratory EPA Cincinnati, OH

2011- 2013 ASM Council- American Society for Microbiology (ASM) Puerto Rico Branch

2013-2015 ASM Alternate Council - ASM Puerto Rico Branch (SMPR)

2014-2015 Interim President ASM Puerto Rico Branch (SMPR)

E. Industrial positions

1992-1993 Sterility analyst, American cyanamid, Lederle, Carolina, PR.

1994-1995 Research scientist I, QA department, Alcon Labs, Humacao, PR.

F. Teaching Experience

Undergraduate Courses:

Biol 3051-52 General Biology I and II (Majors)

Biol 3725- Microbiology (Non-Majors)

Biol 3725- Microbiology (Non-Majors) Laboratory

Biol 3770- Microbiology (Majors)

Biol 4368- Microbial Physiology

Biol 4901- Undergraduate research

Biol 4902- Undergraduate research

Biol 4925- Undergraduate seminar

Graduate courses:

Biol 6690- Graduate Seminar
Biol 6990- Graduate research
Biol 6991- Special Studies in Biology
Biol 6992- Special Studies in Biology
Biol 6994- Special Topics in Biology II (Bridges Joint course with Rutgers)
Biol 6989- Biological Research Methods
Bota 6006- Advanced Bacterial Physiology with laboratory

G. Service/leadership positions within the University

Department level (elected)

Past: President Departmental Personnel committee

Department level (voluntary)

Past: Departmental Assessment committee president, Departmental doctoral program committee member, Organizer Undergraduate Research Symposium (first 4 years of the event),

Currently: Departmental Assessment committee co-president Faculty advisor to student association: BBB

Faculty Arts and sciences level (elected)

Past: Dean Search committee (2017)

Currently: Arts and science personnel committee member,

University wide (elected by members)

2014- 2015 - President of the Professors Association (APRUM) at UPR-Mayagüez

2016- 2018 – Steering Committee of the Professors Association (APRUM) at UPR-Mayagüez

H. Publications

1) In my formal education and early on my research career most of my scientific curiosity was centered in the ability of microorganisms to degrade anthropogenic chemicals, aromatics and cyclic hydrocarbons. Here I was able to contribute to the description of microorganisms with these abilities and study ecological principles. Also, I was able to describe the degradative metabolic pathway of alicyclic hydrocarbons by SRB's.

Succession and convergence of biofilm communities in fixed-film reactors treating aromatic hydrocarbons in ground water. (1997). Massol-Deya, A*; Weller, R; Rios-Hernandez, L; Zhou, J-Z; Hickey, R F; Tiedje, J M. Appl. Environ. Microbiol. V.63, N.1, p. 270

Biodegradation of an Alicyclic Hydrocarbon by a Sulfate-Reducing Enrichment From a Gas Condensate-Contaminated Aquifer. (2002). Rios-Hernandez, L. A.*; L. M. Gieg and J. M. Suflita. Appl. Environ. Microbiol. 69:434-443.

The anaerobic biodegradation of ethylcyclopentane and intermediates of benzoate metabolism by microorganisms from a hydrocarbon-contaminated aquifer. 2003. Ph.D. Dissertation. University of Oklahoma.

2) Another area of scientific research is Syntrophic metabolism. In this area of research I helped annotate the genome of *S. aciditrophicus* and for the first time describe a new microbial pathway to form ATP using an Acetyl-CoA synthase dependant on pyrophosphate. This research looks at organisms that survive at the minimum energy quantum, but their role within an anaerobic community is crucial to the overall degradative process.

The genome of *Syntrophus aciditrophicus*, life at the thermodynamic limit of microbial growth. (2007). Michael J. McInerney, Lars Rohlin, Housna Mouttaki, UnMi Kim, Rebecca Krupp, Luis A. Rios-Hernandez, Jessica Sieber, and Christopher G. Struchtemyer, Anamitra Bhattacharyya, John W. Campbell, Robert P. Gunsalus. PNAS V.104, N.18, p. 7600-05.

Pyrophosphate-Dependant ATP formation from Acetyl Coenzyme A in *Syntrophus aciditrophicus*, a new twist on ATP formation. (2016). Kimberly L. James, L.A. Rios-Hernandez, N. Q. Wofford, H. Mouttaki, J.R. Sieber, C.S. Sheik, H.H. Nguyen, Y. Yang, Y. Xie, J. Erde, L. Rohlin, E. A. Karr, J. A. Loo, R. R. Ogorzalek, -Loo, G. B. Hurst, R. P. Gunsalus, L. I. Szveda, and M. J. McInerney. mBIO. V.7 (4): 1-8.

3) The most recent research interest of my career so far relates to the ecology of *Enterococcus* and their ability to persist in natural tropical environments. I am particularly interested in the identification of genetic traits that would allow us to predict a recent fecal contamination event in recreational waters and how these traits might contribute to their survival. Furthermore, we are interested in determining how the pheromone responsive plasmids play a role in the ecology of *E. faecalis* in natural environments.

Virulence genes among *Enterococcus faecalis* and *Enterococcus faecium* isolated from coastal beaches and human and nonhuman sources in southern California and Puerto Rico. (2016). Donna M. Ferguson, G. Negron-Talavera, L.A. Rios-Hernandez, S. B. Weisberg, R. F. Ambrose, and J. A. Jay. J. of Pathogens V. 2016 pages 7.

MS Thesis by Students:

Anaerobic bioconversion of collagen to methane. Approved and defended May, 2012. Written by Luis A. Piñero Garcia under the supervision of Luis A. Rios-Hernandez.

Anaerobic degradation of three types of vegetation biomasses for the creation of a renewable energy source and the analysis of their anaerobic microbial communities. Approved and defended December, 2013. Written by Karla Marie Márquez Nogueras under the supervision of Luis A. Rios-Hernandez.

Metabolic and molecular characterization of a syntrophic acetate and lactate-degrading consortium. (2014) Written by Merylin Martínez Feliciano under the supervision of Luis A. Rios-Hernandez.

Enterococci as fecal indicator bacteria in tropical recreational waters: an ecological approach. Written by Ginamary Negron Talavera under the supervision of Luis A. Rios-Hernandez.

Assessing the effect of pretreatments on different tropical non-edible photosynthetic feedstock for biogas production (2017). Written by William Morales Medina under the supervision of Luis A. Rios-Hernandez.

Temporal analysis and molecular characterization of dominant enterococcus strains present in feces from healthy human (2017). Written by Christian Del Rio Ramos under the supervision of Luis A. Rios-Hernandez.

I. Selected invited Presentations:

A day at the beach with my friend the Enterococci. UPRM Chemistry department seminar series. October 26, 2012.

Teaching in Paradise: My experience as an Associate Professor and Principal Investigator at a US Territory University. ASM General meeting May 18, 2013.

Teaching in Paradise: My experience as an Associate Professor and Principal Investigator at a US Territory University. ASM Scientific career Development Workshop University of Gdańsk, Poland. December 5, 2013.

K-12 lecture series to Liceum students in Poland during my Fulbright Scholar position:
The titles of my lectures were: I offered 10 different presentations at 6 different schools reaching over 250 students.

- 1) The importance of microbiology in water quality.
- 2) Ecology of Enterococci as an indicator of water quality.
- 3) The anaerobic digestion of vegetative biomass for the production of an alternative energy source.
- 4) Syntrophism a lifestyle at the limits of energy production.

An American graduate education: from opportunities to personal experience. University of Gdańsk, Poland. November, 2016.

Poster presentations (not all): <http://academic.uprm.edu/lrios/Posters/>

J. Synergistic activities:

EPA/UPRM short course: (instructor) Sampling and testing for indicator organisms (Total coliform/E.coli/Enterococci) in fresh and sea waters.

Participated in the Phylogenetic Bioinformatics Workshop at Tulsa University, and the Biodegradation and Molecular Biology summer course at Rutgers University. Visit various laboratories to learn different techniques in molecular biology at University of California at Berkley (Dr. Norman Pace), University of Tennessee at Knoxville (Dr. D. C. White), and the Centre for Ecology and Hydrology in Oxford, England (Dr. Mark J. Bailey). Graduate student senate representative, EPSCoR DOE Scholarship and EC-US Transatlantic Biotechnology Fellowship recipient.

RADIO HOST, (2014-15, 2016-17) weekly radio show “La APRUM Contigo” at WPRA 990 am. This platform allows us to present and inform directly to the general public what a University Professor does at the University and how the taxpayers’ dollars are invested. We discuss all aspects in the life of a University Professor: Teaching, Research, and service! Air space paid by the Professors Association (APRUM).

K. Collaborators & Other Affiliations

(i). Collaborators and co-authors:

J. M. Suflita (Univ. of Okla.)
R. S. Tanner (Univ. of Okla.)
D. Elias (Oak Ridge National Lab)
A. Massol-Deya (UPR-Mayagüez)

M. J. McInerney (Univ. of Okla.)
Mostafa ElShahed (Okla State Univ.)
L. M. Gieg, (Univ. of Calgary)
Rich A. Haugland (NERL-EPA, Cincinnati, OH)

B. Kędzierska (Univ. Gdańsk, Poland)
P. Golec (U. Gdańsk, Poland)

P. Olszewski (U. Gdańsk, Poland)
D. Ferguson (UCLA)

(ii). Graduate and Post-graduate Advisors to applicant: Dr. Luis A. Rios-Hernandez

Ph. D. Advisor

Dr. Joseph M. Suflita
University of Oklahoma, Norman

Post-doc advisor

Dr. Michael J. McInerney
University of Oklahoma, Norman

L. Research Funds

(i). Past:

CID-UPRM Seed Money 2006/1 year. The natural selection of the hydrogenotrophic partner in the syntrophic oxidation of fatty acids. Luis A. Ríos-Hernández (PI). In this preliminary research we looked at the possibility of Syntrophic couples to select each other based on the selection constraints imposed by the substrates.

UPRM-CID-BioSEI 2009/1.5 year. BEforE: Biology-Engineering for Energy. Biotransformation of a proteinaceous solid waste into an alternative energy source using an anaerobic baffled reactor. Luis A. Ríos-Hernández (PI) and Braulio Gonzalez (CoPI). In this research project we were able to transform an industrial proteinaceous waste into energy using anaerobic reactors.

Bacardi Corporation 2009/0.08yr. Determination of the presence of fecal contamination in raw material used in the Bacardi industry in Puerto Rico. Luis A. Ríos Hernández and Carlos Ríos Velázquez (CoPIs). This short research project allowed use to determine the source of contamination within an industrial anaerobic reactor and the possible interventions to eliminate or mitigate the contaminations.

