2023-2024 Annual Report

University of Puerto Rico – Mayagüez Campus

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Chancellor

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List of Acronyms

Acronym	Meaning
AACSB	Association to Advance Collegiate Schools of Business
ACBSP	Accreditation Council for Business Schools and Programs
AES	Agricultural Experimental Station
ASEE	American Society for Engineering Education
BEDC	Business and Economic Development Center
CAEP	Council for the Accreditation of Educator Preparation
CAS	College of Agricultural Sciences
ADEM	College of Business Administration
CED	Continuous Education Division
CIAPR	Colegio de Ingenieros y Agrimensores de Puerto Rico
CIEL	Interdisciplinary Center for Coastal Studies
COOP	Cooperative Education Program
CREAD	Resource Center for Distance Education
CRECEN	Strategic Training through Resilience, Competitiveness, and Business Expansion
DCSP	Counseling and Psychological Services Department
DECEP	Division of Continuing Education and Professional Studies
DEPR	Departamento de Educación de Puerto Rico
DMS	Department of Marine Sciences
DoE	Department of Energy
EDA	Economic Development Administration
EDUCON	Continuous Education
FAS	Faculty of Agricultural Sciences
GRIC	Grupo de Investigación en Ciencias
HEERF	Higher Education Emergency Relief Fund
NIFA	National Institute of Food and Agriculture
NIH	National Institutes of Health
NRCS	Natural Resources Conservation Service
NSF	National Science Foundation
OHL	OHL stands for the Oral History Lab
OPIMI	Office of Planning, Research, and Institutional Improvement
OPPE	Office of Partnerships and Public Engagement
PEARS	Program Evaluation and Reporting System
PPM	Teacher Preparation Program
PRAES	Puerto Rico Agricultural Extension Services
UPR	University of Puerto Rico
UPRM	University of Puerto Rico at Mayaguez

I. University of Puerto Rico at Mayaguez Campus (UPRM) Vision and Mission

A. Vision

To be at the forefront as an institution in higher education and research, transforming society through the search for knowledge in an environment of ethics, justice, and peace.

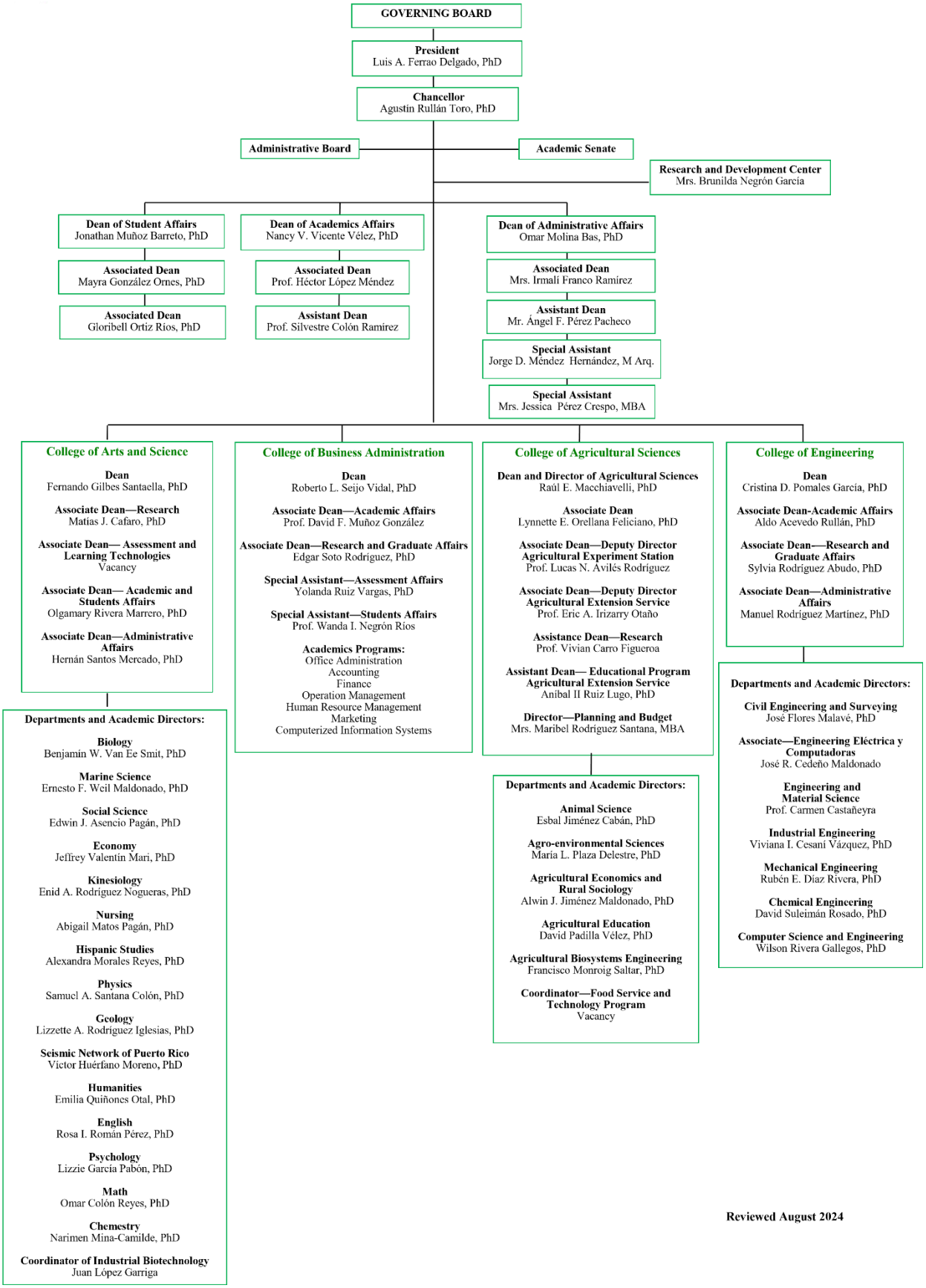
B. Mission

To provide excellent service to Puerto Rico and 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 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.

II. UPRM Organizational Structure – 2023-2024



Reviewed August 2024

III. UPRM Deanships' Executive Summary and Mission

A. Deanship of Administration

1. Executive Summary:

Over the past year, the Dean's Office and its nine units have continued to provide services in a coordinated manner to ensure service continuity. These services include facilitating resource usage, ensuring compliance with regulations, and addressing community needs.
In the previous fiscal year, the Dean of Administration focused on finalizing the projects under Higher Education Emergency Relief Fund (HEERF) Coronavirus Response and Relief Supplemental Funds. The main purpose of these projects was to improve ventilation systems in classrooms and common areas to increase the intake of clean air while diminishing possible contaminants. This effort also sustained maintaining existing infrastructure while ensuring the health and safety of the campus. Below is the list of projects finished during this past year with the total budgeted through these funds:

• Louvered windows (jalousie) upgraded to improve cross-ventilation	$1,820,068.37
• Josefina Torres Torres (Nursing) and Sanchez Hidalgo (Economics)	366,145.62
• Carlos D. Chardón (General Studies) Building	688,166.09
• Luis A. Stefani Engineering Building	765,756.66
• Renovation and upgrade of ventilation and air conditioning systems	3,068,730.02
○ Civil Engineering Building:	265,245.02
○ Physics, Geology, and Marine Sciences:	289,500.00
○ Students Union:	131,185.00
○ General Library:	837,200.00

The Dean's Office also concentrated its efforts on enhancing and revitalizing the aesthetic appeal of the campus, despite the obstacles posed by the ongoing pandemic, the impact of Hurricane Fiona, and the University's financial constraints. Some examples include:

- Renovation of open areas on campus.
- Research & Development Center parking lot repaved.
- Maintenance of sports facilities.
- Pedestrian bridge cleaning.

In terms of funding opportunities, the Dean's office continued seeking initiatives to increase and diversify sources of revenue to meet the needs of our Campus. Among the initiatives carried out are the contract with vending machines, advertisements, and space leases to provide food service to the University community.
In October 2023, the Dean's office presented two new proposals to the Federal Transit Authority (FTA) to secure further funding for the continued improvement of the public transportation system on campus. The two proposals submitted through the Puerto Rico Highway and Transportation Authority (PRHTA) and subsequently approved were as follows:

- Operating Expenses of the Transit System at the University of Puerto Rico at Mayagüez with a funding amount of $1,487,776.
- Upgrade of the Transit Vehicle Fleet and Transportation System of the University of Puerto Rico at Mayagüez with a funding amount of $1,288,925.

The following sections present a comprehensive account of the activities undertaken by the Dean's Office and its constituent units, with a particular focus on their alignment with the objectives defined by the University of Puerto Rico.

2. Mission:
   Support the entire teaching, learning, and research process:
   - Facilitate resource use processes to ensure the best use of resources and compliance with applicable regulations.
   - Ensure the proper operation and maintenance of the existing physical plant and infrastructure.
   - Oversee the health and safety of the University community.
   - Actively support physical plant efforts and infrastructure design and development necessary to meet emerging needs.

B. Deanship of Students

1. Executive Summary:

The office of the Dean of Students oversees and provides support and direction to all offices and departments that offer student services, including: 1) Social and Cultural Activities, 2) Financial Assistance, 3) Quality of Life Office, 4) Placement Office, 5)Department of Counseling and Psychological Services (DCSP, by its Spanish acronym), 6) Exchange Program and International Services, 7) Services for Students with Disabilities, 8) Medical Services, 9) Band and Orchestra Department, 10) Lactation Room, and 11) Tranquility Room.

In addition to these functions, the Dean of Students has the obligation to fulfill the following duties and tasks that are responsibilities of his Deanship: attend cases related to conduct complaints, attend scholarship appeal cases, be part of the institutional committees in which the Dean is designated as a member, maintain communication with the Rector about matters related to all offices and departments under his charge, the Dean of Students must be an ex-officio member of the Academic Senate, the Dean is a member of the Administrative Board, organize and direct the efforts and preparations for the graduation ceremonies in June of each year, coordinate and direct tasks related to institutional accreditations such as, the Middle States and the International Association of Counseling Services accredited by the Department of Counseling and Psychological Services, links student bodies such as, the General Student Council and other student organizations, carries out the process of elections of student representatives, both for the Students General Council, as well as for undergraduate and graduate representation in the Governing Board of the UPR and in the Academic Senate, and coordinates and manages HEERF funds

allocated to the Campus through the Coronavirus Aid, Relief and Economic Security Act (CARES), Coronavirus Response and Relief Supplemental Appropriations Act (CRRSAA) and American Rescue Plan (ARP) laws. For more information, you can access www.uprm.edu/rectoria/caresact/. The Dean must represent the Chancellor's when required.

The Deanship of Student Affairs achieved several milestones across its departments during the 2023-2024 academic year, reflecting a strong commitment to student support and campus development, as outlined below:

- Medical Services: Resumed billing for health insurance plans and secured external funds for projects like Mano Amiga and the Road Safety Commission.
- Counseling and Psychological Services: Centralized operations in the Student Center with a $1.1 million investment and implemented a pilot project on retention and early alert.
- Placements Office: Hosted the 35th Fall Job Fair with 140 employers attending and secured $75K for renovations of meeting/interview rooms.
- Social Activities: Reactivated the concert series with international artists like Roy Brown and celebrated the first urban music concert, COLEGIO URBANO.
- Quality of Life Initiatives: Launched a podcast covering health and wellness topics and organized 26 events, including Happy Day Colegial.
- Economic Assistance: Awarded over $526K in private scholarships and held several FAFSA events in public spaces.
- Band and Orchestra: Celebrated the 110th anniversary of the University Band and participated in multiple high-profile events such as the Pan-American Athletics Championship and the VII Latin American Choir Music Meeting in Panama.
- Office of the Dean: Secured over $120K in external funding for student services and scholarships, further enhancing the financial support available to students. RUMboEx was a pillar in the successful deployment of the Early Alert System, which played a critical role in supporting first-year students' retention and academic success.

2. Mission:

The mission is to provide students with the resources and services necessary to contribute to their physical, social, emotional, cultural, educational, and occupational-professional development, as a complement to their intellectual, academic, and ethical training.

C. Deanship of Academic Affairs

1. Executive Summary:

The Deanship of Academic Affairs was created by the Higher Education Council in 1963 to promote, supervise and coordinate all the academic functions of the units, promoting the highest standards of excellence in teaching, research, and service.

The Deanship of Academic Affairs consists of the following units and programs:

- Admissions Office

• Center for Resources in General Education (CIVIS)
• Department of Aerospace Studies (Air Force ROTC)
• Department of Military Science (Army ROTC)
• Division of Continuing Education and Professional Studies (DECEP) & Resource Center for Distance Education (CREAD)
• General Library
• Office of Graduate Studies
• Office of Immigration Affairs
• Professional Enrichment Center (CEP)
• Registrar's Office
• UPRM Night, Weekend and Online Program (RUMex)
• Teacher Preparation Program (PPM)

Website: https://www.uprm.edu/asuntosacademicos/

2. Mission:

Develops socially responsible, responsive, creative, committed, ethical professionals and leaders with an entrepreneurial spirit and a global focus, and develop creative, research and service work that meets the needs of society. Provides strategic direction and operational support to academic work to offer an education of excellence. Fosters an environment that promotes creativity with innovative and agile programs that incorporate theory and practice. Provides services that help the well-being of our society, our academic community and global economic development. Disseminates the results of creative labor, research, and service activities so that they are accessible to all. Plays an active role in the implementation and development of processes that promote ethics and academic integrity. Continues the appraisal cycles that support the formal processes of institutional investigation and that serve as a basis for the planning and decision-making process.

D. College of Agricultural Sciences

1. Executive Summary**:**

For the fiscal year 2023-2024, we continued to face significant challenges, as in previous years, due to the budget cuts imposed by the Fiscal Adjustment Plan (PROMESA Federal Law). With the budget reduction at all levels of the UPR university system, the services offered have been seriously affected in the three dimensions of our work: research, teaching, and outreach. On the other hand, we are also affected by the continuous loss of qualified managerial personnel and the lack of resources to hire replacements. As of today, we are still in the process of restoring the damage caused by hurricanes Irma and Maria in 2017, and Fiona in 2022. On the other hand, we are still dealing with delays in research projects caused by the COVID-19 pandemic. However, thanks to the commitment of our human resources, both teaching and non-teaching staff, the Agricultural Experimental Station (AES) continued its research activities. Likewise, the Agricultural Extension Service (PRAES) continued to work diligently to fulfill its mission while improving Strategic Planning and Evaluation processes, restructuring its administrative reporting and monitoring system, and expanding initiatives to strengthen non-formal education. One of

the most utilized tools by the Agricultural Extension Service to continue its outreach work have been virtual platforms, which have allowed attending to the needs of farmers and Puerto Rican families, despite limitations imposed by the pandemic and atmospheric events. On the other hand, the Faculty of Agricultural Sciences (FAS), through its academic departments, continued its mission to train professionals who can contribute their acquired knowledge to the development of agriculture in our country.

This annual report presents the various initiatives, activities, and achievements accomplished during this fiscal year. We express our gratitude to all staff members and personnel for their demonstrated commitment during these challenging times.

Faculty of Agricultural Sciences

On August 2023, the Bachelor's Academic Program in Food Science, affiliated with the Food Science and Technology Program, received its first group of freshmen students. At the master's program level, Plan II and Plan III, which award a professional master's degree in Food Science, were approved on December 2024 (JG 167-2021-2022; JIP 2023-227). Certification JG 74 (2019-2020) and JIP 2023-242 approved the Doctoral Program in Tropical Agriculture for our College and allowed us to start admissions for it during the second semester of 23-24. Thirteen applications have been received, and are in the process of being evaluated.

Agricultural Extension Service

During the period covered by this report, the body of specialists from the Agricultural Extension Service (PRAES) played an important role within the faculty of the College of Agricultural Sciences, offering a total of 84 credit hours in undergraduate courses and 62 credit hours in graduate courses. They also had a significant impact on the research program of the CAS. The faculty members of the PRAES served as chairs (n=17) or members (n=35) of graduate thesis committees, impacting approximately 55 graduate students. They also supervised 4 undergraduate special projects. During the reporting period, a total of 23 competitive proposals were submitted to various sources, including USDA NRCS, USDA-OPPE, USDA-NIFA, Extension Foundation, USDA-FS, Southern Research & Education, CORTEVA, National 4-H Council, and FEMA for a total of $6,283,521.09. Of these, 11 were awarded ($600,452.69), 2 were not awarded ($781,405.47) and 10 are pending ($4,901,662.93). In terms of own income and intended use, the Pesticides Applicator Program run by PRAES generated $212,475.00 in income. This amount represents a 150% increase over what was collected last year. The Family and Consumer Sciences program, also run by PRAES, obtained a total income of $129,248.00, compared to $27,344 that were collected last year.

Among the projects being developed to address community needs and aspirations we can mention “Harvesting Our Wellbeing”; “Using Distance Education to Enhance Aquaponic Production in Puerto Rico´s Model Forest (EDPAC)”; “Healthy Individuals and Families Initiative”; “Health and Wellness Initiative”; “Financial Literacy and Capacity Initiative”; “Food Safety Initiative”; and the 4-H Club based projects: “Training in Diversity, Equity

and Inclusion (DEI)"; "ACCESO 4-H on Positive Youth Development"; and "Route to a Healthy Life." Among the projects being developed in the areas of agriculture and sustainable natural resources management are "Farm Management based in Sustainable Practices"; "Transition from Conventional to Sustainable Agriculture"; "Transition to Organic Partnership"; "Integrated Pest Management of Coffee Roya"; and "Sustainable and Efficient Water Irrigation Practices in Vegetables Production" among others.

Department of Animal Science

The Department of Animal Science of the College of Agricultural Sciences, Mayagüez Campus of the University of Puerto Rico, is dedicated to advancing education in the theory and practice of animal science, driving innovative scientific research, and delivering expert technical support to the agricultural industry. Focused on the establishment, growth, and optimization of commercial livestock and poultry ventures, our department plays a crucial role as a key integrator in both the local Puerto Rican and global agribusinesses. We incorporate webinars, workshops, and hands-on experiences to enhance the educational journey of our students. In addition, we diligently seek external funds to provide state-of-the-art laboratory equipment and educational technology to enhance learning.

Department of Agricultural Economics and Rural Sociology

The Department of Agricultural Economics and Rural Sociology has integrated the three components of teaching among its faculty: formal teaching, extension or dissemination and research. In addition, the teaching staff of the Department has been characterized by offering services to the academic community, public and private sector and communities. The Department has faculty who have been successful in obtaining competitive external funding and collaborating in various projects of competitive external funds in other Departments of the College of Agricultural Sciences and the Mayagüez University Campus, promoting multidisciplinary research and extension projects.

The undergraduate and graduate programs in this Department are unique in their class in Puerto Rico. The curricula are designed with balanced preparation between the different disciplines, giving graduates flexibility to be able to perform in various professional areas. The acceptance by our graduates in the job market has been excellent, both at the Baccalaureate and Master's level. The market recognizes the importance of agricultural economists. The need for agricultural economists is imperative for the agricultural sector of Puerto Rico, as well as in agribusiness (food processors, sellers of agricultural inputs and services, food wholesalers and retailers, economic studies and others). The program has updated its relevant courses, and has excellent teaching staff with good preparation in the subject and recognized professional reputation.

Since August 2021, the academic offer for the Master of Science in Agricultural Economics began under the Online modality. During 2023-2024, 5 students were admitted for this new modality.

Department of Agricultural Education

The following initiatives, activities and achievements were carried out in the Department of Agricultural Education:

- The students Bryan J. Hernandez Aquino y Jancarlos Lorenzo Bonilla were in charge of the department's social networks: Facebook, Instagrams and Twitter feeds were regularly updated to give visibility to the department, promote the achievements of students, teaching and non-teaching staff.
- Bryan Hernandez, for the second consecutive year, was key in organizing the "Agriculture Week Challenge" camp, which was a success in the Faculty of Agricultural Sciences. The camp was part of his thesis research.
- On February 17, 2023, Drs. Janitza Saavedra Lugo, Edly Santiago Andino and a group of undergraduate and graduate students participated in the "CTE Career Expo and Career Show" at the Puerto Rico Convention Center. This activity was celebrated as part of the activities of the PR Department of Education in February, in the occupational month. They were representing the College of Agricultural Sciences RUM and Department of Agricultural Education - UPRM, informing students and teachers about our academic offerings.
- Dr. Edly Santiago Andino: Coordinated the visit of Agricultural Education student teachers from the universities of Utah, California, New Mexico and Puerto Rico, on June 6, 2024, and they participated in the activity titled: Identifying curricular development needs for Agricultural Education, related to the tropical production, which was celebrated in San Sebastián, at the Hamaca Museum.

Program of Food Science and Technology

On August 2023, the Bachelor's Academic Program in Food Science, affiliated with the Food Science and Technology Program, received its first group of freshmen students. At the master's program level, Plan II and Plan III, which award a professional master's degree in Food Science, were approved on December 2024 (JG 167-2021-2022; JIP 2023-227). Additionally, an agreement was signed with the Department of Commerce and Economic Development, which provides capital for infrastructure and organizational improvements to the Center for Agro-industrial Innovation and Technology.

2. Mission of the College of Agricultural Sciences:
To develop new technologies through education, research, and extension to innovate in the production of agricultural inputs and products for humans and animals through economically viable, sustainable, safe, and global agriculture that contributes to the improvement of the quality of life of society.

Mission of the Faculty of the Agricultural Sciences
To develop through education, research, and extension new technologies that innovate in the production of inputs and agricultural products for humans and animals through an economically viable, sustainable, safe, and global agriculture that contributes to the improvement of the quality of life of society.

Mission of the Puerto Rico Agricultural Extension Service
To improve the quality of life of people living in socio-economic vulnerability through participatory action via a non-formal education process based on scientific research and focused on the aspirations and needs of families and communities.

Mission of the Agricultural Experiment Station
Promote a research program in tropical agriculture that safeguards the sustainability of food production and environmental conservation in Puerto Rico and the Caribbean, improving the quality of life and conservation of natural resources.

E. College of Engineering

1. Executive Summary:

In its more than one hundred years of history, the College of Engineering at the University of Puerto Rico at Mayagüez has established itself as one of the main centers of engineering education in the United States. In the last twenty years, the College of Engineering has begun to strengthen its position in research, an essential complement to strengthen teaching in technical disciplines, while the university has received recognition for the level of activity and quality of research.

During the academic year of 2023-24 the College of Engineering accomplished significant advances centered around one fundamental goal: Improving our Students' Educational Experience. This goal involves not only increasing the quality, quantity, and comfort of the physical spaces available to our students, but also improving the pertinence, and quality of our academic programs. In this section we summarize the most significant achievements. Our activities have been guided by the support of our Industrial Advisory Board, which has 27 active members representing different industrial sectors. During the year we worked on developing a website to have visibility of the board members along its vision, goals and responsibilities: https://www.uprm.edu/engineering/industrial-advisory-board-2/.

<u>Undergraduate Programs</u>

As part of the continuous improvement processes required by our accreditation agencies such as ABET (Accreditation Board for Engineering and Technology), we have continued the assessment of student learning outcomes. As a result, all our curricula have undergone significant improvements. Many of our curricula were restructured to allow students to graduate in the five years expected by our engineering programs. During the 2023-24 academic year we began offering the revised curriculum for Industrial Engineering and Civil Engineering. We also approved at the faculty level a curricular revision of the Computer Engineering bachelor degree, which is pending approval at the Academic Senate. We have maintained our student admissions, with 45% of the total enrollment for UPRM and our academic offer has been sustained with support of part time faculty. We had over 300 students enrolled in COOP and internship activities during the academic year. We have begun the creation of a proposal for a new bachelor's degree in Aerospace

Engineering and expect its approval at the college of engineering by the fall of 2025. Also, we began working on an initiative to create stackable credentials in the computer science curriculum with the support from a grant of the Department of Economic Development. In this initiative we have been working with the Vice Presidency of Academic Affairs to create new guidelines that will allow the UPR system to offer these types of academic degrees. During the year we collaborated also with the College of Agricultural Sciences to develop a new bachelor's degree program in Biosystems Engineering.

Graduate Programs

The College of Engineering continued the development of new graduate programs in areas of high potential for the creation of intellectual capital that will contribute to the formation of a well-prepared human capital, necessary for a fast-paced economy based on innovation and information. The new MS/PhD program in Software Engineering has been approved by the Governing Board and awaits approval at the Board of Postsecondary Institutions. The Department of Industrial Engineering is revising the intent letter for the creation of a new PhD program in Industrial Engineering, expected to be approved at the department level in the fall of 2024. A new 5+1 BS/MS Honors Track, Accelerated Step Program from Baccalaureate to Master's (eMAP), was approved by the College of Engineering and is in the process of approval at the Academic Senate.

Academic Laboratories and Facilities

Year 2023-24 began with one of the largest incoming Engineering cohorts. In order to appropriately support our students' learning experience, we began expanding academic laboratories beginning with the Department of Mechanical Engineering, the department with the largest increase in admissions from about 175 to 250 students. We made an investment of over $400K to acquire 6 new CNC manufacturing machines and have completed the expansion of the Manufacturing Laboratory (Luchetti L-100) to offer more parallel lab sessions to our students. Similar efforts will be initiated in the other three ME labs: Mechatronics, Materials, and Thermal Sciences. The auction for remodeling the Civil Engineering has been completed and we are in the process of receiving proposals for the renovation of the facilities. A new Chiller was installed in the industrial engineering building, impacting the faculty and administrative facilities as well as the amphitheater, computer center and classrooms. The remodeling of the new Material Sciences and Engineering department (S-209) was completed with the support of Grounds and Buildings personnel. The facilities for a new standardized testing center with the support of Pearson have been completed and we are in the process of completing the legal agreements. We expect to begin offering services to the community by 2025.

Student Collaborative Spaces

The College of Engineering achieved significant advances to increase the quantity and quality of our students' collaborative spaces. A new collaborative lounge with an open terrace (L-235), as well as a newly renovated study room (L-118) was inaugurated in the Mechanical Engineering Department. The construction of a new open plaza and study room

in the Chemical Engineering Building was completed and the plaza is expected to be inaugurated in early fall of 2024. A new roof will be installed in the Civil Engineering building to allow students to work on their materials laboratory and their special projects 24-7. The special projects facilities (a.k.a. Monkey) and Inspire (Monkey 2) areas have been renovated and are currently being used by over 100 students in special design projects. During the fall of 2024 the facilities will be inaugurated. Some of these improvements have been achieved with the support of donations by companies such as Chevron. An agreement to build a solar powered gazebo under the name of project "luz verde" is in the process of authorization with aims to begin construction by the spring of 2025.

Research Facilities

Thanks to grants from the DoE and the Puerto Rico Science and Technology Trust we completed the installation and training of a new Renishaw 3D metal printer in the Industrial Engineering model manufacturing plant. A use plan for the equipment is being developed to coordinate the use and maintenance of the equipment. The request for proposals for the Aerospace Research Institute, with funding from National Institute of Standards and Technology (NIST), has begun and the next phase will be the official design of the new building.

Outreach

The College of Engineering and its outreach and recruitment team have continued the Recruitment, Retention, and Distance Education in Engineering (R2DEEP by its Spanish name) program offering remote enrollment for talented high school students in engineering and math courses. In 2023-2024 a total of 36 students were celebrated in a promotion ceremony completing courses in this program. We also continued offering four-one day camps for high school and middle school students as well as our 30th anniversary edition of the Pre-Engineering Summer Camp. In the spring of 2024, we hosted the first Mayagüez Regional Science Fair at the UPRM facilities with over 52 Science, Technology, Engineering, Arts and Mathematics (STEAM) high school student projects from local public schools.

Faculty Development Program

The College of Engineering continued its faculty development program offering our faculty the opportunity to renew their knowledge and skills by carrying out diverse activities such as taking in-person and remote courses, attending scientific conferences, presenting their scientific results, among others.

The remainder of this report includes additional details about this and other initiatives carried out during the academic year 2023-24.

2. Mission:
The College of Engineering mission is to provide citizens to our society able to think critically, be professionally prepared in engineering and related areas, and capable of

exercising leadership positions to contribute to the cultural, social, economic, scientific and technological development of our immediate environment, Puerto Rico and the rest of the world. At the same time, it is the mission of the College of Engineering, the creation and dissemination of scientific knowledge, innovation and adaptation of technology for the benefit of society in general with emphasis on Puerto Rican society. Our commitment is to prepare the best professionals in engineering and related areas, and be a major center for research, publications and service for the technological development of Puerto Rico, the U.S., the Caribbean, Central and South America.

F. College of Business Administration

1. Executive Summary:

As the new dean of the College of Business Administration (ADEM by its Spanish acronym), the academic year 2023-2024 was dedicated to understanding the administrative details of the faculty and the leadership transition process, focusing not only on achieving the goals and objectives set by the faculty, but also on the managerial style and approach. During the first semester, there were no changes in the administrative team, as the priority was given to establish a dialogue with all non-teaching staff and key faculty members, aiming to understand their feelings, motivations, and commitments. This period of study and learning led to a second semester of transition with a new administrative team, focus, and changes in the organizational structure of ADEM.

According to the ADEM Bylaws, operational plans were established with the following main initiatives: 1) use of assessment results, 2) develop new offerings at the graduate level, 3) establish initiatives for student recruitment and retention, 4) increase the number of internships and coop experiences for the students, 5) faculty and non-teaching personnel recruitment and development, 6) update the ADEM Strategic Plan, 7) increase external funding, 8) support the entrepreneurship agenda, and last but no least 9) continue working towards the AACSB accreditation while the Association to Advance Collegiate Schools of Business (ACBSP) accreditation is maintained.

Some achievements obtained this year that relates to the initiatives mentioned above are the following: 1) an assessment summit took placed; 2) letter of intent for a MS in Supply Chain Management was accepted by the UPR Central Administration and the proposal is actually being crafted with expectation to submit for approval next semester; 3) ADEM was the faculty with the less amount of students lost for the second semester and the number of students admitted for the upcoming academic year increased by 14.1% as compared to the 1st semester of academic year 2023 – 2024; 4) the Career Development Office has focused on establishing relationships with several companies that will result in internship opportunities and cooperative experiences for the benefit of students, such as GE Healthcare, which will mentor 10 students; 5) customized training sessions related to the Association to Advance Collegiate Schools of Business (AACSB) accreditation process were offered, 6) Continuous Education (EDUCON) is working on diversifying its sources of income and an agreement with TEAM 1144 to offer a Project Management Academy

focused on recovery projects in PR is expected to be finalized in July 2024, 7) Center for Business and Economic Development (CNDE by its Spanish acronym) continue leading the entrepreneurship agenda in UPRM; and 8) the 1st draft of the iSER (initial Self-Evaluation Report) revision was sent to the AACSB mentor and staff and our Accreditation and Assessment Office continues working on the QAR (Question-Answer Relationship) that needs to be sent to the ACBSP.

2. Mission:
To impact society by transforming students, professionals, and organizations in the field of business through the provision of academic, practical, research, and community service experiences.

G. College of Arts and Science

1. Executive Summary:

The College of Arts and Sciences has 14 departments offering 44 undergraduate and graduate academic programs. In addition, we have an interdisciplinary undergraduate program in industrial biotechnology. The annual work by these departments actively contributes to the mission of our institution. During the 2023-2024 academic year, all departments carried out multiple initiatives of teaching, research and creative work that are summarized in a very limited way in this report. However, the wide dissemination of these important achievements and events can be accessed in several ways. One of them is through the website of the Deanship (www.uprm.edu/arci/), which allows to know more details of the departmental initiatives. We also have an information technology person, who gives the appropriate maintenance to the page and facilitates the use of other technologies for the dissemination of the different initiatives. The Deanship also has a Facebook page where events and information of general interest are published. This allows for more outreach to the university community, as well as others off campus. One of the main activities carried out by the departments has to do with the culture of strategic planning and assessment. Each unit has a planning committee and an assessment coordinator who facilitate the work according to the particular needs. Some of their important tasks are reported here, highlighting the work related to the revision of strategic plans and the assessment of student learning. The third volume of the Avalúo Plus magazine was published with six articles of assessment projects. It is also important to highlight the efforts made to improve academic offer and faculty recruitment. Regarding the objective of guaranteeing the best education for our students, all departments are carrying out curricular revisions that will allow our programs to be more competitive and modern. This task has included the review of courses, sequences and complete programs. Distance education has been strengthened through different initiatives, including the preparation of classrooms with appropriate technology to have face-to-face and remote students at the same time. Several departments are working with new graduate programs like the Master's Degree in Sustainable Economic Development and a Ph.D. program in Physics. Professors from different departments organized or participated in events that positively impacted our students. On the other hand, the different units of our Deanship

have continued their efforts to increase and diversify their sources of revenue. That includes the search for private donations, research proposals, services provided such as educational talks and workshops, use of facilities, writing books, RUMex courses, continuing education programs and intramural practice. In addition, departments have made efforts to achieve more agile and efficient administrative processes. This included continuing to improve communication mechanisms, automation and digitalization of processes, staff training activities, paper reduction policies, updating forms, self-studies, and administrative assessment projects. Here we can highlight the great effort made by several departments in order to create and maintain a new and better webpage using the WordPress software. The departments have made multiple efforts to strengthen research and creative work. Several proposals for external funding were submitted and approved as described in this report. In addition, various activities were carried out to disseminate the work, such as peer-reviewed scientific publications, books, conferences and virtual events. The social impact of the various efforts made by our departments was demonstrated through collaborations with the University Institute for the Development of Communities, educational talks to various groups, activities of student associations, Mathematical Olympiads, Summer Camp, Open House, collaborations with the municipality of Mayagüez and other private non-profit entities, tutoring activities, radio interventions, voluntary consultancies, activities of the Landslide Office, among many others. The strengthening of the school spirit, pride and identity can be seen reflected in various activities, such as the celebration of anniversaries and those carried out by student organizations. Our teachers and students have proudly represented our campus in various local and international activities such as congresses and competitions. Several departments organized activities to recognize the effort of our honor roll students. In various events, such as exhibitions and artistic creations, students had a leading role in which they demonstrated their talent to the entire community. In summary, the great richness and diversity that exists in the College of Arts and Sciences demonstrates our strong commitment to continue strengthening the academic excellence of the programs.

2. Mission:

Provide an excellent service to Puerto Rico and the world:

- Forming educated citizens, capable of critical thinking and professionally prepared in the arts and sciences so that they can contribute in an educational, cultural, social, technological and economic development.
- Perform creative work, of research and service, that meets the needs of society and divulge the results of these activities so they can be accessible for everyone.

Provide our students with the necessary skill and sensitivity, to effectively solve the problems we face and be an example of the values and attitudes that must prevail in a democratic society that values and respects diversity. J. Research and Development Center

IV. UPRM's Profile

Higher education institutions today are facing significant enrollment challenges due to demographic, societal, and economic changes. At the Mayagüez Campus, total enrollment for the 2023-2024 academic year was 10,727, with 9,866 undergraduate students and 861 graduate students. This reflects a 3.03% decrease in total enrollment (335 students), the smallest decline in the past four years. This decline occurred entirely at the undergraduate level, while graduate enrollment remained unchanged from the previous year. Table 1 summarizes UPRM student enrollment over the last four academic years, with Figure 1 illustrating overall enrollment trend, and Figures 2 and 3 show the distribution of undergraduate and graduate enrollment trend, respectively.