NSF-RIG 2009/2 years. The ecological constraints of methane production by microbes in natural environments. Luis A. Ríos-Hernández (PI). In this research we studied the ecological limitations of methane production from the perspective of the selection process of the Syntrophic couples using a gradient of temperature and a limitation of the carbon source.

USGS-PRWRERI 2011/1yr. The Population dynamics of the dominant Enterococci in the water systems of Puerto Rico. (PI) Luis A. Rios Hernandez. In this short research project we determined that the total population of environmental Enterococci in marine system in Puerto Rico varies in both, size and species diversity in as little as 4 hours limiting the identification of a “recent fecal contamination”

USGS-PRWRERI 2012/1yr. Microbial Source Tracking: The hunt for *E. faecalis* the dominant Enterococci among non-pigmented environmental Enterococci in the water systems of Puerto Rico. (PI) Luis A. Rios Hernandez. In this short research project we discover that the population of *E. faecalis* in natural ecosystems frequently contains the same virulent genes that the clinical counterparts has and that these traits could not be used to discriminate the origin of the Enterococci.

DoD 2010/5yrs. UPR-UGA Partnership for a Research Center for Excellence in Renewable Energy. Senior Personnel. Luis A. Rios Hernandez. In this proposal we lay the ground work to determine the feasibility to use marine algae, sea grasses, and terrestrial climbing vines as feedstock to generate methane as an alternative energy source. Furthermore, we determine that not

all biomass responds in the same way to simple pretreatments to improve its biodegradability culminating in an increment of methane produced.

National Institute of Health (NIH) 2012-2017.....\$1,349,575/5yrs
R25- Bridge to the doctoral degree University of Puerto Rico to medicine and dentistry of New Jersey. PI's Jerome A. Langer and Loren Runnels; Co-PI's. Luis A. Ríos Hernández and Carlos Rodríguez Minguella.

(ii). Current:

(iii). Pending:

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Education

Post-doctoral Experience University of Tromso, Norway	2019
Ph.D. Biological Sciences University of Puerto Rico Rio Piedras, San Juan, Puerto Rico	2015
B.Sc. Biology University of Havana, Cuba	2004

Academic Experience

University of Puerto Rico, Mayagüez campus, Assistant Professor	2023 - present (Probationary appointment)
University of Puerto Rico at Bayamón	2015 - 2022 (Assistant Professor, contract)
Department of Health Sciences, former University of the East, U.A.G.M	2017 - 2018 (Adjunct professor)
Department of Health Sciences, former University of Turabo, U.A.G.M	2017 - 2018 (Adjunct professor)

Non-Academic Experience

Reviewer “ <i>ad honorem</i> ” of the book Biodiversity of Puerto Rico, Chapter: Echinoderms, Puerto Rico.	2014
Institute of Oceanology, Havana, Cuba. Research Assistant.	2004-2006
Volunteer teacher and coordinator, Elementary School, Havana, Cuba.	2006
Coordinator, Clean Up the World Campaigns, Cuba.	2005-2006

Certification or Professional Registrations

Certificate in the Virtual Course of COVID-19 (DECEP-UPRRP).	2020
Certificate in Online Education and Virtual Courses Creation (DECEP-UPRRP).	2019
Certificate in Assessment in Classroom (DECEP-UPRRP).	2019
Certificate in Learning to Teach Online (UNSW-Sidney).	2018
Certificate for Adjunct professor at University Ana G. Méndez.	2016

Advanced Open Water Diver, PADI No: 13070C5156.	2013 - present
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Honors and Awards

Service Activities

Member of Chemical Hygiene and Bio-security Committee.	2019-present
Coordinator of the Self-tutorial Center of Biology.	2018- present
Designated contact person for the department web	2016- present
Member of the Assessment, Professional Development, Student Affairs Committee.	2016-2019
Judge of the Scientific Fair of the Department of Education (First and second round).	2019
Member of the Quinquenal Committee.	2018-2019

Professional Development Activities

V Latin American Congress of Echinoderms, plenary talk	2022
Annual Meeting of the Puerto Rico Chapter American Fisheries Society, D.E.N.R.	2019
<i>Pterocarpus officinalis</i> Symposium, U.P.R.B.	2018

Recent Publications

Rodríguez-Barreras, R., Dominicci-Maura, A., Tosado-Rodríguez, E. L., & Godoy-Vitorino, F. (2023). The Epibiotic Microbiota of Wild Caribbean Sea Urchin Spines Is Species Specific. *Microorganisms*, 11(2), 391.

Rodríguez-Barreras, R., Tosado-Rodríguez, E. L., & Godoy-Vitorino, F. 2021. Trophic niches reflect compositional differences in microbiota among Caribbean sea urchins. *PeerJ*, 9, e12084.

Rodríguez-Barreras, R., Zapata-Arroyo, C., Falcón L, W., & Olmeda, M. D. L. 2020. An island invaded by exotics: a review of freshwater fish in Puerto Rico. *Neotropical Biodiversity*, 6(1), 42-59.

Rodríguez-Barreras, R., & Zapata-Arroyo, C. 2019. The first record of the African catfish *Clarias gariepinus* (Burchell, 1822) in Puerto Rico. *Journal of International Aquatic Science*. 10(2), 3 pp.

CURRICULUM VITAE

Carlos José Santos Flores

Current Address: Department of Biology, University of Puerto Rico-Mayagüez
Call Box 9000, Mayagüez, PR 00681

Professional Preparation

University of Puerto Rico, Mayagüez	Industrial Microbiology	B.S. (1992)
University of Puerto Rico, Mayagüez	Biology/Mycology	M.S. (1996)
University of Wisconsin-Madison	Limnology/Aquatic Zoology	Ph.D. (2001)

Appointments

University of Puerto Rico, Mayagüez	Full Professor (2011-present)
University of Puerto Rico, Mayagüez	Associate Professor (2005-2011)
University of Puerto Rico, Mayagüez	Assistant Professor (2001-2005)
University of Puerto Rico, Mayagüez	Limnology Instructor (1996-1997)

Professional Memberships

American Society for Limnology and Oceanography (1997-2001; 2010-present); International Society for Limnology (2001-2003; 2010-present); “Sociedad Española de Aracnología” (2007-present); Mycological Society of Puerto Rico (2002-2010); Entomological Society of Aragon (Spain) (2004-present); American Orthopterologist Society (2013-present); *BBB* Biology Honor Society [Member: 1995- present; Advisor (2003-2014)]; Phi Kappa Phi Honor Society (1991-present); **T-RUST**- Program for Multidisciplinary Studies on Watersheds- Wayne State University, Detroit, Michigan (2015-present)

Teaching Experience at UPR-Mayagüez

CIBI 3031/3032 Introduction to Biology I & II; **CIBI 3031L/3032L** Introduction to Biology I & II (Laboratories); **BIOL 3021/3022** Animal Biology for Pre-Vet Students I & II; **BIOL 3051/3052** General Biology I & II; **BIOL 3051L/3052L** General Biology I & II (Laboratories); **BIOL 3125** Principles of Ecology; **BIOL 3225** Biology of Sex; **BIOL 3425/3425L** Organismal Animal Biology – Course and Laboratory; **BIOL 3770/BIOL 3770L** General Microbiology – Course and Laboratory; **BIOL 4335** Evolution; **BIOL 4365L** Laboratory for Microbial Ecology; **BIOL 4376** Freshwater Biology; **BIOL 4426L** Animal Parasitology Laboratory; **BIOL 4735L** Laboratory for Microbiology of Water and Sewage; **BIOL 4995** Undergraduate Seminar; **BIOL 4991/4992** Special Problems in Biology I & II (Research in Biology); **BOTA 4995/4996** Special Problems in Botany I & II (Research in Botany); **ZOOL 5005/5005L** Invertebrates of Puerto Rico – Course and Laboratory; **BIOL 6610/ BIOL 6610L** Limnology – Course and Laboratory; **BIOL 6689** Biological Research Methods; **BIOL 6990** Graduate Research; **BIOL 6993** Special Topics in Biology- *Tropical Limnology*; **BIOL 6993/6997** Special Topics in Biology- *Freshwater Phycology* - Course & Laboratory; **BIOL 6993/6997** Special Topics in Biology-

Aquatic Entomology - Course & Laboratory; **BIOL 6994/4994** Special Topics in Biology - *Uses and History of Biological Illustration*

Service as reviewer for the following scientific journals or bulletins: *Acta Biológica Colombiana*, *Acta Biológica Venezolana*, *Biota Colombiana*, *Caldasia* (Colombia), *Caribbean Journal of Science*, *Crustaceana*, “*Fuete y Verguilla*” (Sea Grant Bulletin), *Hydrobiologia*, *Interciencia* (Venezuela), *International Journal of Speleology*, *Life: The Excitement of Biology*, *Journal of Agriculture of the University of Puerto Rico*, *Journal of Crustacean Biology*, *Microbial Ecology*, *Mycologia*, *Mycotaxon*

Current Research Support:

09/2022-09/2024

DEVELOPMENT OF AN INTEGRATED PLATFORM FOR MONITORING AND FORECASTING HARMFUL ALGAL BLOOMS AT SAN JOSÉ LAGOON

Role: **Collaborator**

Agency: PR Environmental Quality Board &

PR Department of Natural and Environmental Resources

PI: Dr. Gustavo Martínez; CoPI: Dr. Luis Pérez-Alegría

09/2021-09/2025

USING THE ECOLOGICAL FOOTPRINT OF RESERVOIR SEDIMENTS AS TOOLS TOWARDS THE PLANNING OF SUSTAINABLE MULTIFUNCTIONAL LANDSCAPES IN PUERTO RICO.

Role: **Collaborator**

Agency: USDA - Mc Intire Stennis Program

PI: Dr. Gustavo Martínez; CoPI's: Dr. David Sotomayor and Dr. Luis Pérez Alegría (UPR-RUM, Agronomy and Soils Department)

PREQB CONTRACT NO: 2020-000052-A

31/08/2020-15/9/2023

DEVELOPMENT OF AN ECOLOGICAL INDEX FOR PALUSTRINE WETLANDS ASSESSMENT IN PUERTO RICO

Role: **Co-PI**

Agency: US Environmental Protection Agency- USEPA

PI: Dr. Gustavo Martínez; CoPI's: Dr. David Sotomayor, Dr. Raúl Macchiavelli and Dr. Luis Pérez Alegría (UPR-RUM, Agronomy and Soils Department)

11/2019-09/2023

IMPLEMENTATION OF A WATER QUALITY RESTORATION STRATEGY AT THE SAN JUAN BAY ESTUARY WATERSHED AND THE RÍO LOÍZA (BELOW DAM) ESTUARY CONTRIBUTING ZONE.

Role: **Taxonomic Consultant (Collaborator)** Agency: US EPA & CCEBSJ

PI: Dr. Gustavo Martínez; CoPI: Dr. Luis Pérez Alegría (UPR-RUM, Agronomy and Soils Department)

11/2019-12/2023

A PRELIMINARY CHARACTERIZATION OF THE PLANKTON OF SAN JOSÉ LAGOON, PUERTO RICO

Role: **Taxonomic Consultant**

PI: Dr. Gustavo Martínez, UPR-RUM

Part of the Cooperative Agreement between UPR-RUM and “Corporación para la Conservación del Estuario de la Bahía de San Juan (CCEBSJ)”.

Agency: US Fish and Wildlife Service (Department of Interior)

Recent peer-reviewed publications:

Perales Macedo, DMB, Díaz Pernet SC, Díaz González MG, Torres Nieves GM, **Santos Flores CJ**, Díaz Lameiro AM, Locke SA. 2022. Autochthonous transmission of the Indomalayan parasite, *Transversotrema patialense*, in the Caribbean: Molecular, morphological, and experimental evidence. *Experimental Parasitology*. doi: 10.1016/j.exppara.2022.108368.

Arocho-Hernández, N., **C.J. Santos-Flores**, D. Pérez-López, M. Alfaro-Lozano. 2021. Aquatic invertebrate communities in areas covered and devoid of the floating fern *Salvinia* within the mangrove forest in the Boquerón Wildlife Refuge, Cabo Rojo, Puerto Rico. *Caribbean Journal of Science*, 51:146-165.

Martínez, G.A., **C.J. Santos-Flores**, R. Macchiavelli, D. Sotomayor-Ramírez, L. Pérez-Alegría. 2016. Nutrient levels associated with ecological thresholds of impairment: An approach to estimate numeric nutrient criteria for reservoirs of Puerto Rico. *Journal of Agriculture of the University of Puerto Rico*, 99:63-86.

Narváez-Parra, E.X., J. H. Jerez-Jaimes, and **C.J. Santos-Flores**. 2016. Hifomicetos ingoldianos del río Frío (Floridablanca), Santander, Colombia [Aquatic hyphomycetes from Rio Frío, Santander, Colombia]. *Revista Biota Colombiana*, 17(2):1-11.

Bishop-Lilly, K.A., K. G. Frey, T. Biser, T. Hamilton, **C.J. Santos**, G. Pimentel, V.P. Mokashi. 2016. Bioinformatic Characterization of Mosquito Viromes within the Eastern United States and Puerto Rico: Discovery of Novel Viruses. *Evolutionary Bioinformatics*, 12 (suppl.2):1-12.

Other recent publications:

Vélez-Gavilán J, **Santos C**, 2023. *Coremothrips pallidus*. CABI Compendium, Issue 374. Compendia Datasheets. <https://doi.org/10.1079/cabicompendium.124783>

Narváez Parra EX, **Santos Flores CJ**, Bonett Manosalva JA, Jerez Jaimes JH. 2022. Caracterización de hifomicetos ingoldianos del río Frío, Santander. v1.0. Universidad de Santander - UDES. Dataset/Occurrence. <https://doi.org/10.15472/2cxvg3>

Santos-Flores, C.J., and S. Locke. 2020. Los peces nativos de agua dulce de Puerto Rico [Native freshwater fishes of Puerto Rico]. Special Publication by the Sea Grant Program.

Geli-Cruz, O.J., M.J. Cafaro, **C.J. Santos-Flores**, A.J. Ropelewski, and A.R. Van Dam. 2019. Taxonomic survey of *Anadenobolus monilicornis* gut microbiota via shotgun nanopore sequencing. Available from bioRxiv. DOI: <https://doi.org/10.1101/560755>

Dimuth Siritunga, Ph. D.

Email: dimuth.siritunga@upr.edu

EDUCATION

Ph.D. (2002) Plant Biology, The Ohio State University, Columbus, OH

Dissertation title: Genetic modification of the cyanogenic glucoside pathway of cassava

M.S. (1996) Agronomy, The Ohio State University, Columbus, OH

Subject: Identification of HMW-glutenin alleles in soft wheat using PCR-generated DNA markers

B.S. (1994) Major - Biology (High Honors) Minor – Chemistry, Hobart College, Geneva, NY

Thesis subject: Identification of genetic polymorphisms between *Fagopyrum esculentum* and *F. tataricum* using RAPD markers.

PROFESSIONAL EXPERIENCE

Professor, August 2012 – present, Dept. of Biology, University of Puerto Rico Mayaguez, PR

Research laboratory at UPRM focusses on the assessment of genetic diversity of crops in Puerto Rico as well as assist in field-analysis of genetically enhanced plants through externally funded research endeavors. Teaching responsibilities include core courses in general genetics and introductory biology, as well as electives courses such as plant physiology, medical cannabis and biology seminar.

Ad-hoc Member, January 2011 to July 2017

Institute for International Crop Improvement, Danforth Plant Science Center, St. Louis, MO

Associate Professor, August 2007 to August 2012

Dept. of Biology, University of Puerto Rico, Mayaguez, PR

Assistant Professor, July 2004 to June, 2007

Dept. of Biology, University of Puerto Rico, Mayaguez, PR

Post-Doctoral Fellowship, January 2003 to June 2004

Dept. of Plant Biology, The Ohio State University, Columbus, OH

Research and technical

Research Associate, August 2001 – December 2002

Dept. of Plant Biology, The Ohio State University, Columbus, OH

Genetic modification of cassava starch pathway funded by the National Starch and Chemical Company, Bridgewater, NJ

Laboratory Research Assistant, June 1993 - June 1994

Dept. of Horticultural Sciences, Cornell University, Geneva, NY

Research Technician, June 1992 - December 1992

USDA-ARS, Plant Genetic Resources Unit, Cornell University, Geneva, NY

GRANTS (total ~\$2.5 million)

- Bill and Melinda Gates Foundation, ***VIRCA Plus***, 11/2016 – 11/2019
- USDA NIFA, '***Expanding Research Opportunities for Hispanic Students through DNA Barcoding of Three Agriculturally Important Plant Families in Puerto Rico***', 09/2015 – 09/2020, PI
- Amylor Inc., '***Cassava to Sweetener Project***', 12/2-14 – 12/2015, PI
- Mars Inc., '***Assessment of Cassava Leaves as a Source of Protein***', 10/2013 – 7/2016, PI
- Howard Hughes Medical Institute, '***Enhancing Advanced Educational Opportunities in STEM Fields for Minority Students at UPR-M***', 10/2012 – 10/2016, co-PI
- Gates Foundation, '***BioCassava II: Nutrient Dense Cassava Products for Improved African Livelihoods***', 11/2010 – 11/2016, co-PI
- CIP / Gates Foundation, '***Development and Safety Assessment of Weevil Resistant Sweet potato Varieties in Africa***', 12/2009 – 7/2014, co-PI
- Danforth Plant Science Center, '***Maruca-Resistant Cowpea Project***', 1/2009 – 12/2009, PI
- Bill and Melinda Gates Foundation, '***Strengthening African Ownership and Product Development Activities***', 8/2008 – 9/2012, co-PI
- Howard Hughes Medical Institute, '***Research Oriented Laboratory Enhancements by Module Development for Laboratories (ROLE-MODEL)***', 8/2008 – 7/2012, co-PI
- USAID / International Food Policy Research Institute (IFPRI), '***Building functional Bio-safety Systems***', 1/2008-12/2008, PI
- National Science Foundation, Course, Curriculum and Laboratory Improvement Award, '***Pathways for new laboratory modules in undergraduate Genetic and Cell Physiology education: Characterization of Puerto Rican cassava***', 4/2008—3/2011, PI
- National Science Foundation, Career Advancement Award, '***A road to more nutritious cassava: Cloning, functional characterization and over-expression of β -cyanoalanine synthase gene from cassava***', 6/2007 – 6/2010, PI
- Bill and Melinda Gates Foundation / NIH, '***BioCassava Plus Project: Improving Cassava for Nutrition, Health, and Sustainable Development***', 7/2005 – 7/2010, co-PI
- Rockefeller Foundation, '***Metabolic Engineering of Cyanogen Metabolism in Transgenic Cassava; Generation of Safer more Marketable Cassava Food Products for Subsistence Farmers***', 4/2005 – 4/2007, co-PI
- National Science Foundation, Major Research Instrumentation Grant, '***A Genetic Analyzer for Studies on Biodiversity, Phylogenetics, Population Genetics and Molecular Biology in the Caribbean***', 6/2005 – 6/2008, co-PI
- Research and Development Center, Uni. of Puerto Rico, '***Strategies for the reduction of post- harvest deterioration in cassava***', 1/2005 – 12/2005, PI
- Dean's of Arts and Sciences, Uni. Of Puerto Rico, '***Investigating the role of cyanogens in amino acid synthesis of root crop, cassava***', 8/2005 – 8/2006, PI

PUBLICATIONS

- Beyene, G., Gehan, J., **Siritunga, D.** and Taylor, N. 2022. Cassava shrunk-2 homolog MeAPL3 determines storage root starch and dry matter content and modulates storage root postharvest physiological deterioration, *Plant Molecular Biology*, <https://doi.org/10.1007/s11103-020-00995-z>
- Hernandez Rosario, L., Rodríguez Padilla, J., Ramos Martínez, D., Morales Grajales, A., Mercado Reyes, J., Veintidós Feliu, G., Van Ee, B. and **Siritunga, D.** 2019. DNA Barcoding of the

Solanaceae Family in Puerto Rico Including Endangered and Endemic Species, Journal of the American Society for Horticultural Science, 144:363-374