Academic Year	Undergraduate Student Enrollment	Graduate Student Enrollment	Total Student Enrollments
2020-2021	11,966	859	12,825
2021-2022	11,246	880	12,126
2022-2023	10,201	861	11,062
2023-2024	**9,866**	**861**	**10,727**

Table 1: UPRM Student Enrollment for Academic Years 2020-2021 through 2023-2024

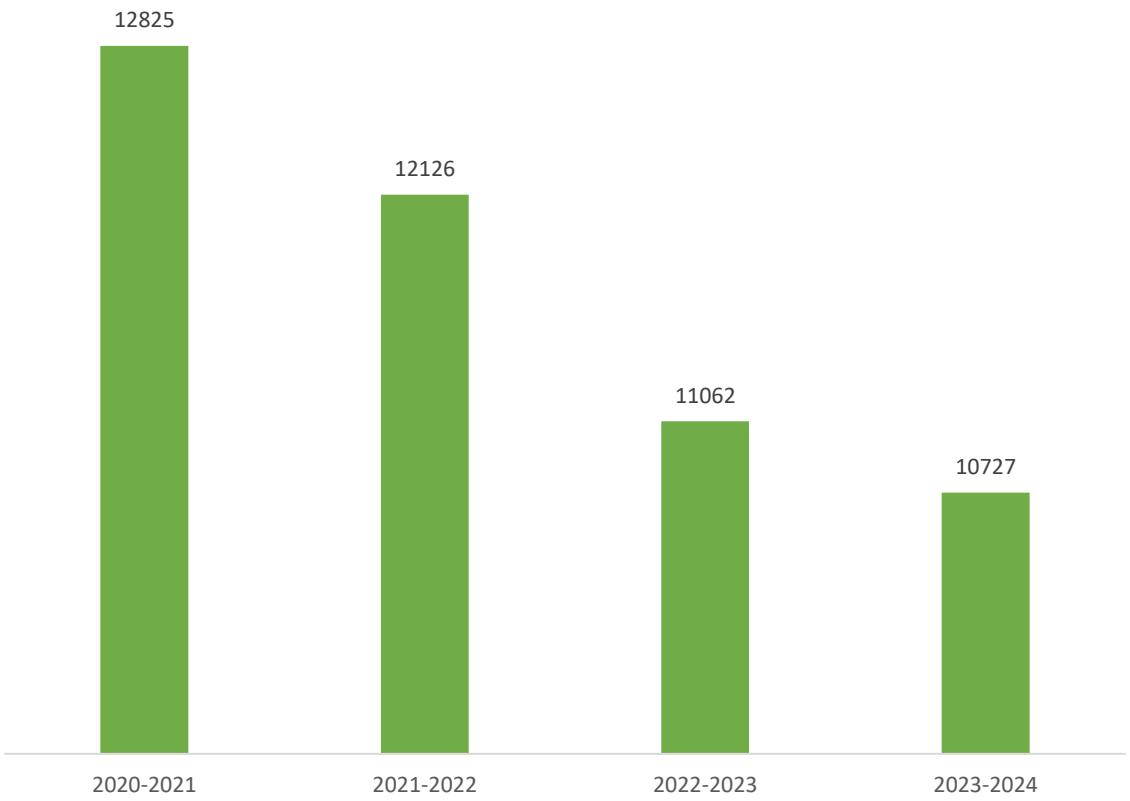


Figure 1: UPRM Total Student Enrollment Trend

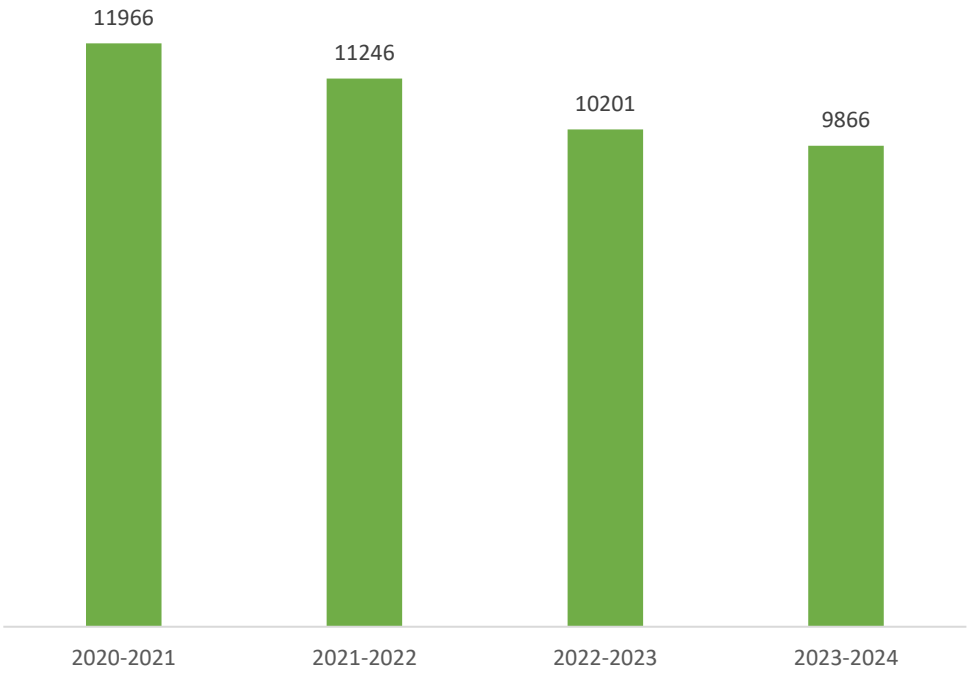


Figure 2: UPRM Undergraduate Student Enrollment Trend

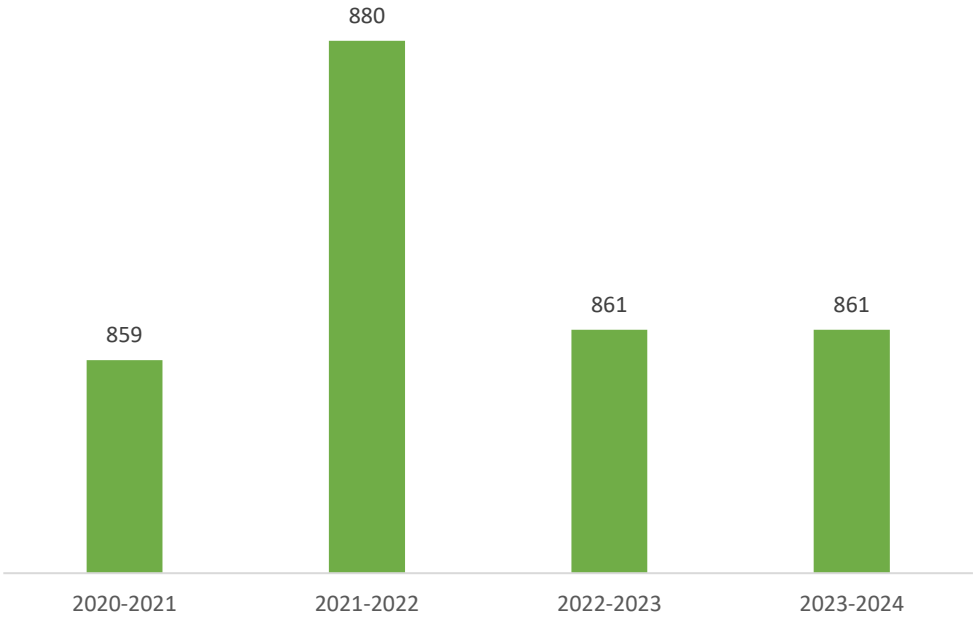


Figure 3: UPRM Graduate Student Enrollment Trend

Table 2 provides a summary of UPRM undergraduate student enrollment by faculty, the Continuous Education Division (CED, which includes teaching licenses for agricultural science and high school education courses), and other categories (such as high school students, transient-semester students, exchange program participants, and auditors). The CED was the only area to experience an increase, adding 120 students during the 2023-2024 academic year compared to the previous year. The Engineering faculty remains the largest faculty on campus, with 4,648 students, representing 47.1% of the total enrollment. Figure 4 illustrates undergraduate enrollment trends by faculty, the CED, and other categories.

Academic Year	Engineering	Arts & Sciences: Sciences	Agricultural Sciences	Arts & Sciences: Arts	Business Administration	CED	Others
2020-2021	4998	2590	1613	1455	1198	25	87
2021-2022	4944	2415	1408	1278	1103	29	69
2022-2023	4673	2152	1165	1120	987	21	83
2023-2024	**4648**	**1982**	**1096**	**1025**	**915**	**141**	**59**

Table 2: UPRM Undergraduate Student Enrollment by Faculty, CED, and Others

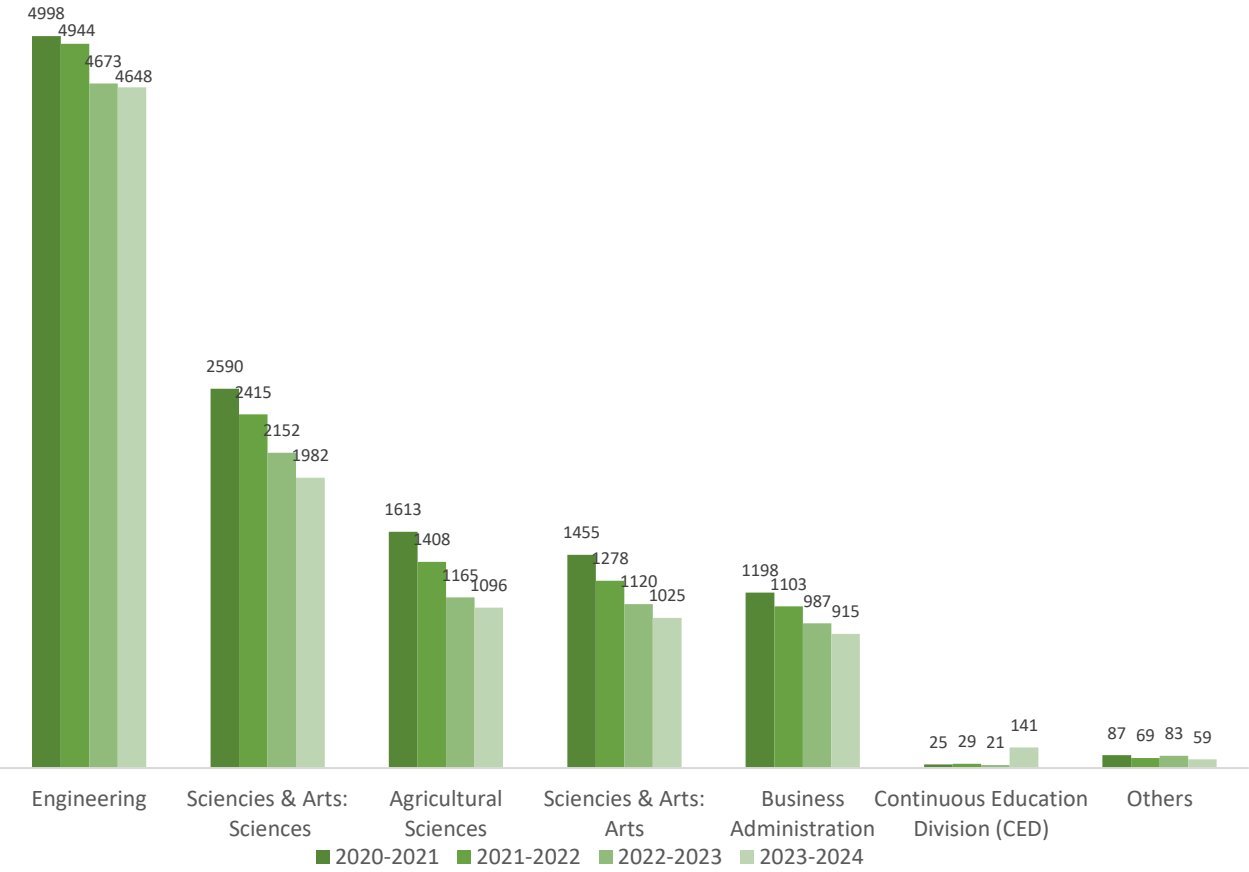


Figure 4: UPRM Undergraduate Enrollment Trends by Faculty, CED and Others

Table 3 provides a summary of UPRM graduate student enrollment by faculty. The Arts & Sciences: Arts faculty reported an increase of 24 students during the 2023-2024 academic year compared to the previous year. In contrast, other faculties experienced a reduction in enrollment during the same period. The Arts & Sciences: Science faculty has the largest number of graduate students, with 265 students, representing 30.8% of the total graduate enrollment. Figure 5 shows graduate enrollment trends by faculty.

Academic Year	Engineering	Sciences & Arts: Sciences	Agricultural Sciences	Sciences & Arts: Arts	Business Administration
2020-2021	274	249	194	85	57
2021-2022	277	261	203	99	40
2022-2023	264	270	182	101	44
2023-2024	**258**	**265**	**176**	**125**	**37**

Table 3: UPRM Graduate Student Enrollment by Faculty

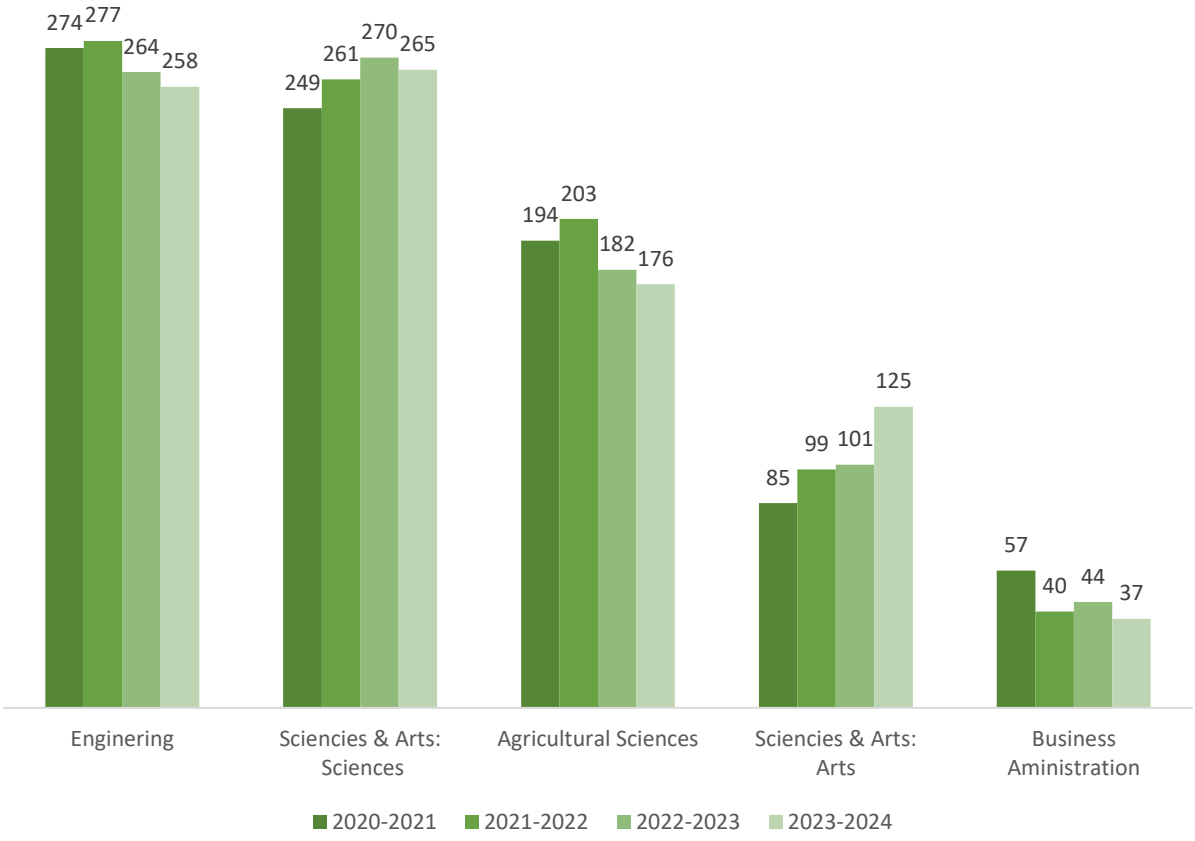


Figure 5: UPRM Graduate Enrollment Trends by Faculty

Table 4 presents a summary of undergraduate student enrollment in the UPRM College of Engineering. Civil, Computer Science, and Software Engineering programs saw increases of 51, 12, and 1 students, respectively, during the 2023-2024 academic year compared to the previous year. In contrast, other programs experienced a decrease in enrollment during the same period.

Mechanical Engineering remains the program with the highest number of enrolled students on campus, with 1,019, representing 10.3% of the total undergraduate enrollment, despite a reduction of 3 students compared to the previous year. Civil Engineering is tied with Biology as the second-largest program on campus this year, with 629 students, representing 6.38% of the total undergraduate enrollment. Figure 6 illustrates undergraduate enrollment trends in the College of Engineering.

Program\Academic Year	2020-2021	2021-2022	2022-2023	**2023-2024**
Mechanical Engineering – BS	1087	1038	1022	**1019**
Chemical Engineering – BS	701	631	555	**526**
Electrical Engineering -BS	657	642	612	**586**
Industrial Engineering – BS	690	696	637	**621**
Computer Engineering – BS	549	544	476	**468**
Civil Engineering – BS	545	589	578	**629**
Software Engineering – BS	370	419	456	**457**
Surveying and Topography - BS	254	228	172	**165**
Computer Science and Engineering – BS	145	157	165	**177**

Table 4: College of Engineering Undergraduate Student Enrollment

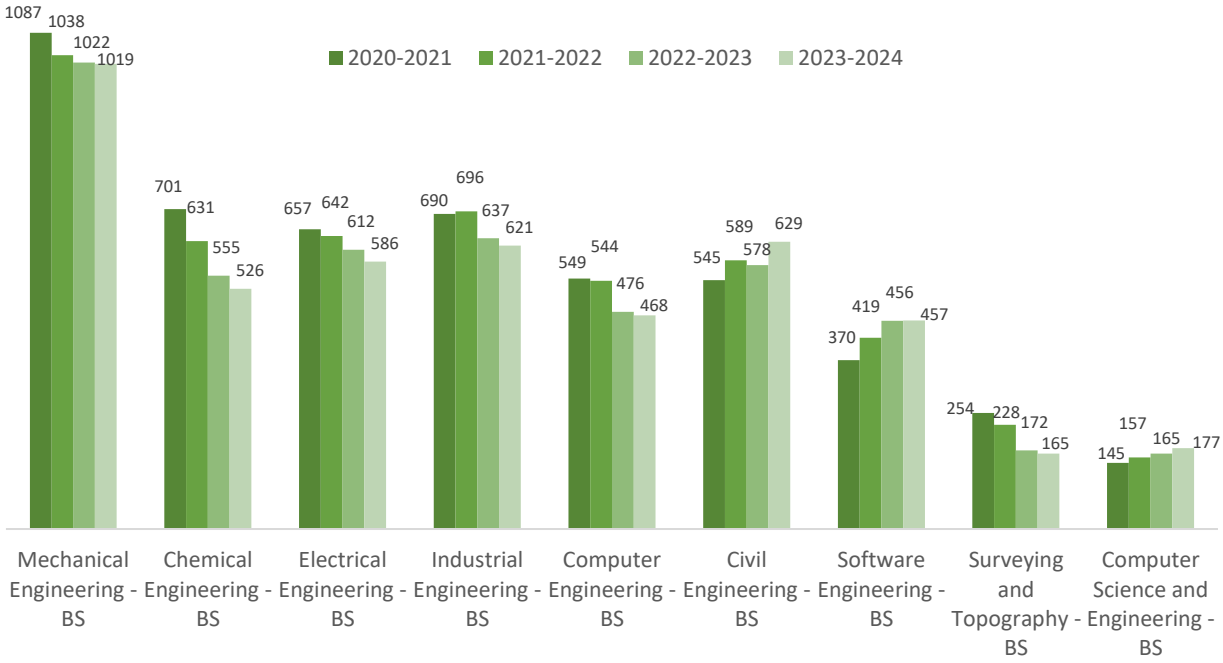


Figure 6: College of Engineering Undergraduate Enrollment Trends

Table 5 presents a summary of undergraduate student enrollment in the UPRM College of Agricultural Sciences. Soil Sciences has one more student than the previous year. Animal Science remains the program with the highest enrollment in this faculty, with 525 students, representing 5.3% of the total undergraduate enrollment. It, along with Agri-Business and Agricultural

Economics, maintained the same number of students as the previous year. In contrast, other programs experienced a decrease in enrollment during the same period. Pre-Veterinary Studies has only one student fewer than the previous year. Figure 7 illustrates undergraduate enrollment trends in the College of Agricultural Sciences.

Program\Academic Year	2020-2021	2021-2022	2022-2023	**2023-2024**
Animal Science – BSA	577	558	525	**525**
General Agricultural – BSA	211	161	112	**100**
Agronomy – BSA	164	150	152	**146**
Environmental Agricultural Systems - BSA	140	114	76	**58**
Horticulture – BSA	99	92	68	**50**
Agricultural Education – BSA	78	56	32	**24**
Agricultural Extension – BSA	80	55	31	**18**
Agri-Business – BSA	65	50	44	**44**
Agricultural Economics – BSA	58	48	26	**26**
Crop Protection – BSA	60	39	22	**14**
Soil Sciences – BSA	36	22	12	**13**
Pre-Veterinary Studies	45	63	65	**64**

Table 5: College of Agricultural Sciences Undergraduate Student Enrollment

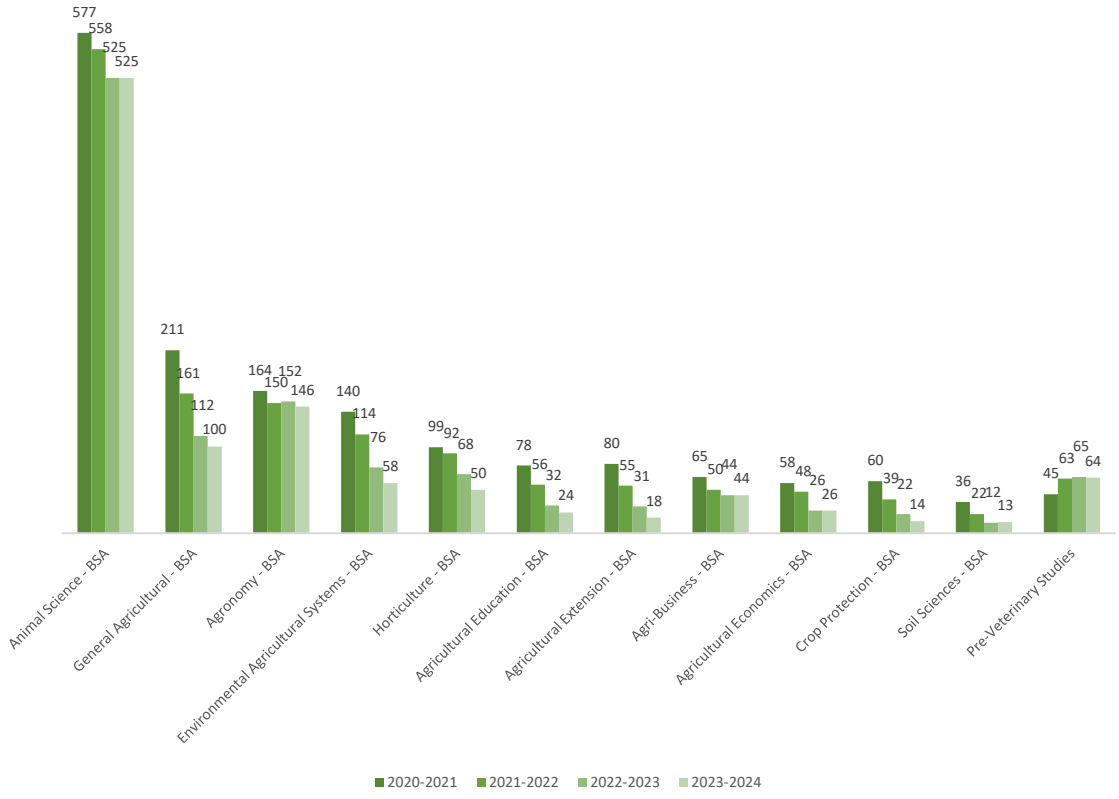


Figure 7: College of Agriculture Sciences Undergraduate Enrollment Trends

Table 6 presents a summary of undergraduate student enrollment in the UPRM College of Business Administration. The Finance and Marketing programs experienced increases of 18 and 8 students, respectively, during the 2023-2024 academic year compared to the previous year. In contrast, other programs experienced a decrease in enrollment during the same period. Accounting remains the program with the highest enrollment in this college, with 228 students, representing 2.3% of the total undergraduate enrollment. Figure 8 illustrates undergraduate enrollment trends in the College of Business Administration.

Program\Academic Year	2020-2021	2021-2022	2022-2023	**2023-2024**
Accounting – BSBA	294	277	262	**228**
Marketing – BSBA	209	228	207	**215**
Computerized Information System – BSBA	178	158	128	**113**
Operations Management – BSBA	143	122	111	**102**
Finance – BSBA	131	125	114	**132**
Office Administration – BOA	118	90	81	**48**
Human Resources Management – BSBA	125	103	84	**77**

Table 6: College of Business Administration Undergraduate Student Enrollment

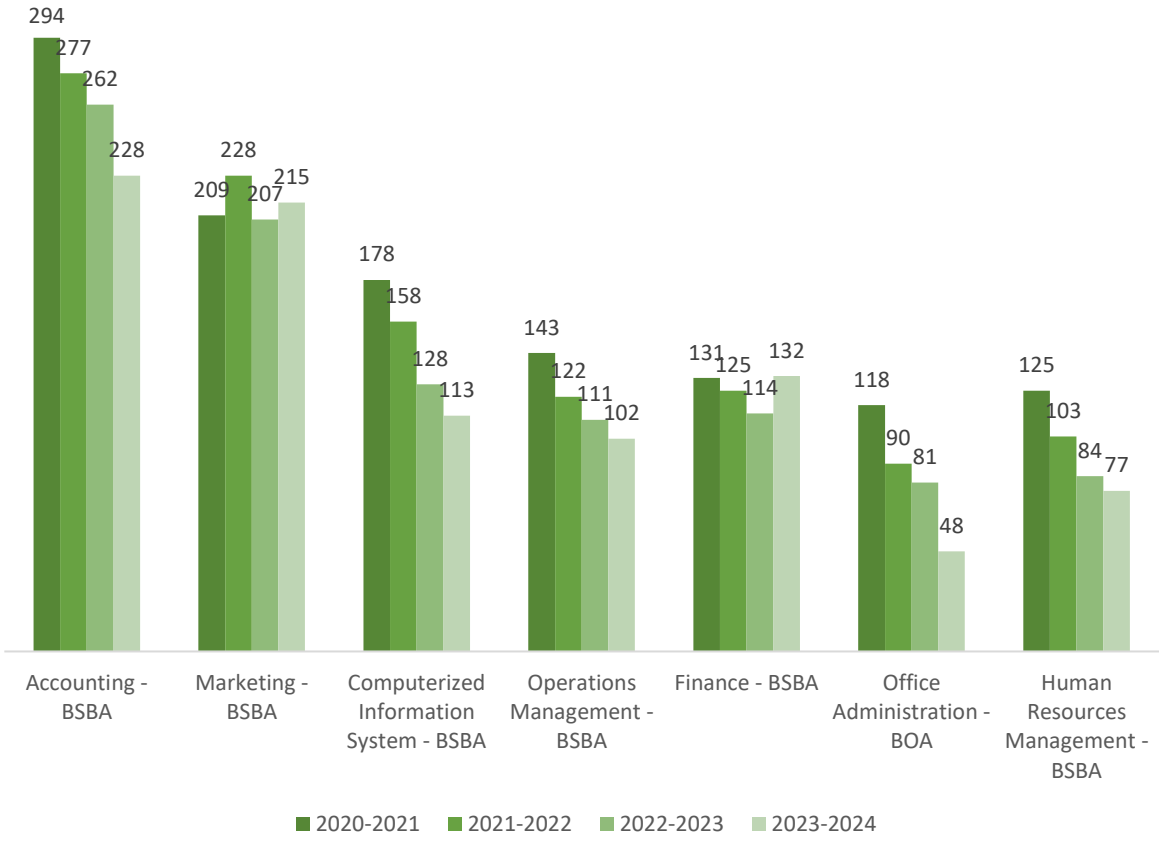


Figure 8: College of Business Administration Undergraduate Enrollment Trends

Table 7 presents a summary of undergraduate student enrollment in the UPRM College of Arts and Sciences - Arts. Psychology remains the program with the highest enrollment in this college, with 334 students, representing 3.4% of the total undergraduate enrollment. It also experienced an increase of 14 students during the 2023-2024 academic year compared to the previous year. In contrast, other programs experienced a decrease in enrollment during the same period. Figure 9 illustrates undergraduate enrollment trends in the College of Arts and Sciences - Arts.

	2020-2021	2021-2022	2022-2023	**2023-2024**
Psychology – BA	359	340	320	**334**
Coaching – BA	200	157	146	**142**
Political Sciences – BA	124	121	117	**114**
English – BA	112	110	101	**87**
Plastics Arts – BA	132	118	96	**85**
Social Sciences – BA	97	76	58	**47**
Sociology – BA	62	49	36	**29**
Teaching in Physical Education – BA	85	74	60	**51**
Economics – BA	81	58	50	**32**
History – BA	48	46	36	**27**
Comparative Literature – BA	39	36	35	**22**
Hispanic Studies – BA	49	33	17	**13**
French Language and Literature – BA	29	26	23	**21**
Theory of Art -BA	25	22	18	**16**
Philosophy – BA	13	12	7	**5**

Table 7: College of Arts and Sciences - Arts Undergraduate Student Enrollments

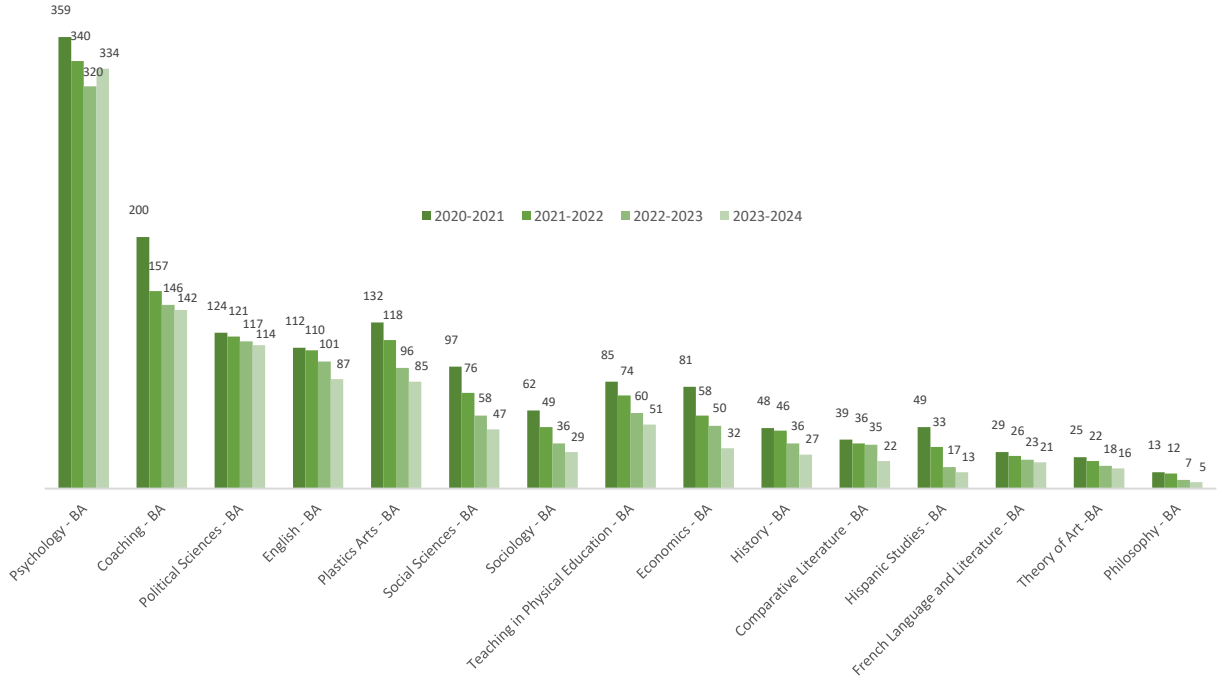


Figure 9: College of Arts and Sciences - Arts Undergraduate Enrollment Trends

Table 8 presents a summary of undergraduate student enrollment in the UPRM College of Arts and Sciences - Science. The Pre-Medical Studies and Theoretical Physics programs experienced increases of 6 and 4 students, respectively, during the 2023-2024 academic year compared to the previous year. Mathematics Education maintained the same number of students as the previous year. In contrast, other programs experienced a decrease in enrollment during the same period. Biology remains the program with the highest enrollment in this college, with 629 students. It is tied with Civil Engineering as the second-largest program on campus this year, as mentioned previously. Figure 8 illustrates undergraduate enrollment trends in the College of Arts and Sciences - Science.

	2020-2021	2021-2022	2022-2023	**2023-2024**
Biology - BS	806	772	705	**629**
Industrial Microbiology - BS	457	410	362	**338**
Nursing - BS	288	237	198	**175**
Chemistry - BS	280	269	234	**233**
Pre-Medical Studies -BS	183	193	169	**175**
Industrial Biotechnology - BS	152	145	127	**111**
Theoretical Physics - BS	124	118	103	**107**
Geology - BS	116	110	108	**84**
Computer Science - BS	66	79	85	**84**
Physical Science - BS	65	41	33	**24**
Mathematics - BS	43	34	24	**18**
Mathematics Education - BS	10	7	4	**4**

Table 8: College of Arts and Sciences - Science Undergraduate Student Enrollments

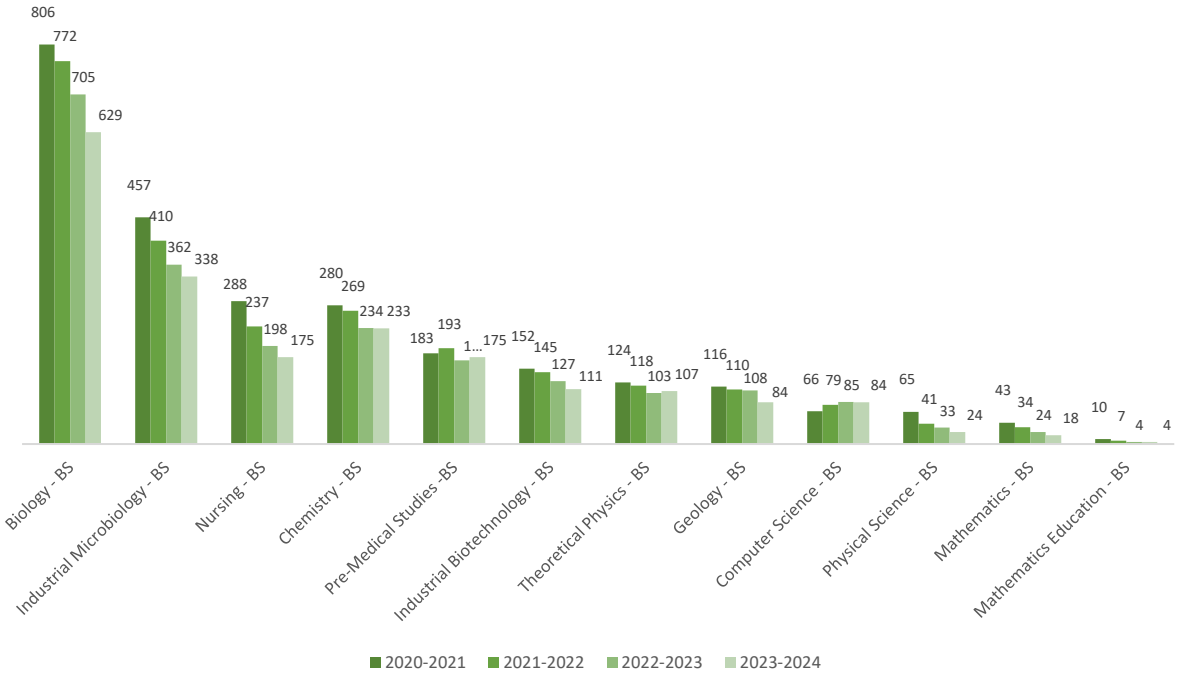


Figure 10: College of Arts and Sciences - Science Undergraduate Enrollment Trends

Table 9 presents a summary of non-degree student enrollment at UPRM. High school students represent the highest enrollment in this category. Figure 11 illustrates enrollment trends in non-degree programs.

	2020-2021	2021-2022	2022-2023	**2023-2024**
High School Students	66	46	48	**28**
Transient-Semester	21	23	26	**22**
Exchange Program	0	0	5	**7**
Auditor	0	0	3	**1**
" (PADE) Proyecto Profesionalización Acelerada Docentes DEPR (Puerto Rico Department of Education)"	0	0	1	**1**

Table 9: Non-degree Student Enrollments

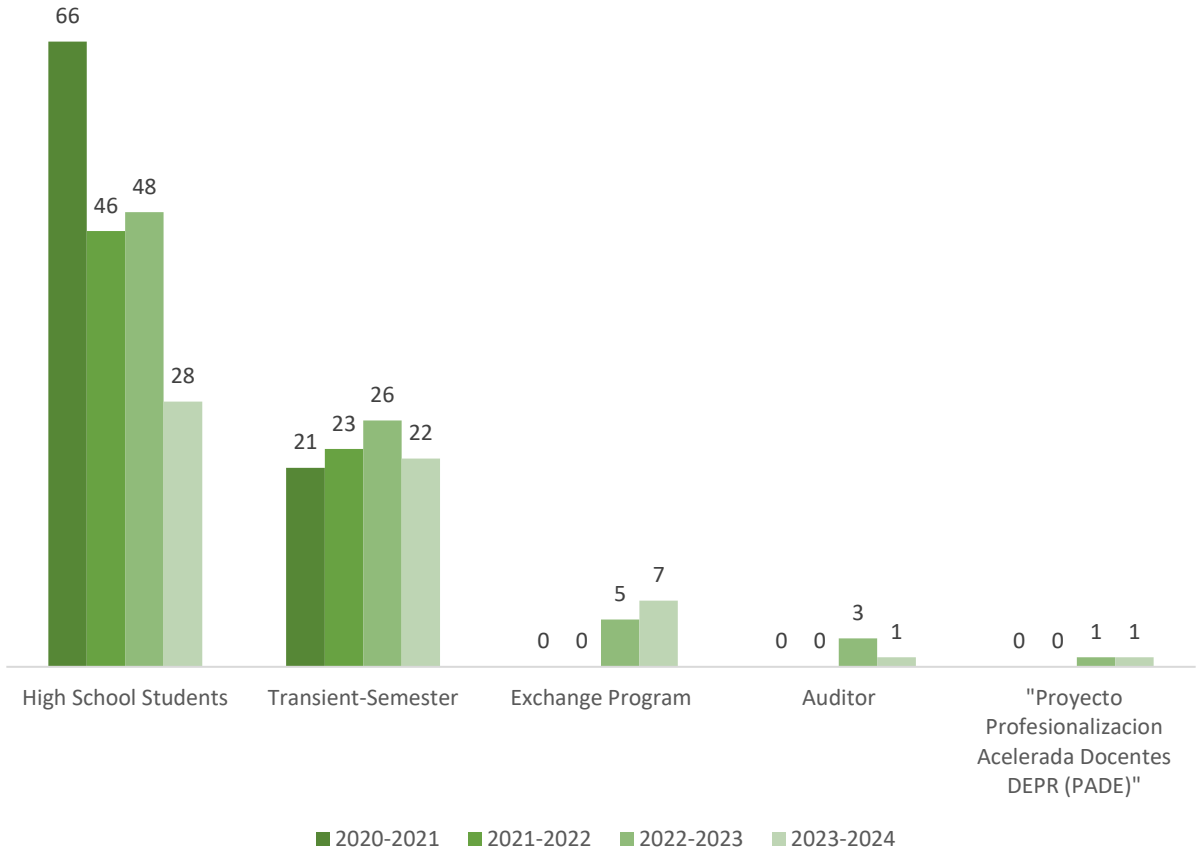


Figure 11: Non-degree Programs Enrollment Trends

Table 10 shows the number of bachelor's degrees awarded by faculty. A total of 1,529 bachelor's degrees were awarded during 2023-2024, representing a reduction of 217 compared to the previous year. The Engineering faculty awarded the most bachelor's degrees during this period. Figure 12 illustrates trends in bachelor's degrees awarded.