- Narayanan, N., Beyene, G., Gaitán-Solís, E., Gehan, J., Butts, P., **Siritunga, D.**, Okwuonu, I., Woll, A., Jiménez-Aguilar, D., Boy, E., Grusak, M., Anderson, P. and Taylor, N. 2019. Biofortification of field-grown cassava by engineering expression of an iron transporter and ferritin, Nature Biotechnology, <https://doi.org/10.1038/s41587-018-0002-1>
- Luciano-Roario, D., Cruz-Saavedra, L and **Siritunga, D.** 2018. Genetic Diversity of Puerto Rican Farmer-held Papaya (*Carica papaya*) using SSR Markers, HortScience, 53(8): 1109-1114
- Beyene, G., Solomon, F., Chauhan, R., Gaitan-Solis, E., Narayanan, N., Gehan, J., **Siritunga, D.**, Stevens, R., Jifon, J., Van Eck, J., Linsler, E., Gehan, M., Ilyas, M., Fregene, M., Anderson, P., Sayre, R., Taylor, N., and Cahoon, E. 2018. Provitamin A Biofortification of Cassava Enhances Shelf-Life but Reduces Dry Matter Content of Storage Roots Due to Altered Carbon Partitioning into Starch, Plant Biotechnology Journal, 16(6):1186-1200
- Zambrana-Echevarria, C., Jenkins, D. and **Siritunga, D.** 2017. Occurrence and incidence of *Papaya ringspot virus* in Puerto Rico. International J. of Agriculture, Environment and Bioresearch, 2: 1-14.
- Zidenga, T., Siritunga, D. and Sayre, R. 2017. Cyanogen Metabolism in Cassava roots: Impact on Protein Synthesis and Root Development. Frontiers in Plant Science, doi.org/10.3389/fpls.2017.00220
- Zambrana, C., De Jesus- Kim, L., Marquez-Karry, R., Jenkins, D. and **Siritunga, D.** 2016. Diversity of *Papaya ringspot virus* Isolates in Puerto Rico. HortScience, 51(4):1-8
- Gaitan-Solis E., Taylor N., **Siritunga D.**, Stevens W. and Schachtman D.P. (2015). Overexpression of the transporters *AtZIP1* and *AtMTP1* in cassava changes zinc accumulation and partitioning. *Front. Plant Sci.* 6:492. doi: 10.3389/fpls.2015.00492
- Rodriguez-Bonilla, L., Cuevas, H., Montero-Rojas, M., Bird-Pico, F., Luciano-Rosario, D., **Siritunga, D.** 2014. Assessment of Genetic Diversity of Sweet Potato in Puerto Rico, Plos One, *DOI: 10.1371/journal.pone.0116184
- Salcedo A, Zambrana C and **Siritunga D.** 2014. Comparative expression analysis of reference genes in field-grown cassava, Tropical Plant Biology 7:53-64
- Echeverry-Solarte, M., Ocasio-Ramirez, V., Figueroa, A., González, E. and **Siritunga, D.** 2013. Expression Profiling of Genes Associated with Cyanogenesis in Three Cassava Cultivars Containing Varying Levels of Toxic Cyanogens, American Journal of Plants Sciences 4:1533-1545
- Montero, M., Ortiz, M., Beaver, J. and **Siritunga, D.** 2013. Genetic, Morphological and Cyanogen Content Evaluation of a New Collection of Caribbean Lima Bean (*Phaseolus lunatus* L.) Landraces, Genetic Resources and Crop Evolution 60:2241-2252
- Faila, M., Chitchumroonchokchai, C., **Siritunga, D.**, De Moura, F., Fregene, M. and Sayre, F. 2012. Retention and bioaccessibility of β -Carotene in Biofortified Cassava. The FASEB Journal 25:976
- **Siritunga, D.**, Navas, V. and Diffoot, N. 2012. Enhancing Hispanic Minority Undergraduates' Botany laboratory experiences: Implementation of an inquiry-based plant tissue culture module exercise. International Education Studies 5:14-24
- Zidenga, T., Leyva-Guerrero, E., Moon, H, **Siritunga, D.** and Sayre, R. 2012. Extending cassava root shelf life via reduction of reactive oxygen species production. Plant Physiology 159:1-13
- Montero, M., Beaver, J. and **Siritunga, D.** 2012. Assessment of genetic diversity among Lima bean landraces from the Dominican Republic, Haiti and Puerto Rico. Ann. Rep. of the Bean Improv. Coop. 55:129-130.
- Failla, M., Chitchumroonchokchai, C., **Siritunga, D.**, De Moura, F., Fregene, M., Manary, M. and Sayre, R. 2012. Retention during Processing and Bioaccessibility of β -Carotene in High β -Carotene Transgenic Cassava Root, Journal of Agric. Food Chem., 60: 3861-3866

- Babilonia, K. and **Siritunga, D.** 2012. Cysteine Biosynthesis in plants: Essential step in sulfur-metabolism, In: Cysteine: Biosynthesis, Chemical Structure and Toxicity, Nova Science Publishers, NY, USA
- Salcedo, A. and **Siritunga, D.** 2011. Insights into the Physiological, Biochemical and Molecular Basis of Postharvest Deterioration in Cassava (*Manihot esculenta*) Roots, American Journal of Experimental Agriculture, 1(4): 414-431
- Narayanan, N., Ihemre, U., Chiu, W., **Siritunga, D.**, Rajamani, S., Singh, S., Oda, S. and Sayre, R. 2011. The Iron Assimilatory Protein, FEA1, from *Chlamydomonas reinhardtii* Facilitates Iron-Specific Metal Uptake in Yeast and Plants, Frontiers in Plant Biotechnology (2:67. doi: 10.3389/fpls.2011.00067)
- **Siritunga, D.**, Montero-Rojas, M., Carrero, K., Toro, G., Vélez, A. and Carrero-Martínez, A. 2011. Culturally relevant research to the masses: Large-scale laboratory module implementations in upper-division genetics and cell biology teaching laboratories, Life Science Education Journal, 10: 287- 297
- Montero Rojas, M., Correa, A. and **Siritunga, D.** 2011. Molecular differentiation and diversity of cassava (*Manihot esculenta*) taken from 162 locations across Puerto Rico and assessed with microsatellite markers. Annals of Botany Plants (in press; doi:10.1093/aobpla/plr010)
- Sayre, R., Beeching, J., Cahoon, E., Egesi, C., Fauquet, C., Fellman, J., Fregene, M., Grissem, W., Mallowa, S., Manary, M., Maziya-Dixon, B., Mbanaso, A., Shachtman, D., **Siritunga, D.**, Taylor, N., Vanderschuren, H., Zhang, P. 2011. The BioCassava Plus Program: Biofortification of Cassava for Sub-Saharan Africa, Annual Review of Plant Biology, 62: 251-271
- Zidenga, T., Moon, H, **Siritunga, D.** and Sayre, R. 2010. Investigating the Mechanism and Control of Post-Harvest Physiological Deterioration in Cassava (*Manihot Esculenta*). In Vitro Cellular and Development Biology, 46:S88-88
- Salcedo, A., Del Valle, A., Sanchez, B., Ocasio, V., Ortiz, A., Marquez, P. and **Siritunga, D.** 2010. Comparative evaluation of physiological post-harvest root deterioration of 25 cassava (*Manihot esculenta*) accessions: visual vs hydroxycoumarins fluorescent accumulation analysis. African Journal of Agricultural Research, 5: 3138-3144
- Marrero-Degro, J., Marcano, J. and **Siritunga, D.** 2010. Isolation and Characterization of Novel β -Cyanoalanine Synthase and Cysteine Synthase Genes from Cassava. Plant Molecular Biology Reported, 29: 514-524
- Ihemre, U., Sayre, R. and **Siritunga, D.** 2008. Transgenic Cassava, In Compendium of Transgenic Crop Plants: Transgenic Sugar, Tuber and Fiber Crops. Kole, C. and Hall, T. C. (eds.), Blackwell Publishing, Oxford, UK, 2008, pp 177-198
- **Siritunga, D.** and Sayre, R. 2007. Transgenic Approaches for Cyanogen Reduction in Cassava, Journal of the Association of Official Analytical Chemists, 90:1450-1455
- Msikita W., Ihemre U., **Siritunga D.** and Sayre R. 2006. Cassava (*Manihot esculenta* Cranz) Transformation. In: Agrobacterium Protocols: Methods in Molecular Biology. vol. 44. Kan Wang, ed. Humana Press
- **Siritunga, D.** 2005. Genetic engineering of the cyanogenic pathway in cassava In: Plant Genetic Engineering Vol 8: Metabolic engineering and Molecular farming-II, Stadium Press LLC, P O Box 722200, Houston, Texas 770072, USA pp 11-141
- **Siritunga, D.** and Sayre, R. 2004. Engineering cyanogens in cassava. Plant Mol. Biol., 56: 661-669
- Taylor, N., Chavarraiga, P., Raemakers, K., **Siritunga, D.**, Zhang, P. 2004. Development and application of transgenic technologies in cassava. Plant Molecular Biology, 56: 671-688

- **Siritunga, D.**, Arias-Garcon, D., White, W. & Sayre, R. 2004. Over-expression of hydroxynitrile lyase in transgenic cassava (*Manihot esculenta*, Crantz) roots accelerates cyanogenesis. Plant Biotechnology Journal, 2:37-43
- **Siritunga, D.** and Sayre, R. 2003. Domestication of cassava: Generation of cyanogen-free cassava. Planta, 217: 367-373
- Campbell, K.G., Finney, P.L., Bergman, C.J., Gualberto, D.G., Anderson, J.A., Giroux, M.J., **Siritunga, D.**, Zhu, J., Vérel, A. and Sorrells, M.E. 2001. Quantitative Trait Loci Associated with Milling and Baking Quality in a Soft x Hard Wheat Cross. Crop Science, 41: 1275-1285
- Samimy, C., Björkman, T., **Siritunga, D.** and Blanchard, L. 1996. Overcoming the barrier to interspecific hybridization of *Fagopyrum esculentum* with *F. tataricum*. Euphytica, 91: 323-330

SYNERGISTIC ACTIVITIES

- Poster presentation at conferences: 64
- Seminars and invited oral presentations: 75
- Journals reviewed for: 14
- Graduate student mentees: 13
- Undergraduate research student mentees: 57
- Awards received by research students: 37

HONORS

- Golden Key International Honor Society – Honorary member, March 2016
- Premier Excellence in Research Award – Arts and Science College (2013; UPRM)
- Premier Excellence in Research Award – Arts and Science College (2009; UPRM)
- Paper published in Cell Biology Education journal featured in the year-end special highlight issue, November 2011
- Member of the ‘Phi Kappa Phi’ honor society
- Edward Hayes Research Symposium – 1st place research presentation (2002; The Ohio State Uni.)
- The Outstanding Graduate Student Teaching Award 1995
- Biology Faculty Prize (1994; Hobart and William Smith Colleges)
- Dean’s Citizenship Award (1994; Hobart and William Smith Colleges)
- Gantcher Family Scholarship (1993; 1994; Hobart and William Smith Colleges)