	2020-2021	2021-2022	2022-2023	**2023-2024**
Arts and Sciences	757	763	702	**559**
Engineering	673	604	652	**632**
Agricultural Sciences	226	253	197	**198**
Business Administration	207	222	195	**140**
Total	1,863	1,842	1,746	**1,529**

Table 10: UPRM Awarded Bachelor's Degrees by Faculty

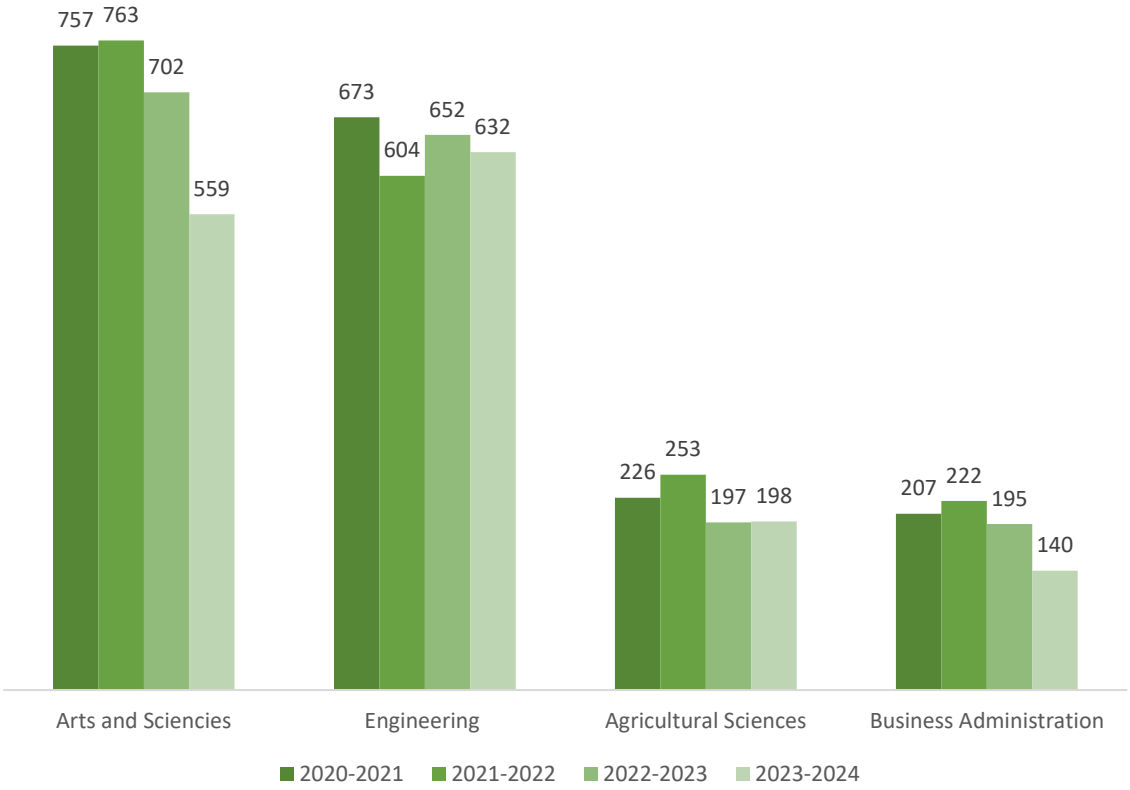


Figure 12: UPRM Awarded Bachelor's Degrees by Faculty Trends

Table 11 shows the number of master's degrees awarded by faculty. A total of 185 master's degrees were awarded during 2023-2024, an increase from the previous year. The Arts and Sciences faculty awarded the most master's degrees during this period. Figure 13 illustrates trends in master's degrees awarded.

	2020-2021	2021-2022	2022-2023	**2023-2024**
Arts & Sciences	37	41	59	**88**
Engineering	60	44	52	**48**
Agricultural Sciences	26	40	35	**32**
Business Administration	23	12	18	**17**
Total	146	137	164	**185**

Table 11: UPRM Awarded Master's Degrees

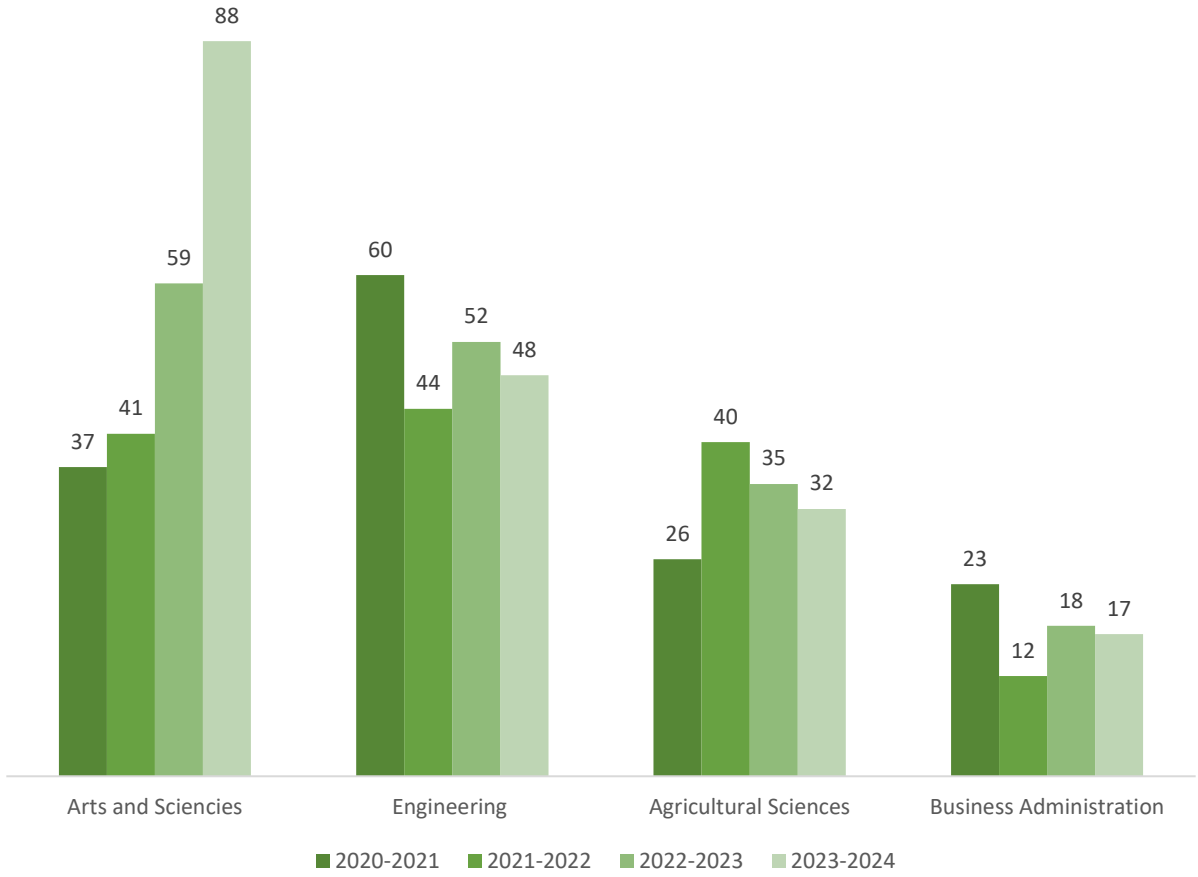


Figure 13: UPRM Awarded Master's Degrees Trends

Table 12 shows the number of PhD degrees awarded by faculty. A total of 23 PhD degrees were awarded during 2023-2024. The Engineering faculty awarded the most PhD degrees during this period. Figure 13 illustrates trends in PhD degrees awarded.

	2020-2021	2021-2022	2022-2023	**2023-2024**
Arts & Sciences	4	3	10	**9**
Engineering	10	11	14	**14**
Agricultural Sciences	0	0	0	**0**
Business Administration	0	0	0	**0**
Total	14	14	24	**23**

Table 12: UPRM Awarded PhDs Degrees by Faculty

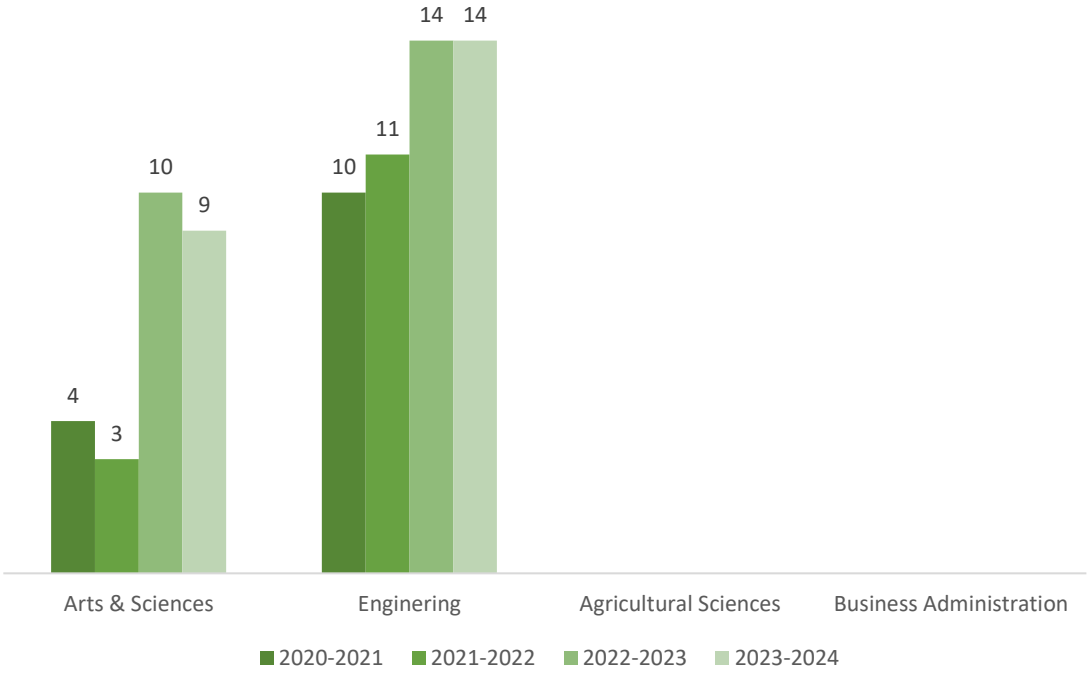


Figure 14: UPRM Awarded PhD's Degrees by Faculty

Table 13 shows the number of students admitted who completed the enrollment process by faculty for the academic years 2020-2021 through 2023-2024. For this year, a total of 1,864 students completed the enrollment process. This represents an increase of 173 students (around a 10% increase). Figure 15 illustrates the new enrollment trends.

	2020-2021	2021-2022	2022-2023	**2023-2024**
College of Engineering	795	794	721	**898**
College of Arts and Sciences: Science	494	474	414	**433**
College of Agricultural Sciences	226	196	182	**191**
College of Arts and Sciences: Arts	197	182	179	**172**
College of Business Administration	189	177	195	**170**
Total	1901	1823	1691	**1864**

Table 13: Enrollment of Admitted Students by Faculty.

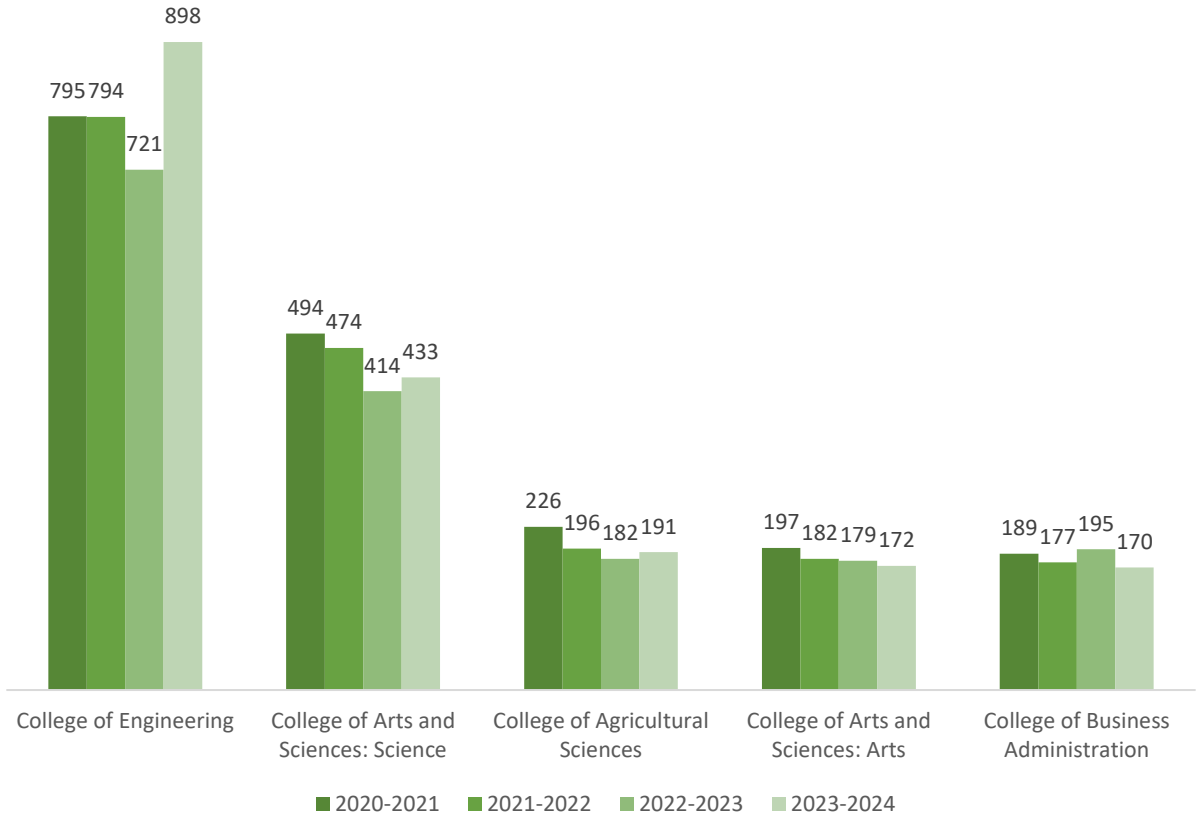


Figure 15: Enrollment of Admitted Students by Faculty Trends

In the 2023-2024 academic year, a total of 4,388 students applied for admission to the Mayaguez Campus, of which 2,527 were admitted. This number represents 57.6% of the applicants. There was a 1.5% increase in the number of applicants (66 students) compared to the previous year. Additionally, there was a 7% increase in the number of students admitted (177 students). Of the admitted students, 55.3% are from private schools, 40.5% are from public schools, and 3.2% are from other educational backgrounds. Due to alternative admission methods, the General Index of Applications (IGS by its Spanish acronym0is no longer a required criterion for acceptance at the campus. Consequently, the minimum IGS is zero, while for the traditional criterion, the maximum was 396, and the median was 323. Figure 16 illustrates the new enrollment distribution.

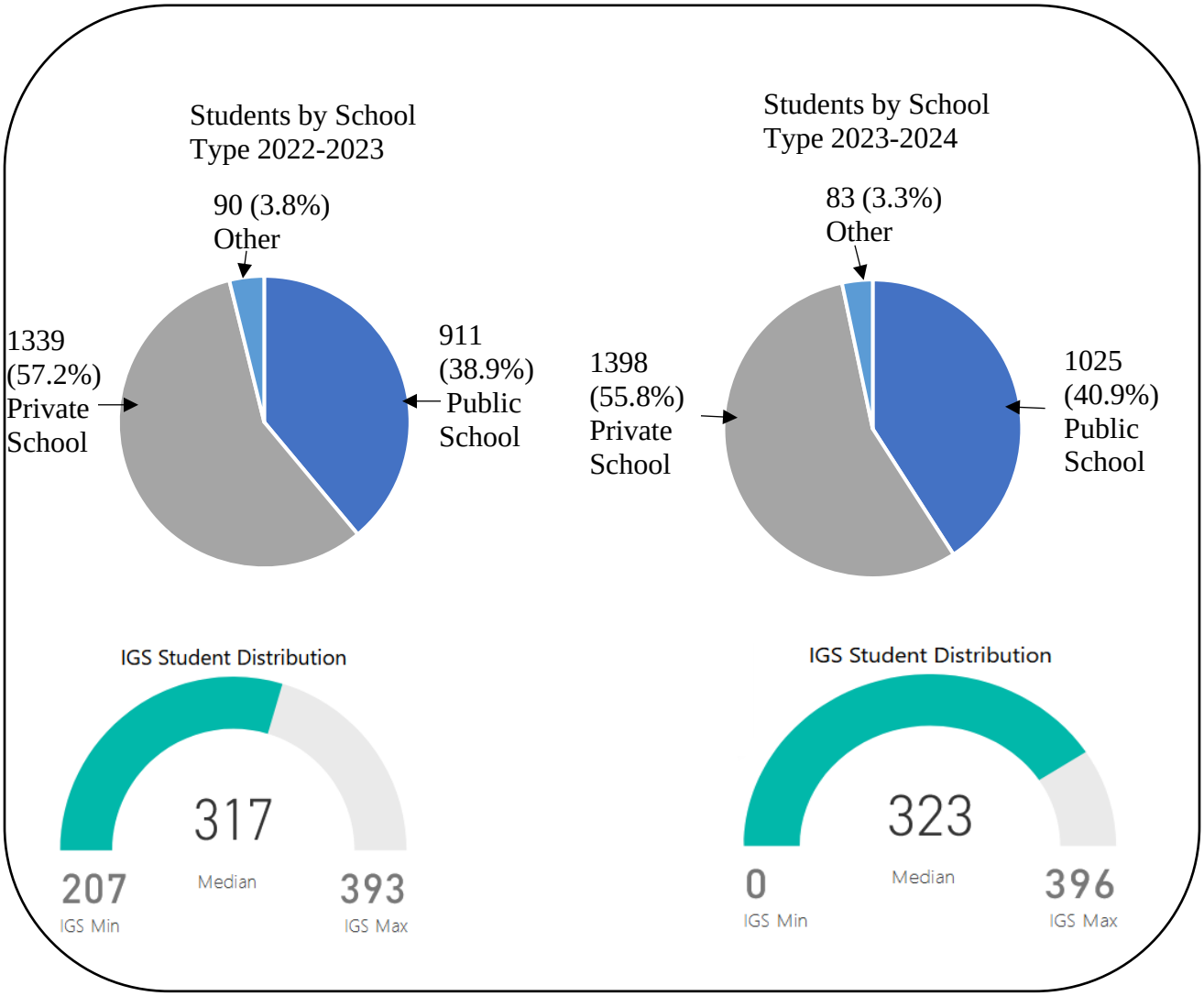


Figure 16: New Enrollment and IGS Distribution

Figure 17 presents the budget breakdown for the last three academic years (2021-2022, 2022-2023 and 2023-2024). In all three years, the largest accounts are the salaries of teaching and non-teaching employees, followed by other employer contributions. For the academic year 2023-2024, the sum of these two amounts is equivalent to 54% of the entire budget.

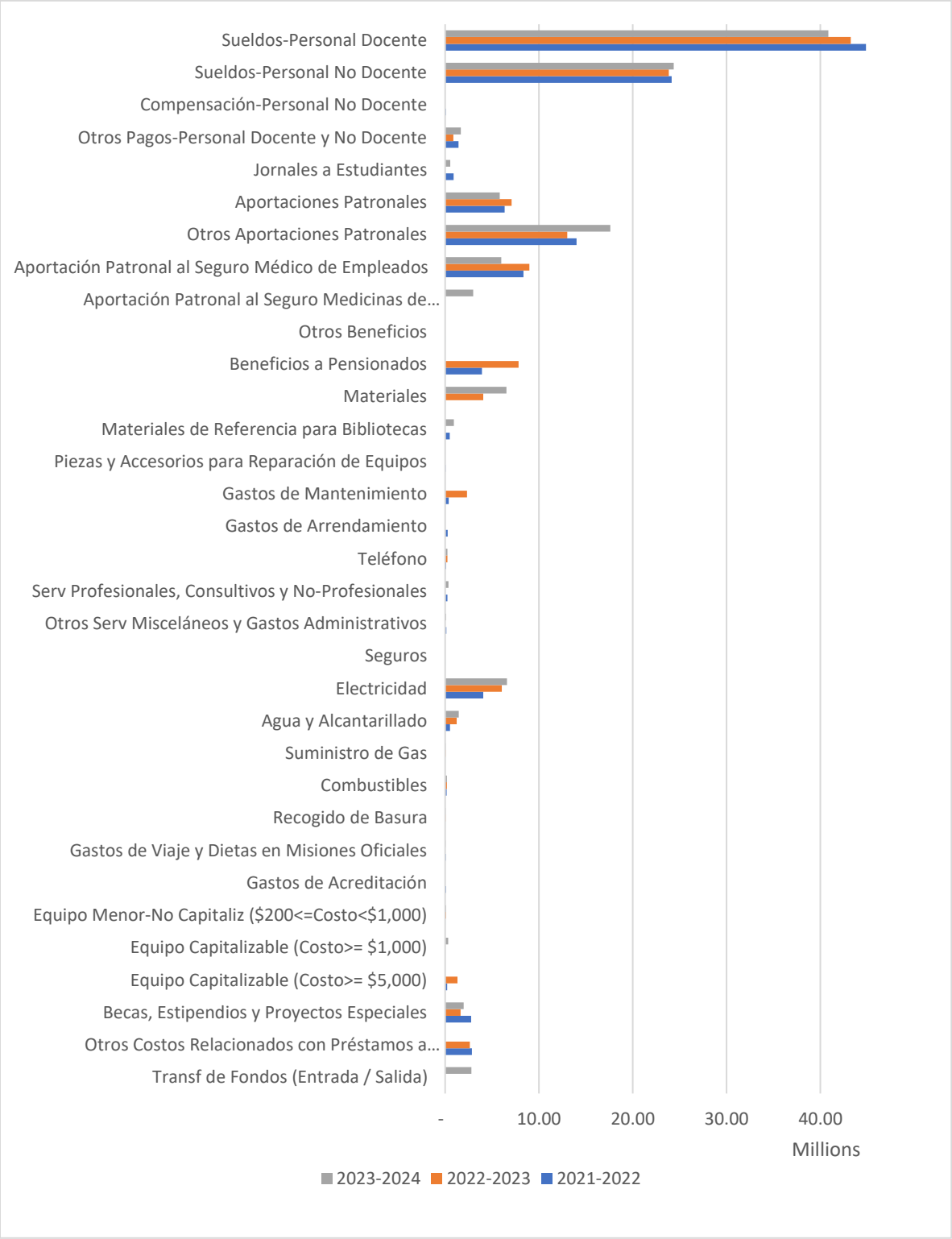


Figure 17: Budget per Description

Graduate Program Academic Offerings

College of Business Administration MBA
- General Business Administration
- Human Resources
- Industrial Management
- Finance

College of Science MS
- Biology
- Marine Sciences
- Mathematical Sciences:
    - Scientific Computing
    - Applied Mathematics
    - Statistical Mathematics
    - Pure Mathematics
    - Teaching Mathematics at the Pre-University Level
- Physics
- Geology
- Chemistry

College of Science PhD
- Marine Sciences
- Applied Chemistry

College of Arts MA
- English Education
- English Literature
- Cultural and Humanistic Studies
- Hispanic Studies
- Kinesiology

College of Arts PhD

School Psychology

College of Agricultural Sciences MS
- Agronomy
- Animal Sciences
- Food Science and Technology
- Agricultural Economy
- Remote Agricultural Economics
- Agricultural Education
- Agricultural Extension
- Horticulture
- Crop Protection
- Soils

College of Agricultural Sciences PhD
- Tropical Agriculture

College of Engineering MS and ME
- Bioengineering
- Materials Science and Engineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Industrial Engineering
- Chemical Engineering
- Mechanical Engineering

College of Engineering PhD
- Bioengineering
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Chemical Engineering
- Mechanical Engineering

V. Strategic Plan Alignment: Initiatives, Activities, and Accomplishments

A. Objective #1: To institutionalize a culture of strategic planning and assessment

1. To maintain and to publish updated institutional metrics.

Maintaining and publishing institutional metrics is crucial as it provides transparent, data-driven insights that support informed decision-making, strategic planning, and continuous improvement. These metrics help track progress, assess effectiveness, and align resources with institutional goals, ensuring initiatives are evidence-based and aligned with long-term objectives. They also promote accountability and enable stakeholders to measure performance, enhancing overall institutional efficiency and credibility. The following paragraphs summarize how UPRM is achieving this goal.

First, the Office of Planning, Research, and Institutional Improvement (OPIMI, by its Spanish acronym) is responsible for maintaining and updating institutional metrics through dashboards, tables, graphs, and diagrams. These tools provide valuable data to both the internal and external UPRM community, aiding informed decision-making and supporting various research projects. During the 2023-2024 academic year, the office resolved 158 information requests, with 63.9% addressed in two days or less and 74.1% in three days or less. Additionally, in collaboration with the Alumni Office, OPIMI maintains the Donations Dashboard to present donation data to the Chancellor's Office.

Moving to the College of Agricultural Sciences (CAS), this academic year has seen a transition to the Program Evaluation and Reporting System (PEARS), in alignment with the new National Institute of Food and Agriculture (NIFA) reporting format. PEARS, structured around a program's plan of work, focuses on gathering outcomes and goals, significantly reducing indicators by concentrating on the most relevant educational initiatives and outcome indicators within each program area.

The Department of Kinesiology has begun analyzing metrics related to students' active participation in community programs, freshman retention, and graduation rates. Monthly departmental meetings include updates on these metrics to ensure alignment with the institutional strategic plan and the assessment evaluation plan.

2. To develop an opportune updating system of the Strategic Plan based on the assessment of the institutional environment.

Developing a timely system for updating the Strategic Plan based on assessments of the institutional environment is crucial for keeping the plan dynamic. This approach allows the institution to remain proactive, competitive, and effective in achieving its goals. The following paragraphs summarize how UPRM is achieving this goal.

During the 2023-2024 academic year, OPIMI initiated the development of the new UPRM Strategic Plan, with completion anticipated in the 2024-2025 academic year. In parallel, OPIMI began work on the Infrastructure Strategic Plan, which is also expected

to be finalized by 2024-2025. To support this initiative, two UPRM professors were assigned to the project. Additionally, OPIMI prepared the annual report for the previous academic year, serving as an evaluation tool to measure progress in achieving the Strategic Plan's goals.

The DCSP conducts an annual review of its Strategic Plan and Operational Design to meet its goals. Similarly, the Department of Physics continued reviewing its Strategic Plan during the academic year and will continue next year, while also beginning to implement a new administrative Assessment Plan.

The Department of Economics reviewed and updated its mission and vision as part of its Strategic Plan, with changes approved on February 7, 2024. Additionally, CAS established the Strategic Planning and Evaluation Committee to develop and implement strategic and evaluation plans for faculty and other units, while providing recommendations. The committee also presents a semi-annual report to the Dean and Director on its activities.

At ADEM, the Strategic Plan guides the operational plans of each office. For the 2023-2024 academic year, these plans were presented and approved during the second faculty meeting, as outlined in the ADEM Bylaws. Key initiatives included:

1. Using assessment results to strengthen undergraduate programs
2. Developing new graduate offerings, such as the MS in Supply Chain Management and Marketing
3. Establishing recruitment and retention initiatives
4. Increasing internships and co-op opportunities
5. Recruiting and developing faculty and non-teaching staff
6. Updating the ADEM Strategic Plan
7. Increasing external funding
8. Supporting entrepreneurship efforts
9. Continuing AACSB accreditation efforts while maintaining ACBSP accreditation. Periodic follow-up meetings were held with the dean's staff, extended staff, and faculty to track progress.

To assess the institutional environment, several departments and offices, including Traffic and Surveillance, Financial Aid, DCSP, and the Life Quality Office, provide service evaluation questionnaires, most of which are available on their official websites. At the Information Technology Center (CTI, by its Spanish acronym), user feedback is collected via email to improve service delivery.

For academic assessments, an exit survey was given to students in the ADEM, Hispanic Studies, Economics, and Physics departments. The results are being analyzed and are expected to inform updates to these departments' strategic plans, allowing them to adjust their academic offerings. Additionally, the Department of Economics distributes a questionnaire to freshmen to understand their expectations.

At the General Library, GRIC continuously gathers data and user feedback to enhance its services. A recent study by Dr. Luisa Feliciano Cruz aimed to improve graduate students' academic communication skills in English.

Finally, the Academic Senate and Administrative Board are proactive in promoting a culture of strategic planning and assessment. This year, the Administrative Board held twenty-one regular meetings and six special meetings, issuing 250 certifications, reflecting its commitment to structured governance. The Academic Senate held eleven meetings during the 2023-2024 fiscal year, actively participating in institutional processes.

3. To develop a system that allows to establish a relationship between the assignment of resources and the priorities established in the Strategic Plan.

It is crucial for an institution to develop a system that establishes a relationship between resource allocation and the priorities outlined in the Strategic Plan. This ensures the effective use of resources by aligning them with strategic goals, involving stakeholders in transparent processes, and maintaining flexibility for adjustments. The following paragraphs summarize how UPRM is achieving this goal.

The most valuable resource in any organization is its people—students, employees, and stakeholders. For this reason, various personnel hirings took place across different departments and offices during this academic year. OPIMI, the Division of Continuing Education and Professional Studies (DECEP, by its Spanish acronym), the Athletic Department, and several departments within the College of Engineering recruited personnel in alignment with the priorities established in their strategic plans as follows:

- OPIMI temporarily hired an assistant investigator within the continuous improvement area to support critical initiatives. This individual is contributing to key efforts such as the accreditation process, the development of the strategic plan, and the assessment of institutional effectiveness, among other responsibilities.
- DECEP recruited instructors from within the campus to ensure familiarity with its standards and selected external professionals with top credentials and experience for specialized courses.
- A female trainer was added to the Athletic Department's coaching staff, and the long-distance coach in athletics was replaced. Two new coaches, both with the necessary experience and qualifications, were appointed to strengthen the team's capabilities.
- The Computer Science and Engineering Department recruited Dr. Juan Patarroyo due to his academic background and experience in embedded systems, mobile robotics, and programming. His research interests include intelligent control systems, digital signal processing, and renewable energy.
- The Mechanical Engineering Department recruited Dr. André Amador for his academic background and experience in engineering, oceanography, and energy sustainability. His research focuses on marine renewable energy technologies.
- The Electrical and Computer Engineering Department recruited Dr. Adriana Luna and Dr. Dibin Mary George based on their academic studies and experience in teaching and research. Dr. Luna specializes in sustainable and resilient electric energy systems,

with research focused on the control and integration of distributed energy resources. Dr. George is an expert in microwave electronics and antenna design, with extensive research experience in these fields.

- The Industrial Engineering Department recruited Dr. Roxana Aparicio and Dr. Samuel A. Bonet Olivencia due to their academic studies and experience in teaching and research. Dr. Aparicio specializes in Artificial Intelligence, Machine Learning, and Deep Learning, with experience in research and development, as well as consulting. Dr. Bonet focuses on human factors and systems engineering, particularly in telehealth and the provision of health and education services.

The Traffic and Surveillance Department institutionalized strategic planning through regular meetings, system updates, security management, and collaboration on emergency response and violence prevention. The Dean of Administration's Office focused on compliance, surveillance, and digital updates while participating in key committees. The Human Resources Department held regular meetings to ensure compliance, reestablished service evaluations, and managed recruitment for 82 openings.

4. To develop an assessment plan that examines the performance-level of internal processes as well as the effectiveness of teaching-learning processes.

Another important aspect for an institution to consider is developing an assessment plan that examines the performance of internal processes and the effectiveness of teaching-learning processes. This assessment plan ensures that the institution is constantly evolving, improving, and meeting the needs of its students and stakeholders. The following paragraphs summarize how UPRM is achieving this objective.

Each program within the Department of Humanities conducts its own assessments biennially, seeking student feedback on course offerings and other pertinent aspects, thereby fostering continuous improvement and alignment with student expectations. Additionally, this year, the Department of Humanities established an Assessment Committee, spearheaded by Dr. Edgardo Ramírez, an expert in academic assessment. At the Department of Marine Sciences (DMS), the evaluation committee is developing an assessment protocol to measure the strategic plan's objectives. The Department of Nursing's Evaluation Committee successfully conducted comprehensive evaluations of courses, competency assessments, and expected outcomes, meeting the standards set by the accrediting agency and the program's high expectations for excellence.

The Department of Continuing Education and Professional Studies (DECEP) emphasizes continuous evaluation to ensure high-quality educational offerings. It assesses instructor performance and tracks key metrics such as course openings, closures, participation, and revenue. The director uses these insights, along with market studies and industry engagement, to expand and adapt course offerings, ensuring relevance and responsiveness to evolving trends. DECEP's data-driven planning and commitment to continuous improvement position it as a leader in professional and continuing education.

The Office of the Ombudsman has implemented an Assessment Plan to evaluate its services to the university community. They use Google Forms to gather feedback and continuously improve processes. Additionally, the Ombudsman regularly meets with the Presidents of the Student Council and the Presidents of the Student Councils of the four faculties to discuss and address various situations and recommendations, ensuring that student needs and concerns are systematically assessed and incorporated into strategic planning.

ADEM has a comprehensive five-year Assessment Plan coordinated by the Accreditation and Assessment Office. This plan includes academic and administrative assessments, as well as student satisfaction surveys. Actions are taken at the course level throughout the five-year period, culminating in an Assessment Summit where curriculum-level actions are defined. The data collected is used to develop a new five-year plan. The most recent Assessment Summit occurred this year, and a new plan awaits faculty approval next semester.

The ABET accreditation process helped the Electrical and Computer Engineering Department evaluate program objectives and student outcomes using surveys (gathering input from recruiters and alumni), interviews (including with the departmental Industrial Advisory Board), and course sampling. Faculty members tabulated examinations, assignments, and class projects related to each student outcome. The ABET Coordinator summarized this data and discussed findings and action plans during a Continuous Improvement and Accreditation Faculty Retreat. Working groups presented instruments to be used, identified objectives, and discussed syllabus outcomes and changes. The ABET accreditation process also benefited the Department of Mechanical Engineering. During the "Closing the Loop" meeting for the first 3-year cycle, held on December 5, 2023, the ABET coordinator discussed changes to the Program Educational Objectives, presented measured outcomes with performance indicators, and shared assessment results with faculty, non-teaching, and administrative personnel. Data comparisons from faculty, students, and the Industry Advisory Board were also presented. Each specialty area committee met afterward to discuss potential action items, which were then presented by the committee coordinators. Additionally, the Surveying and Topography Program was fully accredited by ANSAC (Applied and Natural Science Accreditation Commission) of ABET, ensuring high curriculum standards and degree recognition.

The Assessment Plan (academic and administrative assessment) of the Department of Economics was reviewed. It covers the academic and administrative affairs of the Bachelor of Arts Program in Economics and the Minor Concentration in Economics throughout the academic years 2023-2024 and 2024-2025. Dr. Ricardo R. Fuentes Ramírez announced the completion of the Departmental Assessment Plan. He also served as editor/coordinator for the publication of Avalúo Plus magazine, which included an article on the department’s assessment efforts. Dr. Fuentes presented his article, titled "Incorporating Qualitative Methods to Evaluate the Role of Economics Courses in Achieving the Departmental Educational Objectives," at the official presentation of Volume 3 of Avalúo Plus on May 2, 2024. The Program Learning Outcomes (PLOs) and Student Learning Outcomes (SLOs) for the Bachelor of Arts in Economics were reviewed and approved at the regular departmental meeting held on Thursday, March 7, 2024. Additionally, an academic

assessment plan for 2024-2027 at the Department of Hispanic Studies was developed and will be submitted for faculty approval in August 2024.

The Army ROTC follows the Army Cadet Command doctrine and uses Army leadership blue cards to evaluate cadet performance. These cards provide a standardized framework for assessing leadership, offering detailed feedback and tracking progress to improve cadet development and prepare future Army leaders. Additionally, the ROTC employs standard Army programs to track and monitor statistics, trends, individual development, performance, potential, and formal evaluations. These systems ensure a comprehensive assessment of each cadet's progress and readiness.

The Teacher Certification Exam is an annual assessment administered by the DEPR to certify graduates as teachers. The results are also used by the Teacher Preparation Program (PPM, by its Spanish acronym) to evaluate its success and identify areas for improvement.