A true and accurate record as of April 15th, 2023

Curriculum Vitae

John M. Uscian

201 Biology Building, UPR - Mayaguez, Mayaguez, PR 00680
Home: 787-519-4234: jmuscian@yahoo.com

Summary

University professor with in-depth knowledge of both cellular physiology and human anatomy and physiology courses

Experience in kinetic analysis and purification of proteases from marine organisms

Instruction of ichthyology course

Experience functioning as an organizer of and chaperone on safaris to India and Africa

Highlights

Teaching/Instruction in cell physiology, human	Undergraduate research guidance
anatomy and physiology, and ichthyology	Assisting students in writing statement of purpose
Protease kinetic analysis and purification	letters for application to medical school, graduate
organization of and chaperoning duties on safaris to	school, and summer undergraduate research
India and South Africa	Instruction of seminar courses
Functioned as major professor for six students who	
succeeded in completing their masters degrees in science	

Experience

Professor

August 1995 to Current

Dept. Biology, UPR-Mayaguez - Mayaguez, PR

Maintained a teaching load of 12/12+ credits in undergraduate courses each semester

Challenged and motivated students through in-depth lectures and discussions

Produced a book each for the courses of cellular physiology and human physiology

Lectured and communicated effectively with students from diverse backgrounds

Initiated thought-provoking classroom discussions to help students develop their critical thinking abilities

Education

Ph.D. : Entomology, 1994

University of Nebraska - Lincoln - Lincoln, NE, USA

Dissertation: Phospholipase and related biochemistry in fat body tissues of the tobacco hornworm, *Manduca sexta*

Master of Science : Entomology, 1991

University of Nebraska - Lincoln - Lincoln, NE, USA

Thesis: Hybridization of a mitochondrial DNA probe among greenbug (*Schizaphis graminum rondani*) biotypes

Bachelor of Science : Biology, 1988

University of Alaska - Fairbanks - Fairbanks, AK, USA

Undergraduate degree in biology with emphasis in zoology

Bachelor of Arts : English, 1982

Northern Illinois university - DeKalb, IL, USA

English degree with emphasis in study of literary analysis

Publications

Books:

Uscian, John M. (2013) The Human Body: Principles of Form and Function, 2nd Edition. Libreria Universal. Mayaguez, PR. 738 pp.

Uscian, John M. (2010) Principles of Cell Physiology and Biochemistry, 2nd Edition. Libreria Universal. Mayaguez, PR. 382 pp.

Uscian, John M. with contributions by Gayle L. Hansen (2008) The Alaska SeaLife Center Guide to Marine Life: for Staff, Interns, and all Marine Life Enthusiasts. Alaska Sea Grant. 624 pp.

Uscian, John M. (1999) Human Physiology: Comprehensive College Lecture and Study Guide, 2nd Edition. Libreria Universal. Mayaguez, PR. 423 pp.

Journal Articles:

Uscian, J.M., Miller, J. and Stanley-Samuelson, D.W. (1994) A digestive phospholipase A2 in the tiger beetle, *Cicindella corcumpicta*. J. Insect Phys. 41. 1135 - 1141.

Uscian, J.M. and Stanley-Samuelson, D.W. (1994) Fatty acid compositions of phospholipids and triacylglycerols from selected terretesrial arthropods. Comp. Biochem. Physiol. 107B. 371 - 379.

Uscian, J.M. and Stanley-Samuelson, D.W. (1993) Phospholipase A2 activity in fat body of thetobacco hornworm, *Manduca sexta*. Archs. Insect Physiol. Biochem. 24, 187 - 201.

Uscian, J.M., Miller, J.S., Howard. R.W., and Stanley-Samuelson, D.W. (1993) Arachidonic and eicosapentanoid acids in the tissue lipids of two predacious insects, *Cicindela circumpicta* and *Asilis* sp. Comp. Biochem. Physiol. 103B, 833 - 838.

Presentations:

Uscian, J.M., Sarath G., and Stanley-Samuelson, D.W. (1994) Partial purification of phospholipase A2 from fat body of the tobacco hornworm, *Manduca sexta*. Entomol. Soc. of Amer. Annual Meeting. Abstract.

Uscian, J.M. (1993) Incorporation of arachidonic and oleic acids into phospholipids of the tobacco hornworm, *Manduca sexta*. Entomol. Soc. Amer. Annual Meeting. Abstract.

Uscian J.M., Powers, T.O., and Mayo ZB (1990) Biotpe specific hybridization of a mitochondrial DNA probe among greenbug (*Schizaphis graminum* Rondani) biotypes. International Aphid Conference, Stillwater, Oklahoma. Abstract.



Alex Robert Van Dam ix-12-2023

Name: Alex R. Van Dam
 Work address: Department of Biology University of Puerto Rico Mayagüez, PO Box 9000
 Mayagüez, PR.
 Contact info: alex.vandam@upr.edu

Professional preparation:

NSF Post Doctoral Researcher at Denmark Technical University (October 2013- August 2015)
 PhD Entomology University of California Davis (September 13, 2013)
 MS Entomology University of California Riverside (March 24, 2007)
 BS Entomology University of California Riverside (June 11, 2004)

Appointments:

Associate Professor Department of Biology University of Puerto Rico Mayagüez (August 2015–present)

Publications:

- Rodriguez Ruiz, A., **Van Dam, A.R.** 2023. Genome Announcement: Metagenomic binning of PacBio HiFi data prior to assembly reveals a complete genome of *Cosmopolites sordidus* (Germar) (Coleoptera: Curculionidae, Dryophthorinae) the most damaging arthropod pest of bananas and plantains. *PeerJ*. Accepted in proofing.
- Geli-Cruz, O.J., Santos-Flores, C.J., Cafaro, M.J., Ropelewski, A., **Van Dam, A.R.** 2023. Benchmarking assembly free nanopore read mappers to classify complex millipede gut microbiota via Oxford Nanopore Sequencing Technology. *Journal of Biological Methods*. 10: e99010003 DOI: 10.14440/jbm.2023.376.
- Bahder, B.W., Myrie, W., Helmick E.E., **Van Dam A.R.**, Bartlett CR. 2023. A new species of planthopper in the genus *Jamaha* (Hemiptera: Fulgoroidea: Nogodinidae) from the Northeastern coast of Jamaica. *Zootaxa*. 5263: 261–272. doi:10.11646/zootaxa.5263.2.5
- Van Dam, A.**, Covas Orizondo, J. A., Lam, A.W., McKenna, D. D., Van Dam, M.H. 2022. Metagenomic clustering reveals microbial contamination as an essential consideration in ultraconserved element design for phylogenomics with insect museum specimens. 2022. *Ecology and Evolution*, 12, e8625. <https://doi.org/10.1002/ece3.8625>
- Marlys Massini Espino, Alexis M. Mychajliw, Juan N. Almonte, Morten E. Allentoft, **Alex R. Van Dam**. 2022. Raptor roosts as invasion archives: insights from the first black rat mitochondrial genome sequenced from the Caribbean. *Biological Invasions* 24:17–25. <https://doi.org/10.1007/s10530-021-02636-y>
- Rodriguez Ruiz, A. and **Van Dam, A.R.**. 2021. A new species of *Decuanellus* Osella (Coleoptera: Curculionidae: Molytinae: Lymanitini) from insular serpentine soil forests of Maricao State Forest, Puerto Rico. *Coleopterists Bulletin*. 75(3):645–650.
- Locke S.A., Fabiana B. Drago, Danimar López-Hernández, Fred D. Chibwana, Verónica Núñez, **Alex Van Dam**, María Fernanda Achinelly, Pieter T.J. Johnson, Jordana Costa Alves de Assis, Alan Lane de Melo, Hudson Alves Pinto. 2021. Intercontinental distributions, phylogenetic position and life cycles of species of Apharyngostrigea (Digenea, Diplostomoidea) illuminated with morphological, experimental, molecular and genomic data. *International Journal for Parasitology*. 51(8):667–683.
- Locke S.A., **Van Dam A.**, Caffara M., Pinto H.A., López-Hernández D., Blonar C. 2018. Validity of the Diplostomoidea and Diplostomida (Digenea, Platyhelminthes) upheld in phylogenomic analysis. *International Journal for Parasitology*. 48(13): 1043–59.
- Silas Rasmussen, Kenneth Kongstad, Paiman Khorsand-Jamal, Rubini Kannangara, Maise Nafisi, **Alex Van Dam**, Mads Bennedsen, Bjørn Madsen, Charlotte Gottfredsen, Dan Stærk, Ulf Thrane Uffe Mortensen, Thomas Larsen, Rasmus Frandsen. 2018. On the biosynthetic origin of carminic acid. *Insect Biochemistry and Molecular Biology* 96:51–61.
- Christodoulides, N.*, **Van Dam A.R.***, Peterson D.A., Frandsen R.J.M., Mortensen U.H., Rasmussen S., Petersen B., Normark B.B., Hardy N.B. 2017. Gene expression plasticity across hosts of an invasive scale insect species. *PLoS ONE* 12(5): e0176956. <https://doi.org/10.1371/journal.pone.0176956>
- *Denotes Joint first-authorship
- Rasmussen, S., Allentoft M.E., Nielsen K., Orlando L., Sikora M., Sjögren K.G., Pedersen A.G., Schubert M., **Van Dam A.**, Kapel C.M.O., Nielsen H.B., Brunak S., Avetisyan P., Epimakhov A., Khalyapin M.V., Gnuni A., Kriiska A., Metspalu I.L.M., Moiseyev V., Gromov V., Pokutta D., Saag L., Varul L., Yepiskoposyan L., Sicheritz-Pontén T., Foley R.A., Mirazón Lahr M., Nielsen R., Kristiansen K., Willerslev E. 2015. Early Divergent Strains of *Yersinia pestis* in Eurasia 5,000 Years Ago. *Cell*. 163(3):571–582. **[COVER ARTICLE]**

Publication Summary: 24 Publications total. h-index 10, i10-index 11, since 2018; see Google Scholar: <https://scholar.google.com/citations?hl=en&user=EgEFQ6MAAAAJ>



Alex Robert Van Dam ix-12-2023

Grants:

2023	NSF-NASA EPSCoR RII Track-4	\$248,138
2021	NSF XSEDE Bridges2 allocation	\$5,228
2019	USDA RIIA Grant	\$148,523
2018	USDA NIFA Hispanic Serving Institution Grant	\$274,868
2016	NIH PR-INBRE Grant (NIH Subaward)	\$26,944
2015	NSF-XSEDE Startup Grant	1,600 CPU hours
2015	NSF-XSEDE Educational Grant	10,000 CPU hours
2015	Fondos de Semilla Colegio de Artes y Ciencias UPRM	\$3,500
2013	NSF Postdoctoral Research Fellowship in Biology	\$163,601
2012	UC Davis Department of Animal Science Fellowship	\$4,000
2011	van den Bosch Scholarship Award in Systematics	\$15,000
2010	UC MEXUS Dissertation Research Grant	\$12,000
2009	Pacific Rim Advanced Graduate Research Fellowship	\$17,477

In addition nine grants with a combined value of **\$18,150**

Work Experience:

2015-present Assistant/Associate Professor & Director of the Invertebrate Collection (INVCOL) at University of Puerto Rico Mayagüez (UPRM) Department of Biology

2014-2015 NSF Postdoctoral Research Fellow in Biology at Denmark Technical University

2009-2013 PhD fellow University of California, Davis with Dr. Bernie May as supervisor

Teaching at UPRM: I've integrated computer scripting techniques into graduate Entomology and Systematics classes, equipping students with vital computational skills. In Insect Morphology, I introduced *R* programming through a project on Geometric Morphometrics, using packages like *geomorph* and *borealis*. Students learn scientific photography, landmarking data collection, and *R* programming basics, with future plans to incorporate computer vision and deep learning via *python*. In addition to this Laboratory techniques in building NGS libraries for Illumina sequencing and Nanopore Flongle, and micro-injection for CRISPR/Cas9 genome editing.