B. Objective #2: To lead higher education throughout Puerto Rico while guaranteeing the best education for our students

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

Maintaining, updating, and strengthening academic programs through streamlined processes ensures that universities remain dynamic, efficient, and well-prepared to meet the needs of their students, faculty, and the broader community. For this academic year, the Office of the Dean of Academic Affairs, with the approval of the Academic Senate, processed 166 course action applications for the Deaneries of Business Administration, Arts and Sciences, Agricultural Sciences, Engineering, and Academic Affairs. These applications included the creation, adoption, and modification of courses. Table 14 presents a summary of the courses per faculty. Additionally, this office processed 11 curricular reviews for various undergraduate, graduate, and minor concentration programs across multiple colleges (see Table 15). These reviews were approved by the Academic Senate and recognized by the UPR Vice President of Academic Affairs. Appendix A contains a summary of the courses that were added, updated, modified, or inactivated, and the curricular changes made.

It is important to mention that, at CAS, the Doctoral Program in Tropical Agriculture was approved by the Board of Postsecondary Institutions, allowing admissions to start in the second semester of 2023-2024. The Food Science and Technology BS program began in May 2022 with transfer students, and the first freshman class started in August 2023. In December 2024, the professional master's degree in Food Science, Plan II and Plan III, was approved (JG 167-2021-2022; Board of Postsecondary Institutions 2023-227). Finally, the proposal for a graduate program (MS/PhD) in Software Engineering was approved by the UPR Governing Board.

Courses Status During the 2023-2024 Academic Year			
Deaneries	Creation	Adoption	Modifications
Business Administration	19	0	54
Arts and Sciences	4	0	70
Academic Affairs	3	4	5
Agricultural Sciences	1	0	1
Engineering	3	0	2
Total	**30**	**4**	**132**

Table 14: Courses Status

Curricular Reviews 2023-2024				
Business Administration	Arts and Science	Agricultural Sciences	Engineering	Total
2	**4**	**2**	**3**	**11**

Table 15: Curricular Reviews

At the Deanship of Academic Affairs, the PPM approved a set of Montessori courses (EDUC and EDPE) to be offered by the UPRM EPP (Teacher Preparation Program). Additionally, the program introduced a new Occupational Education sequence, certified by the Puerto Rico Department of Education, addressing gaps in online course offerings at other institutions. To align with state certification requirements, the program developed and approved additional courses in key areas: two courses for certifying students in Computer Use, two courses for Special Education K-12 certification, and one course for Occupational Teacher certification.

At the General Library, the librarians developed and updated online subject and course guides (LibGuides) to support the curriculum, with a focus on Chemistry and Data Management Plans, ensuring students and faculty have access to relevant resources for their academic work.

2. To support and to acknowledge those professors who are committed to teaching, to development of new professionals, and to excellence

Supporting and acknowledging committed professors is essential for maintaining high academic standards, fostering innovation, ensuring student success, and enhancing the overall reputation and attractiveness of the university. The following paragraphs summarize how UPRM is achieving this goal.

At the College of Arts and Sciences, the colloquium in the Department of Mathematical Sciences consists of a series of lectures delivered by distinguished members of the national and international mathematical community. These conferences are designed to enhance the professional development of professors, graduate students, and undergraduate students, while also promoting inter-university collaboration. Additionally, in the Department of Nursing, all faculty members completed their required professional continuing education, maintained their nursing licenses, and fulfilled the legal requirements set by the College of Professional Nursing in Puerto Rico and the Board of Nursing.

At ADEM, CRECEN ("Capacitación Estratégica Mediante Resiliencia, Competitividad y Expansión en los Negocios") continues to provide training to its personnel and professors. From May 7–11, 2024, CRECEN subsidized the academic development of four professors through Lego's Serious Play Facilitator Training, which will be integrated into their teaching methodologies. The project also purchased materials the professors will use in their courses. Additionally, ADEM continues its efforts to maintain ACBSP accreditation while progressing toward AACSB accreditation. In-person and virtual meetings have been held with AACSB personnel and mentor, Dr. Robert F. Scherer.

At the Deanship of Student Affairs, the General Library, in partnership with the Office of Graduate Studies, implemented iThenticate to prevent plagiarism. It is now required that theses and dissertations be verified through this application. The GRIC staff reviewed 65 out of 72 documents submitted to the Office of Graduate Studies as part of the oral examination request process, leading to numerous consultations on copyright, ethical information use, and style manuals. Additionally, at the Army ROTC, between June 2023 and May 2024, three cadre members attended the Army Instructor Course to enhance their teaching techniques. Also, the director of the Teacher Preparation Program, Dr. Santiago Méndez-Hernández, introduced the Spider Web teaching method to over 60 UPRM faculty members through the Academic Affairs Deanery. The program is also in the process of seeking accreditation. The Self-Study report was completed and submitted to the Council for the Accreditation of Educator Preparation (CAEP) during the 2023-2024 academic year. By the end of the year, evaluators provided feedback, leading to the initiation of amendments, with the accreditation evaluation visit scheduled for the upcoming academic semester.

3. To provide an adequate and pleasing atmosphere to support teaching learning processes

A well-designed environment enhances focus, reduces distractions, boosts student motivation, and lowers stress, fostering a healthier emotional space. It supports collaboration through flexible setups and improves learning outcomes by enhancing cognitive function. For educators, organized and well-equipped spaces facilitate varied teaching methods, improving overall effectiveness. The following paragraphs summarize how UPRM is achieving this goal.

The General Library facility was upgraded with the replacement of a 200-ton chiller, updated lighting, and reinforced shelving for earthquake safety. Shelves were removed to create collaborative study spaces, and new computers were installed across various collections. The GRIC also added 4K interactive screens, wireless connection systems, and updated security cameras to comply with federal regulations. Additionally, new collaborative and enhanced group study rooms were created. Books are now better labeled for easier access, and automated processes have improved user experience and service speed. Alumni donated 748 resources, with 424 volumes added to the library collections. The library was also designated as a Patent and Trademark Resource Center by the U.S. Patent and Trademark Office.

At CAS, as part of enhancing the communication system, fiber optics were installed in the Animal Reproduction Laboratory. Audiovisual equipment was purchased and installed to enhance the educational experience in two classrooms. Additionally, Wi-Fi antennas were installed in these classrooms to improve internet connectivity for both faculty and students. Advanced equipment for DNA and RNA extraction using magnetic beads was acquired for the Animal Biotechnology and Molecular Laboratory. The Department of Agroenvironmental Sciences installed a new distillation unit and air conditioning unit in the Soil Laboratory at the Piñero Building.

At ADEM, the Computer Center run by the Information Systems Office (ISO) has 85 computers and is open on an extended schedule for the benefit of students, including Saturdays. Faculty use the Computer Center to administer online exams and host workshops or training sessions. In addition, the ISO supports five computer labs and eighteen classrooms with mixed distance and face-to-face teaching.

At the College of Engineering, a new Computer Science Laboratory in Room S-114 was established with funding from Chevron. The Department of Mechanical Engineering recently inaugurated the Cave Lab, a new machine shop designed to support the manufacturing laboratory (INME 4056), special projects, and research activities. As part of this initiative, the department acquired state-of-the-art equipment, including three HAAS CNC milling machines and three HAAS CNC lathes, representing typical metal and plastic manufacturing processes. The department also inaugurated two new student spaces in the Lucchetti Building: a study area on the first level and an open student lounge on the second level. Both spaces are accessible 24/7 through key card access.

CTI supports the accessibility, implementation, and usage of various educational software and platforms, including Microsoft Development Tools, Microsoft Office 365, Minitab, and ArcGIS. The office provided assistance with Adobe product acquisition and installation. CTI also supports the Virtual Computing Lab (VCL). This year, the system facilitated 1,683 virtual machine reservations for 383 users. Additionally, over 250 wireless access points were installed and configured. Cabling infrastructure improvements included several repair and enhancement projects across the campus, such as the Luis Monzón Building and installation of structured cabling to Puerto Rico Landslide Forecast – 4B Residence, Luis Stefani Building (CIIM Department, Administration Office), Magueyes Island Laboratory, Almodovar (831) Building, C.I.D. SeaGrant Program Studio and Receiving Office, and SeaGrant Program Press Office. This year, CTI configured and installed approximately 130 network communication switches. Additionally, five more classrooms were equipped with audiovisual equipment, bringing the total to 149 hybrid education facilities on campus. Using the UPRM Moodle platform (ecourses.uprm.edu), CTI fulfilled 155 course creation requests this year. Additionally, CTI provided support for the UPR Moodle platform (online.upr.edu) and tool evaluations, such as Respondus, ensuring proper functionality and performance. CTI also supports CAPSTONE projects within the Faculty of Engineering.

At the College of Arts and Sciences, the Department of Geology acquired specialized equipment, including an 18" Slab Saw from Covington Engineering and two Trinocular

Polarizing Microscopes. Additionally, the Department of Kinesiology modernized the appearance and equipment in the Exercise Physiology Lab and Strength and Conditioning Lab, ensuring all changes adhered to institutional safety measures. New spaces have been provided for student study (Mangual B-7) and meetings (Mangual). The Department of Nursing reestablished collaborative agreements with clinical agencies, incorporating requested changes such as reducing the number of students per section to enhance the quality of clinical experiences.

At the Dean of Administration, the Environmental Health and Safety Office conducts regular risk assessments, ensures proper disinfection procedures, educates students on safety and environmental awareness, and provides training on health and safety regulations. The office also manages the disposal of hazardous materials to minimize environmental and health risks. Additionally, the Traffic and Surveillance Department ensures student safety through 24/7 campus patrols, parking area monitoring, room access for exams and activities, and infrastructure surveillance. It also provides escorts for protection orders, transportation for students with disabilities, and crime statistics for student research projects.

At the Placement Office, the remodeling of individual interview rooms on the 6th floor of the Student Center Building began with the design process in May 2024. In June 2022, Capital One donated $180,618.40 for the project.

C. Objective #3: To increase and diversify the Institution's sources of revenue

1. Increase income generated by UPRM, withholding it completely for its particular needs.

By generating and retaining income, a university gains financial autonomy, reducing reliance on external funding and enabling direct investment in research, infrastructure, and student services. The following paragraphs summarize how UPRM is achieving this goal.

The Alumni and Philanthropy Office has implemented a variety of initiatives aimed at increasing and diversifying the institution's sources of revenue. Through fundraising efforts, the office has successfully secured donations from foundations, companies, and individuals. These contributions have been directed toward supporting student scholarships, research projects, and infrastructure improvements. Additionally, several agreements have been established to create long-term funding sources, including student sponsorships and support for academic projects. A significant area of focus is the sale of campus-related memorabilia, offered both online and at events. This strategy not only generates revenue but also enhances alumni engagement. The office has utilized platforms such as the Alumni Virtual Store and social media to reach a global audience, expanding its fundraising reach and further promoting UPRM's initiatives.

Moreover, the office has supported ongoing fundraising campaigns for various campus units and student competitions, helping generate $25,277 through these efforts. A key achievement during the 2023-2024 fiscal year was exceeding UPRM's donation milestone, raising over $5 million. The office also plays a pivotal role in digital and visual campaigns, leveraging tools like the digital screen at the university's main entrance to promote events and fundraising activities. Collaborative agreements with alumni and industry partners further amplify these efforts.

The office actively develops proposals for philanthropic organizations and governmental bodies, ensuring a steady flow of external funding for scholarships and infrastructure projects while nurturing a culture of philanthropy across the UPRM community. The UPRM community can access the UPR Institutional Donation Policy and guidelines online to support strategic fundraising efforts. An updated electronic donations webpage helps donors align with philanthropic initiatives, and the Alumni and Philanthropy Office offers guidance on requesting, receiving, and managing donations for UPRM projects.

The office consistently receives support from alumni. The Dominican Republic-based alumni organization ADECAAM is collaborating with the office to establish agreements between Dominican universities and UPRM. These agreements aim to enhance research, facilitate faculty and student exchanges, and strengthen academic offerings while increasing UPRM's international visibility. Partner institutions include INTEC, PUCMM, UCE, UTECO, Universidad APEC, and UNIBE.

At the Animal Science Department, Dr. Esbal Jiménez secured two USDA subawards totaling over $5 million, as part of larger grants amounting to $20,750,000. These awards, spanning a five-year period, are designated to provide scholarships to students, helping them cover tuition costs. Additionally, Dr. Verónica Negrón, Dr. Hector Sánchez, Dr. Katherine Domenech, Dr. Melvin Pagán, and Dr. Guillermo Ortiz submitted and secured funding for four Hatch proposals, totaling approximately $1 million. These grants will support research and provide student funding over the next four years. Under the leadership of Professor Américo Casas, Finca Montaña generated nearly $180,000 in income. These funds are allocated to student stipends and support for other departmental staff at the facility.

During this fiscal year, PRAES generated $212,475 in revenue from the Virtual Store for Pest Control and $40,250 from the in-person program, for a total of $252,725. This amount represents a 150% increase over what was collected last year. Additionally, the Family and Consumer Sciences program, also run by PRAES, obtained $41,076 in revenue from the Virtual Store and earned $88,172 from the in-person Food Safety Certificate Course, totaling $129,248. These funds are being used to finance structural improvements and repairs in PRAES offices and to cover the operational costs of the new PEARS program. Additionally, CAS received external funds for outreach activities, including Capacity funds awarded by USDA-NIFA to PRAES, totaling $8,831,450 (Smith-Lever B and C, and EFNEP funds).

This year, AES generated approximately $63,302 in funds through the sale of compost, vegetables, bananas, bales of hay, and animals. At the Juana Díaz Agricultural Experimental Substation, sales income of approximately $97,000 was generated. This income helped partially cover expenses for security, alarm systems, garbage collection, repairs to irrigation and agricultural equipment, and the purchase of chemicals, agricultural materials, and other unforeseen costs. At the Adjuntas Experimental Substation, sales income of approximately $79,761.81 was generated through the production and sale of coffee trees, coffee bean seeds, and disease-free citrus grafts and vegetative material for grafting. At the Gurabo Experimental Substation, cows discarded from AES Lajas were received and used for breeding and future meat production. Heifers for milk production were sold to independent farmers, and bulls' semen collection services generated approximately $55,074. Additional income was generated from compost sales ($230) and the sale of 50-pound hay bales ($892).

At the units attached to the Chancellor's Office, the Legal Affairs Office received, reviewed, and endorsed approximately 325 professional service contracts for the Chancellor's signature. These included Collaboration Agreements, Sponsorship Agreements, MOUs, Leases, Amendments, Construction Contracts under the OPIMI Department, and contracts under the Intramural Practice Program of the Campus, among others. The university's Pre-School program identified funds and wrote proposals to raise close to $500,000 to support the work of employees and improve the quality of the services and facilities they offer. The Natatorium Complex focuses on generating income for the self-sustainability of its sports and recreational facilities by offering them and related courses to the community. This effort includes formalizing contracts for recreational and business users, such as private classes, and restructuring contracts for the use of tennis courts, swimming pools, and the Mezzanine. The Press Office generates modest income from the sale of graduation DVDs and photos. The office achieved a combined Return on Investment (ROI) of $1,140,700 for the fiscal year 2023-2024. This includes $964,300 from news published in the media, $114,000 from articles published on uprm.edu, and $62,400 from the "Foro Colegial" radio program, demonstrating significant financial contributions through various media efforts.

At the College of Arts and Sciences, the Department of Humanities secured over $1,123,000 from foundations such as Mellon, Teagle, "Tizanado el País," and "Fundación Puertorriqueña para las Humanidades." The Department of Kinesiology implemented Certification 20-21-090, which provides guidelines for loaning or renting facilities for external services. This initiative generated $1,570.50 on November 17, 2023. The department also used 360-degree equipment to raise $500 in donations to support student and faculty attendance at professional conferences and travel. A $10,000 donation and an electrocardiogram valued at $3,000 were secured for the Exercise Physiology Lab through a proposal by Dr. Torres to enhance lab equipment. He also received $300 for the Mascot Challenge via the Exercise is Medicine on Campus program. Dr. Del Río, in collaboration with the Alumni Association, secured a $2,000 donation for the department. The Department of Mathematical Sciences initiated the development, proofreading, and marketing of textbooks for foundational courses. This initiative aims to reduce textbook costs for students while generating additional income for the department. The Institute of

Mathematical Strengthening offered review sessions for the Mathematics Diagnostic Exam, providing effective preparation tools and becoming a source of income. All revenues are reinvested into services that enhance teaching, research, administrative processes, student programs, and academic and research initiatives. The Department of Nursing offered continuing education courses in flexible formats. Faculty members provided Continuing Education Units (CEUs) at hospital sites, facilitating course registration and fulfilling contractual agreements with affiliated agencies. Revenues generated from continuing education were invested in Meta Oculus virtual reality equipment, enhancing student skills and competencies through simulation. The Puerto Rico Seismic Network received a $334,000 grant for the Puerto Rico tsunami program and a $192,000 NOAA contract to support the tsunami center. Department of Physics research funds received:

- Dr. Armando Rúa received $1,246,082 from the Gordon and Betty Moore Foundation for the project Unraveling the Switching Mechanism in Phase-Change Materials for Brain-Inspired Computing Applications."
- Dr. Henri Radovan secured $520,646 from the National Science Foundation (NSF) (award #2216793) for the project NANOGrav@UPRM: Growing and Characterizing the NANOGrav Gravitational-Wave Detector, running from August 1, 2022, to July 31, 2025.
- Dr. Sudhir Malik submitted a proposal to the NSF for $385,769 for the project S2I2: Institute for Research and Innovation in Software for High Energy Physics (IRIS-HEP), with a proposed duration from September 1, 2023, to August 31, 2028.
- Proposal by Dr. Yong Jhin Kim: NSF SBIR, "Manufacturing and characterization of Room Temperature Ambient Pressure Superconductor": Budget $275,000 + $100,000 (cash match from PR Science Trust), PI with subaward to O. Marcelo Suarez.
- Proposal by Dr. Sergiy Lysenko (Materials): Department of Defense, "Transient Dynamics": PI, Sergiy Lysenko.
- Dr. Francisco Bezares Proposals:
- NSF MRI with UPR Humacao: "Acquisition of AFM-Confocal Microscope System" with a budget of $599,878 (active proposal), Scientific Personnel.
- NASA Bridge: "MOCVD Growth of III-N Materials for Quantum Photonic Technologies," with a budget of $300,000 (pre-proposal active, proposal pending), PI.
- PRSRT Trust: "Physical Vapor Deposition of Metal Nanoparticles for the Scalable, Cost-effective Fabrication of Novel Nanophotonic Devices," with a budget of $70,000 (pending), PI.

At the Deanery of Students Affairs, the Placement Office coordinated two job fairs, one in each semester. The October 2023 Job Fair generated profits of $101,052.08, while the February 2024 Job Fair resulted in profits of $94,694.49. The External Clinics Project continues to operate through the rental of office space within the Department of Medical Services. This project generated approximately $5,000 annually, with the revenue being used to improve services, facilities, and address other current needs within the department. Additionally, the Family Planning Program Title X has been approved with funding of $69,500, and the "Mano Amiga Colegial" Proposal has been approved with funding of

$10,000 for one year. The Department of Social and Cultural Activities received a donation from BAE Systems Inc. for the third consecutive year, funding a competitive call for proposals on various topics. This year, eight students were awarded a total of $10,000. Table 16 Summary of the Department of Social and Cultural Activities Income.

Concept	Total income
Online and in-office sale of memorabilia	$ 6,525.00
Freshman Welcoming 2023	3,235.00
Revenue with graduation pin 2024	9,836.00
Sale of memorabilia on Graduation 2024	3,782.55
Game Room income	3,574.50
Revenue for Tarzan Room (Cert. 18-19-200)	120.00
Sub-Total	27,073.05
BAES Systems Think Tank 3rd Edition	10,000
Total Income for 2023-2024	**$ 37,073.05**

Table 16: Summary of the Department of Social and Cultural Activities Income for 2023-2024

The Administration Dean's Office implemented several initiatives to increase and diversify revenue sources while enhancing services for the University community. These include contracts for vending services, bank and cooperative branches, advertising, telecommunications, a chiropractic clinic, and food service leases, including cafeterias and food trucks. The office also strengthened campus public transportation services through projects funded by the Highway and Transportation Authority. These initiatives included acquiring buses, updating bus stops, expanding the fleet, and supporting staff salaries, with funding of $1,306,514 for operations and $734,507 for equipment and updates. The Property Office adhered to recycling policies and environmental laws by dismantling equipment, classifying materials like metal, aluminum, and copper, and depositing them at recycling agencies. This effort generated a total income of $5,376.45 by the end of the fiscal year. The Buildings and Grounds Department generates income through chair, table, and tent rentals for official campus events, billing for lost keys under the Keys and Locks procedure, and selling construction plans on CD developed by the Engineering Department. Table 17 has a summary of the special accounts with the income collected during the past two fiscal years:

Account Name, Section	Income FY 2022-23	Income FY 2023-24
Rental of chairs, tables, and tents	$ 257.50	$ 735.00
Loss of Official Keys	$3,900.00	$ 410.00

Table 17: Special Accounts' Income

The Financial Department enhanced electronic payments, reducing check transactions and improving efficiency. The collections office received and processed new debt referrals amounting to $3,615,425.69. As of June 30, 2024, debt was collected and/or adjusted to $3,514,952.29. A total of $5,236,143.59 was invoiced for private scholarships, of which $4,715,475.04 correspond to UPR Financial Aid, according to Cert. 4/47, 148 and its amendments. Of this billing, $15,751 remains to be collected and was invoiced in June 2024. Of the Governor's Emergency Education Relief Fund (GEER) and Emergency

Loans, $950 was granted in Emergency Loans and $7,700 in GEER Loans for a total of $8,650 in Institutional Loans. Of these, $7,372.03 was collected ($6,776.38 in principal, $335.04 in interest, and $260.61 in surcharges). The collection includes many old debts previously declared uncollectible. From the contract with Del Valle Rodríguez Law Office, External Collection Agency, 82 accounts receivable were referred, amounting to $89,206.95. For this fiscal year, this agency recovered and remitted to the institution $61,637.80. Appendix E shows the collections for this fiscal year.

The Office of Continuing Education and Business Services (EDUCON, per its Spanish acronym) is another initiative by ADEM that helps achieve the goal of increasing external funding. It offered 26 courses, with a total of 376 participants completing certifications. Sixty-five percent of participants were sponsored by the CRECEN project. EDUCON generated revenues of $163.9K for this academic year, with a net income of $62K after deducting labor and promotional expenses. Additionally, the ADEM Career Development Office contributes to fund diversification through the Internship & Job Expo and fostering collaborations with various companies, which have resulted in donations.

The Engineering Sciences and Materials Department is diversifying its revenue by offering the Review for the Fundamentals of Engineering Examination. The department also received a $100,000 donation from Microsoft to support sustainability projects and the creation of UPRM's first transdisciplinary bachelor's program in Sustainability. Additionally, Dr. Christopher Papadopoulos secured an $8,000 donation from the American Society for Engineering Education (ASEE) to enhance student activities and further sustainability efforts.
The Printshop is currently working on acquiring large-format flatbed printing equipment that will allow printing on various substrates, including wood, acrylic, glass, and PVC, with dimensions up to 4'x 8' and 2" thick. This project aims to increase sales by 20%. Total sales for the fiscal year reached approximately $425,074.70, with $184,223.41 from internal customers and $240,851.29 from external customers, accounting for 44% and 56% of total sales, respectively. The total collections for fiscal year 2023-2024 from the bookstore amounted to $258,484.94, with a profit of $88,221.67. Collections from invoices between accounts totaled $38,055.05.

In this academic year, DECEP offered over 50 course sections with 769 participants, generating $150,089. The College for Talented Students (CET by its Spanish acronym) served nine students, generating $6,081. The DEPR project contributed $1,497,748.09 through professionalization programs, while the Office of Academic and Technological Resources for Human Resources (OATRH) project offered 14 training sessions for 673 participants, generating $175,973.84. Combined, these initiatives produced $1,829,892.93, reflecting the institution's success in revenue diversification and its commitment to high-quality education and professional development. Additionally, CREAD at UPRM successfully expanded its income sources through innovation in distance education. The decepenlinea.uprm.edu portal now offers over 75 courses, exceeding goals with five new courses added, generating approximately $62,000 in revenue through enrollments and certifications. The PPM secured funding through the Noyce Teacher Scholars project, sponsored by the National Science Foundation, which provides $240,235 annually for five

years to support bilingual STEM teachers in Puerto Rico. Additional external funds include a $10,000 Title II tuition waiver. The RUMEX initiative generated over $16,000, which was used for remodeling the student services office.

2. To keep students aware of external funding opportunities for scholarships and assistantships

Scholarships and assistantships make higher education accessible by reducing financial burdens, attracting diverse students, and improving retention and graduation rates. They provide hands-on research experience, boost career prospects, and enhance the university's reputation. These opportunities also encourage academic excellence, support professional development, and foster valuable networking connections. The following paragraphs summarize how UPRM is achieving this goal.

The UPRM Office of Graduate Studies announced that during the 2023-2024 academic year, 1,931 graduate assistantships were awarded, amounting to $7,044,288.58, contributing to a strong research environment as follows:

Graduate Assistantships Awarded with External and Institutional Funds Summer 2023

Type of Funds	Number of Assistantships	Allocated Funds
External	239	$ 617,092.76
Institutional Funds	126	$ 157,306.34
Total	**365**	**$ 774,399.10**

Graduate Assistantships Awarded with Institutional Funds during the Semester

Semester	Number of Assistantships	Allocated Funds
First Semester 2023-2024	473	$ 1,476,666.48
Second Semester 2023-2024	410	$ 1,309,204.90
Total	**883**	**$ 2,785,871.38**

Graduate Assistantships Awarded with External Funds during the Semester

Semester	Number of Assistantships	Allocated Funds
First Semester 2023-2024	328	$ 1,575,362.70
Second Semester 2023-2024	355	$ 1,908,655.40
Total	**683**	**$ 3,484,018.10**

Three Industrial Engineering students received scholarships through the Dr. Armando Riesco Scholarship Program: Jorge Y. Cruz Muñiz ($500), Yaleiry García Rivera ($500), and Angelimar Hernández Avilés ($1,000). The Maxwell-Hanrahan Foundation from San Francisco donated $15,000 to the Department of Mathematical Sciences to support graduate student fieldwork research projects. Six students (two Ph.D. and four M.S.) submitted proposals and received full funding for various aspects of their fieldwork and minor equipment needs. At the Army ROTC, over $1 million in scholarships were awarded during the 2023-2024 school year, supporting cadets' academic and military career

pursuits. The Air Force ROTC awarded scholarships to 26 students, covering tuition, fees, books, and stipends, totaling approximately $380,000. One cadet received a scholarship for a master's in aeronautical engineering at Sacramento State University. Additionally, 10 cadets received scholarships totaling $105,250 to obtain private pilot licenses.

D. Objective #4: To implement efficient and expedient administrative procedures

1. Dedicate human and fiscal resources to automation and streamlining of critical internal processes.

Dedicating resources to automating and streamlining internal processes is vital for universities, as it boosts efficiency, reduces costs, and enhances service delivery. The following paragraphs summarize how UPRM is achieving this goal.

First, at the Chancellor's adscript offices, the following initiatives have been implemented:

1. The Legal Affairs Office continuously updates its webpage within the UPRM portal, ensuring that contract templates, circular letters, policies, and all current university regulations, as well as those from the Office of the Comptroller and the Department of Finance, are up to date. The office has developed a structure using the TEAMS virtual platform, where each Dean, Director, and Administrator designates a contact person to channel all contracts from their respective offices, following established procedures. Additionally, this office is developing and implementing a process and policy for digital signatures on documents, in line with recently approved regulations by the UPR Governing Board. This initiative, currently being used by personnel working on UPRM contracts, aims to expedite the processing of contracts for the Rector's signature and subsequent registration with the Office of the Comptroller of Puerto Rico. The pilot plan for electronic signatures has been well received and is being adopted by various offices.
2. The Office of the Ombudsman, in collaboration with the Vice Presidency, developed and implemented a form that consolidates contact information for all student service offices across UPR dependencies.
3. The Alumni and Philanthropy Office is enhancing donation forms, publishing UPR's donation policy online, developing UPRM's sponsorship policy, and collaborating with the Legal Advisory Office to establish procedures for announcements on UPRM's electronic screen.

Likewise, the Administration Deanery has introduced several initiatives in its attached offices, as the following:

1. The Buildings and Grounds Department, particularly the Transportation Section, reorganized trolley routes. 2.
2. The Property Office acquired a truck for efficient equipment collection and delivery, paved a back area for surplus equipment storage, and implemented a shared system to streamline inventory processes.
3. The Central Office's implemented the eMaint work order program and trained warehouse staff for inventory management.

4. Four regular positions were established in the Financial Aid Department to enhance service efficiency: three Financial Aid Officer III roles and one Administrative Secretary I position. These additions aim to streamline processes and improve service delivery to students and the broader community.
5. The Accounts Payable Office processed the new format for the 480.6SP Informative Declaration from the Treasury Department (SURI).

CAS established a guide to assist PRAES Federal Program Contacts in standardizing and streamlining the process of generating the annual NIFA Plan of Work and the NIFA Annual Report. Additionally, the Lajas Agricultural Experimental Substation implemented a new online sales system for seeds, allowing credit/debit card payments and mobile ATH transactions. Seeds can now be purchased electronically and mailed across the island. Furthermore, seed vending machines are being developed at commercial locations, with one already installed at Plaza Las Américas and the Juana Díaz Substation.

Within the academic departments, the Electrical and Computer Engineering Department implemented a support ticket system to address student requests and manage the enrollment process more efficiently. In the Department of Mathematical Sciences, servers and files were upgraded to maintain and enhance the online offering of the Diagnostic Mathematics Test, increasing accessibility for new students. DECEP developed comprehensive procedural manuals to standardize workflow processes, providing clear guidelines and best practices.

At the Academic Affairs Deanery's adscript office, the following initiatives were undertaken:

1. The Office of Graduate Studies removed the requirement for a transcript of good conduct to streamline the admissions process and reduce administrative burdens for prospective students.
2. The Office of the Registrar enhanced its services by adopting emerging technologies, providing online access for students and alumni to request transcripts, certifications, and graduation applications via a new portal. This system streamlined the graduation process and led to an increase in digital requests. It also improved readmission and transfer processes, offering constant access and updates for students through an online platform.

In the Department of Social and Cultural Activities, a team from the Capstone engineering course initiated the development of the "Asóciate" app, which is designed to support student organizations.

In general, at UPRM, the deaneries and offices implemented several initiatives, including:

- Updating websites to offer electronic payments and service requests for transcripts, certifications, etc.
- Implementing digital signatures (e.g., SignRequest)
- Introducing electronic attendance records
- Digitizing and automating administrative documents and processes
- Using Microsoft Teams, OneDrive, and Google Drive to share documentation

- Developing and using Microsoft Forms and Microsoft Lists applications
- Utilizing Microsoft Excel pivot tables

2. Guarantee that personnel are adequately trained to perform the work and responsibilities entrusted to them and therefore are accountable for compliance.

Training university personnel is essential for maintaining operational efficiency, ensuring compliance with institutional policies, and delivering improved service quality. The following paragraphs summarize how UPRM is achieving this goal through diverse training initiatives and collaborative efforts.

Throughout the year, UPRM offers a wide range of training opportunities tailored to meet the evolving needs of its personnel. All institutional deaneries, offices, departments, and programs regularly provide seminars, workshops, courses, and training sessions on various topics, including ethics, academic improvements, human resources issues, and more. These training sessions are available in multiple modalities— in-person, hybrid, and fully online—ensuring flexibility and accessibility for all employees. In many cases, these opportunities are extended to both the internal and external communities, reinforcing the university's commitment to shared learning and development.

Moreover, UPRM actively collaborates with external entities to expand the training options available to its employees. Local and federal government agencies regularly offer training resources that UPRM personnel can access to stay current with regulations and best practices. These resources are essential in ensuring that personnel remain informed about changes in legislation, particularly in areas that directly impact the university's operations.

Other universities, both in Puerto Rico and internationally, also offer training opportunities that UPRM employees can participate in. These collaborations allow UPRM personnel to benefit from a broader range of expertise and learn from best practices implemented at other academic institutions. This external training helps personnel stay competitive and knowledgeable about global trends in higher education, technology, student services, and more. Additionally, private entities across various industries, both on and off the island, provide valuable training opportunities for UPRM employees.

3. Promote and encourage service attitude and a sense of responsibility in all units. Educate all personnel about the relevance of their duties and negative impact of noncompliance on the university community.

Promoting a service attitude and responsibility within a university fosters a culture of excellence, accountability, and community support, ultimately contributing to the institution's success and sustainability. The following paragraphs summarize how UPRM is achieving this goal.

Starting with the Chancellor's adscript offices, the following initiatives have been implemented:

1. The Alumni and Philanthropy Office is collaborating with the College of Engineers and Surveyors of Puerto Rico (CIAPR) to help students obtain professional licenses. The office participates in events held by CIAPR, the Society of Engineers of Puerto Rico, and the International Surveyors Congress, promoting campus projects. Additionally, they co-hosted the seminar "Ética en la Ingeniería y la Agrimensura" in a hybrid format, with nearly 300 participants from Puerto Rico and Florida, showcasing ethical reflections in engineering and surveying.
2. The Pre-School Development Center prioritizes providing a healthy, safe, and peaceful environment for employees and parents. The center ensures compliance with established regulations and standards and establishes collaborative programs with the university community to enhance the quality of services offered.

The Admission Office selects top students from public and private high schools who meet the annual admission requirements based on the Admission Index Certification. This process aims to cultivate educated, cultured, and critical-thinking citizens who contribute to the country's educational, cultural, social, technological, and economic progress.

E. Objective #5: To strengthen research and competitive creative endeavors

1. To provide support and essential resources necessary for efficient research and creative endeavors

Providing support and essential resources for research and creative endeavors is crucial for universities to advance knowledge, attract top talent, and secure external funding. One way UPRM is achieving this goal is through the Academic Senate's approval of a motion for the Institutional Research Committee and the Institutional Committee for Research-Related Affairs to collaboratively prepare a proposal for creating a Deanship of Research and Graduate Studies. Additionally, at the Juana Díaz Agricultural Experimental Substation, specialized equipment was acquired to enhance the research program. This equipment includes a freezer for providing ice to field employees, a grease gun for the Mechanical Workshop, a 163cc self-propelled wheeled trimmer with a 15-inch wheel and a 24-inch cutting swath, and an upright microscope with a trinocular head, right-hand stage controller, 4x, 10x, and 40x objectives, and LED illumination (CX23RTFS2-1-2; CX23). A camera for the microscope (EP50; 1/1.8" 5MP color CMOS, 60fps for HDMI, 25fps for WLAN) was also acquired. Finally, at the General Library, GRIC personnel manage Scholar@UPRM, a repository that enhances the global visibility of UPRM's academic research.

2. Increase external funding for research and creative work that provide Campus income

Increasing external funding for research and creative work is vital for a university as it boosts campus income, supports innovative projects, and enhances academic growth. The following paragraphs summarize how UPRM is achieving this goal.

At ADEM, through a collaboration between Dr. Ubaldo Cordova and Dr. Ingrid Padilla from the Engineering Faculty, the Business and Economic Development Center (BEDC) submitted a three-year proposal for $400,000 to the NSF-EPIIC program. The project, titled "The EPIIC: Strategic University Practices to Expand Research (SUPER) Partnerships," is a collaborative effort between the University of Puerto Rico - Mayagüez (lead), West Texas A&M University, and Western Washington University. Another initiative from the BEDC is an 18-month proposal submitted by Dr. David Santiago to the Economic Development Administration (EDA) for the deployment of the Post-Award Grants Management Technical Assistance Program (PAGM-TAP). This project aims to extend impact in the nonprofit and governmental sectors, with a total budget of $812,570.79, including a federal match of $694,127 from the EDA.

Strengthening research is essential for supporting AACSB accreditation. The Business Research Center (CIE) plays a crucial role in this effort and must focus on:

1. Supporting professors' research work, including publication in peer-reviewed journals and the development of externally funded proposals
2. Submitting proposals to operate the center with external funds
3. Offering research services to the business community in areas not covered by the BEDC. On March 15, 2024, BEDC staff members participated in the VentureWell Open 2024 Annual Conference in San Diego, California. Dr. Mari Luz Zapata, a collaborating professor, was a panelist in the plenary session "Teaching for Impact - Showcasing Student Innovators in Faculty Storytelling." Dr. Zapata's project presentation ranked in the top five. Additionally, Dr. Moraima De Hoyos, Dr. Maria Amador, Dr. Leila Marcano, and Dr. Jose Lugo participated as speakers in various workshops. ADEM graduate students working at the CIE received training from GRIC. Prof. Haniel Cordero, coordinator of the CIE, acquired ChatGPT 4.0 and ConnectedPapers for use by the center's personnel.

During this academic year, GRIC and OHL (Oral History Lab) at the General Library collaborated on three externally funded projects, supported by the National Endowment for the Humanities ($500,000), the American Council of Learned Societies ($100,000), and the Andrew K. Mellon Foundation ($172,589). Professor José J. Morales Benítez, as part of the Residency Interest Group of ACRL, co-authored a study on the success of post-MLIS library residency programs, published in Library Diversity and Residency Studies in March 2024. Additionally, a new digital humanities project, AREPR, was launched in collaboration with UPR campuses and Michigan State University to document mutual aid responses to Puerto Rico's disasters. The Oral History Lab (OHL) at UPRM has engaged students in research and creative projects, including conducting interviews, transcriptions, translations, and developing digital platforms for disseminating oral histories. Students in OHL-related courses also contributed to the collection by documenting Puerto Rico's living history. This work has led to several publications and presentations by Prof. José Morales Benítez and others at notable events like the Oral History Association Annual Conference and the DCMI 2024 Conference in Toronto. Additionally, subject guides on Generative AI, Technical Writing, and Humanities Resources were developed.

This year, the DMS submitted 11 research proposals to federal agencies (NOAA, ONR, NSF, and NASA). Of these, three proposals were approved, securing $1,544,411 in funding. The Department of Physics submitted nine proposals, with one approved, and is currently managing five ongoing research and creative work projects, along with four research collaboration agreements.

The Department of Mathematical Sciences achieved the following during this academic year: three approved proposals, four approved publications, one additional publication submitted, and 23 conferences, workshops, and talks presented nationally and internationally. In the Department of Chemistry, thirteen scientific articles were published during this academic year.

Dr. Abigail Matos and Dr. Miriam Nieto from the Department of Nursing were invited by the University of Valencia, Spain, to collaborate on the second edition of the book Enfermeras Invisibles. A chapter of the book will highlight the contributions of one of our faculty members in the role of Interpres mortis et moriendis.

The UPRM PPM is involved in several key projects, including HELPERS, a $20,000 five-year initiative sponsored by the U.S. Department of Education and Ohio University. Additionally, the Noyce Teacher Scholars (NOTES) project, sponsored by the National Science Foundation, provides $240,235 annually for five years to support bilingual STEM teachers in Puerto Rico. A Social Foundations Course survey, led by Dr. Santiago Méndez, identified family budget management and mental health care as top educational needs among 600 adult citizens in Mayagüez, and the findings were shared with policymakers. Additionally, the third edition of “Revista Impacto Educativo”, PPM's publication, was released in early 2023-2024, featuring contributions from faculty and external educators.

Faculty members of the Department of Economics submitted over 50 proposals this year, showcasing their active engagement in research and development. One of them, Ricardo R. Fuentes Ramírez, announced a second agreement with the Puerto Rico Planning Board to provide technical assistance for national accounts and the input-output matrix. This agreement allocates $1 million to UPRM, supporting both faculty and students. He also has the following projects: CDBG-DR Project for Comprehensive Community Resilience Planning (providing $1.4 million to UPRM for faculty and student support) and the Nonprofit Strengthening Initiative for Economic Development (allocating approximately $500,000 to UPRM for faculty and student support). Additionally, he continues his research with external funding from the U.S. EDA, the Federal Department of Housing, and the Puerto Rico Planning Board. Dr. Fuentes Ramírez is a Co-Principal Investigator on the proposal "Imputing an Input-Output Table for Puerto Rico and Applications to Policy Analysis," collaborating with Dr. Russell Hillberry and Manuel I. Jimenez (doctoral candidate) from Purdue University's Department of Agricultural Economics.

To enhance formal and non-formal teaching, as well as research, the faculty of CAS submitted various works for publication in journals, magazines, and other outlets. These submissions include publications in both refereed and non-refereed journals. Additionally, faculty researchers delivered presentations at various agriculture-related forums. Appendix

B contains a summary of this information. For the fiscal year 2023-2024, the Agricultural Extension Service and the Agricultural Experiment Station had 11 and 25 new research and creative work projects, respectively. Table 18 summarizes this information.

CAS Unit	Department	Number of new research and creative work projects
PRAES	Animal Science	1
	Agroenvironmental Sciences	1
	Agricultural Economics and Rural Sociology	5
	Agricultural Education	-
	Agricultural and Biosystems Engineering	-
	Other	4
	Total	**11**
AES	Animal Science	6
	Agroenvironmental Sciences	16
	Agricultural Economics and Rural Sociology	3
	Agricultural Education	-
	Agricultural and Biosystems Engineering	-
	Total	**25**

Table 18: New research and creative work projects for 2023-2024

The faculty of the CAS managed thirty-four projects administered by PRAES during this fiscal year. Table 19 provides a breakdown of these projects by department. Also, CAS faculty oversaw one hundred and twenty projects under AES (See Table 20 for details).

Department	Ongoing research and creative work projects
Animal Science	2
Agroenvironmental Sciences	12
Agricultural Economics and Rural Sociology	9
Agricultural Education	2
Agricultural and Biosystems Engineering	-
Other	9
Total	34

Table 19 CAS' Faculty Projects Administered by PRAES

Department	Ongoing research and creative work projects
Animal Science	18
Agroenvironmental Sciences	78
Agricultural Economics and Rural Sociology	8
Agricultural Education	-
Agricultural and Biosystems Engineering	6
Other	10
Total	120

Table 20 CAS' Faculty Projects Administered by AES

Table 21 presents the number of research collaboration agreements along with a brief description of each. A total of twenty-three proposals related to PRAES were submitted: eleven were awarded, two were declined, and ten are pending. A total of thirty-eight proposals related to AES were submitted: twenty-five were approved, and eight are pending. Table 22 provides further details of these proposals. Table 23 shows the amount of external funds received, by source, for research and creative work in the CAS units PRAES and AES, as well as the agencies or entities that provided the funding. The eleven awarded proposals from PRAES received $600,452.69, while the twenty-five approved proposals from AES received $5,497,558.89. Appendix C presents project with significant impact.

Organization	Effective Date	Purpose
Corporation for the Conservation of the San Juan Bay Estuary, Inc.	08/04/23 - 09/30/24	AES - Z-355 – 'Implementation of a Water Quality Restoration Strategy at the San Juan Bay Estuary Watershed and the Rio Loiza Estuary Contributing Zone'. Dr. Gustavo Martínez, Project Leader
Department of Agriculture - ADEA	08/09/23 – 06/30/24	AES - A comprehensive analysis of local coffee production, farm costs and consumer coffee prices. Dr. Julio César Hernández – Project Leader
Department of Agriculture - International Fund for Agricultural Development (FIDA, by its Spanish acronym)	09/05/23 – 09/30/24	AES - 'Protecting the fruit sector of Puerto Rico from the fruit fly' - Sampling of traps and fruits and monitoring of the fruit fly. Prof. Irma Cabrera Asencio - Project Leader
Department of Agriculture - FIDA	11/13/23 – 12/31/26	AES – 'Evaluation of Cannabinoids Content and other Components in Selected Hemp Varieties using HPLC and GC/MS' Dr. Miguel Muñoz, Project Leader
Planning Board of Puerto Rico	11/21/23 – 06/30/25	AES - Technical assistance in the production of the quarterly accounts of gross product. Dr. Julio César Hernández – Project Leader
Florida Certified Organic Growers and Consumers, Inc.	01/25/24 – 12/31/24	AES - Establishment of a Regional Center for the transition from traditional agriculture to organic agriculture in the southeastern region of the United States, including Puerto Rico. Dra. Julia M. O'Hallorans Castillo – Project Leader
Pratt Institute	05/20/24 – 12/15/24	AES - Project Z-413 'NSF Convergence Accelerator Track J: Aqua Steady, an Alginate-based Hydrogel for Sustainable Agriculture in a Changing Climate'. Dr. David Sotomayor – Project Leader
Department of Economic Development and Commerce	05/22/24 – 05/21/29	AES - Administrative support for the development of the Food Science and Technology Program. Dra. Lynette Orellana – Project Leader

Table 21: Research collaboration agreements and a brief description of them.

CAS Unit	Department	Number of proposals:			
		Submitted	Approved	Declined	Pending
PRAES	Animal Science	1	1	-	-
	Agroenvironmental Sciences	5	1	1	2
	Agricultural Economics and Rural Sociology	7	5	1	1
	Agricultural Education	2	-	-	2
	Other (includes agricultural agents who are not assigned to academic departments)	8	4	-	5
	Total	**23**	**11**	**2**	**10**
AES	Animal Science	9	6	-	2
	Agroenvironmental Sciences	21	16	-	3
	Agricultural Economics and Rural Sociology	7	3	-	2
	Agricultural Education	1	-	-	1
	Total	**38**	**25**	-	**8**

Table 22: Number of Proposal in the CAS Units: PRAES and AES

CAS Unit	Agency/Entity Name	Amount
PRAES	National Institute of Food and Agriculture (USDA-NFA)	$199,543.69
	USDA- NRCS	$150,000.00
	National 4-H Council	$15,000.000
	Subaward Arizona State University (USDA-NIFA)	$183,355.00
	Southern Research & Education	$25,089.00
	Extension Foundation	$18,465.00
	Other	$4,000.00
	CORTEVA Foundation	$5,000.00
	Total	**$600,452.69**
AES	Capacity funds (Hatch, McIntire Stennis, Animal Health)	$3,338,688.89
	National Institute of Food and Agriculture (USDA-NFA)	$1,030,817.00
	Other	$1,128,053.00
	Total	**$5,497,558.89**

Table 23: External Funds CAS Units

Several collaborative agreements for research and funding were made at CAS. Among them are the following: 1) A partnership between the Department of Economic Development and Commerce of Puerto Rico (DDEC) and the Center for Innovation and Agro-industrial Technology (CITAI), 2) A collaboration with Arizona State University, led by Dr. Alexandra Gregory, to launch the MODExL Program through PRAES, 3) Efforts at PRAES to integrate Agricultural Extension Agents into the team of Extension Specialists, and 4) Funding sources such as SARE, the National 4-H Council, the CORTEVA Foundation, the Extension Foundation, and Southern Research and Education.

The Alumni and Philanthropy Office collaborates with deans to secure research donations, ensuring proper fund allocation and monitoring online campaigns. For example, Dr. Fernando Colón, distinguished alumnus and Fundación Ceiba founder, led conferences guiding students and the community on entrepreneurship, research funding, and creating competitive opportunities for students and professors through a three-pillar program.

The Proposal Submission Unit within the Research and Development Center (CID) prepared and submitted 137 proposals amounting to $98,993,375. This represents a 22% decrease in the number of submitted proposals and a 30% decrease in solicited funds compared to fiscal year 2022-2023. Table 24 provides more details.

Distribution by Deanship			
Deanship	Proposals Submitted	Percent Fund	Requested Funds
Arts & Sciences	60	52.7%	$ 52,176,104.00
Engineering	77	47.3%	$ 46,817,217.00
Total	**137**	**100%**	**$ 98,993,375.00**

Table 24: Proposal Submission by Deanship

A paper co-authored by Department of Geology professors and students was published on July 18, 2023, in the Journal of Sedimentary Research. A report funded by the NSF and CDC, co-authored by Prof. Stephen Hughes, was published on August 3, 2023. In November 2023, he presented at the World Landslide Forum in Florence, Italy, discussing landslide events in Puerto Rico. Additionally, on December 8, 2023, he presented at a FEMA workshop on land-use strategies for managing landslides and coastal erosion, with contributions from graduate students Tania Figueroa and Anishka Ruiz. On January 28, 2024, a paper co-authored by Prof. Hughes and MS alumnus Kimberly Mendez was accepted for publication in AGU Advances. Prof. Raiza Quintero also published a manuscript in Meteoritics & Planetary Science.

During this year, faculty members of the Department of Hispanic Studies reported the publication of ten new research articles. Additionally, they delivered approximately 13 presentations at various conferences and academic events. This department has significantly advanced its research efforts with support from the Mellon Foundation. Among these is research on 1940s and 1950s tourism pamphlets of Puerto Rico, conducted by Dr. Mariam Colón Pizarro. Graduate research assistants have produced podcasts and conducted interviews with prominent Puerto Rican authors. A research group from this department, led by Drs. Melissa Ramos Borges, Elsaris Nuñez, Emilia Quiñones Otal, and Prof. Sabrina Ramos Rubén, is working on securing grants for a multi-volume book project on Puerto Rican art history. In October 2023, Dr. Emilia Quiñones Otal's book Turned Into Sterile Land was presented at UPRM and is currently being adapted into an audiobook. Drs. Mariam Colón Pizarro, Melissa Ramos Borges, and Emilia Quiñones Otal have been appointed as Scholars-In-Residence at New York University for June 2024, where they will conduct research on Puerto Rican art history and visual culture.

The College of Engineering continues to make significant strides in research, with faculty and students actively contributing to both theoretical and applied developments. Their

dedication is evident in the numerous publications, presentations, and patents they produce, demonstrating a strong commitment to pushing the boundaries of knowledge. Appendix D provides a detailed summary of these accomplishments, showcasing research outcomes across journals, conferences, and other academic and industry platforms.

3. To promote and to give relevancy to Graduate Studies

Promoting and giving prominence to Graduate Studies enhances a university's academic prestige, attracts top-tier faculty and students, and fosters advanced research and innovation. It strengthens professional development, expands opportunities for external funding, and contributes to societal progress by producing experts equipped to address complex global challenges across various fields. To support this goal, the Department of Agricultural Economics and Rural Sociology at the College of Agricultural Sciences (CAS), in collaboration with the Association of Agricultural Economics and Agribusiness Students at UPRM, held its fourth Applied Economics Congress. This event showcased the research contributions of both undergraduate and graduate students, emphasizing the critical role of graduate-level research in addressing real-world agricultural and economic challenges.

In February 2024, Jarelys Gonzalez, a graduate student from the Department of Geology, participated in high-impact international fieldwork at Popocatepetl volcano. This collaborative project involved leading volcanologists from the Universidad Nacional Autónoma de México, the Royal Belgian Institute for Space Aeronomy, and Italy's Instituto Nazionale di Geofisica e Vulcanologia (INGV). This partnership illustrates the global reach and significance of UPRM's graduate studies program in advancing geological research and cross-border collaborations.

Further strengthening graduate research, the Interdisciplinary Center for Coastal Studies (CIEL) engages students from various disciplines in innovative research initiatives. Graduate students receive mentorship, training, and the opportunity to collaborate as research assistants and co-authors on key publications, further reinforcing the university's commitment to fostering advanced academic inquiry and interdisciplinary collaboration.

4. To identify, among existing graduate programs, world-class niches of specialized research

The Interuniversity Seminar on Mathematics Research (SIDIM**)** is an international academic event that showcases the latest research in Pure Mathematics, Applied Mathematics, Mathematics Education, and Computer Science. Hosted by UPRM, SIDIM celebrated its 38th edition this year.

F. Objective #6: To impact our Puerto Rican society

1. To promote the use of expertise within our university community to meet both our campus' and our country's needs.

CREAD, in collaboration with Puerto Rico's Department of Economic Development and Commerce, launched a project called CRODEMY. The project involved developing advanced courses for the Advanced Programming Academy and enrolling over 60 participants.

Dr. Marcel Castro from the Electrical and Computer Engineering Department has led community planning efforts in various Puerto Rican communities, including La Salud in Mayagüez, Calle Abajo in Lajas, Duey in San Germán, El Cerro in Naranjito, San Salvador in Caguas, Villa Esperanza in Toa Alta, and Guayabota in Yabucoa. These efforts include project presentations, community profile reviews, collaboration agreements, and the initiation of energy planning.

The Transportation Technology Transfer Center continues to provide specialized training seminars to employees of the Puerto Rico Department of Transportation and Public Works (DTPW), the Puerto Rico Highways & Transportation Authority (PRHTA), all 78 municipalities of Puerto Rico, and Virgin Islands transportation officials. These seminars, covering topics such as highway analysis, design, inspection, operation, and maintenance, are accredited for continuing education by the College of Engineers and Surveyors of Puerto Rico.

The UPRM Press Office publicizes activities that take place on campus, particularly those that directly affect the community. These activities include the Seismic Network, hospital visits, summer camps, institutes for professors, symposiums and congresses, entrepreneurship workshops, and community work by associations and students. During the 2023-2024 fiscal year, 32% of the 356 news articles published on the UPRM website were related to community efforts. Additionally, the Press Office maintains a weekly radio program on Radio Universidad called Foro Colegial, which began in 2004. This program serves as a radio news magazine for UPRM and helps highlight various initiatives and achievements, further extending the university's impact on the community.

All ADEM Centers and projects provide services to the community, as demonstrated by the following examples: BEDC entrepreneurship support, VITA income tax assistance, Career Development (PIPC), CRECEN workforce development, Student Money Solutions financial literacy, and EDUCON continuing education. Other activities carried out during the 2023-2024 academic year that impacted the community include: the Service Fair, the Pre-Employment and Transition Fair for students with disabilities aged 14-21, visits to five high schools to promote undergraduate programs, presentations at professional associations to promote graduate programs, UPR-Expo events, and three job fairs, including two Internship and Job Expos and the first CRECEN Job Fair. The office for the "Comisión para Combatir la Pobreza Infantil y la Desigualdad Social en Puerto

Rico," directed by Dr. Eduardo Lugo from the Psychology Department, was opened this year in the ADEM Building.

The Engineering Sciences and Materials Department provides support to students, parents, teachers, and academic counselors from both public and private schools through student organizations like "Materials Advantage" and the "American Society for Engineering Education" at UPRM. In addition, Dr. Miguel F. Canals Silander and Dr. Sylvia Rodríguez offer talks to the general public on real-time weather data and sea condition forecasts, which involve significant research and development from conceptualization to operational implementation. Dr. Canals Silander has also shared his expertise through news segments on both radio and television. Dr. Agnes Padovani has engaged high school students through the "CMaT Research Experience & Mentoring (REM)" program by conducting several educational activities.

Faculty members of the Computer Science and Engineering Department participated in national panels to review proposals for federal agencies such as NSF, NIH, NASA, and DoE. The department also participated in and organized the Fourth International Conference on Information Systems and Software Technologies (ICI2ST 2023). One of its professors, Dr. Kejie Lu, contributed as an invited speaker at the IEEE VTC Fall 2023 and organized the CPS-IoT 2024 Competition.

The teaching staff in the Agricultural Economics and Rural Sociology Department continued training and research initiatives to serve the most disadvantaged sectors, supported by institutions such as NIFA, HATCH, Smith-Lever, PRPH Trust, OPPE, SARE, and the Women in Agriculture Initiative. The department offers various services to the community through the Agricultural Extension Service, promoting economic and leadership development, and sustainable self-management initiatives. In collaboration with the Institute for Community Development at UPRM, the department works on integrated initiatives that pursue community development through service-learning projects.

Agro. Víctor González, affiliated with the Department of Agroenvironmental Sciences, assisted the AEPROC student association in organizing a camping event in December 2023. He also participated in the Forestry Protection and Health Symposium, organized by the Federal Forestry Service in May 2024. Additionally, Agro. González took part in the "Feria Agroforestal Bosque Comunitario Río Hondo Mayagüez" and the AEPROC camping event at Guajataca. Dr. Luis R. Pérez Alegría, from the Department of Agricultural and Biosystems Engineering, collaborated with the University of Illinois Urbana-Champaign on disaster relief efforts at Rosalina Caraballo de Martínez Public School and the Puente Blanco community. Another professor from this department, Dr. Eric Harmsen, contributed to drought assessment in Puerto Rico through his work on the GOES-PRWEB project, providing critical hydro-climatic data. At the Isabela Experimental Substation, a variety of bean seeds resistant to a new pest, the thrip Megalothrips usitatus, are being sold to provide Puerto Rican farmers with high-quality seeds tailored to the local climate.

In the Department of Agricultural Education, Dr. Janitza Saavedra Lugo collaborated with the Alianza Escuela Juan Cancio Ortiz in Lajas and participated in interviews with FFA Directorate candidates for the Western Region. She also contributed to the CAEP Steering Committee meetings. Professors in this department raised awareness about mosquito-borne diseases by organizing “Action Against Mosquitoes in Puerto Rico” Week, which included educational activities for school children. Dr. Edly Santiago led the AgyTu program, promoting agricultural sciences through creative and interactive lessons at the AGROPLUG 2024 fair.

The Asociación Pro-Bienestar del Barrio Marías de Aguada and the PRAES "Cosechando Nuestro Bienestar/Iniciativa Hambre Cero" project, supported by a $164,000 grant from the Puerto Rico Food Bank, established a food pantry, improved a community kitchen, and provided food to those in need. The initiative also created 48 new family gardens, with children leading the effort, supported by an additional $40,000 grant from Fundación Ángel Ramos. Additionally, the PRAES "Proyecto Educación a Distancia para la Producción Acuapónica Comunitaria" trained 81 participants in distance education technology and aquaponic production, establishing four distance education hubs in remote communities. The "Semillas para mi tierra" initiative trained 86 farmers, leading to the planting of 48 acres with local bean varieties. The "ACCESO 4-H" Program also provided workshops on youth development, food preservation, and community gardening, training over 300 youth and adults.

Dr. Melissa Ramos Borges and Dr. Emilia Quiñones Otal, from the Department of Humanities, curated exhibitions at major museums in San Juan. Dr. Frances Santiago’s work recently influenced an exhibition at The Modern Art Museum in Fort Worth, titled Surrealism and Us: Caribbean and African Diasporic Artists since 1940, underscoring the program’s regional and international relevance.

Professors Raiza Quintero and Thomas Hudgins from the Department of Geology partnered with the American Cancer Association of Puerto Rico to raise awareness about breast cancer screening. Master's student Anishka Ruiz Perea contributed by creating a video explaining the geology of Las Tetas de Cayey, which received over 5,000 views and media coverage. Since August 2021, this department has maintained an ongoing collaboration with the USGS to establish the UPRM Puerto Rico Hillslope Soil Hydrological Monitoring Network, coordinated by Professor Stephen Hughes. Professor Hughes, along with graduate students Anishka Ruiz and Tania Figueroa, also led the LandslideReady program in Utuado. The program focuses on training local officials and community leaders on landslide hazards. Additionally, the SLIDES-PR team (composed of undergraduate and graduate students) has installed several landslide monitoring stations across the island and delivered several presentations on geology and landslides:

- On September 7, 2023, graduate students Anishka Ruiz and Tania Figueroa, along with undergraduate Astrid Romero, presented to children aged 8-11 at Escuela Rafael Rexach Dueño in Río Grande.
- On February 2, 2024, Ruiz and Figueroa presented to 2nd and 3rd graders at Academia San Sebastián Mártir.

On March 8, 2024, Prof. Hughes, Ruiz, and Figueroa engaged second graders at SESO school in Mayagüez.

The team also participated in community engagement activities:

- On July 19, 2023, MS student Desiree Bayouth and Luis Rodriguez Cruz presented on landslide vulnerability at a risk communication conference in San Juan.
- On July 27, 2023, Ruiz, Danishka Medina, and Romero met with a community organization in Corcovada to discuss landslide hazards.
- On August 28, 2023, Ruiz and Figueroa were interviewed on the Repaso Noticioso podcast about the SLIDES-PR project.

The Department of Economics faculty had the following initiatives:

- Organized the seventh edition of Economic Sciences Week on October 24 and 26, 2023.
- Dr. Ivonne del C. Díaz Rodríguez spoke at the "Climate Change: Planning, Reflections, and Recommendations for the Region" discussion, organized by the Women Economic Forum of the Caribbean and Honeywell Aerospace in Aguadilla on November 16, 2023.
- Dr. Jeffry Valentín Mari organized a conference on "The Policies of the Fiscal Oversight Board and its Results," held on March 21, 2024.
- Dr. Díaz also organized a sustainability and circular economy workshop for high school students during Earth Week in Santa Isabel, led by UPRM students.

The publication Population Dynamics of Puerto Rico's Municipalities: 2010 to 2020 offers detailed municipal-level data and vital statistics over the past decade, using maps and municipal profiles. Co-authored by Tania López Marrero and Sociology undergraduate Adlín Melecio Torres, it is part of a series on population dynamics in Puerto Rico. The project is a collaboration between CIEL and the UPR Sea Grant Program.

The Department of Hispanic Studies offered a free creative writing and film workshop for high school and university students, drawing participants from across the island. Additionally, during La Semana de la Lengua, surrounding schools, the university, and the general community were invited to a conversation with distinguished writer Esmeralda Santiago. Over 300 people, including teachers, alumni, and high school students, participated in these events.

In March 2024, Drs. Carlo Sabariz and Sara Gavrell from the Department of Humanities initiated a collaboration with the Colegio de Ingenieros in Mayagüez to introduce ethics courses and seminars tailored for engineers in western Puerto Rico.

The Department of Kinesiology has a team of over eight specialists actively engaged in community service. Some notable contributions include:

- Sport and exercise psychologist E. Rodríguez provided both formal and informal mentoring to student-athletes and coaches, including presentations on topics such as microaggressions in sports (2023).
- The department developed a weekly recreational activity program designed for collegiate students.

- The "Exercise is Medicine" initiative promotes physical activity on campus, earning third place in the 5K and Mascot Challenge for its impact on campus health and wellness.

The Puerto Rico Mathematical Olympiads (OMPR), directed by Dr. Luis F. Cáceres and Dr. Arturo Portnoy from the Department of Mathematical Sciences, supports students from grades 3 to 11 through academies and camps, preparing them for national and international math competitions. The department also actively engages with the community through outreach, workshops, and collaborative projects aimed at promoting math literacy and STEM education. Activities include participation in College Board committees, delivering math lectures in schools, coaching and judging Olympiads, and serving as judges at Science Fairs. The Pre-Calculus and Calculus Competitions are held annually to promote mathematical culture among future university students. Astronaut Dr. Marcos Berríos emphasized the significance of the Puerto Rico Mathematical Olympiad in fostering academic discipline.

Department of Nursing faculty actively participate in health fairs, conferences, and community educational activities focused on cardiovascular health, forensic nursing, maternal and child health, and mental health. Additionally, faculty and students provide healthcare presentations at elderly homes and related agencies to enhance community well-being.

On October 14, 2023, the Department of Physics, in collaboration with the PR NASA Space Grant Program, organized the event Eclipse Solar Parcial 2023 – En Familia. The event featured participation from student organizations, including the Society of Physics Students (SPS), Sociedad Meteorológica de Puerto Rico (SMPR), and Students for the Exploration and Development of Space (SEDS), along with various engineering projects. The event included multiple talks, and the Sociedad de Astronomía del Caribe provided telescopes for eclipse viewing. The event welcomed students and members of the general community.

The Department of Marine Sciences (DMS) is involved in developing a high school marine science program for the new Montessori School Alejandro Tapia Rivera in La Parguera. In collaboration with the school principal, San Juan headquarters representative Mr. Efrain Figueroa, the Sea Grant program, and CARICOOS, this partnership aims to train and inspire future graduate students and community leaders to protect marine natural resources. Over the past year, the DMS, along with the Department of Natural Resources and the Environment, has been discussing the critical state of the La Parguera Natural Reserve, which is under stress from climate change and uncontrolled tourism. Additionally, the DMS is conducting projects focused on forecasting the arrival of floating Sargassum seaweed and developing strategies to prevent its accumulation.

The bookstore supports local authors by hosting book presentations and promoting its services to both the campus and the public. Hotel Colegial serves as accommodation for student-athletes. However, since June 20, 2023, the first three floors have been closed for

remodeling under a federal project aimed at supporting students with financial needs. The renovations are expected to be completed by August 2024.

A collaborative educational project was established between the General Library, the Center for Conservation and Restoration of Puerto Rico, and the Conservation Center for Art and Historic Artifacts. The library hosted a fellowship in Preventive Conservation of Documentary Collections. Additionally, collaborations were established with the Alliance for Emergency Cultural Response in Puerto Rico and the organization Haciendo Acciones Socio-Ecológicas Resilientes for their proposed NEH project, "Oral Histories of Resilience from Cultural Heritage Professionals after Emergencies in Puerto Rico (2017-2022)." Personnel from the Patent and Trademark Resource Center also worked with the BEDC to provide intellectual property education to entrepreneurs. The Oral History Lab (OHL) leads an ACLS-funded project, collaborating with community organizations in Lares, San Juan, Culebra, Loíza, and Mayagüez to create digital collections. During Library Week, events such as webinars on diversity in archives and in-person consultations were held. Additionally, the library celebrated "May the 4th Week" with Star Wars-themed activities and exhibitions. Collaborations with the UPRM Asia-Africa Fest further enhanced engagement with the university community. GRIC members presented their work at international conferences, including ACURIL in June 2024. The "Centro de Recursos de Patentes y Marcas" also organized and facilitated the international project "Mi Museo, Nuestros Museos" from January to May 2024, impacting over 500 students across Puerto Rico, Mexico, Guatemala, and Argentina. Furthermore, the "OHL Webinar Series: Making Oral History" attracted international participation with support from GRIC staff. The library director, Dr. Anidza Valentín Rodríguez, represented UPRM at the 2023 Triangle Scholarly Communication Institute in Chapel Hill, North Carolina, where she presented on projects addressing "Scholarly Communications and Inclusivity: Solutions that Help to Bridge the Digital Divide Between Countries." Her participation underscored UPRM's dedication to academic excellence and global inclusivity.

The Department of Medical Services has been approved and certified as the first vaccine provider within an academic institution in Puerto Rico, meeting all federal and state law requirements for vaccine provision, custodianship, and management of the vaccine supply chain.

The Financial Aid Department participated in nearly 20 activities across the island, providing guidance to parents and students — particularly incoming freshmen — on completing FAFSA and other related processes.

2. To promote student participation in community projects, providing opportunities for these activities within university curricula.

The Air Force ROTC had several notable achievements in 2024. Capt. Michael Deaton attended the International Squadron Officer Course, and six cadets were commissioned. Fourteen students completed six weeks of field training at Maxwell AFB, while two cadets attended a parachute course at the US Air Force Academy, and two participated in

Project Global Officer language studies. Additionally, four cadets completed internships at organizations such as NASA and the Air Force Research Laboratories.

The ADEM student associations are also highly active, coordinating and participating in activities that positively impact the community. Some of these activities include:

Event
AEC: Free breakfast for students at ADEM's Lobby
AMA: Children shelter Portal de Amor in San Germán received donation of clothes
AMA: Reading for the Record para la Escuela Esteban Rosado – reading stories to children
AMA: Operation Xmas Child – gift collection for children
FMA: Beach Cleanup – Crash Boat beach
APICS: 11mo Operations Management Symposium – Critical Thinking in the Supply Chain
AMA: The Quest for Strategic Effectiveness in Puerto Rico: A Marketing Perspective Symposium
Sato Show: Villa Michelle Animal Shelter – ACM, APICS and FMA students worked at the food kiosk with Prof. Wanda Negrón

Table 25: ADEM Student Associations Community Activities

PRAES has launched a bi-weekly "Support Window" program where administrative personnel from the Office of Planning and Evaluation, along with leaders from Youth and 4-H Clubs, Consumer and Family Science, Community Resources Development, and the Agriculture Program, collaborate with PRAES personnel. This initiative focuses on providing technical, administrative, and educational support to improve coordination and performance in educational programs. Additionally, through Project Z-373, titled "Using Distance Education to Enhance Aquaponic Production in Puerto Rico's Model Forest (EDPAC)," five Distance Education Hubs were established in Las Marías, Utuado, Yauco, Maricao, and Humacao. These hubs connect PRAES faculty and students with farmers and community leaders, offering virtual classrooms and educational experiences through advanced technology.

Nursing students at the Department of Nursing gained valuable clinical and community experience, enhancing their practical skills and professional growth. Students in the COOP program received excellent evaluations from employers such as Mayagüez Medical Center, Bella Vista Hospital, Pavía Perea Hospital, and UPRM Medical Services. Additionally, community health promotion activities were integrated into courses on maternity, pediatrics, psychiatry, medical-surgical nursing, and community health, further enriching their educational experience.

3. To strengthen fundamental values such as ethics, justice, and honesty among our students and employees.

The Ombudsman Office organized various workshops, conferences, and orientations for the university community. Events included a lecture on academic regulations for new graduate students in August 2023 and a "Copy and Paste" workshop for UNIV 3005 students. In January 2024, the office held sessions on duties and responsibilities for

graduate students, as well as a session on student rights for the Association of Parents. Additionally, they hosted workshops on parliamentary processes and work styles in March and April 2024. These activities aimed to educate and empower the university community.

During Prepa Week 2023, Student Money Solutions at ADEM UPRM provided talks to new students from the Colleges of Agricultural Sciences and Business Administration on Financial Challenges and How to Face Them, impacting nearly 200 students. In September 2023, talks on Personal Finance were given to new students enrolled in the UNIV 3005 course taught by Dr. Magaly Mercado, reaching approximately 150 students.

At the General Library, the Center for Research and Library Science Development (CEDIBI by its Spanish acronym) organized the virtual "Décima Jornada sobre Integridad Académica", promoting ethics, justice, and honesty through workshops on academic integrity and research tools. Dr. Plaza, affiliated with the Department of Agroenvironmental Sciences, conducted a workshop on research ethics in collaboration with GRIC (Grupo de Investigación en Ciencias) and CEP (Centro de Ética Profesional).

4. To promote entrepreneurial and leadership approaches among our students throughout all fields of knowledge.

To promote entrepreneurial and leadership skills among students, the Food Science and Technology Program at the College of Agricultural Sciences (CAS) hosted the Dairy Product Challenge in November 2023. This event fostered innovation and entrepreneurship among participating students.

At the College of Arts and Sciences, the Department of Comparative Literature published Disastrous Tales (Cuentos Desastrosos), a compilation of seven stories written by undergraduate students. The book captures events and experiences from the Puerto Rican archipelago, focusing on hurricanes, earthquakes, and the pandemic. Additionally, the Department of Kinesiology runs three regular community programs, each impacting different populations:

1. Prime Time Games support individuals with disabilities.
2. The Wellness Pediatric Program benefits youth and their families
3. A physical activity program engages elderly residents at two nursing homes in Mayagüez.

In all programs, students play an active role by creating exercise activities and collecting data. During the summer, students also had the opportunity to engage with the Special Olympics, Boys and Girls Club, or intern to evaluate high-performance athletes.

G. Objective #7: To strengthen school spirit, pride, and identity

1. To provide excellent support and infrastructure services to our students and to the entire college community

The Buildings and Grounds Department, in collaboration with the Transportation Section, supported students, professors, athletes, and staff by completing 1,954 trips for academic, administrative, athletic, band, orchestra, and camp-related services. The department has been working on improvements in academic and administrative areas that directly serve students, such as paving roads, installing better access gates, upgrading windows, and painting buildings, among other projects. Additionally, the department collaborated with OPIMI on several initiatives, with a total investment amounting to $8,674,407.81.

During this academic year, OPIMI also undertook numerous projects, including four categorized as permanent improvements: the Monzón Building, Chemistry Building, "Hotel Colegial," and the Aerospace Institute for Research. Maintenance projects included work on the Library Chillers, the Biology Fire Alarm System Pump, and furniture upgrades for the Physics Building, among others. The list of projects, along with their details and status, can be found online at https://oiip.uprm.edu/ under the project dashboard.

2. To encourage student participation in college student organizations

To achieve this goal, during this academic year, the Department of Social and Cultural Activities officially recognized 175 student organizations. Many of these groups, including sororities and fraternities, engaged in community service activities as part of their social responsibility. The department authorized a total of 841 events, all of which were promoted through the Vida Colegial mailing list and official social media channels, including the Dean of Students' Facebook page. These activities included blood donations, visits to homes for the elderly and children, and providing free meals, among other contributions. The department also sponsored several events, including the 110th Anniversary of the Marching Band, celebrated on March 21, 2024, and provided a $1,000 donation to the UPRM chamber choir, Chorium, to support their participation in the VI Latin American Meeting of Choral Music, held from October 23 to 27, 2023, in Panama City.

At ADEM, student associations remained highly active, participating in over 90 activities related to membership initiations, career development, discipline training, networking, community service, and social events.

Also, the students at the College of Engineering performed the following:

- The Solar Boat team achieved remarkable success at the Solar Splash 2024 Competition in Springfield, Ohio, including 2nd place overall and 1st place in the Sprint Event, among other awards. Following their success, the team has been invited to participate in the Monaco Energy Boat Challenge 2025, an international competition that emphasizes innovation and sustainable development in the sailing industry.
- The Aero Design team secured 1st place in Advanced Class Oral Presentation and 3rd in Micro Class Mission Performance at the 2024 SAE Aero Design West.
- The Moonbuggy team placed 4th in NASA HERC 2023-2024, engaged in STEM outreach, and has a Moonbuggy on permanent display the Ecoexploratory at Plaza Las Américas.

- Loxodon participated in key aerospace events, including the ASCEND 2023 Conference, Blue Origin's Aerospace Showcase, and Engineering Design Day, highlighting its bi-propellant rocket engine.
- The Roboboat team competed in the 2024 Roboboat Competition by Robonation, achieving 11th place overall out of 18 teams.
- The Bulldogs team from the AGC student chapter won 1st place in Heavy Civil and 2nd place in Construction at the ASC Fall Student Competition in Atlanta, Georgia
- The NSPS-UPRM 2024 team secured 2nd place at the National Student Competition organized by the National Society of Professional Surveyors,
- The ASCE Student Chapter received the '2024 ASCE Distinguished Chapter Award' from Region 5, the 'Richard J. Scranton Outstanding Community Service Award' (2nd place), and the '2024 Certificate of Commendation' for being in the top 5% of all student chapters in the United States,
- The ACI Student Chapter achieved 3rd place in Overall Efficiency and 1st place in Ecological Design at the ACI Mortar Workability Competition in New Orleans, LA.
- The IISE chapter received the Golden Chapter 2023-2024 award, 21 this chapter participated in the Institute of Industrial Engineers Annual Conference.
- The Alpha Pi Mu achieved the 2nd place as Outstanding Chapter Award and earned third place at the 2023-2024 National Outstanding Chapter level.
- Students from the Chemical Engineering Department participated in the Chem-E-Car Competition American Institute of Chemical Engineers (AIChE) 2024 and other international competitions.