For Insect Taxonomy, I incorporated Nanopore sequencing for species delimitation and pest identification. Students learn next-generation sequencing (NGS) library preparation and metabarcoding, using ONT Flongle for sequencing insects from their projects. They then demultiplex samples and perform barcoding identification via command line Linux tools.

In Systematic Biology, students expand their Linux command line skills and learn phylogenetics theories and practices using the *Phyluce* pipeline. They also explore python conda environments and incorporate morphological characters into existing phylogenies. Laboratory included Illumina Library preparation as a special topics course.

Finally, in the CRISPR/Cas-9 Genome Editing course, the class is designed so that can students learn genome editing basics in insects, identifying candidate genes with bioinformatics tools, designing guide RNA, and performing micro-injections in *Drosophila melanogaster* eggs. This course provides hands-on experience in functional genomics experiments.

Overall, my teaching approach has focused on bridging the gap between traditional biology and computational methods, ensuring students are well-prepared for a future that incorporates scientific research.

Infrastructure:

When I arrive at UPRM in 2015, both the collection (INVCOL) and Entomology Lab had been abandoned for about four years, no molecular or computational infrastructure existed. At UPRM I have significantly improved the invertebrate collection's infrastructure in multiple ways. First, I stabilized the bioinformatic infrastructure utilizing the remote Symbiota infrastructure for GBIF upload and database safeguarding.

I have also expanded the collection's facilities by establishing a molecular lab, functional genomics lab, and a collection digitization lab. I obtained a USDA-HSI grant to purchase molecular lab equipment and supplies, along with a Covaris M220 ultrasonicator, Bioanalyzer, qPCR and thermocyclers for DNA NGS library preparation. For the functional genomics lab, I acquired a micro-injection station, gene expression workbench, and pcr-hood to facilitate CRISPR/Cas-9 genome editing in insects. The collection digitization lab now includes rapid digitization setups, Olympus EM-5 II cameras, Cognysis Stackshot photo stacking hardware, Leica M205C with Flexacam and Acer laptops with NVIDIA GPU's for specimen imaging and scientific illustration.

Additionally, I have invested in microscopes, bioassessment materials, and expanded educational opportunities for students in field survey techniques and laboratory research. Lastly, I have secured a collaboration with the Pittsburgh Supercomputing Center (PSC) and INVCOL, receiving annual NSF-XSEDE/ACCESS grants for remote big-data computing support. Overall, these infrastructure improvements have significantly enhanced the research and educational capacities of UPRM Biology, INVCOL and the Entomology Laboratory where it is housed.

Curriculum Vitae

Benjamin William van Ee Smit

September 2023

Universidad de Puerto Rico
Recinto Universitario de Mayagüez
Departamento de Biología
Call Box 9000
Mayagüez, PR 00681-9000
office: (787) 834 4040 ext. 3900, 3914
cell: (571) 214 2369
benjamin.vanee@upr.edu
bvanee@uwalumni.com

Educational background

- 2006 Ph.D., Department of Botany, University of Wisconsin-Madison, U.S.A.
Thesis title: Molecular phylogenetics within *Croton* (Euphorbiaceae s.s.)
- 1998 Land Resources Analyst Certificate, Au Sable Institute, Mancelona, Michigan, U.S.A.
- 1997 Naturalist Certificate, Au Sable Institute, Mancelona, Michigan, U.S.A.
- 1997 B.A., Dordt College, Sioux Center, Iowa, U.S.A. Majors: Environmental Studies; Spanish

Professional experience

- 2022–present Professor (Catedrático), Departamento de Biología, Universidad de Puerto Rico, Recinto Universitario de Mayagüez, Mayagüez, Puerto Rico
(<http://biology.uprm.edu>)
Courses taught: Biología General (BIOL 3052), Biología Organismal Vegetal (BIOL 3417), Botánica Elemental (BIOL 3435), Principios de Evolución (BIOL 4335), Sistemática de Plantas Vasculares (BIOL 4465), Seminario (BIOL 4925), Seminario Graduado (BIOL 6690), Evolución de Plantas (BIOL 5016), Biogeografía (BIOL 6040), Introducción a las Ciencias Biológicas (CIBI 3031)
- 2022–present Director (Chair), Departamento de Biología, Universidad de Puerto Rico, Recinto Universitario de Mayagüez
- 2014–present Director, UPR-Mayagüez Department of Biology Herbarium (MAPR)
(<https://herbaria.plants.ox.ac.uk/bol/MAPR>)
- 2018–2022 Associate Professor (Catedrático Asociado), Departamento de Biología, Universidad de Puerto Rico, Recinto Universitario de Mayagüez
- 2014–2018 Assistant Professor (Catedrático Auxiliar), Departamento de Biología, Universidad de Puerto Rico, Recinto Universitario de Mayagüez
- 2010–2014 Assistant Professor, School of Natural Sciences, Black Hills State University, Spearfish, South Dakota, U.S.A.
Courses taught: Plant Systematics (Biol 301 & 301L), General Biology II (Biol 153 & 153L), Dendrology (Biol 492), Ethnobotany of the Northern Plains (AIS 377), Introduction to Bioinformatics (CPHD/CSC 601), Agrostology (Biol 461 & 461L)
- 2010–2014 Curator, Black Hills State University Herbarium (BHSC)
(<http://herbarium.bhsu.edu>)

- 2012–2017 Faculty, Au Sable Institute of Environmental Studies, Mancelona, Michigan, U.S.A. (www.ausable.org)
Courses taught: Molecular Tools for the Field Biologist (Biol 360), Applied Biodiversity Genetics (Biol 360) [June–July]
- 2007–2011 Faculty, Organization for Tropical Studies, Costa Rica (www.ots.ac.cr)
Courses taught: Tropical Plant Systematics [June–July], Spanish (2007, 2009, 2011) & English (2008, 2010)
- 2011 Course Coordinator, Sistemática de Plantas Tropicales (2011-18) [June–July], Organization for Tropical Studies, Costa Rica (www.ots.ac.cr)
- 2010 Postdoctoral Researcher; Paul E. Berry Lab, Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor
- 2008–2009 Mercer Postdoctoral Fellow; Arnold Arboretum & Harvard University Herbaria, Harvard University, Cambridge, Massachusetts
- 2007 Smithsonian Postdoctoral Fellow; Kenneth J. Wurdack Lab, Department of Botany, Smithsonian Institution, Washington D.C.
- 2006 Postdoctoral Researcher; Thomas J. Givnish Lab, Department of Botany, University of Wisconsin-Madison
- 2005 Associate Lecturer, Plant Anatomy (Bot 300) [August–December]; Department of Botany, University of Wisconsin-Madison
- 2000–2006 Teaching Assistant, Research Assistant & graduate student; Paul E. Berry Lab, Department of Botany, University of Wisconsin-Madison
Courses taught: Introductory Biology, Flora of Wisconsin, Plant Anatomy, General Botany
- 1999–2000 International Program Assistant; Au Sable Institute, Mancelona, Michigan
- 1999 Intern; Martha Wagbo Farm and Education Center, East Jordan, Michigan
- 1998 Intern; Centre for Economic Botany, Royal Botanic Gardens, Kew, U.K.
- 1997–1998 Environmental Education Intern; Au Sable Institute, Mancelona, Michigan
- 1997 Research Assistant; Department of Biological Sciences, Illinois State University, Normal, Illinois
- 1997–1998 Teaching Assistant; Field Botany, Au Sable Institute, Mancelona, Michigan
- 1996 Research Assistant; Department of Agriculture, Iowa State University, Ames, Iowa & Department of Agriculture, South Dakota State University, Brookings, South Dakota
- 1996 Teaching Assistant; Department of Biology, Dordt College, Sioux Center, Iowa
- 1993–1996 Teaching Assistant; Department of Foreign Languages, Dordt College, Sioux Center, Iowa

Service

- 2019–present Editor and Publisher, Caribbean Journal of Science
(<https://bioone.org/journals/caribbean-journal-of-science>;
<https://www.uprm.edu/caribjsci/>)
- 2015–present Managing Editor, Systematic Botany
(<http://www.aspt.net/publications/sysbot/>)
- 2013–present Panelist, National Science Foundation
- 2012–2016 Associate Editor, Systematic Botany (<http://www.aspt.net/publications/sysbot/>)
- 2009–2015 Associate Editor, Phytotaxa: A rapid international journal for accelerating the publication of botanical taxonomy (<http://www.mapress.com/phytotaxa>)

- 2011–2014 South Dakota Biomedical Research Infrastructure Network Undergraduate Research Fellow Mentor
- 2011–2012 Board Member, South Dakota Invasive Species Management Association (SISMA; <http://www.sisma-sd.org/>)
- 2011 Learning Assistant Mentor, Center for the Advancement of Mathematics and Science Education (CAMSE), Black Hills State University, Spearfish, South Dakota