On the other hand, at the College of Arts and Sciences, the American Chemical Society participated in the Chemistry Festival in San Juan, PR, as part of National Chemistry Week. The festival aimed to engage the local community by sharing knowledge through experiments, demonstrations, and other scientific activities. The Athletic Department reported that in November 2023, the men's basketball team competed in four NCAA-required games against Rollins College, Eckerd College, Palm Beach Atlantic University, and Florida Tech. In January 2024, the cheerleading team participated in the UCA College Nationals, competing against six universities from Puerto Rico and the United States. In March 2024, the women's and men's tennis teams took part in the Spring Break Tournament in Orlando, Florida, also meeting NCAA requirements. By May 2024, six athletes had qualified for the NCAA Division II Outdoor Track and Field Championships in Emporia, Kansas, with standout performances, including a 3rd place finish by Yanielys Torres Ríos in the Hammer Throw, along with other commendable results in various events. At the Department of Physics, members of the Women in Physics UPRM group participated in the American Physical Society Conference for Undergraduate at Clemson University in South Carolina, where students Astrid Reyes and Caryelis Bayona took first and second place, respectively, in the poster presentations. The Student Geological Society celebrated its 40th Anniversary with a Geology Symposium during the week of April 15, 2024. The event featured oral presentations by faculty members and guest speakers, including two alumni, and showcased approximately 30 poster presentations from undergraduate and graduate students.

Also, at CAS, the Association Fair, organized by the General Student Council of the Faculty, was held on October 3, 2023, and February 27, 2024, to promote various student organizations and the benefits of extracurricular involvement. The Department of Agroenvironmental Sciences has three active student organizations. They organized activities such as agro-environmental camps, crop planting events, educational talks, and fundraising initiatives.

3. To provide adequate areas for extracurricular and co-curricular activities which promote healthy lifestyles

To promote healthy lifestyles, the Army ROTC engaged 28 cadets in the Defense Language Institute, San Antonio, TX, from May to July 2024, where they improved their English skills, with many passing the Oral Proficiency Interview. Additionally, 28 cadets participated in Cadet Summer Training, integrating with peers nationwide for 35 days of military exercises, enhancing their leadership and language skills.

Additionally, during this year, various summer camps were held by different university departments and offices, engaging high school students in recreational, academic, and career-oriented activities across multiple disciplines. Below is a summary of these camps.

Faculty	Name
College of Agricultural Sciences	Agriculture Week Challenge Camp
	Bug Camp
	4H Agro-week Summer Camp
	2nd Agro-environmental Camp at "Río Hondo Mayagüez Forest" organized by AEHORT
College of Engineering	4th One day camps
	30th Anniversary Edition of the Pre-Engineering Summer
	INME Summer Camp
	Sustainability Engineering Camp
	Chem-E Camp
	Zirconia Camp
College of Arts and Sciences	Mathematical Summer Camp
	3rd Edition Department of Economics Summer Camp
	Multiverse of Opportunities in the Social Sciences Summer Camp
	UPRM HACKS 2024 Camp
	Summer Transportation Institute Camp
College of Business Administration	ADEM Summer Camp
	1st STEAM Summer Camp
Rectory	Bulldog's Summer Camp
	Tarzan & Jane Summer CAAM
Dean of Students Affairs	Band Camp

Table 26: UPRM Summer Camps

Furthermore, the Department of Kinesiology has increased student participation in recreational sports such as ultimate frisbee, volleyball, basketball, and pickleball. In August 2023, the department began opening facilities and providing equipment to encourage physical activity, reduce stress, and foster social bonding and support. Initially, 20-30 students participated, and by April 2024, the initiative had grown to involve 60-90 students.

Moreover, the Quality-of-Life Office's affiliated projects include:

1. Puppy RUM: This project aims to educate the university community about the benefits of human-animal interaction, fostering a positive and supportive environment by strengthening the bond between humans and animals.
2. National Society of Leadership and Success: This initiative provides students with opportunities to develop leadership skills and achieve academic excellence.
3. IncluRUM: Dedicated to promoting inclusion within the campus community.
4. Educational and Professional Improvement Program: Focuses on promoting professional development and educational advancement.
5. The office also produces a podcast that addresses topics of interest and relevance to the student community.

4. To strengthen ties with alumni and surrounding communities sponsoring their participation as partners in academic endeavors

To strengthen ties with alumni and surrounding communities, the Press Office focuses on publishing positive news in the media. By sending press releases that highlight UPRM’s achievements, the office not only impacts the community but also fosters a sense of belonging and pride among alumni. The office manages social media accounts where they share weekly articles and video reports about institutional activities, as well as communications from the Chancellor's Office. Additionally, they distribute the Cartelera Semanal, a list of weekly activities, ensuring that both current students and alumni stay connected and informed about UPRM's accomplishments and events.

The Alumni and Philanthropy Office established a new alumni registry to enhance engagement, support collaborative agreements with alumni organizations, and foster campus pride. As part of their fundraising efforts, the office created an Alumni ID Card and coordinated events such as Sabores del Mundo, which honors international contributions, while maintaining global outreach via social media.

The Department of Agroenvironmental Sciences' student organization, AEHORT, invited alumni to participate in initiation activities, strengthening the connections between current students and alumni. Similarly, the Department of Agricultural Economics and Rural Sociology maintains active engagement with alumni through educational activities, summer internships, and its website, encouraging alumni involvement in various departmental projects and initiatives.

Additionally, the Department of Kinesiology collaborated with alumni athletes on two key events: the Annual Convention in 2023 and the 100 Miles Bike Run in 2024.

5. To make evident our school pride throughout the country

To showcase school pride, the Alumni and Philanthropy Office highlights student achievements in international competitions and recognizes notable alumni who are featured in local and national media for their distinguished contributions. Students participating in exchange programs are also encouraged to take pride in their campus and in Puerto Rico, serving as ambassadors who promote both the institution and the island wherever they go. Likewise, students visiting UPRM become ambassadors, promoting the university and Puerto Rico after completing their exchange experiences. Additionally, the Army ROTC Battalion, known as the "Bulldog Battalion," proudly carries the university mascot's name and colors, representing UPRM nationwide within the Army.

The Buildings and Grounds Department also contributed to university spirit by constructing a podium featuring the letter "C" for sports competitions.

Moreover, the Press Office publicizes the institution's research and creative work, making highly technical research accessible to a wider audience. During this fiscal year, the office received 318 requests for coverage of UPRM activities and broadcast 52 episodes of Foro Colegial, most of which focused on research and projects by students and professors, thus promoting the university's academic and creative achievements.

Finally, recognizing distinguished professors is an effective way to foster school pride and honor their contributions:

- Professor Luisa R. Seijo Maldonado from the Department of Social Sciences was honored by the Caribbean Division of the American Association for the Advancement of Sciences (AAAS) for her long-standing commitment to social causes and women's rights in Puerto Rico. Her work has significantly influenced communities and youth, promoting social justice and community development through education and participatory action research.
- At the General Library, Dr. Gladys E. López-Soto received prestigious recognition, including the 2024 I Love My Librarian Award from the American Library Association, the Carnegie Corporation of New York, and the New York Public Library.
- At the College of Engineering, the following professors were honored: Prof. Mercedes Ferrer Alameda from the Industrial Engineering Department, Dr. David Suleiman Rosado from the Chemical Engineering Department, and Dr. Oscar Marcelo Suárez from the Engineering Sciences and Materials Department. Additionally, Dr. Aidsa I. Santiago Román and Dr. Christopher Papadopoulos from the Engineering Sciences and Materials Department received the Multidisciplinary Engineering Division Award at the ASEE Conference.

Himno del Colegio

Entonemos compañeros
un himno rudo y marcial
el poema de optimismo
que levanta el corazón
es el canto del Colegio
Hecho de un astral fulgor
y la música divina
que un rayo le rubricó...
Alma Mater colegial
epopeya del saber
norte de nuestro deber
este canto llevará
a la cumbre nuestra grey
que en marcha está.

Autores
Letra: Sra. Laura Honoré de Cuebas
Música: Dr. Rafael Sánchez Día

VI. Appendices

Appendix A. Courses Approved and Updated During the Academic Year.

College of Agricultural Sciences

Agricultural and Environmental Systems The updates include offering MATE 3031 as an alternative to MATE 3049 and providing various options for the physics requirement, such as FISI 3091, FISI 3171, or FISI 3151 with corresponding labs. Elective options in Agricultural Economics now include courses from Managerial Sciences. The course sequence was revised to ensure prerequisites are met and to balance the credit load per semester. Additionally, the elective course SAGA 5991 - "Safety and Health in Agriculture," was offered in a synchronous distance learning format in Fall 2023 to fulfill certification requirements for vocational agriculture teachers in Puerto Rico. This course was scheduled in the evening to accommodate working professionals. Furthermore, SAGA 4017 - Safety in Agriculture was updated to increase the credits from 2 to 3 and to align with current industry practices and standards.

College of Business Administration

The following courses were approved:

- CONT 5016 - Cybersecurity for Accounting Professionals
- CONT 5017 - Python Programming for Accountants
- CONT 5010 - Data Analytics in Accounting
- CONT 4117 - Service Learning Through Voluntary Income Tax Assistance (VITA)
- CONT 5006 - Tax Liabilities for Businesses in Puerto Rico
- CONT 5007 - Advanced Accounting Research
- CONT 5168 - Information Systems Audit and Control
- GEOP 4997 - Operations Management Practice for Coop Students
- GERH 4997 - Human Resource Management Practice for Coop Students
- MERC 4997 - Marketing Practice for Coop Students
- FINA 4997 - Finance Practice for Coop Students
- ADOF 4997 - Business Administration Practice for Coop Students
- SICI 4996 - Computerized Information Systems Internship
- CONT 4998 - Accounting Practice for Coop Students
- GERE 6997 - Operations Management Practice for Graduate Students at Coop
- REHU 6997 - Human Resources Management Practice for Graduate Students at Coop
- FINA 6997 - Finance Practice for Graduate Students at Coop
- ADOF 3015 - Communication Techniques for the Hearing Impaired
- ADMI 5XXX - Introduction to Neuromarketing

Additionally, the following courses were updated:

- ADOF 4075 - Integration of Information Processing Programs
- SICI 4046 - Information Systems Analysis and Design
- ADMI 3028 - Advanced Spreadsheet Techniques
- CONT 4007 - Federal Income Tax
- CONT 4009 - Income Tax of Puerto Rico

At the College of Arts and Sciences

- The Department of Humanities initiated curriculum adjustments, including the introduction of minors in the Fine Arts program aimed at specialization. The Art Theory program has submitted proposals for new minors in Latin American and Caribbean Art History, as well as Museum Studies with concentrations in theoretical and restoration aspects. In February 2024, the department initiated a partnership with UPR Ponce's Department of Humanities to develop articulated transfer programs. This collaboration allows students to begin their bachelor's degrees in Philosophy or Art Theory at UPR Ponce and seamlessly complete them at UPRM, enhancing educational opportunities and facilitating academic pathways between the campuses.

- The Department of Kinesiology implemented several changes, including curricular revisions in the Physical Education programs to align with Department of Education teacher requirements. The Kinesiology Master's Program introduced a Plan III option to support institutional assessment and provide additional opportunities for students (Certification 23-19E 2023). The program and diploma name were officially changed from Physical Education to Kinesiology (Certification No. 188, 2023-24), and new courses were introduced to update the undergraduate curriculum.

- The Chemical Department created a new General Chemistry course tailored for engineering students, approved by its faculty and the university's Academic Senate. In the Department of Economics, various courses were approved.

- The Department of Marine Sciences revised the course syllabus and program for Marine Microbiology and Marine Parasitology, creating a curricular sequence: Marine Microbiology I (CMOB 8635) and Marine Microbiology II (CMOB 8636).

- The Department of Nursing Curriculum Committee completed a proposal for a Master of Science in Nursing (MSN) program, including three specialty areas. At the Department of Economics, a draft proposal for a Master's Degree in Sustainable Economic Development were submitted to the Departmental Curriculum Committee.

College of Engineering

- Eleven courses were added to the Civil Engineering BS program, seven courses were modified, and five were inactivated as part of a curriculum review that began in August 2023.
- The Engineering Sciences and Materials Department evaluated and updated undergraduate and graduate academic catalogs, removing prerequisites for INGE 3016 to allow earlier enrollment.
- The Industrial Engineering Department introduced a new curriculum for the 2023-2024 academic year, developed with input from advisory boards, employers, faculty, alumni, and students. Key features include maintaining the graduate profile and program breadth, keeping the program duration at five years, ensuring compliance with ABET accreditation standards, and preparation for professional exams. Notably, the curriculum reduces credit and contact hours by 15%, shortens the critical path to 8-9 semesters, and decreases total credit hours, thereby lowering education costs. Free electives remain unchanged, allowing for minor certifications or for personal and professional development.

Appendix B. College of Agricultural Sciences Publication, Presentations, etc.

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Department of Agroenviromental Sciences				
Dumas, J.A. 2023. Catedrático UPR mejora la salud del suelo agrícola en tiempos de cambio climático https://www.upr.edu/catedratico-upr-mejora-la-salud-del-suelo-agricola-en-tiempos-de-cambio-climatico/		Electronic publication		X
Lamboy, G. 2023. Effect of low-impact tillages and selected organic amendments on the soil health of an Oxisol. Master thesis in Soils. University of Puerto Rico-Mayaguez.		Thesis Dissertation		Accepted for publication
Lawrie, R., Steven Massey. 2023. Agrigenomic Diversity Unleashed: Current Single Nucleotide Polymorphism Genotyping Methods for the Agricultural Sciences. Applied Biosciences. October 25, 2023. 2, pag. 565–585. https://doi.org/10.3390/applbiosci2040036		Electronic publication		X
Abelleira Martinez, O.J., R. Cruz Aguilar, G. Tua Ayala, A. Marengo Casul, J. Rivera San Antonio, Y. Juan Morales, A. Gonzalez Rosario, and A. Perez Mendez. 2023. Timbers of Puerto Rico: Enriching Forests with Valuable Species and Uses for Super-Abundant Species. On-line oral presentation at the "Graduate Seminar in Materials Science & Engineering (CIIM 6027)" of the Department of Materials Science and General Engineering of the University of Puerto Rico, Mayagüez, held on April 12, 2023 via Zoom.		Conference Papers and Presentation		X
Pérez Méndez, A., and O.J. Abelleira Martínez. 2023. Where Wood Comes From: Planning and Best Practices for Harvesting and Using the Wood Resource. Oral presentation administered to participants of the first workshop on "Sustainable Use of Wood in Puerto Rico" sponsored by this project and held on September 30, 2023, in the Amphitheater of the College of Agricultural Sciences, University of Puerto Rico, Mayagüez.		Conference Papers and Presentation		X
Cruz Martinez, V., Morales-Payan, J.P., Munoz Perez, F., and Fewerda, F. (2023). Effects of storage temperature of 'Lula' avocado grown in Puerto Rico. Abstracts of the Annual Scientific Meeting of the Puerto Rican Society for Agricultural Sciences.		X		Under review
Gonzalez Flores, J. and Morales-Payan, J.P. (2023). Branching in trees of Puerto Rican accessions of breadfruit (Artocarpus altilis). Abstracts of the Annual Scientific Meeting of the Puerto Rican Society for Agricultural Sciences.		X		Under review
Gonzalez Velez, K., Morales-Payan, J.P., Barriga Burgos, A.V., and Jimenez Maldonado, A. (2023). Comparison of fruit attributes of avocados 'Butler', 'Meia', 'Dominguez', and 'Dominguez Jr.1'. Abstracts of the Annual Scientific Meeting of the Puerto Rican Society for Agricultural Sciences.		X		Under Review
Valladares Garcias, E., Morales-Payan, J.P., Armstrong, A., and Ferwerda, F. (2023). Fruit productivity of three yellow passionfruit accessions in autumn and winter in Lajas, Puerto Rico. Abstracts of the Annual Scientific Meeting of the Puerto Rican Society for Agricultural Sciences.		X		Under review
Venegas Hidalgo, B.E. and Morales-Payan, J.P. (2023). Morphological comparison of eight breadfruit accessions from the Agricultural Experiment Station germplasm collection at Isabela, Puerto Rico. Abstracts of the Annual Scientific Meeting of the Puerto Rican Society for Agricultural Sciences.		X		Under review
Bornowski, N., Hart, J. P., Palacios, A. V., Ogg, B., Brick, M. A., Hamilton, J. P., Beaver, J. S., Buell, C. R., & Porch, T. (2023). Genetic variation in a tepary bean (Phaseolus acutifolius A. Gray) diversity panel reveals loci associated with biotic stress resistance. The Plant Genome, 00, e20363. https://doi.org/10.1002/tpg2.20363	X			X
Cabrera-Asencio, I. & Estevez de Jensen, C. 2023. Asian bean thrips of Fabaceae in Isabela, Puerto Rico Ann. Rep. Bean Improv. Coop. 66:43-44.	X			X
Beaver, J.S., Estevez de Jensen, C. Rosas, J.C. & T.G. Porch. 2023. Selección asistida por marcadores de frijol para combinar genes de resistencia al virus y a la roya. Paper presented at the 2023 meeting of the PCCMCA held in Antigua, Guatemala. 27-30 June 2023.		Conference Papers and Presentation		X
Vargas, R. & M. Giraldo. 2023. Muestreo de nematodos en batata revela un resurgimiento de Rotylenchulus reniformis en Puerto Rico. December 1st, 2023. Reunión Anual SOPCA. Añasco, P.R.		Conference Papers and Presentation		X
Coal Fly Ash and Milled Glass Powder as Soil Amendments on Acids Soils of PR". ASA-CSA-SSSA scientific meeting. October 31st, 2023. St. Louis, MO.		Conference Papers and Presentation		X
Manejo de humedad de suelo con cobertoras perennes en predio de Lima var. Giant Key con riego por goteo. Annual Scientific Meeting of the "Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA). December 1, 2023. Añasco, PR.		Conference Papers and Presentation		X
Aviles-Noriega, A., Serrato-Diaz, L. M., Giraldo-Zapata, M. C., Cuevas, H. E., & Rivera-Vargas, L. I. (2023). The Sigatoka Disease Complex Caused by Pseudocercospora spp. and Other Fungal Pathogens Associated with Musa spp. in Puerto Rico. Plant disease, 10.1094/PDIS-03-23-0433-RE. Advance online publication. https://doi.org/10.1094/PDIS-03-23-0433-RE		Thesis Dissertation		X
Valencia, E., and J. Muir. 2023. Liquid Urea Rate Effects on Yield and Nutritional Value of cv. Cayman on Short and Extended Daylength. ABST. American Society of Agronomy, St. Louis Missouri.		Conference Papers and Presentation		X
Macchiavelli, S. and Hernández E. (2023). Combatting Watermelon Vine Decline in Puerto Rico Through Extension: An integrated Approach to Enhance Watermelon Production.		Conference Papers and Presentation		X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA) [Poster]. Memorias 46 Reunión Científica y Asamblea Anual SOPCA 2023. pp 34.				
Torres Y., Merced K., Estévez De Jensen C. y Cabrera I. Monitoreo de Virosis en Sandía en Santa Isabel, Puerto Rico. Memorias 46 Reunión Científica y Asamblea Anual SOPCA 2023..		Conference Papers and Presentation		X
Merced K. y Cabrera I. Manejo de mosca blanca en sandía "Crimsom Sweet". 2023. SOPCA.		Conference Papers and Presentation		X
Feliciano-Rivera, M., 2023. LAMP VS. PCR. LAMP training Workshop. June 19, 2023. Laboratorio de Biotecnología y Patología Vegetal. Agricultural Experiment Station of Isabela.		Conference Papers and Presentation		X
Feliciano-Rivera, M., 2023. LAMP PRIMER DESIGN AND ASSAY OPTIMIZATION. LAMP training Workshop. October 20, 2020. Laboratorio de Biotecnología y Patología Vegetal. Agricultural Experiment Station of Isabela.		Conference Papers and Presentation		X
Robles, W., R. Batts, J. Spies, J. Baron and L. Almodovar. 2023. Approaches to support new herbicide tolerances and registration on tropical fruits and vegetables. Poster presentation at the Herbicide Discovery and Development Meeting, Curtin University; Perth, Australia. January 18-20		Conference Papers and Presentation		X
Robles, W., R. Welker, M. James, and L. Horst. 2023. Application types. IR-4 National Education Conference, San Juan, Puerto Rico. February 7-9.		Conference Papers and Presentation		X
Robles, W., T. Pike, J. Spies, and L. Horst. 2023. Trials saved and lessons learned. IR-4 National Education Conference, San Juan, PR. February 7-9.		Conference Papers and Presentation		X
Robles, W. and L. Almodovar. 2023. IR-4 Field Reseach Training, Southern Region Research Station Tour. IR-4 National Education Conference, Corozal, Puerto Rico. February 9th.		Conference Papers and Presentation		X
Robles, W. 2023. Evaluación de nuevos fungicidas para control de enfermedades en café. Reunión Empresa de Café, Estación Experimental Agrícola, Adjuntas. May 30, 2023.		Conference Papers and Presentation		X
Robles, W. 2023. Procesos para el registro de plaguicidas utilizados en la agricultura. Chemists Annual Meeting, PRChem 2023. San Juan, PR 08/16/2023		Conference Papers and Presentation		X
Garcias Valladares, E., J. P. Morales-Payan, F. Ferwerda & A. Armstrong. (2023). Fruit productivity of three yellow passionfruit accessions in autumn and winter in Lajas, Puerto Rico. Resúmenes de la Reunión Científica de la SOPCA, Añasco, Puerto Rico. 46:47.		Conference Papers and Presentation		X
Posadas, B.C, Stafne, E.T., Blare, T., Downey, L., Anderson, J., Crane, J., Gazis, R., Faber, B., Stockton, D.G., Carrillo, D., Morales-Payan, J.P., Dutt, M., Chambers, A., & Chavez, D. (2023). Grower and operational characteristics of US passion fruit farmers. Technology in Horticulture 3:25.	X			X
Stafne, E.T., Blare, T., Posadas, B., Downey, L., Anderson, J., Crane, J., Gazis, J. Faber, B., Stockton, D. G., Carillo, D., Morales-Payan, J.P. Dutt, M., Chambers, A., & Chavez, D. (2023). Survey of US passionfruit growers' production practices and support needs. HortTechnology 33:357-366.	X			X
Aviles-Noriega, A., Serrato-Diaz, L. M., Giraldo-Zapata, M. C., Cuevas, H. E., & Rivera-Vargas, L. I. (2023). The Sigatoka Disease Complex Caused by Pseudocercospora spp. and Other Fungal Pathogens Associated with Musa spp. in Puerto Rico. Plant disease, 10.1094/PDIS-03-23-0433-RE. Advance online publication. https://doi.org/10.1094/PDIS-03-23-0433-RE.		Electronic publication		X
Casanoves, F., Bernal Núñez, A., Gutiérrez, R., Hernández Núñez, H., Gutiérrez, I., Suárez Salazar, J., Macchiavelli, R. (2023). Development of indices to quantify community capitals. XIX Conferencia Española y VIII Encuentro Iberoamericano de Biometría. Vigo (Spain), June 27-30, 2023.		Conference Papers and Presentation		X
Zulmarie P. Semidey Vega y Merari Feliciano. Efecto de Plantas Acompañantes sobre el Daño de Enfermedades de Calabaza Tropical en Puerto Rico, page 12. Presented at the 46va Reunión Científica y Asamblea Anual SOPCA 2023, December 1st, 2023, Rincón Beach Resort, Añasco, Puerto Rico. Graduate Student Oral Presentation.		Conference Papers and Presentation		X
Soto Román, A., m. a. Muñoz, J. M. O'Hallorans and R. Tirado Corbalá. 2023. Evolution of CO2 as an index of soil quality in soils from two ecological zones of Puerto Rico. Anual Meeting Puerto Rican Society of Agricultural Sciences (SOPCA), Rincón Beach Resort, December 1, 2023.		Conference Papers and Presentation		X
Montas, M., E. Valencia y J. Muir. 2023. Producción forrajera del cv. Basilisk, Mulato y Caimán en días cortos. Resumen: PCCMCA, Abril 2023, Antigua, Guatemala.		Conference Papers and Presentation		X
Viteri, D. M., Linares, A. M., Miranda, Z., and Vázquez, R. (2023). Registration of UPR-Mp-34 and UPR-Mp-42 common bean germplasm with enhanced resistance to ashy stem blight. Journal of Plant Registrations 17: 404-411. https://doi.org/10.1002/plr2.20273	X			X
Viteri, D M, and Linares, A M (2023). Isabella:A new early maturity pigeonpea. HortScience 58:240-241. https://doi.org/10.21273/HORTSCI16968-22	X			X
Chong, J., Niki Labbé, Nour Abdoulmoumine. 2023. Usos alternos de la biomasa para las comunidades desventajadas en Puerto Rico. Charla introductoria Proyecto 2365. UPR - Mayagüez. March 30, 2023.		Conference Papers and Presentation		X
Gasificación de Biomasa:Alternativa para producir energía eléctrica después de una emergencia. Seminar at Universidad de Puerto Rico, Recinto Universitario de MayagüezAugust 24, 2023. https://fb.watch/njYLQhJYrd/		Electronic publication		X
Dumas, J.A. 2023. Catedrático UPR mejora la salud del suelo agrícola en tiempos de cambio climático https://www.upr.edu/ac/catedratico-upr-mejora-la-salud-del-suelo-agricola-en-tiempos-de-cambio-climatico/		Electronic publication		X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Dumas, J.A. Salud de suelos: uso de biochar https://www.uprm.edu/desdelaeea/2023/06/08/salud-de-suelos-uso-de-biochar/		Electronic publication		X
Hadechiny X., Pérez F., Plaza M., and Hernández E. 2024. Post-Harvest Practices of Specialty and Asian Vegetables Grown in Puerto Rico. [Unpublished master thesis]. University of Puerto Rico.		Thesis Dissertation		Under review
Feliciano-Rivera, M. 2024. Detecting Threats to Better Protect Crops in Puerto Rico. In Press, DOI: https://doi.org/10.33548/SCIENTIA997. (The DOI is not live yet but is the one assigned to the article).		X		Accepted for publication
Viteri, D. M., Linares, A. M., and Vázquez, R. (2024). Release of UPR-Mp-37 and UPR-Mp-48 common bean germplasm with improved resistance to ashy stem blight. Journal of Plant Registrations 18: 142-148. https://doi.org/10.1002/plr2.20330	X			X
Alejandra Varela Alpi, Maria Plaza, Abner Rodriguez y Leyda Ponce de Leon. Caracterización nutricional y química de la leche de cabra producida en diferentes regiones agrícolas de Puerto Rico.	X		X	
Cabrera, I., A.M. Linares-Ramírez and D.M. Viteri. 2023. Archytas marmoratus (Townsend) and Lespesia sp. (Diptera: Tachinidae) parasitoids of Spodoptera frugiperda (J.E. Smith) (Lepidoptera: Noctudidae) on Zea mayz L. in the South of Puerto Rico. J. Agric. Univ P.R.: 107(2): 187-190.	X			X
Viteri, D. M., Linares-Ramírez, A. M., & Vázquéz, R. 2024. Release of UPR-Mp-37 and UPR-Mp-48 white common bean germplasm with improved resistance to ashy stem blight. Journal of Plant Registrations 18: 142-148. https://doi.org/10.1002/plr2.20330	X			X
Viteri, D., and Linares, A. 2024. Registration of indeterminate and photoperiod-insensitive IIPG-7 and IIPG-11 pigeonpea germplasm. Journal of Plant Registrations 18: 426-435.	X			X
Viteri, D., Linares-Ramírez, A., and Shi, A. 2024. Genome wide association study reveals a QTL region for ashy stem blight resistance in PRA154 Andean common bean. Plant Disease 108: 407-415.	X			X
Landrón, A., A.M. Linares, M. Feliciano, and Y. Miranda. 2023. An Update on the Powdery Mildew Causal Agent in C. moschata in the Southwest and Northwest of Puerto Rico. Journal of Agriculture UPR 107(1):57-61	X			X
A New Invasive Pest from the Western Hemisphere: Amrasca biguttula (Ishida) (Hemiptera: Cicadellidae).Florida Entomologist. First report of the exotic species Megalurothrips usitatus (Thysanoptera: Thripidae), pest of Fabaceae,in Puerto Rico. Florida Entomologist.	X			X
Trujillo D., Mastrangelo T., Estevez de Jensen C., Verle Rodrigues J. C., Lawrie R., Massey S. E. 2024. Accurate identification of Helicoverpa armigera–Helicoverpa zea hybrids using genome admixture analysis: implications for genomic surveillance. Frontiers in Insect Science Vol. 4 DOI=10.3389/finsc.2024.1339143	X			X
Lawrie R., Agosto, P., Estevez de Jensen, C. Massey S. E., Rodrigues, J.C. 2024. A New Mitochondrial Genome of Helicoverpa zea from Puerto Rico, 2024. J. of Agr. of the University of Puerto Rico	X		X	
Mendesil, E., Tefera, T., Blanco, C.A., Paula-Moraes, S.V., Huang, F., Viteri, D., and Hutchison, W.D. 2023. The invasive fall armyworm, Spodoptera frugiperda, in Africa and Asia: responding to the food security challenge, with priorities for integrated pest management research. Journal of Plant Diseases and Protection 130: 1175-1206.	X			X
Cabrera, I., Viteri, D., and Linares, A. 2023. Archytas marmoratus (Townsend) and Lespesia sp. (Diptera: Tachinidae) parasitoids of Spodoptera frugiperda (J.E. Smith) (Lepidoptera: Noctuidae) on Zea mays L. in the South of Puerto Rico. J. Agric. Univ P.R.: 107(2): 187-190.	X			X
Tirado Rebecca. 2023. The effect of prescribed fires on abiotic and biotic factors in the Southern region of Puerto Rico. J.Agric.UPR 106(2):179-201 (2022)-	X			X
Valencia Elide. 2023. Effecto de corte de foraje de girasol (Helianthus annus) en dos etapas fornologicas sobre la producción y calidad del ensilaje. JAUPR 107(1):25-40	X			X
Valencia Elide 2023. Voluntary intake and digestibility of lambs fed hay of forage soybeans cv. Hinson long juvenile and label cv. Rongai. JAUPR 107(1) 1-10.	X			X
Miranda-Cortés, Y & Feliciano-Rivera, M. 2024. Predominance of Pratylenchus coffeae in tubers of three commercial cultivars of Dioscorea rotundata in Puerto Rico. The Journal of Agriculture of the UPR. Accepted (MS-24-08).	X			X
Zayas-Declet, J., Feliciano-Rivera, M. & Miranda-Cortés, Y. 2023. Effect of fungicide application prior to the micropropagation of yam (Dioscorea rotundata cv. Guinea Negro). The Journal of Agriculture of the University of Puerto Rico. Accepted (MS-23-18)	X			X
Tavárez, H., O. Abelleira and L. Elbakidze. 2023. Environmental awareness and willingness to pay for biodiversity improvement in Puerto Rico. Journal for Environmental Studies and Sciences. https://doi.org/10.1007/s13412-023-00869	X			X
Rivera-Ocasio, D. and Tirado-Corbalá, R. 2023. Effect of planting distance in 'Pera' sweet orange grafted onto 'HRS 812' rootstock in Corozal Puerto Rico. The Journal of Agriculture of the University of Puerto Rico	X		X	
Viteri, D. M., Linares-Ramírez, A. M., Miranda, Z., & Shi, A. 2023. Screening 105 common beans from the USDA GRIN core collection to select genotypes with higher ashy stem blight resistance. Annual Report of the Bean Improvement Cooperative, 66, 9–10.		X		X
Crespo-Vélez, S.; Guzmán-Colón, D.; Hernández, E.; Gould, W (2024). Prácticas para manejar impactos climáticos: Hortalizas. In Guías de adaptación: Cambio climático en fincas		X		X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
y terrenos boscosos del Caribe. San Juan, PR: Departamento de Agricultura de los Estados Unidos, Instituto Internacional de Dasonomía Tropical.				
Rodriguez G., Macchiavelli S., Genaro L., Rodriguez L., Hernandez E & Irizarry E. (2023). Uso eficiente del agua de riego en fincas de hortalizas y otros cultivos. Servicio de Extensión Agrícola, Universidad de Puerto Rico. https://www.uprm.edu/sea/manual-uso-eficiente-del-agua-de-riego-en-fincas-de-hortalizas-y-otros-cultivos-1-pdf/		X		X
Almodóvar, Wanda. 2024. Protección de los Polinizadores. Revista Ambiental Corriente Verde. Vol. 15 #1, pags. 58-61. www.corrienteverde.com https://issuu.com/revistaambientalcorrienteverde/docs/revista_ambiental_15_anviversario?fr=sOTEyODY1NDg3NzY		X		X
Almodóvar, Wanda. & M. Díaz. 2007. (Revised 2023). Identificación y manejo integrado de la sigatoka negra, Mycospharella fijiensis Morelet. Pocket guide. Agricultural Extension Service. University of Puerto Rico. Mayaguez Campus		X		X
Martha C. Giraldo, W. Almodóvar, M. Cortés, Vivian Rosado, Nahomi Martinez, Ricardo Osoria, Xiomara Reyes, Maribel Lopez, Carmen J. Rodriguez,Ircha I. Martinez, Nora I. Laboy, Gloria E. Santana, Matilde M. Iglesias & Zulma Pérez. 2023. Nuestro nuevo aliado "La Batata" un super alimento. Agricultural Extension Service & Agricultural Experiment Station. University of Puerto Rico. Mayaguez Campus		X		X
Almodóvar, W. 2023. Pollinator Protection in Farms. Agricultural Extension Service. University of Puerto Rico. Mayaguez Campus. Zenodo. https://doi.org/10.5281/zenodo.8371030		X		X
Almodóvar, W., D. Rivera & A. Alvarado. 2023. Hotel for pollinator insects. In: SEA del Oeste Magazine. Vol. 1, 2023. Agricultural Extension Service. University of Puerto Rico. Mayaguez Campus. https://www.uprm.edu/sea/mdocs-posts/revista-sea-edicion-29/		X		X
Almodóvar, W. 2023. Primera Feria de Polinizadores. In: SEA del Oeste Magazine., Vol. 1, 2023. Agricultural Extension Service. University of Puerto Rico. Mayaguez Campus		X		X
Viteri Diego. Reaction of Phaseolus spp. genotypes to PRI21 Macrophomina phaseolina isolate inoculated at different plant growth stages. Annual Report of the Bean Improvement Cooperative (BIC) 67: 89–90.		X		X
Viteri Diego. Response of scarlet runner bean and common bean genotypes to ashy stem blight. Annual Report of the Bean Improvement Cooperative (BIC) 67: 91–92.		X		X
Roman Paoli, Elvin. Sección de abonamiento Conjunto tecnológico de Piña, sección de suelos, labranza y otros usos Conjunto tecnológico de gandul, sección de abonamiento y riego en conjunto tecnológico de cítricas		X	X	
Feliciano Rivera, M., Cortes, M., Miranda-Cortés, Y., Cardona, J.M., Giraldo Zapata, M. & González Vélez, A. Propagating a new generation of yam in Puerto Rico. Scientia [E-book]. February 29, 2024 https://doi.org/10.33548/SCIENTIA1003				
Forero-Montaña, J., A. Rúa, L.E. Santiago, S. Ward, H. Marcano-Vega, J.K. Zimmerman, W.A. Gould, O.J. Abelleira-Martínez, J. Rosario, and E.J. Meléndez-Ackerman. In Review. Strategic Guidelines for the Sustainable Management of Forest Resources in Puerto Rico: Opportunities, Challenges and Stakeholders in the Production Chain of the Forestry Sector. USDA Forest Service General Technical Report.		X		X
Bair Daniel. Conjunto Tecnológico, Manual de la producción de maíz, Capitulo: Manejo de nutrients.		X		X
Aponte Alfredo. Pastos y forrajes recomendados para las diferentes zonas agroecológicas de Puerto Rico. Revista SEA del Oeste / ed 30 / 2023 página 37		X		X
Aponte Alfredo. Fertilidad Rendimiento y calidad de forrajes mejorados en la zona subtropical húmeda de PR. Revista SEA del Oeste/ Ed 30/ 2023 pg 38.		X		
Cabrera I., C. Estevez. (2023). Aculops cannabicola (Farkas) (Acari: Eriophyoidea) a new invasive pest of Cannabis sativa in Puerto Rico. J. Agric. Univ. P.R. 107(2):179-181.	X			X
Cabrera-Asencio, I., Dietrich, C. H., & Zahniser, J. N. (2023). A new invasive pest in the Western Hemisphere: Amrasca biguttula (Hemiptera: Cicadellidae). Florida Entomologist, 106(4), 263-266.	X			X
Cabrera-Asencio, I., & de Jensen, C. E. (2023). Atheloca Subrufella (Hulst)(Lepidoptera: Pyralidae: Phycitinae): The Coconut Moth in Puerto Rico. J. Agric Univ P.R. 107(2):183-186.	X			X
Naomi Maldonado Pinto and Cabrera I. (2023). Population Dynamics of Batocera rufomaculata (DeGeer,1775) (Coleoptera: Cerambycidae) in mango cultivars in Puerto Rico. Dissertation Thesis. UPRM.		Thesis Dissertation		X
Timothy Porch and C. Estevez de Jensen, 2024. Response of the Tepary Diversity Panel to Combined Asian Bean Flower Thrip and Leafhopper Pressure. The Annual Report of the Bean Improvement Cooperative, BIC Vol 67:117-118.	X			X
Department of Animal Science				
Agricultural Extension Service Magazine: Negrón-Pérez, VM "Caracterización de la fisiología reproductive de la vaca pelona". Revista del Servicio de Extension Agrícola volume 2, Agosto 2023, pg 38.		X		X
Presencia e inclusión del gen de fecundidad fec-b (booroola) para el mejoramiento de la productividad de ovinos criollos en el trópico. 2023. Génesis Cordero-Arbelo, Karla Ormaza-Rivera, John Fernández-Van Cleve y Abner A. Rodríguez-Carías. (Research Note) J. Agric. Univ. P.R. 107(2):167-170.	X			X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Inserción del gen de fecundidad FecB (Booroola) para el mejoramiento de la productividad de ovinos criollos en Puerto Rico Cordero-Arbelo G., K. Ormaza-Rivera, A.A. Rodríguez-Carías, E. Jiménez-Caban y J. Fernández-Van Cleve. Research note submitted to the Journal of Agricultural Sciences of the UPR.	X			X
Llanos Rodríguez, D., J. Fernández Van Cleve, K. I. Domenech Pérez, C. Almeyda Domenech y A. Rodríguez Carias. 2023. Parámetros productivos, rendimiento de la canal y cortes de corderos producto del cruce de ovejas criollas y carneros portadores del gen Fec-B alimentados con raciones totales. Memorias Reunión Anual, Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA). Añasco. PR.		Conference Papers and Presentation		X
Vázquez Abreu, G. D. Llanos Rodríguez, C. Almeyda, J. Fernández Van Cleve y A. Rodríguez Carías. 2023. Rendimiento productivo de corderos enteros y castrados producto del cruce de carneros Dorper y ovejas criollas alimentados con raciones totales. Memorias Reunión Anual, Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA). Añasco. PR.		Conference Papers and Presentation		X
Marqués Pastrana, A., M. Crespo Umpierre, D. Llanos Rodríguez, C. Almeyda Domenech, J. Fernández Van Cleve y A. Rodríguez Carías. 2023. Rendimiento de corderos producto del cruce de carneros portadores del gen Booroola y ovejas criollas alimentados con raciones totales durante la etapa de crecimiento. Memorias Reunión Anual, Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA). Añasco. PR.		Conference Papers and Presentation		X
Negrón Maldonado, A., D. Llanos Rodríguez, J. Fernández Van Cleve y A. Rodríguez. 2023. Protocolo de adaptabilidad de corderos para carne a dietas con alto contenido de granos. Memorias Reunión Anual, Sociedad Puertorriqueña de Ciencias Agrícolas (SOPCA). Añasco. PR.		Conference Papers and Presentation		X
Torres-Rivera M. D., C. R. Perdomo-García, M. Ruiz-Cortés, A. Rodríguez-Cruz, and G. Ortiz-Colón. 2023. Rectal temperature, heart rate, respiration rate, morphometric measurements and health scores in slick and wild-type Holstein calves during the milk feeding phase. J. Dairy Sci. Vol. 106: (1): 98.	X	Conference Papers and Presentation		X
Angélica M. Silva-Perea, Cristian R. Perdomo-García, Grecia D. Rosario-García, Carolina I. Rivera-Camacho, Mariela D. Torres-Rivera, and Guillermo Ortiz-Colón. 2023. PREGNANCY RATE, BODY CONDITION, RECTAL TEMPERATURE OF WILD-TYPE HOLSTEIN AND SLICK HOLSTEIN COWS DURING WINTER AND SPRING IN PUERTO RICO. Proceedings of the Annual Meeting of the Puerto Rican Society of Agricultural Sciences. 47:36.		Conference Papers and Presentation		X
Carolina I. Rivera-Camacho,Cristian R. Perdomo-García,Carlos D. Ruiz-Vázquez,Verónica A. Rodríguez-Burgos,Natalie N. Fagundo-Valentín, Grecia D. Rosario-García,Angélica M. Silva-Perea and Guillermo Ortiz-Colon.. 2023. COMPARISON OF STARTER CONCENTRATE CONSUMPTION AND GROWTH OF SLICK HOLSTEIN AND NON-SLICK CALVES UNDER AN ACCELERATED GROWTH PROTOCOL MANAGED USING AN AUTOMATED CALF FEEDER IN A TROPICAL CLIMATE. Proceedings of the Annual Meeting of the Puerto Rican Society of Agricultural Sciences. 47:26.		Conference Papers and Presentation		X
Grecia D. Rosario-García, Cristian R. Perdomo-García, Carolina I. Rivera-Camacho, Angelica M. Silva-Perea, Mariela D. Torres-Rivera, Génesis Agosto-Burgos and Guillermo Ortiz-Colón. 2023. EFFECT OF SPACE AVAILABILITY ON HEALTH AND FEED CONVERSION EFFICIENCY FOR WEIGHT GAIN AND SKELETAL DEVELOPMENT IN HOLSTEIN CALVES. Proceedings of the Annual Meeting of the Puerto Rican Society of Agricultural Sciences. 47:16.		Conference Papers and Presentation		X
Anayra I Tirado-Colón, William D Feliciano-Figueroa, Héctor L Sánchez-Rodríguez, Veronica M Negrón-Pérez, Esbal Jiménez-Cabán, 18 Progesterone and insulin concentrations during pregnancy in slick and wild type-haired Holstein cows, Journal of Animal Science, Volume 102, Issue Supplement_1, March 2024, Pages 57–58, https://doi.org/10.1093/jas/skae019.068	X			X
Rodriguez, A.A, Bayne, A., Rivera y S. Duckett. 2023. Efecto del periodo de días en alimentación para alcanzar el peso al sacrificio sobre características productivas, rendimiento de la canal y cortes y calidad de la carne de ovinos criollos alimentados con raciones totales. J. Agric. Univ. P.R. 107(2):141-165	X			X
Department of Agricultural Economics and Rural Sociology				
Tavárez, H.; Barriga, A., 2023. Economic Viability of Developing Passive Recreational Opportunities in Puerto Rico: Insights for Sustainable Forest Management. Sustainability 2023, 15, 15450. https://doi.org/10.3390/su152115450	X			X
Tavárez, H.,Oscar Abelleira, Levan Elbakidze. 2023. Environmental awareness and willingness to pay for biodiversity improvement in Puerto Rico. Journal of Environmental Studies and Sciences. 10 October 2023. https://doi.org/10.1007/s13412-023-00869-y	X			Accepted for publication
Tavárez, H., & Barriga, A. (2023). Economic viability of developing passive recreational opportunities in Puerto Rico: Insights for sustainable forest management. Sustainability, 15(21), 15450. https://doi.org/10.3390/su152115450		Electronic publication		X
Tavárez, H, Abelleira, O, & Elbakidze, L 2023. Environmental awareness and willingness to pay for biodiversity improvement in PR Journal of Environmental Studies and Sciences, https://doi.org/10.1007/s13412-023-00869-y		Electronic publication		X
Tavárez, H., & Abelleira, O. 2023. Environmental awareness and willingness to pay for increased biodiversity in the Rio Hondo Community Forest of PR. Poster presentation		Conference Papers and Presentation		X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
presented at the 3rd Congress of Applied Economics held at Mayaguez, Puerto Rico. May, 2023.				
Alicia Barriga and Richard Dunn. 2024. Journal of Policy Analysis and Management. The Effect of Mass Migration on Disease Transmission: Evidence from the Venezuelan Refugee Crisis. TBD	X			X
Barriga Burgos, A. V., Brito Hernández, J. E., Brugueras Fabre, A., Defendini Torres, M., Díaz Rodríguez, I., González Martínez, G., Gregory Crespo, A., López Palau, S., Luciano Montalvo, I., Méndez Toro, Tatiana, D. C., Enchautegui Román, M. E., ... & Viqueira Keller, E. (2023). Post-disaster economics and development: voices of women economists in Puerto Rico.Clacso. University of Puerto Rico. AEPR-Association of Economists of Puerto Rico. Buenos Aires. San Juan. ISBN 978-987-813-589-2	X			X
M. Cortés-De plátanos pelados y la necesidad de adicional valor a nuestro productos, July 2023, Agrotemas		X		X
M. Cortés, M. Giraldo, M. Feliciano, W Almodóvar. November 2023 Biosecurity measures on farms, for workers and visitors coming from other countries to prevent the entry of Fusarium Tropical Race 4 (FOCR4T) to Puerto Rico- Farinaceous Company. Newsletter 1 2023.		X		X
Tavárez, H., Cortés, M., & Hernández, J. (2023). Consumers' preference for differentiated coffees in Puerto Rico: An assessment of texts, logos, and quick response (QR) codes. Caribbean Food Crops Society, Proceedings, 56.	X			X
Tavárez H., M. Cortés and A. Gregory, 2023.Consumer Preference for Milk Produced in Compliance with Animal Welfare in PR: Evaluating Alternatives for the Consumer. JAUPR 107 (2) 121-140 (2023)	X			X
Mildred Cortés Pérez. The Red Spot in Banana and Banana Crops-Agrotemas March 2024.		X		X
Mildred Cortés Pérez. Raising Creole Cattle for Use as Oxen in the Agricultural Sector in Puerto Rico, Agrotemas, April 2024.		X		X
Mildred Cortés Pérez. Sweet Potato Guide - 2023		X		X
Mildred Cortés Pérez. Yautía Guide - 2024		X		X
Mildred Cortés Pérez. ACORBAT 2024, at the Service of the Banana and Banana Sector of the World		X		X
Mildred Cortés Pérez. The Breeding of Creole Cattle for Use as Oxen in the Agricultural Sector in PR, Mildred Cortés Revista SEA del Oeste. 2024.				
Tavárez, H., & Cortés, M. (2024). Device effects: Results from choice experiments in an agritourism context. Revista de Economía Agraria y Recursos Naturales (in press)	X			X
Tavárez, H., Cortés, M., & Gregory, A. (2023). Preferencias de los consumidores por leche producida en cumplimiento con bienestar animal en PR: Evaluando alternativas para informar al consumidor. The Journal of Agriculture of the UPR, 107(2), 121-140. https://doi.org/10.46429/jaupr.v107i2.21238	X			X
Tavárez, H., & Elbakidze, L. (2023). Willingness to pay for ancillary water service improvements in PR. Water Economics and Policy, 9(3). https://doi.org/10.1142/S2382624X23500108 (Editors' Choice 2023)	X			X
Tavárez, H., & Fuentes-Ramírez, R. (2023). Economic development, environmental disturbances, and crime: The case of PR. Ceteris Paribus: Journal of Socioeconomic Research, 11, 55-75.	X			X
Tavárez, H., Cortés, M., & Hernández, J. (2023). Consumers' preference for differentiated coffees in Puerto Rico: An assessment of texts, logos, and quick response (QR) codes. Caribbean Food Crops Society, Proceedings, 56.	X			X
Tavárez, H., & Cortés, M. (2024). Device effects: Results from choice experiments in an agritourism context. Revista de Economía Agraria y Recursos Naturales (in press)	X			X
Tavárez, H. (2023). El sargazo y su impacto en la economía de PR. Sin Comillas. Obtenido de https://sincomillas.com/el-sargazo-y-su-impacto-en-la-economia-de-puerto-rico/		X		X
Tavárez, H., & Comas, M. (2023). Puerto Rico quiere comer 100% local, pero es muy costoso. 9 Millones. Obtenido de https://9millones.com/es/opinion-puerto-rico-quiere-comer-100-local-pero-es-muy-costoso/		X		X
Tavárez, H. (2023). Vías para bajar los precios de los alimentos locales. Obtenido de https://www.elnuevodia.com/opinion/punto-de-vista/vias-para-bajar-los-precios-de-los-alimentos-locales/x		X		X
Tavárez, H. (2023). Una mirada económica a los sistemas agroecológicos. Ey Boricua. Obtenido de https://eyboricua.com/noticias/ambiente/una-mirada-economica-a-los-sistemas-agroecologicos/		X		X
Tavárez, H. (2023). El ambiente como eslabón clave para el desarrollo económico. Sin Comillas. Obtenido de https://sincomillas.com/el-ambiente-como-eslabon-clave-para-el-desarrollo-economico/		X		X
Tavárez, H. (L. Mejías, Interviewer). (2023). Environmental Economics. WPRA 990 AM con la APRUM.x		X		X
Tavárez, H. (L. Mejías, Interviewer). (2023). Resilience: Concepts and Applications. WPRA 990 AM con la APRUM.		X		X
Comas, M. & A. Gregory. (2023) Agenda Agroempresarial. Servicio de Extensión Agrícola, Puerto Rico. UPR RUM CCA SEA		X		X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Comas, M., A. Gregory, Y. Aviles & G. Giessler. (2024) Caja de Herramientas para el Agro Empresario(a) de Puerto Rico. UPR RUM CCA SEA.	X			X
Hernández, J. & M. Comas. (2024). Estimado de la inseguridad alimentaria por barrios y comunidades en Puerto Rico. SEA del Oeste. UPR RUM CCA SEA		X		X
Gregory, Alexandra (2023). Prices of Agricultural Products and Food in Puerto Rico. In Aponte García, et. al. (Eds.) Post-Disaster Economics, (pp. 179-216). Latin American Council of Social Sciences (in Spanish).		X		X
Comas Pagán Myrna. Alexandra Gregory. 2024. Toolbox for Puerto Rico Agribusinessmen: Start your Agribusiness. Department of Agricultural Economics and Rural Sociology, Agricultural Extension Service, College of Agricultural Sciences, Mayagüez Campus. May 2024.		X		X
Gregory Alexandra and Alicia Barriga. 2024. Importance Of The Agriculture Sector In PR. PR Planning Board, Economic Report to the Governor, 2024.		X	X	
Comas Pagán, Myrna and Alexandra Gregory. 2024.Agribusiness Agenda 2024. Department of Agricultural Economics and Rural Sociology, Agricultural Extension Service, College of Agricultural Sciences, UPR -Mayagüez May 2024		X		X
Gladys M. González Martínez. October 2023. "Evaluation and diagnosis of the agriculture sector through a SWOT analysis as a basis for a proposal for sustainable development of the Economy of Puerto Rico" in Post-disaster Economy and Development: Voices of the Women Economists of PR, CLACSO	X			X
Ramos Cartagena, G.R. (2024). El extensionismo como proyecto de vida. Revista del SEA (33), abril (1), 14-17.		X		X
Rodríguez-Pérez, R. 2024. Guía Curricular: El Camino a la Resiliencia Comunitaria. Mayagüez: Medios Educativos e Información SEA.	X			X
Conner, D., Whitehouse, C., Serrano-Cortés, N., Rodríguez-Pérez, R., Cunningham, N., Reynolds, T., Daigle, K., Desravins, V., & Kolodinsky, J. (2023). Food Resilience Toolkit in action. Journal of Agriculture, Food Systems, and Community Development, 13(1), 91–97. https://doi.org/10.5304/jafscd.2023.131.014	X			X
Rodríguez-Pérez, R, Serrano-Cortés, N Rodríguez, M C, & Building PR´s Food System Resiliency: Findings from Focus Groups with Food System First Responders. Journal of Agriculture, Food Systems, and Community Development (2023-2622).	X		X	
Department of Agricultural Education				
Martínez-Rodríguez, I. I. (2023). Initiatives of the Programmatic Area of Family and Consumer Sciences. SEA Magazine 31(3), pp. 12-14. https://www.uprm.edu/sea/revista-sea-ed-30-3-3/		x		
Martínez-Rodríguez, I. I. (2023). Elevate your professional leadership in consumer family sciences. APCFC Bulletin 2023, pp. 3-6. https://www.profesionalescfc.com/bolet%C3%ADn-apcfc.php		x		
Department of Agricultural and Biosystems Engineering				
Méndez-Lazaro, P.A., P. Chardón-Maldonado, L. Carrubba, N. Álvarez-Berríos, M. Barreto, J.H. Bowden, W.I. Crespo-Acevedo, E.L. Diaz, L.S. Gardner, G. Gonzalez, G. Guannel, Z. Guido, E.W. Harmsen, A.J. Leinberger, K. McGinley, P.A. Méndez-Lazaro, A.P. Ortiz, R.S. Pulwarty, L.E. Ragster, I.C. Rivera-Collazo, R. Santiago, C. Santos-Burgoa, and I.M. Vila-Biaggi, 2023: Ch. 23. US Caribbean. In: Fifth National Climate Assessment. Crimmins, A.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, B.C. Stewart, and T.K. Maycock, Eds. U.S. Global Change Research Program, Washington, DC, USA. https://doi.org/10.7930/NCA5.2023.CH23	X		X	X
Montoya-Rincon, JP, Mejia-Manrique, SA, Azad, S, Ghandehari, M, Harmsen, EW, Khanbilvardi, R, and Gonzalez-Cruz, JE A socio-technical approach for the assessment of critical infrastructure system vulnerability in extreme weather events. Nat Energy (2023). https://doi.org/10.1038/s41560-023-01315-7	X		X	X
Batocera Rufomaculata (De Geer, 1775): Incidencia, severidad y preferencia en cultivares de mangifera indica y posibles efectos ee algunos factores abióticos. Naomi M. Maldonado-Pinto , Irma Cabrera-Asencio y Eric W. Harmsen.	X		X	
Santos W.P.; Acuña-Guzman, S.F.; Oliveira, P.T.S.; Beniaich, A.; Cardoso, D. P.; Silva, M.L.N.; Curi, N.; Avanzi, J. C. 2024. CA-Markov prediction modeling for the assessment of land use/land cover change in two sub-basins of the Tocantins-Araguaia River Basin. Environ Monit Assess 196:499 DOI: 10.1007/s10661-024-12673-4	X			X
Bonilla-Roman, Y.N.; Acuña-Guzman, S.F. 2024. Resilience of an Urban Coastal Ecosystem in the Caribbean: A Remote Sensing Approach in Western Puerto Rico. Earth 5, 1: 72-89. DOI: 10.3390/earth5010004	X			X
Other publications				
Lamboy, G. 2023. Effect of low-impact tillages and selected organic amendments on the soil health of an Oxisol. Master thesis in Soils. UPR-Mayaguez		Thesis/ Dissertation		Accepted for publication
Rosas, J., Rodriguez, I.Y., Beaver, J.S., Porch, T.G. 2023. Comportamiento agronómico de germoplasma de frijol común en condiciones de altas temperaturas en el Sur de Honduras. Ceiba. 56:31-49.	X			X

Reference (author, year, title, title of the journal or publisher, volume, number)	Publications		Status	
	Peer-reviewed (ej. Journal)	Non peer-reviewed (ej. Newspaper, PRAES Newsletter)	Submitted	Approved/ Published
Porch, T.G., Rosas, J.C., Cichy, K., Godoy Lutz, G., Colbert, R., Winham, D., Demosthene, G., Beaver, J.S. 2023. Release of tepary bean cultivar 'USDA Fortuna' with improved disease and insect resistance, seed size, and culinary quality. J. Plant Registrations.	X			Under review
Mazala, M, McClean, P, Lee, R, Erfatpour, M, Kamfwa, K, Chinji, M, Hamabwe, S, Kuwabo, K. Urrea, CA, Beaver, JS, & Osorno, J M 2023. Agronomic and cooking characteristics of common bean genotypes with bruchid resistance and molecular marker validation. Ann. Rep. Bean Improv. Coop. 66:45-46.	X			X
González Vélez, A., Beaver, J.S., Porch, T.G. & J.C. Rosas. 2023. Selección asistida por marcadores para identificar líneas de frijol con múltiples resistencias. Paper presented at the 2023 meeting of the PCCMCA held in Antigua, Guatemala. 27-30 June 2023.		Conference Papers and Presentation		X
González Vélez, A. 2023. Phaseolus lunatus - Habas (Lima beans). Invited presentation made at the 2023 meeting of the UPR Agricultural Experiment Station Vegetable and Basic Grain Commodity Group.		Conference Papers and Presentation		X
Torres Y. Marchitez Súbita de la Sandía (Citrullus lanatus): Hospederos y Manejo. 2023 Seminario CIAG. Mayagüez, PR. (n=10 participants).		Conference Papers and Presentation		X
Torres Y. 2023.Avances en el manejo de la Marchitez Súbita de la Sandía. Reunión Anual 2023 Empresas de Hortalizas y Granos en la EEA Lajas P.R.		Conference Papers and Presentation		X
Prevalencia e inserción del gen de fecundidad FecB (Booroola) para el mejoramiento de la productividad de ovinos criollos en Puerto Rico. 2023. Génesis Cordero Albelo. Tesis sometida en cumplimiento parcial de los requisitos para el grado de MAestría en Ciencias.		Thesis/ Dissertation		Under review
Curcio, A Floral and pollen pellet composition of two life zones in PR and their importance for apiculture 2023. Master thesis completion, December 2023. UPRM		Thesis/ Dissertation		Under review
Planell, M. Guia para establecer y organizar un apiario. 2023. Field guide about beehive management. UPRM, Extension Service.		X		X
Chang Colón, A. (2023). Growth and sexual maturity determination in F1 Dorper x Criollo and Katahdin x Criollo males in a tropical climate [Thesis]. Retrieved from https://hdl.handle.net/20.500.11801/3543		Thesis/ Dissertation		X
Román Rivera, L.A., 2023. Desarrollo de un co-digestor anaeróbico para una porqueriza en Cayey, Puerto Rico. (Master Thesis) M.Sc. Ciencias del Suelo. Universidad de Puerto Rico, Mayagüez Campus. May 8, 2023.		Thesis/ Dissertation		Under review
Carlos Barrera. The use of companion crops to attract natural enemies for aphid management in organic tropical "calabaza" production. MS Thesis. UPRM 2023		Thesis/ Dissertation		Under review
José F. Pérez Soler. Effect of ten companion crops on the populations of Diaphania hyalinata (L.) (Lepidoptera: Crambidae), crop damage, larval parasitoids, and pollinators in the production of organic tropical pumpkin Cucurbita moschata Duschene var. Taína Dorada. MS Thesis. UPRM 2023.		Thesis/ Dissertation		Under review
Zulmarie P. Semidey Vega. Efecto de plantas compañeras sobre el daño de enfermedades den calabaza tropical en Puerto Rico. MS Thesis. UPRM 2023.		Thesis/ Dissertation		Under review
Hernandez, E. (2023, June 9). Organic soil amendments: Enhancing vegetable production & soil health in Puerto Rico. Open Access Government, 368, 482-483. https://doi.org/10.56367/OAG-039-10790 .		Electronic publication		X
Yailyn Rosado Martínez. 2023. Soil quality parameters of two highly weathered soils of the central zone of Puerto Rico. Master Thesis, UPRM in Soil Science.		Thesis/ Dissertation		Under review
Emmanuel Rodríguez. 2023. Soil quality indicators in Yauco and San Anton series, two Mollisols from southern PR. Master Thesis in Soil Science, UPRM.		Thesis/ Dissertation		Under review
Ronda Plaza, P. C. 2024. PSEUDOCERCOSPORA FIJIENSIS IN BANANA CULTIVARS: ASSESMENT OF RESISTANCE ELICITORS AND APPLICATION OF EARLY DETECTION TECHNIQUES AS A MANAGEMENT ALTERNATIVE. (MS dissertation). UPR-Mayagüez Campus		Thesis/ Dissertation		Under review
Lopez, L.E, (2024). Evaluation of critical mutational points in Lactate Dehydrogenase in Senepol and Holstein cattle differing in Prolactin Receptor Genotypes associated with slick hair. [master's thesis].UPR at Mayagüez.		Thesis/ Dissertation		Accepted for publication

Note: Peer-reviewed journals - These are journals that submit their articles to the review of experts in the subject being addressed.

College of Agricultural Sciences Presentations

Presentations (oral or posters)			
Academic Year 2023-2024			
Reference	Forum (ej. SOPCA, international congress, etc.)	Date	Place
Department of Agroenvironmental Sciences			
Química de Alimentos Dra. María L. Plaza Delestre	Charla para estudiantes de la ACS-RUM	March 14, 2024	Salón 150 Química
Llinas, D., Ponce de Leon, L., Rodriguez, A. and Plaza, M. 2023. Desarrollo de un dulce de cajita y Determinación de sus Características Físico Químicas. Memorias SOPCA.	SOPCA	Dec. 1, 2023	Añasco, PR
Linares, A.M. Seminario práctico en hortalizas: Aspectos Técnicos.	Prácticas Agronómicas	2023	Corporación de Seguros Agrícolas
Viteri, D., Linares, A. M., and Shi, A. 2023. A new QTL in BAT 477 common bean conferring resistance to ashy stem blight.	Annual Meeting of the American Society of Horticultural Science	July 31 to August 4, 2023	Orlando, Florida
Torres Lopez. R.J., Sotomayor D., Linares A., Acevedo M., and Longchamps, L. 2023. Assessment of sustainability at the farm level of vegetable production systems in the southern semiarid zone of Puerto Rico.	SOPCA	Dec. 1, 2023	Añasco, PR
Linares-Ramírez, A.M., Viteri, D., and Torres, E. 2023. Short-term storage of pigeonpea seed and its use for breeding purposes. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/148553 Poster	Crop Science Society of America Annual Meeting	Oct. 29 to – Nov. 1, 2023	St Louis MO
Viteri, D., Linares, A. M., Shi, A., and Vázquez, R. 2023. Genetics and breeding for resistance to ashy stem blight in common bean. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/148363	Crop Science Society of America Annual Meeting	Oct. 29 to – Nov. 1, 2023	St Louis MO
Shi, A., Chen, S., and Viteri, D. 2023. Genome wide-association and genomic prediction of disease resistance in common bean. https://scisoc.confex.com/scisoc/2023am/meetingapp.cgi/Paper/148543	Crop Science Society of America Annual Meeting	Oct. 29 to – Nov. 1, 2023	St Louis MO
Sanchez, Yaniria. Puerto Rico, Internados profesionales en conservación de recursos naturales como parte de la experiencia académica universitaria	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Cabrera, Irma. Scolytinae (Coleoptera: Curculionidae) Y Otros Barrenadores De La Corteza: Evaluación De La Incidencia Y Prefrencia En Distintas Etapas Fenológicas En Mangó (Mangifera Indica)	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Cabrera, Irma. Manejo de Mosca blanca Bemisia sp. biotipo B (Hemiptera: Aleurodidae) en sandía "Crimson Sweet" (Citrullus lanatus (Thumb) Matsun & Nakai).	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Cabrera, Irma. Manejo De Especies De Anastrepha (Diptera:Tephritidae) Con Insecticidas Y Sin Insecticidas En Huertos De Mangó (Mangifera Indica) En El Sur De Puerto Rico	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Macchiavelli S., & Hernandez E (2023). Combating Watermelon Vine Decline in Puerto Rico through Extension: An Integrated Approach to Enhance Watermelon Production. Memorias SOPCA. p34.	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Ramos A., Hernandez E. Bair D. Chong J. & Pérez J. (2023). Evaluating Biochar and Spent Mushroom Compost in Tomato Production. Memorias SOPCA. p59	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Gonzalez, Sally. Conferencia: Nutrición vegetal en los árboles.	ArborCamp,	March 1-6, 2024	Pucón, Chile
Giraldo Martha., Root crops our food security at the Caribbean.	APS- Caribbean Divison	April 14-18, 2024	
Estévez de Jensen, C., Lugo, M. Rosado., I., Porch, T and C. Buell, R. 2023. Response to Powdery mildew in Tepary Bean Diversity Panel.	Bean Improvement Cooperative, Annual Meeting.	Nov. 3-4, 2023	Athens, Georgia
Estévez de Jensen, C., Lugo, M. Rosado., Torres- Burgos, Y. Porch, T. 2023. Root Rot in Tepary Interspecific hybrids in Isabela, Puerto Rico.	SOPCA 2023	Dec. 1, 2023	Rincón, PR
Viteri, D. 2024. Establishment of pollen/seed preservation facilities for important crops in Puerto Rico.	USDA-NIFA-AGFEI.		USDA Kansas City
Rebecca Tirado Corbalá, Aranxa Martinez Cortes, Elvin Román-Paoli, and Miguel A. Muñoz-Muñoz. Soil And Plant Carbon And Nitrogen Of Two Late-Production Avocado Varieties In Contrasting Soils Of PR	2024 Annual Symposium of the Research Academy. Filling the GAp:From Lab to Market		Bussiness Administration Building, UPRM
Alejandro J. Rodríguez Cintrón, Rebecca Tirado Corbalá, Miguel A. Muñoz Muñoz and Elvin Román Paoli. Evaluation of three perennial cover crops as a soil conservation practice in a lemon cultivar (var. Lisbon) on a Oxisol in Puerto Rico.	2024 Annual Symposium of the Research Academy.Filling the GAp:From Lab to Market		Bussiness Administration Building, UPRM
Aranxa M. Martínez Cortés,Rebecca Tirado Corbalá, Elvin Román Paoli, Miguel A. Muñoz Muñoz. Evaluation of two late-production avocado varieties in two soils of Puerto Rico	2024 Annual Symposium of the Research Academy.Filling the GAp:From Lab to Market		Bussiness Administration Building, UPRM

Aranxa M.Martinez Cortés, Rebecca Tirado-Corbalá, Elvin Román Paoli y Miguel A.Muñoz Muñoz. Evaluación de variedades tardias de aguacate injertadas en dos patrones en dos suelos de Puerto Rico	46 Reunión Científica Anual SOPCA.	Dec. 1, 2023	Añasco, PR
Frances Baez Lugo, Miguel Muñoz Muñoz, Julia O'hallorans y Rebecca Tirado Corbalá. Presencia de minerales de arcilla interestrastificados en el suelo Rio Piedras (Typic Hapludults) en la Reserva Agrícola del Valle de Coloso.	46 Reunión Científica Anual SOPCA.	Dec. 1, 2023	Añasco, PR
Rebecca Tirado-Corbalá, Miguel Muñoz-Muñoz and Sangchul Hwang. Coal Fly Ash and Milled Glass Powder As Soil Amendments on Acids Soils of Puerto Rico.	ASA-CSSA-SSSA International Annual Meeting.	Oct. 29 to Nov. 1, 2023	St Louis, MO.
Alejandro Rodriguez Cintrón, Rebecca Tirado-Corbalá, Elvin Román Paoli y Miguel A.Muñoz Muñoz. Manejo de humedad de suelo con cobertoras perennes en predio de Lima var. Giant Key con riego por goteo.	46 Reunión Científica Anual SOPCA.	Dec. 1, 2023	Añasco, PR
Dumas, Jose. Effect of Biopolymers-Biochar Mixtures on Hydrophobicity, Respiration, Necromass and Water Retention in a Mollisol.	SSSA-	June 10, 2023	San Juan, PR
Dumas Jose. . Easy to Construct Open Kiln Can Produce soil-amending Biochar after Natural Disasters.	SSSA	Jun 10, 2023	San Juan, PR
Dumas Jose. Soil health indicators elucidate differences between cover crop and no cover crop treatments in six-month study in the coffee producing region of Puerto Rico.	SSSA	Jun 10, 2023	San Juan, PR
Robles Wilfredo. "Fungicidas bajo evaluación para control de enfermedades en café".	Charla Educativa a los productores de café.	Oct. 26, 2023.	Lares, PR.
Robles Wilfredo. "Procesos para el registro de plaguicidas utilizados en l a agricultura	Convencion Anual del Colegio de Químicos de PR	August 16, 2023	San Juan, PR
Robles Wilfredo. "Evaluación de campo del insecticida isocycloseram para el control de trípidos en guineo".	Charla Educativa a los productores de guineo	Oct. 24, 2023	Santa Isabel, PR.
Robles Wilfredo. Talleres de campo a público general sobre equipo de aplicación de plaguicidas.	Casa Abierta Proyecto IR-4	December 22, 2023	EEA. Corozal, PR
Robles Wilfredo. Alternativas de manejo de malezas en pastizales y su importancia para la producción de forraje".	Taller educativo a agentes agrícolas.	Nov. 15, 2023	Camuy, PR.
Gloryalis González, W. Robles, J. Curbelo, W. Velázquez, y W. Almodóvar. Evaluación de poblaciones de malezas y forraje mediante el uso de un vehículo aéreo no tripulado (UAV) en vaquerías.	46 Reunión Científica Anual SOPCA.	Dec. 1, 2023	Añasco, PR
Robles Wilfredo. Pasture weed management alternatives and their importance for forage production under tropical conditions"	UVI Research and Extension Center	Dec. 7-8, 2023	St. Croix, VI..
Abelleira Martínez, O.J., and R.E. Cruz Aguilar. 2023. Enriquecimiento de bosques secundarios novedosos con especies de arboles nativos.	Foro: Plantas Nativas y Polinizadores	Nov. 16, 2023	P-213, UPRM, Mayagüez, Puerto Ric
Abelleira Martínez, O.J., J. Rivera San Antonio, G. Túa Ayala, R. Cruz Aguilar, G. Báez Rivera, A. Marengo Casul, M. del R. Suárez, y A. Pérez Méndez. Manejo de Bosques Noveles Puertorriqueños para Conservación de Biodiversidad y Producción Agroforestal.	Charla Educativa	April 9, 2024	P-213, UPRM, Mayagüez, Puerto Rico
Abelleira Martínez, O.J., and A. Pérez Méndez. 2024. A wood products laboratory and outreach facility to support sustainable community forestry in Puerto Rico.	NIFA ANNH and Insular Areas Programs Project Directors Meeting	May 29, 2024	USDA-NIFA HeadquarterKansas City, Missouri
Pérez Méndez, A., and O.J. Abelleira Martínez. 2023. De donde viene la madera: Planificación y mejores prácticas para cosecha y aprovechamiento del recurso maderero.	Workshop series Aprovechamiento Sustentable de Madera en Puerto Rico	Sept. 19, 2023	P-213, UPRM, Mayagüez, Puerto Rico
Pérez Méndez, A., and O.J. Abelleira Martínez. Aserrado de la madera: Métodos y mejores prácticas para aserrado y procesamiento de troncos.	workshop series Aprovechamiento Sustentable de Madera en Puerto Rico	Dec. 6, 2023	P-213, UPRM, Mayagüez, Puerto Rico
Pérez Méndez, A., and O.J. Abelleira Martínez. High stakeholder participation in our workshops illustrates the growing interest in wood products research and education.	International Mass Timber Conference	March 28, 2024	Portland Convention Center, Portland, Oregon
Pérez Méndez, A., and O.J. Abelleira Martínez. De donde viene la madera: Planificación y mejores prácticas para cosecha y aprovechamiento del recurso maderero.	AGROPLUG Fair	April 12, 2024	UPRM, PR
Rodríguez Sosa, A.G., P.J. Diaz Boyle, O.J. Abelleira Martinez, and V. Snyder Sevits. 2023. Evaluating the effectiveness of Waterbox and IrriPan in improving tree sapling growth and survival in seasonally dry environments in Puerto Rico. Poster presentation.	46th Annual Meeting and Assembly of the Puerto Rican Society of Agricultural Sciences (SOPCA)	Dec. 1, 2023	Añasco, Puerto Rico
Jeremy A. Torres, Daniel A. Bair. Quantification of Heavy Metal in Puerto Rican Soils.	Soil Science Society of America	June 10-13, 2024	San Juan, PR
Daniel A. Bair, Richard E. Terry. Geochemical Analysis of Plaza Floors in the Three Rivers Region of Northwestern Belize.	Society of American Archaeology	April 17-21, 2024	New Orleans, LA
Daniel A. Bair, Inna E. Popova, Miguel A. Muñoz, Julia M. O'Hallorans, and Ermita Hernandez. Unlocking the potential of biochar: A vital and accessible solution for soil rehabilitation.	2024 North American Biochar Conference	Feb. 12-15, 2024	Sacramento, CA
Coraly Remigio Crespo, Daniel A. Bair Gallegos, Miguel A. Muñoz Muñoz. Assessing heavy metal contamination risk: A study on poultry manure as an organic fertilizer.	Leading Hispanics Conference,	Feb. 12-14, 2024	College Station, Texas