Awarded grants

- 2019–2024 Franklinia Foundation, “A monograph of *Croton* (Euphorbiaceae) in Madagascar, with an evaluation of the conservation status of the species of one of the island’s largest woody genera” (€25,558)
- 2017–2018 Office of the Dean, Faculty of Arts and Sciences, University of Puerto Rico at Mayagüez, “Transfer of the Herbario Marino Puertorriqueño (MSM) from the Magueyes Island Marine Laboratories of the Department of Marine Sciences to a newly habilitated space within the Department of Biology building” (\$12,600)
- 2016–2017 Department of Botany, United States National Herbarium (US), Smithsonian Institution, “Universidad de Puerto Rico, Recinto Universitario de Mayagüez Programa de Práctica Intramural Universitaria-Mayagüez (PPIUM), Training University of Puerto Rico-Mayagüez undergraduate students in natural history specimen curation by processing the unmounted backlog of herbarium specimens of the United States National Herbarium (US)” (\$25,000)
- 2015–2018 United States Department of Agriculture, Hispanic Serving Institutions Education Grants Program, “Expanding Research Opportunities for Hispanic Students through DNA Barcoding of Three Agriculturally Important Plant Families in Puerto Rico” (\$274,435); Co-PI with Dimuth Siritunga.
- 2014–2015 Office of the Dean, Faculty of Arts and Sciences, University of Puerto Rico at Mayagüez, “Databasing the Herbario Marino Puertorriqueño (MSM)” (\$5,300)
- 2014–2017 National Science Foundation, “Untangling the relationships and radiation of Old World *Croton* (Euphorbiaceae)” (\$197,991)
- 2013 South Dakota EPSCoR Diversity Task Force grant to increase diversity in Science, Technology, Engineering, and Mathematics, “Plant Collecting and Processing with South Dakota High School Students as a Higher Education Recruiting Tool” (\$4,639)
- 2013 Black Hills State University, Research, Scholarship, and Creative Activity Seed Grant, “Next-generation DNA Sequencing of a Tangled Complex of Three Juniper (*Juniperus*, Cupressaceae) Species” (\$4,213)
- 2011–2013 South Dakota Biomedical Research Infrastructure Network Faculty Award (\$20,000)
- 2009–2010 National Geographic Committee for Research & Exploration, “Philippine *Rafflesia*: Exploration and Discovery” (\$19,400), co-PI with D.L. Nickrent, Southern Illinois University Carbondale, and J.F. Barcelona, University of Canterbury, New Zealand
- 2009 American Philosophical Society, Franklin Research Grant (\$5,000)
- 2009 National Geographic Committee for Research & Exploration, “Combining field work and molecular systematics to resolve the hyperdiverse genus *Croton*”

- (Euphorbiaceae) in Madagascar” (\$20,000), co-PI with P.E. Berry, University of Michigan Ann Arbor
- 2007 Wisconsin Department of Natural Resources, Grant for monitoring populations of Cliff cudweed (*Gnaphalium saxicola*, Asteraceae) in Wisconsin (\$1,800)
- 2005–2006 National Science Foundation [0508725], Doctoral Dissertation Improvement Grant: Phylogeny and Biogeography of Euphorbiaceae Tribe Crotonae (\$12,000)
- 2004 UW-Madison Latin American, Caribbean, and Iberian Studies Program, Tinker-Nave Field Research Grant (\$3,000)
- 2002 UW-Madison Latin American, Caribbean, and Iberian Studies Program, Tinker-Nave Field Research Grant (\$3,000)
- Organization for Tropical Studies, Research Grant (\$500)
- 2001 U.S. Fish and Wildlife Service, Grant for monitoring populations of Cliff cudweed (*Gnaphalium saxicola*, Asteraceae) in Wisconsin (\$4,000)

Declined grants

- 2018 (declined) Fondation Franklinia, Fribourg, Switzerland. A monograph of *Croton* (Euphorbiaceae) in Madagascar, with an evaluation of the conservation status of the species of one of the island’s largest woody genera. Requested amount: € 39,510.
- 2012 (declined) National Science Foundation, Untangling the relationships and radiation of Old World *Croton* (Euphorbiaceae). Requested amount: \$189,683 (Black Hills State University) + \$337,072 (University of Michigan)
- 2012 (declined) National Science Foundation, MRI: Acquisition of walk-in growth rooms for plant Integrative Genomics. Requested amount: \$232,155
- 2011 (declined) National Science Foundation, Untangling the relationships and radiation of Old World *Croton* (Euphorbiaceae). Requested amount: \$185,241 (Black Hills State University) + \$334,560 (University of Michigan)

Awards and Scholarships

- 2011–2013 South Dakota Biomedical Research Infrastructure Network Faculty Fellowship
- 2008–2009 The Arnold Arboretum of Harvard University, Mercer Research Fellowship
- 2007 National Museum of Natural History, Smithsonian Postdoctoral Fellowship
- 2006 UW-Madison Department of Botany, Eldon Newcomb Teaching Award
- 2005 UW-Madison College of Letters and Science, Capstone Ph.D. Teaching Award nominee
- 2004 UW-Madison College of Letters and Science, Teaching Fellow nominee
- 2003, 05 & 06 UW-Madison Department of Botany, Raper Travel Award
- 2003 UW-Madison Graduate Student Council, Vilas Travel Award
- 2002 & 04 UW-Madison Department of Botany, Davis Research Award
- 2001 Honorable Mention, National Science Foundation Graduate Fellowship
- 1998 Au Sable Institute, Kew Gardens Internship Award
- 1995 Au Sable Institute, Honors Scholarship
- 1994–1997 Dordt College, Honors Scholarship

Publications (n=49)

Berry, P. E. and **B. W. Van Ee**. 2022. *Croton* (Euphorbiaceae). Pp. 640–644 in S. M. Goodman (ed.) *The New Natural History of Madagascar*. Princeton University Press.

- Van Ee, B. W.** and P. E. Berry. 2021. Taxonomy of *Croton flavens* (Euphorbiaceae), a Caribbean endemic, and a preliminary subsectional classification of *Croton* section *Adenophylli*. Caribbean Journal of Science 51: 314–357. doi.org/10.18475/cjos.v51i2.a14
- Grafals, K. and **B. W. van Ee**. 2021. DNA barcoding of *Adiantum* (Pteridaceae: Vittarioideae) in Puerto Rico. Caribbean Journal of Science 51: 287–313. doi.org/10.18475/cjos.v51i2.a13
- Riina, R., **B. W. van Ee**, M. B. Rossi Caruzo, D. Santos Carneiro-Torres, R. Freitas dos Santos, and P. E. Berry. 2021. The neotropical *Croton* section *Geiseleria* (Euphorbiaceae): classification update, phylogenetic framework, and seven new species from South America. Annals of the Missouri Botanical Garden 106: 111–166.
- Aponte-Díaz, L. A., J. Ruiz-Arocho, R. Carrera-Martínez, and **B. W. van Ee**. 2020. Contrasting effects of the invasive *Hypogeococcus* sp. (Hemiptera: Pseudococcidae) infestation on seed germination of *Pilosocereus royenii* (Cactaceae), a Puerto Rican native cactus. Caribbean Journal of Science 50: 212–218. doi.org/10.18475/cjos.v50i2.a2
- Mutele Ngumbau, V., M. Nyange, N. Wei, **B. W. van Ee**, P. E. Berry, I. Malombe, G.-W. Hu, and Q.-F. Wang. 2020. A New Species of *Croton* (Euphorbiaceae) from a Madagascan Lineage Discovered in Coastal Kenya. Systematic Botany 45: 242–248.
- Hernandez Rosario, L., J. O. Rodríguez Padilla, D. Ramos Martínez, A. Morales Grajales, J. A. Mercado Reyes, G. J. Veintidós Feliu, **B. van Ee**, and D. Siritunga. 2019. DNA Barcoding of the Solanaceae Family in Puerto Rico Including Endangered and Endemic Species. Journal of the American Society for Horticultural Science 144: 363–374. doi.org/10.21273/JASHS04735-19
- Pelser, P. B., D. L. Nickrent, **B. W. van Ee**, and J. F. Barcelona. 2019. A phylogenetic and biogeographic study of *Rafflesia* (Rafflesiaceae) in the Philippines: Limited dispersal and high island endemism. Molecular Phylogenetics and Evolution 57: 620–633. doi.org/10.1016/j.ympev.2019.106555
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Occasional Reviewer of Manuscripts for: African Journal of Plant Sciences, American Journal of Botany, Anales del Jardín Botánico de Madrid, Australian Systematic Botany, Austrobaileya, Brittonia, Candollea, Caribbean Journal of Science, Diversity, Harvard Papers in Botany, Journal of the Botanical Research Institute of Texas, Molecular Biology Reports, Molecular Phylogenetics and Evolution, Phytotaxa (former associate editor), Plant Systematics and Evolution, Systematic Botany, Taxon.

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Academic Appointments

Assistant Professor

July 2023-Present

University of Puerto Rico Mayaguez, Department of Biology
PI of the Virus Diversity and Bioinformatics (ViDaB) Lab

Courses Taught:

- Genetics – BIO3300
- Seminario – BIO4925

Education

Rice University

August 2019- August 2023

- PhD in Ecology and Evolutionary Biology
- Thesis: Detecting and interpreting viral dynamics in marine invertebrate holobionts
- Degree conferral date: August 31, 2023

University of Puerto Rico, Mayaguez

August 2016-May 2019

- Master's in marine science (May 2019)
- Concentration in biological oceanography
- Tuition Waiver of Academic Honors at the University of Puerto Rico-Mayagüez (Fall 2017-Spring 2019).

Roger Williams University, Bristol, Rhode Island

Fall 2012-2016

- Bachelor of Science (May 2016)
- Major in Marine Biology with a minor in Chemistry
- Thesis with Distinction, Outstanding Senior in Marine Biology Award

Publications

#Indicates equal authorship

Veglia, A.J.[#], Bistolas, K.[#], The Tara Pacific Consortium, Correa, A.M.S., Vega Thurber, R. L. (2023). Endogenous viral elements reveal ancient associations between a non-retroviral RNA virus and symbiotic dinoflagellate genomes. *Communications Biology*. DOI: doi.org/10.1038/s42003-023-04917-9

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Howe-Kerr, L.I., Grupstra, C.G.B., Rabbitt, K., Conetta, D., Coy, S.R., Klings, J.G., Maher, R.L., McConnell, K.M., Meiling, S.S., Messyasz, A., Schmeltzer, E.R., Seabrook, S., Sims, J., **Veglia, A.J.**, Thurber, A.R., Vega Thurber, R.L., Correa, A.M.S. (2023). Viruses of a key coral

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Veglia, A. J., Beavers, K., Van Buren, E. W., Meiling, S. S., Muller, E. M., Smith, T. B., ... & Correa, A. M. S. (2022). Alphaflexivirus genomes in stony coral tissue loss disease-affected, disease-exposed, and disease-unexposed coral colonies in the US Virgin Islands. *Microbiology Resource Announcements*, 11(2), e01199-21.

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Meiling, S. S., Muller, E. M., Lasseigne, D., Rossin, A., **Veglia, A. J.**, MacKnight, N., ... & Brandt, M. E. (2021). Variable species responses to experimental stony coral tissue loss disease (SCTLD) exposure. *Frontiers in Marine Science*. 8, 464.

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Hammerman, N.M., Williams, S., **Veglia, A.J.**, García-Hernández, J.E., Lang, J.E., and Schizas, N.V. (2020). A new record of a cup coral (*Cladopsammia manuelensis*) in Hispaniola and Puerto Rico. *Cahiers de Biologie Marine*. 62, 1-10.

Rivera-García, L., Rivera-Vicéns, R., **Veglia, A.J.**, and Schizas, N.V. (2019). *De novo* transcriptome assembly of the soft octocoral *Briareum asbestinum* (digitate morphology) from southwest continental shelf of Puerto Rico. *Marine Genomics*. doi: 10.1016/j.margen.2019.04.001

Veglia, A.J., Hammerman, N.M., Rivera-Vicéns, R.E., and Schizas, N.V. (2018). *De novo* transcriptome assembly of the coral *Agaricia lamarcki* (Lamarck's sheet coral) from mesophotic depths in southwest Puerto Rico. *Marine Genomics*. 41:6-11. doi: 10.1016/j.margen.2018.08.003

Veglia, A.J., Hammerman, N.M., Rivera Rosaly, C.R., Lucas, M., Galindo Estronza, A., Corgosinho, P.H., and Schizas, N.V. (2018). Characterizing population structure of coral-associated fauna from mesophotic and shallow habitats in the Caribbean. *Journal of the Marine Biological Association of the United Kingdom*. 1-11. doi: doi.org/10.1017/S0025315418000413

Manuscripts in Review/Revision #Indicates equal authorship

Veglia, A.J., Rivera-Vicéns, R.E., Grupstra, C.G.B., Howe-Kerr, L.I., Correa, A.M.S. (*In Revision*) vAMPIRus: A versatile amplicon processing and analysis program for studying viruses. *Molecular Ecology Resources*. PREPRINT DOI: 10.22541/au.167592965.50010700/v1

Manuscripts in Preparation

Veglia, A. J., Beavers, K., Van Buren, E. W., Meiling, S. S., Muller, E. M., Smith, T. B., ... & Correa, A. M. S. (*In Prep.*) Investigating the roles of viruses in stony coral tissue loss disease.

*Target Journal: *Science Advances**

Veglia, A.J., Sharer, M.T., Appeldoorn, R., Schizas, N.V. (*In Prep.*) Reference genome assembly of the endangered fish Nassau grouper (*Epinephelus striatus*). *Target Journal: *Marine Genomics**

García-Hernández, J.E., González-García M.D., Toledo-Rodríguez, D.A., Doménech, J.P., González, A., **Veglia, A.J.**, Weil, E., Schizas, N.V. (*In Prep.*) Alien clones: Arrival and establishment of *Ophiothela mirabilis* along Puerto Rican shallow and upper mesophotic coral reefs. *Target Journal: *Biological Invasions**

Bioinformatic Program Releases

Veglia, A.J., Rivera-Vicens, R., Grupstra, C.G., Howe-Kerr, L.I., Correa, A.M.S. (2021). vAMPIRUS v2.0.2: An automated, comprehensive virus amplicon sequencing analysis program. Zenodo. <https://doi.org/10.5281/zenodo.5590322>

Veglia, A.J., Rivera-Vicens, R., Grupstra, C.G., Howe-Kerr, L.I., Correa, A.M.S. (2021). vAMPIRUS v1.0.0: An automated, comprehensive virus amplicon sequencing analysis program. Zenodo. <https://doi.org/10.5281/zenodo.4549695>

Presentations

<u>Virus Bioinformatics Meeting 2022 (TALK)</u>	March 2022
Title: vAMPIRUS: An automated virus amplicon sequence analysis program to support investigations of viral community ecology	
<u>US Regional Caribbean SCTL D Workshop (TALK)</u>	March 2022
Title: Researching viruses in the context of SCTL D	
<u>10th Aquatic Virus Workshop (TALK)</u>	June 2021
Title: Evidence of ancient associations between a non-retroviral RNA virus and key coral reef symbionts	Online
<u>Houston Regional Ecology and Evolution Symposium (TALK)</u>	May 2021
Title: Evidence of ancient associations between a non-retroviral RNA virus and key coral reef symbionts	Houston, TX
<u>“For the Ocean” lecture series - University of Puerto Rico (TALK)</u>	August 2020
Title: Coral reef viruses	Online
<u>Presentation to the PR Department of Natural and Environmental Resources (TALK)</u>	March 2020
Title: Viruses in coral reef holobionts	Online
<u>2019 Marine Ecosystems Symposium (TALK)</u>	March 2019
Title: Isolating, culturing, and genotyping of novel cyanophages inhabiting coral reef holobionts in southwest, Puerto Rico	Arecibo, PR
<u>2019 Aquatic Sciences Meeting (TALK)</u>	February 2019
Title: Isolating, culturing, and genotyping of novel cyanophages inhabiting coral reef holobionts in southwest, Puerto Rico	San Juan, PR
<u>2018 Marine Sciences Symposium (TALK)</u>	April 2018
Title: Virome characterization of the endangered coral <i>Orbicella</i>	Mayagüez, PR

<i>Faveolata</i> in southwest, Puerto Rico	
<u>Marine Sciences Research and Management Symposium 2016 (POSTER)</u>	September 2016
Title: Genomic variation, host range, and infection kinetics of closely related cyanopodoviruses from New England coastal waters	Mayagüez, PR
<u>Student Academic Showcase and Honors (POSTER)</u>	April 2016
Title: Genomic variation, host range, and infection kinetics of closely related cyanopodoviruses from New England coastal waters	Bristol, RI
<u>2016 Ocean Sciences Meeting (POSTER)</u>	February 2016
Title: Genomic variation, host range, and infection kinetics of closely related cyanopodoviruses from New England coastal waters	New Orleans, LA
<u>Northeast Algal Symposium (POSTER)</u>	April 2014
Title: Host range analysis of <i>Synechococcus</i> -infecting podoviruses from southern New England	Newport, RI
<u>Student Academic Showcase and Honors (POSTER)</u>	April 2014
Title: Host range analysis of <i>Synechococcus</i> -infecting podoviruses from southern New England	Bristol, RI

Awarded Funding

<u>Expanding Horizons Fellowship (co-authored with Kara Titus)</u>	Awarded December 2021
Amount: \$4,000	
<u>2021 AMLC Student Grants in Aid of Research</u>	Awarded June 2021
Amount: \$400.00	
<u>Wagoner Foreign Study Scholarship</u>	Awarded June 2020
Amount: \$8,000.00	
<u>2018-2019 NASA Puerto Rico Space Grant Fellow</u>	Awarded June 2018
Amount: \$14,700.00	
<u>Sigma XI Grants-in-Aid of Research</u>	Awarded May 2018
Amount: \$980.00	
<u>Sea Grant Puerto Rico</u>	Awarded June 2018
Amount: \$1,727.00	
<u>Roger Williams University Provost Fund for Student Research</u>	Awarded October 2015
Amount: \$1,500.00	

Service & Outreach

Puerto Rico's Immersive Marine Experience (PRIME) Workshop (July 2022)

Description: Developed, organized, and conducted an 8-day workshop for 16 undergraduate students from the University of Puerto Rico Mayaguez and Inter Americana Barranquitas in July 2022. The workshop included lectures covering major topics within marine sciences in combination with field training (e.g., biodiversity surveys) on local coral reefs. PRIME also included professional development lectures that allowed students to better understand potential career paths in marine sciences and how to navigate next steps after graduation.

OWLS Outreach at Rice University (Spring 2020-Present)

Description: OWLS Outreach is a group of graduate students from diverse backgrounds passionate about communicating about life sciences to 5th-8th grade students. Our goal is to engage students with hands-on, mentored science and develop and make available tools that can be used by teachers to instill a passion for science in their students when we're not around. During my time with OWLS Outreach, we have created several virtual educational lessons (owlls.blogs.rice.edu/virtual-modules/) to allow us to still make an impact during COVID19 pandemic and when possible visited local schools in the Houston area (owlls.blogs.rice.edu/modules/).

President of UPRM Department of Marine Science Student Organization (May 2017- May 2019)

Description: Organized and facilitated educational outreach to the local community promoting conservation of Puerto Rico's marine resources. Specifically, I have organized outreach events at local schools and town squares, marine science symposiums and open-house events for the Department of Marine Sciences at UPRM.

Vice President of UPRM Department of Marine Science Student Organization (January 2017-May 2017)

Description: Organized and facilitated educational outreach to the local community promoting conservation of Puerto Rico's marine resources.

Additional Bioinformatic Training

Fall 2021 Viromics Workshop Webinar Series (October 2021)

The Ohio State University

Summary: A three-day workshop discussing bioinformatic approaches for analyzing virome data.

NCGAS Metagenomics Analysis Workshop (October 2019)

Indiana University

Summary: A two-day workshop that focused of utilizing HPC clusters to analyze large metagenome data sets.

Le Kretz Workshop in Conservation Genomics 2018 (March 2018)

University of California at Los Angeles

Summary: Intensive five-day workshop providing experience in bioinformatics analyses and focusing on modern genomic techniques in the current era of conservation biology.

NCGAS Spring Transcriptome Assembly Workshop (April 2018)

Indiana University

Summary: A two-day workshop that focused of utilizing HPC clusters to assemble and analyze large RNA-seq data sets.

CREEDS 2018 Summer School for Computational Genomics (June 2018)

Icahn School of Medicine at Mt. Sinai

Summary: A two-week intensive workshop on computational genomics for graduate students.

Professional affiliations

European Virus Bioinformatics Center (EVBC)

April 2022-Present

Description: The EVBC is a consortium of investigators looking to develop virus-specific bioinformatic tools to better equip the field to address fundamental questions in virology.

Scientific Journal Reviewer

- *Nature Research*
- *PeerJ*
- *PLOS ONE*
- *Diseases of Aquatic Organisms*

Certificates and Other Skills

- **Experienced AAUS scientific diver**
- PADI Open Water Certified Diver
- Proficient in Spanish.