Miguel A. Muñoz Muñoz, Daniel A. Bair, Julia M. O'Hallorans Castillo, Samuel Ríos and Julio C. Hernandez. Evaluation of soils from the Maya Region of Yucatan.	SOPCA	Dec. 1, 2023	Añasco, PR
Daniel A. Bair, Julia M. O'Hallorans Castillo, and Julio C. Hernandez. Suelos, arcillas y cerámica: Donde la ciencia y el arte se complementan.	SOPCA	Dec. 1, 2023	Añasco, PR
Flores Hernádez P. M., M. A. Muñoz, D. A. Bair, J. M. O'Hallorans, y J. C. Hernández. La agricultura milpa Maya: Más que una práctica, una legacía para el uso sabio de la tierra.	SOPCA	Dec. 1, 2023	Añasco, PR
Muñoz, M. A., D. A. Bair, J. M. O'Hallorans, S. Rios, and J. C. Hernández. Exploring and Classifying the Soils of the Yucatán Peninsula. Soil.	Survey Planning Conference	December 2023	USDA TARS-Mayaguez.
Soto Román A., M. A. Muñoz, J. M. O'Hallorans y R. Tirado. 2023. Evolución de CO_2 como índice de calidad de suelos de dos zonas ecológicas de Puerto Rico.	SOPCA	Dec. 1, 2023	Añasco, PR
Abelleira Martínez, O.J., and A. Pérez Méndez. A wood products laboratory and outreach facility to support sustainable community forestry in Puerto Rico.	46th Annual Meeting and Assembly of the Puerto Rican Society of Agricultural Sciences (SOPCA)	Dec. 1, 2023	Añasco, Puerto Rico
Dr. Alfredo Aponte Fertility, Yield and Quality of Tropical Improved Grasses in the Subtropical Humid Zone of Puerto Rico.	GFRAS Annual Meeting	2023	Denver Colorado
Perez Arocho, Jorge. Uso de enmiendas organicas para mejorar el tomate..	Empresas de Hortalizas.	5/16/2024	AES Gurabo
Báez Lugo F., M. A. Muñoz,, J. M. O'Hallorans y R. Tirado. 2023. Presencia de minerales de arcilla interestratificados en el suelo Río Piedras (Typic Hapludults) en la Reserva Agrícola del Valle de Coloso. 1, 2023. Rincón Beach Resort, Rincón P. R.	46th Annual Meeting and Assembly of the Puerto Rican Society of Agricultural Sciences (SOPCA)	01/12/2023	Añasco, Puerto Rico
Feliciano, P. M., F. M. Báez Lugo y M. A. Muñoz. 2023. Determinación de Al^{3+} intercambiable del suelo Río Piedras (Typic Hapludults) utilizando ICP-OES a dos largos de onda.	46th Annual Meeting and Assembly of the Puerto Rican Society of Agricultural Sciences (SOPCA)	01/12/2023	Añasco, Puerto Rico
Ríos Vila, S. A., J. Torres, D. A. Bair, M. A. Muñoz, J. M. O'Hallorans y J. C. Hernández. 2023. Uso y manejo de los recursos de agua por los Mayas: Pasado y presente.	46th Annual Meeting SOPCA	01/12/2023	Añasco, Puerto Rico
Rivera, D., Martínez, E. L. and Alvarado, A. N. 2023. Phytotoxicity evaluation of three herbicides and one fungicide in ornamental plants.	46th Annual Meeting SOPCA	01/12/2023	Añasco, Puerto Rico
Martínez, E. L. y Rivera-Ocasio, D. 2023. Estrategias de Manejo Integrado de Mosca Blanca en Pascuas.	46th Annual Meeting SOPCA	01/12/2023	Añasco, Puerto Rico
Almodovar Wanda. Bioseguridad y Manejo Integrado de la Roya del Ñame.	Presentación foro ñame		
Almodovar Wanda. Biosecurity in Hydroponic Farms.	Training to hydroponic farmers.	Dic. 2023	UPRM
Consuelo Estevez de Jensen, Jasmine Hart, Yi-Wen Wang, Joshua C. Wood, John P. Hamilton and Brieanne Vaillancourt, C. Robin Buell. 2023. Response to Powdery Mildew in the Tepary Diversity Panel.	Annual Meeting of the Bean Improvement Cooperative	2023	Athens, Georgia
Hernandez E. Survey of needs of the vegetable and basic grain company 2023	Annual Meeting of the Vegetable and Grain Company	May 16, 2024	AES Gurabo
Department of Animal Science			
Rendimiento productivo de corderos enteros y castrados producto del cruce de carneros Dorper y ovejas criollas alimentados con raciones totales. Gabriela Vázquez Abreu, Dangeli Llanos Rodríguez, Camilo Almeyda Domenech, John Fernández Van Cleve y Abner Rodríguez Carías	SOPCA	December 1, 2023	Añasco, PR
Protocolo de adaptabilidad de corderos para carne a dietas con alto contenido de granos. Adriana Negrón Maldonado, Dangeli Llanos Rodriguez, John Fernández Van Cleve, y Abner Rodríguez Carias	SOPCA	December 1, 2023	Añasco, PR
Rendimiento de corderos producto del cruce de carneros portadores del gen Boorola y ovejas criollas alimentadas con raciones totales durante la etapa de crecimiento. Ariana Marqués Pastrana, Marta Crespo Umpierre, Dangeli Llanos Rodríguez, Camilo Almeyda Domenech, John Fernández Van Cleve y Abner Rodríguez Carías	SOPCA	December 1, 2023	Añasco, PR
Desarrollo de un dulce de cajeta y determinación de sus características físicoquímicas. Denise M. Llinas Rosario, Leyda Ponce de León, Abner Rodríguez Carías y María Plaza	SOPCA	December 1, 2023	Añasco, PR
Solar Radiation Exposure Threshold for Shade Requirements in Puerto Rican Holstein Cattle. Stephanie Boggiano-Pereira (1), Sabrina Valdés-Ramos (1), Stephanie Pardo-Rivera (1), Gladycia Muñiz-Colón (2), Esbal Jiménez-Cabán (3), Katherine Domenech-Pérez (3) y Héctor Sánchez-Rodríguez (3)	SOPCA	December 1, 2023	Añasco, PR
Department of Agricultural Economics and Rural Sociology			
Climate change goals and challenges in Puerto Rico, preliminary findings form pilot survey.	Opportunities for Collaboration in Resilient Energy Systems. US ARMY CEERD CERL LAB Visit	April 4, 2024	Mayaguez, PR
Economía postdesastres y desarrollo: Voces de las Mujeres Economistas de Puerto Rico, (CLACSO)	Asociación de Economistas de Puerto Rico	Oct. 27, 2023	San Juan, PR

Poster: Tavárez, Héctor, and Alicia Barriga. 2023. "Economic Viability of Developing Passive Recreational Opportunities in Puerto Rico: Insights for Sustainable Forest Management"	Cuarto Congreso de Economía Aplicada	May 10, 2024	Mayagüez, PR
Tatiana A. Méndez Toro. Agricultural Economics	4th Economy Congress Agricultural UPRM	May 10, 2024	Salón Tarzán UPRM
Tatiana A. Méndez Toro. Centro Empresarial de la Mujer en la Agricultura	CEMA	Feb. 2, 2024	UPRM
Tatiana A. Méndez Toro. Association of Economists of Puerto Rico	XXXIX Annual Meeting	Oct. 27, 2023	Liga de Cooperativas de PR
Tatiana A. Méndez Toro. Foro Colegial Radial UPRM	Collegiate Forum: Post-Disaster Economics Book	Nov. 7, 2023	Foro Colegial Radial
Vivian Carro Figueroa, 2024. "Sustainable Agriculture, The UPR-College of Agricultural Sciences and Food Sovereignty in Puerto Rico".	Oral presentation at North Carolina State University HON 398 course ("Puerto Rico after Maria") visit to Puerto Rico	March 8, 2024	Agricultural Experiment Station Library, San Juan, PR
M. Cortés-Challenges facing the producing sector in Puerto Rico: the case of bananas	Farinaceous Company Meeting	Sept. 7, 2023	EEA-Corozal
M. Cortés- Acceptance Study of Commercial Establishment Owners for Dragon Fruit, Hylocereus undatus in Puerto Rico	Fruit Company Meeting	Oct. 8, 2023	EEA-Lajas
Tavárez H., M. Cortés, A. Gregory. Consumer preferences for milk produced in compliance with animal welfare in Puerto Rico: Evaluating alternatives to inform the consumer. Tavárez H., M. Cortés, J. Hernández. Consumer preference for differentiated coffees in Puerto Rico:			
Tavárez H., M. Cortés, J. Hernández. Consumer preference for differentiated coffees in Puerto Rico: An evaluation of texts, logos, and quick response codes (CRRs).	CFCS	July 2023	Grenada
Gayol, L. (2023). Procesos Administrativos en el Programa de Investigación de la EEA "Induction Training Post-Award". (Oral Presentation). Training for CCA faculty in research. November 9, 2023.	Organized by the Office of Research and Extension of the College of Agricultural Sciences	Nov. 9, 2023	(TEAMS)
Gayol, L. (2023). Procesos Administrativos en el Programa de Investigación de la EEA "Induction Training Pre-Award". (Oral Presentation). Training for CCA faculty in research. October 13, 2023.	Organized by the Office of Research and Extension of the College of Agricultural Sciences	Oct. 13, 2023	(TEAMS)
Tavarez, H. (2024, May). Willingness to pay for ancillary water service improvements in Puerto Rico. Oral presentation presented at the 4th Congress of Applied Economics of Puerto Rico held at Mayagüez, Puerto Rico.	4th Congress of Applied Economics of Puerto Rico	May 2024	Mayagüez, Puerto Rico
Tavarez, H. (2024, May). Preferencias y disposición a pagar por actividades agroturísticas en fincas de café en Puerto Rico. Poster presentation presented at the 4th Congress of Applied Economics of Puerto Rico held at Mayagüez, Puerto Rico.	4th Congress of Applied Economics of Puerto Rico	May 2024	Mayagüez, Puerto Rico
Tavarez, H. (2024, May). Economic Viability of Developing Passive Recreational Opportunities in Puerto Rico: Insights for Sustainable Forest Management. Poster presentation presented at the 4th Congress of Applied Economics of Puerto Rico held at Mayagüez, Puerto Rico.	4th Congress of Applied Economics of Puerto Rico	May 2024	Mayagüez, Puerto Rico
Tavárez, H., Cortés, M., & Gregory, A. (2023, July). Preferencias de los consumidores por leche producida en cumplimiento con bienestar animal en Puerto Rico: Evaluando alternativas para informar al consumidor. Poster presentation presented at the Caribbean Food Crops Society, Grenada.	CFCS 2023	July 2023	Grenada
Myrna Comas Pagán. Agriculture Financial & Technical Resource	Short Course Agribusiness	Sept 27, 2023	online
Myrna Comas Pagán. Marketing Plan	Short Course Agribusiness	Oct 4, 2023	online
Myrna Comas Pagán. Business Plan	Short Course Agribusiness	Oct 11, 2023	online
Myrna Comas Pagán. Agricultural Financing	Short Course Agribusiness	Oct 18, 2023	online
Myrna Comas Pagán. Bonafide Farmers	Short Course Agribusiness	Mar. 20, 2024	online
Myrna Comas Pagán. Farm Tool Box for Ag Entrepreneur	Short Course Agribusiness	Mar. 27, 2024	online
Myrna Comas Pagán. Business Plan – Feasibility Analysis	Short Course Agribusiness	April 3, 2024	online
Myrna Comas Pagán. Business Plan	Short Course Agribusiness	April 10, 2024	online
Myrna Comas Pagán. Agricultural Financing	Short Course Agribusiness	April 24, 2024	Online
Alexandra Gregory Crespo. Ensuring Project Preparedness After an Emergency, Oral Presentation	Extension Risk Management Education National Conference	April 1-2, 2024	Salt Lake City Utah
Alexandra Gregory Crespo. Valuation of the Private and Social Costs and Benefits of the Crotalaria juncea L. as a Soil Conservation Practice in Puerto Rico, Poster Presentation	Extension Risk Management Education National Conference	April 1-2, 2024	Salt Lake City Utah
Alexandra Gregory Crespo. Food and Agricultural Product Prices in Puerto Rico	Congress of Applied Economics	May 10, 2024	Mayagüez, Puerto Rico
Alexandra Gregory Crespo. Food Security Data Center, Oral Presentation	USDA, NIFA Project Directors Meetings	May 29-30, 2024	Kansas City, Kansas
Alexandra Gregory Crespo Inventory and Statement of Financial Position	Presentation of the Socially Disadvantaged Farmers Project	April 17, 2024	Online
Alexandra Gregory Crespo Income and Expense Sheet and Cash Flow Sheet	Presentation of the Socially Disadvantaged Farmers Project	May 1, 2024	Online

Alexandra Gregory Crespo Financial Analysis: Financial Ratios and Interpretation	Presentation of the Socially Disadvantaged Farmers Project	May 8, 2024	Online
Alexandra Gregory Crespo. Basic Excel and Accounting and Financial Records System in Excel	Presentation of the Socially Disadvantaged Farmers Project	May 22, 2024	Online
Alexandra Gregory Crespo. Folder of Important Documents in Case of an Emergency	Presentation of the Socially Disadvantaged Farmers Project	Sept. 20, 2023	Online
Alexandra Gregory Crespo. Inventory and Statement of Financial Position	Presentation of the Socially Disadvantaged Farmers Project	Oct. 25, 2023	Online
Alexandra Gregory Crespo. Income and Expense Sheet and Cash Flow Sheet	Presentation of the Socially Disadvantaged Farmers Project	Nov. 1, 2023	Online
Alexandra Gregory Crespo. Análisis Financiero: Razones financieras e interpretación	Presentation of the Socially Disadvantaged Farmers Project	Nov. 8, 2023	Online
Yaira Avilés, M.S., Gladys González, Ph.D., Edwin Mas, M.S., and Alexandra Gregory, Ph.D.. Valuation of the Private and Public Costs and Benefits of the Use of Crotolaria juncacea L. as a Soil Conservation Practice in Puerto Rico.	Poster presentation at the 2024 Extension Risk Management Education 2024 National Conference	April 10, 2024	Salt Lake City, Utah, USA
Gladys M. González Martínez. Risks in agriculture: prices, production and marketing.	"Overcome the emergency, protect your agribusiness	June 10, 2023	Holiday Inn, Mayagüez
Gladys M. González Martínez. SWOT Analysis as a Basis for a Sustainable Development Proposal for Puerto Rico's Agriculture	Congress of Applied Economics	May 10, 2024	UPR-Mayaguez
Alwin J. Jiménez Maldonado. Department Orientation for New Students	UPRM Welcome Week for New Students	August 4, 2023	Piñero Building, UPRM
Alwin J. Jiménez Maldonado. Academic orientation of the curriculum of Agribusiness and Agricultural Economics	Deanship of Academic Affairs	Oct. 31, 2023	Piñero Building, UPRM
Alwin J. Jiménez Maldonado. Farm Management Training (PAF)	Cooperative Extension Service Farmers -Southwestern Region	Sept. 18, 25; Oct. 3,16, 23, and 30, 2023	Centro Tecnológico Moca PR
Alwin J. Jiménez Maldonado. Farm Management Training (PAF)	Cooperative Extension Service Farmers -Southeast Region	Oct. 4, 11, 18, 25; Nov. 1 and 8, 2023	Extension Office: Gurabo and Coamo
Alwin J. Jiménez Maldonado. Farm Management Training (PAF)	Cooperative Extension Service Farmers -Northeast Region	April 10, 17, 24, May 1, 15, 22, 2023	Biblioteca Municipal, Canóvanas
Alwin J. Jiménez Maldonado. Farm Management Training (PAF)	Cooperative Extension Service Farmers -North Central Region	May 30; June 5, 12, 20, 26 July 2, 2023	Unidad Extendida SEA Camuy
Workshop: Labels preparation for agricultural products	Agricultural Week Challenge	June 14, 2024	Piñero Building, UPRM
Germán Ramos Cartagena Presentation. Community engagement panel: Community gardens for sustainability	Global Forum for Advisory Services	16 -20 october 2023	Denver, Colorado
Germán Ramos Cartagena Poster: Foro Puerto Rico RELASER (Red Latinoamericana de Servicios de Extensión Rural)	Global Forum for Advisory Services	16 -20 october 2023	Denver, Colorado
Rodríguez-Pérez, R. & Rodríguez, M.C. 2024. Using Distance Education to Enhance Aquaponic Production in Puerto Rico´s Model Forest. 2024. Oral Presentation. NIFA Award #:2021-70004-35095	NIFA Insular Areas Programs Project Director Meeting	May 30, 2024	USDA National Headquarter, Kansas City, MO
Department of Agricultural Education			
Martinez-Rodriguez, I. I. & Toro, Y. (Hosts). (2023, December 5). Creating a budget that works for you (No.1). [Audio Radio]. In Finance Up to Date Series. SEAUPRM.	Audio for radio/podcast	December 5, 2023	Educational Media and Information, PRAES, UPRM
Martinez-Rodriguez, I. I. & Toro, Y. (Hosts). (2023, December 5). Strategies to reduce debt effectively (No.2). [Audio Radio]. In Finance Up to Date Series. SEAUPRM.	Audio for radio/podcast	December 6, 2023	Educational Media and Information, PRAES, UPRM
Martinez-Rodriguez, I. I. & Toro, Y. (Hosts). (2023, December 5). Building a solid emergency fund (No.3). [Audio Radio]. In Finance Up to Date Series. SEAUPRM.	Audio for radio/podcast	December 7, 2023	Educational Media and Information, PRAES, UPRM
Martinez-Rodriguez, I. I. & Toro, Y. (Hosts). (2023, December 5). Planning for retirement: It's never too early (No.4). [Audio Radio]. In Finance Up to Date Series. SEAUPRM.	Audio for radio/podcast	December 8, 2023	Educational Media and Information, PRAES, UPRM
Martinez-Rodriguez, I. I. & Toro, Y. (Hosts). (2023, December 5). Towards financial independence: Beyond savings (No.5). [Audio Radio]. In Finance Up to Date Series. SEAUPRM.	Audio for radio/podcast	December 9, 2023	Educational Media and Information, PRAES, UPRM
Research Presentation at the SOPCA Annual Assembly (Dra. Janitza Saavedra Lugo)	SOPCA	December 1, 2023	Rincón
National Teach AG Day (Dr. Janitza Saavedra Lugo)		September 22, 2023	UPR Mayagüez
Coordination of Technology in Agriculture Talk (Dr. Janitza Saavedra Lugo)		December 7, 2023	Pedro Perea Fajardo School, Mayagüez
Department of Agricultural and Biosystems Engineering			
Estimating Evapotranspiration in the Caribbean Region	Graduate Seminar	Jan. 25, 2024	University of Puerto Rico-Rio Piedras
Irrigation Training Course for the Southwest Water Conservation District/NRCS	Training Event	May 16, 2024	Lajas Experimental Station
Program of Food Science and Technology			
EL rol de las reacciones químicas en la elaboración de quesos Dra. Leyda Ponce de León	Convención Colegio de Químicos	17/agosto/23	Centro de Convenciones San Juan

Attachment V - Periodic Letters and Circulars

Periodic Letters and Circulars		
Academic Year 2023-2024		
Reference	**Author**	**Office**
Department of Agroenvironmental Sciences		
Sánchez, Yaniria - Oportunidades de Empleos en el Servicio de Conservación de Recursos Naturales, 2023	Sánchez, Yaniria	
González, Sally. Los bosques urbanos para combatir las olas de calor y reforestar a Puerto Rico.	González, Sally.	PRAES
Giraldo Zapata, M. C., et al. (2023). Nuestro nuevo aliado: "La batata" un super alimento. Guia de bolsillo de Batata.	Giraldo Zapata, M. C., et al.	PRAES
Estevez Consuelo. Certificación de Cítricos. Hoja Informativa No. 3.	Estevez Consuelo	
Martínez Edda. Alerta de Plaga: Thrips parvispinus. Noviembre 2023.	Martínez Edda	PRAES
Alvarado Ortiz, Ada N. 2023. Manejo Integrado de Plagas y los Polinizadores.	Alvarado Ortiz, Ada N.	PRAES
Alvarado Ortiz, Ada N. 2023. MIP te informa: Fungicidas para el Manejo de Sigatoka negra en Plátano.	Alvarado Ortiz, Ada N.	PRAES
Rivera Christian. Hoja Informativa - Generación de energía sostenible y resiliente para comunidades aisladas antes y después de desastres naturales	Rivera Christian	
Department of Agricultural Economics and Rural Sociology		
Mildred Cortés Pérez. Hoja Informativa: Proyecto "Sustainable Resilient Power Generation for Isolated Communities Before and After Natural Disasters"	Dr. Joaquín A. Chong- Líder Proyecto Profa. Mildred Cortés- Co-líder Dra. Leticia Gayol- Co-líder Dr. Christian Rivera- Co-líder	
Mildred Cortés Pérez. Sustainable Resilient Power Generation for Isolated Communities Before and After Natural Disasters", Fact Sheet. March 11, 2024. Outreach for Project Z-365	Joaquín A. Chong, Mildred Cortés, Leticia Gayol & Christian Rivera	AES, Award No. NIFA – USDA 2021-69016-33535, (Z-365)
Department of Agricultural Education		
The correct use of the cane in the elderly	Dr. Yvonne Laracuente Bernat	CFC
Correct handling of the walker	Dr. Yvonne Laracuente Bernat	CFC
Interactions between medications and foods in the elderly	Dr. Yvonne Laracuente Bernat	CFC
The safety and management of medications in the elderly	Dr. Yvonne Laracuente Bernat	CFC
Strategies to prevent falls in older adults	Dr. Yvonne Laracuente Bernat	CFC
The crucial role of shoes in the lives of older adults	Dr. Yvonne Laracuente Bernat	CFC
Interactions between medications and foods in the elderly	Dr. Yvonne Laracuente Bernat	CFC
Keys to optimal sleep in old age	Dr. Yvonne Laracuente Bernat	CFC
Safe Steps (Opuscle)	Dr. Yvonne Laracuente Bernat	CFC

Appendix C. New and Ongoing Projects with Significant Impact, along with the Outcomes of Research and Creative Work

Department of Animal Science Projects Administered by AES:

- LEADING Hispanics to Federal Agency Employment: This project offers scholarships, educational tours, paid USDA internships, and research opportunities for undergraduate and master's students.
- Expanding the TExAS Scholars Program: Provides scholarships, research experiences, and outreach shadowing opportunities for undergraduate students.
- PR-GOSHEPI: Offers scholarships, research experiences, and internship opportunities for both undergraduate and graduate students.

Department of Agricultural and Biosystems Engineering

- MS-024: This project uses the ecological footprint of reservoir sediments to plan sustainable multifunctional landscapes in Puerto Rico, focusing on hydrologic modeling to predict soil erosion and sediment transport in three lakes: Guajataca, Caonillas, and Patillas.
- Z-384: Developed a sediment transport model for the Lake Carraízo catchment area, critical for San Juan's water supply. The project identifies key sub-watershed areas contributing to sediment deposition in the lake.
- H-511: This project monitored surface hydrology at selected wetland sites across Puerto Rico to report on wetland hydrology indicators. It also validated a methodology to delineate wetland boundaries using geospatial analysis and lidar data.
- NOAA RISA Project: The department contributes by adapting the GOES-PRWEB model for the U.S. Virgin Islands (St. Croix, St. John, and St. Thomas). This model provides hydro-agro-climate data, valuable for evaluating drought impacts on agriculture and water resources, under current and future climate conditions.

Department of Animal Science Projects Administered by AES:

- LEADING Hispanics to Federal Agency Employment: Provided scholarships to 14 undergraduate and three master's students, organized two educational tours, and facilitated USDA internships for nearly all students. Additionally, 51 high school students visited the College of Agricultural Sciences and the Agricultural Experiment Station in Lajas.
- Expanding the TExAS Scholars Program: Awarded scholarships to three undergraduate students and organized two educational tours.
- PR-GOSHEPI: Offered scholarships to 20 undergraduate students, facilitated seven internships at North Dakota State University, and organized educational tours for students to Mississippi State University, Honduras, and the Dominican Republic.
- USDA Distance Education Project: Provided 25 scholarships for undergraduate students.

Department of Agricultural Economics and Rural Sociology

- Sustainable Risk Management and Insurance Benefits in the Agricultural Business
- Training in Property Administration (PAF): Conducted in Moca, Coamo, Gurabo, Canóvanas, and Camuy.
- Fourth Congress of Applied Economics in Puerto Rico

Appendix D. College of Engineering Publications, Presentation, etc.

Industrial Engineering PUBLICATIONS & PRESENTATIONS

Rodriguez-Roman, D., Carlo, H.J., Sperling, J., Duval, A., Leonicio-Cabán, R.E., López del Puerto, C. (2024) Optimizing the Location and Configuration of Disaster Resilience Hubs Under Transportation and Electric Power Network Failures. Transportation Research Interdisciplinary Perspectives, 24: Article 101079. DOI: 10.1016/j.trip.2024.101079

Cruz-Muñiz, J.Y., Carlo, H.J., Rodríguez-Román, D., Automated Student Parking Space Detection at UPRM Using Machine Learning, 2024 Transportation Research Board, January 2024, Washington DC.

Ocana-Colón, A., Carlo, H.J., Rodríguez-Román, D., Capacitated Discrete Facility Location Problem for Energy-Resilience Hubs, 2024 Transportation Research Board, January 2024, Washington DC.

The Applied Optization Group:

Francisco Artes, Rocío Díaz, Gabriela Flores, Carlos Figueroa, Isabel López de Victoria, Kiria González, Wilsheila Mercado, Licelys Péres, Emilio Cabrera-Isaza, Kiomy Torres, Sabrina Ng, Leonardo Silva, María Santaliz, Clara Isaza, Mauricio Cabrera-Ríos, Reutilization of Tennis Balls,Revista Internacional de Investigación e Innovación Tenológica, (2023) Forthcoming
Puerto Rico Health Sciences University, Breast and Colorectal Cancers in Women: a Meta-Analysis driven by BioOptimatics (Under Review)

Methods X, A Class Forecasting Method for Time Series, (Under Review)

Sapiencia, Social Media Postings as Mood Indicator (Under Review)

PLOS One, Gene Expression Changes and Pathways Commonalities Between Autism and Schizophrenia through BioOptimatics (Under Review)

npj Parkinson´s disease, Hepatitis C virus and the risk of Parkinson's disease: A Comprehensive Sex-Stratified Meta-Analysis Using BioOptimatics Approach (Under Review)
B Irizarry-Maldonado, Y Muñoz-López, V Borrás-Serrano, L Meléndez-Santiago, CE Isaza, M Cabrera-Ríos, Social Media Postings as Mood Indicators, Sapiencia: Una Revista para la Academia (2024) 8.

Puerto Rico Health Sciences University, Breast and Colorectal Cancers in Women: A Meta-Analysis driven by BioOptimatics (Second Round of Review)

International Journal of Applied and Computational Mathematics, A Class Forecasting Method for Time Series, (Under Review)

PLOS One, Gene Expression Changes and Pathways Commonalities Between Autism and Schizophrenia through BioOptimatics (Second Round of Review)

PLOS One, Hepatitis C virus and the risk of Parkinson's disease: A Comprehensive Sex-Stratified Meta-Analysis Using BioOptimatics Approach (Under Review)

Modeling the Structure of Telehealth, Fabiola Acevedo & Samuel A. Bonet, IISE Annual Conference & Expo 2024 May 2024

M Cabrera-Ríos, Key Notes on Undergraduate Research: Learnings and Tips from 15 years as Undergraduate Research Mentor at UPRM, ROUSS PRLSAMP Seminar, Mayagüez PR, September 7, 2023

C Castro, I Narváez, D Suárez, A Camasta, M Durán, L Ortiz, M Cabrera-Ríos, CE Isaza, Novel Bio Optimatics used to Correlate Gene Expression Changes Between Hepatitis C viral infection and Parkinson´s Disease Development, 2023 Congreso de Salud e Investigación, San Juan PR, October 26, 2023

D Suárez, CE Isaza, M Cabrera-Ríos, Biological Analysis through Optimization, 2023 5th Annual Synthetic Biology Week, Mayagüez PR, October 30, 2023

N Xu-Cuevas, C Rosario-Marcano, L Rios-Santiago, CE Isaza, M Cabrera-Ríos, Time-Delayed Correlation of Two Time Series through Class-Based Forecasting: The Covid 19 Case in Puerto Rico, 2023 IEOM 8th North American Conference in Industrial Engineering and Operations Management, Houston TX, June 12-15, 2023

S Ng-Torres, A Borrero-Rodríguez, M Santaliz, M Cabrera-Ríos, CE Isaza, Educational Project: Reutilization of Tennis Balls, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

N Delgado-Giraldo, S Collado-Irizarry, D Suárez-Gómez, M Cabrera-Ríos, CE Isaza, The Analysis of Gene Expression Data as a Starting Point for the Lupus Puzzle, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

AE Luna-Alvear, PN Malavé-Nieves, GE Bertran-Roca, M Cabrera-Ríos, CE Isaza, Analysis of RNA-Seq Experiments Involving CAR T Cells through BioOptimatics, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

AE Luna-Alvear, S Odeh-Reyes, C Marín-Ortíz, G González-Díaz, M Cabrera-Ríos, CE Isaza, Robustness of Alzheimer´s Biomarkers Identification through Multiple Criteria Optimization (MCO), 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

D Suárez-Gómez, D Rocha-Clavijo, AE Luna-Alvear, CE Isaza, M Cabrera-Ríos, Toward Understanding Calcium Signaling Dynamics: Integrative Analysis Framework and Case Study in T Cell Populations, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

AE Luna-Alvear, D Suárez-Gómez, AA Sánchez-Castro, AC Rentas-Echeverría, M Cabrera-Ríos, CE Isaza, Assessment of the Degree of Coincidence between Differentially Expressed Genes in Pancreatic Cancer with and without CAR T Cell Treatment, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

A Rivera-Morales, A Fernández-Parrado, K Ríos-Concepción, N Andújar-Báez, R Nazario-Soler, C Rosario-Marcano, AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Class Forecasting Method Applications to Public Health: Heart Disease, Suicide Rate, Pre-term Birth, and Infant Mortality Rates, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

A Camasta-Beníquez, I Narváez-Bandera, D Suárez-Gómez, C Castro-Rivera, M Durán-Quintana, M Cabrera-Ríos, CE Isaza, Hepatitis C virus and the risk of Parkinson´s Disease: A Comprehensive Sex-Stratified Meta-Analysis Using BioOptimatics Approach, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

A Corujo, E Nazario, J Borrero, Y González, M Cabrera-Ríos, CE Isaza, An Individual Decision-Making Framework to Achieve Mitigation of Climate Change Effects with a Local Perspective, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Model-free Forecasting Method with Pareto Efficient Configuration, 2024 UPRM Simposio de Investigación de Biología, Mayagüez PR, May 3, 2024

AE Luna-Alvear, D Suárez-Gómez, AA Sánchez-Castro, AC Rentas-Echeverría, M Cabrera-Ríos, CE Isaza, Assessment of the Degree of Coincidence between Differentially Expressed Genes in Pancreatic Cancer with and without CAR T Cell Treatment, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

D Suárez-Gómez, D Rocha-Clavijo, AE Luna-Alvear, CE Isaza, M Cabrera-Ríos, Toward Understanding Calcium Signaling Dynamics: Integrative Analysis Framework and Case Study in T Cell Populations, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

AE Luna-Alvear, S Odeh-Reyes, C Marín-Ortíz, G González-Díaz, M Cabrera-Ríos, CE Isaza, Robustness of Alzheimer´s Biomarkers Identification through Multiple Criteria Optimization (MCO), 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024
AE Luna-Alvear, PN Malavé-Nieves, GE Bertran-Roca, M Cabrera-Ríos, CE Isaza, Analysis of RNA-Seq Experiments Involving CAR T Cells through BioOptimatics, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

A Camasta-Beníquez, I Narváez-Bandera, D Suárez-Gómez, C Castro-Rivera, M Durán-Quintana, M Cabrera-Ríos, CE Isaza, BioOptimatics Analysis of Gene Expression Data for the Identification of an Association between Hepatitis C Viral Infection and Parkinson´s Disease, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Model-free Forecasting Method with Pareto Efficient Configuration, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024
N Delgado-Giraldo, S Collado-Irizarry, D Suárez-Gómez, M Cabrera-Ríos, CE Isaza, The Analysis of Gene Expression Data as a Starting Point for the Lupus Puzzle, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

A Rivera-Morales, A Fernández-Parrado, K Ríos-Concepción, N Andújar-Báez, R Nazario-Soler, C Rosario-Marcano, AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Class Forecasting Method Applications to Public Health: Heart Disease, Suicide Rate, Pre-term Birth, and Infant Mortality Rates, 2024 XXI Simposio de Investigación Científica 2024, Ponce PR, April 26, 2024

AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Model-Free Forecasting Method with Pareto Efficient Configuration, 2024 ABRCMS ePoster Spring Symposium for Emerging Scientist, Virtual Presentation USA, April 25, 2024

AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Model-Free Forecasting Method with Pareto Efficient Configuration, 2024 Puerto Rico Interdisciplinary Science Meeting/ ACS Junior Technical Meeting, Aguadilla PR, April 20, 2024

A Luna, P Malavé, G Bertran, M Cabrera-Ríos, CE Isaza, Analysis of RNA-seq Experiments Involving CAR T Cells through BioOptimatics, 2024 ENGICHEM Chemical Engineering & Related Fields Symposium, Mayagüez PR, April 19, 2024
RM Laureano, C Rosario, G Vincenty, M Cabrera-Ríos, CE Isaza, An Automated Class Forecasting Method for Time Series, 2024 3rd Annual BIOX Symposium on Engineering in Medicine and Biology, Mayagüez PR, April 5, 2024

A Rivera-Morales, A Fernández-Parrado, K Ríos-Concepción, N Andújar-Báez, R Nazario-Soler, C Rosario-Marcano, AS Cabrera-Isaza, M Cabrera-Ríos, CE Isaza, Class Forecasting Method Applications to Public Health: Heart Disease, Infant Mortality, Preterm Birth, and Suicide Rates, 2024 3rd Annual BIOX Symposium on Engineering in Medicine and Biology, Mayagüez PR, April 5, 2024

AN Belvis-Aquino, A Rodríguez-Rodríguez, F Morales-Salgado, M Cabrera-Ríos, CE Isaza, Individual Emergency Response and Recovery: People´s Worry Levels During and After Hurricane Fiona and Comparison with Hurricane Maria, 2024 3rd Annual BIOX Symposium on Engineering in Medicine and Biology, Mayagüez PR, April 5 2024

Investigating the Needs of Informal Caregivers to Inform to Design of Digital Technologies for Caregiving, Carla Troche & Samuel A. Bonet, PRISM & JTM 2024, April 2024

Investigating the Needs of Informal Caregivers to Inform the Design of Digital Technologies for Caregiving, Carla Troche & Samuel A. Bonet, IISE Annual Conference & Expo 2024, May 2024

Active Research and Service Awards:

DoD: SBIR Phase 2 Subaward: Scheduling Agent for the Air and Load Plan Scheduler Multi- Agent System (ALPSMAS), January 2024 - December 2024, Co-PI, $170,000.00 (Dr. Roxana Aparicio, PI; Dr. Héctor J. Carlo, Co-PI), Department of Defense, Award N68335-23-C-0017.

Ergonomics Awareness Training for High Risk and Hard to Reach Workers in Puerto Rico. October 2023 - September 2024, $155,810, Department of Labor, Susan Harwood Training Grant - OSHA (Dr. Samuel Bonet, PI, Dr. Viviana I. Cesaní, Co-PI), Award No. 23F60SH000101-01-00).

Chemical Engineering Department
Submitted Proposals:

PRSTRT-ARG-LOI: Polymer Nanocomposite Membrane Assembly for Water Purification on the International Space Station, DSuleiman (PI), (Pending).

DOD-ARO: Sulfonated Poly(arylene-ether-ketone-sulfone) with Additional Elastomeric Domains for Protective Clothing and Fuel Cell Applications DSuleiman (PI), (Pending).

NSF-MRI: Acquisition of a Zeiss 560 VP FE-SEM for Chemical and Surface Characterization and Training (SP), DSuleiman (Approved-New).

NERSC-DOE: DFT Analysis of metal substituted zeolites for conversion of CH4 to fuels and chemicals; Brian Montejo; Maria Curet-Arana (Tiempo computacional requerido para realizar la investigación de Wi-PREM.)

"Bioengineering technologies to study the impact of morphogen signaling strength on tumor cell fate", Maribella Domenech (PI, INQU, UPR-Mayaguez), NIH-NIGMS, Total: $1,899,130, 08/2024 – 07/2029.

"A heparan-sulfate culture platform for studies of temporal adaptation to morphogens in cells" Maribella Domenech (PI, INQU, UPR-Mayaguez) and Wandaliz Torres-Garcia (Co-I, INID, UPR-Mayaguez). NIH-IMAT R61, Total: $663,638, 01/2024 – 12/2026.

A surface roughness platform for bio-mechano process-driven enrichments of aggressive tumor phenotypes in planar culture. Maribella Domenech (PI, INQU, UPR-Mayaguez). NIH-IMAT R61, Total: $676,279, 01/2024 – 12/2026.

NSF ERC: Center for Lignin Engineering, Analysis, and Research for Sustainable Technology, Analysis and Research for Sustainable Technology. Mission 4: New Products. Subproject: Unleashing the natural potential for lignin conversion through functional metagenomics", $26M for five years. POrtiz, Role: Senior Personnel.

Pre-proposal: BAA Number: FDABAA-23-00123 - Automated Cleaning in Continuous Manufacturing for Solid Oral Dosage Formulations. R. Mendez, R. Romanach

Pre-proposal: BAA Number: FDABAA-23-00123 - Validation and implementation of PAT methods in advanced pharmaceutical manufacturing, R. Mendez, R. Romanach

Johnson & Johnson, Las Piedras, PR, Evaluate the implantation of Direct compression Continuous Manufacturing, R. Mendez, R. Romanach

Letter of Intent (LOI) Puerto Rico Science, Technology and Research Trust - Commercialization of a Turn-key System for Sampling and Analysis of Flowing Powder Blends, R. Mendez, R. Romanach

Self-assembly of PFAS Mixtures in the Presence of Inorganic Ions and Hydrocarbon Surfactants During Wetting and Drying (DOD, Co-PI Córdova-Figueroa, $1,696,220 ($408,166 subaward to UPRM)

Collaborative Research: ACSER: Caribbean Observatory for Collaborative Research and Education to Advance Technology, Engineering, and Sciences (CO-CREATES) (NSF, PI Córdova-Figueroa, $5M ($4,460,000 to UPRM)

The Advanced Air Mobility (ADAM) Innovation Engine (NSF Regional Innovation Engine, Co-PI Córdova-Figueroa, $1.7M per year subaward to UPRM)

PR Sc Trust- PR_ACTD_ Grant Full Application "Targeting Long COVID-19 Fibrosis & Inflammation Symptoms: Therapy with Nebulized tissue -specific Matrix-Bound Vesicles". Camilo Mora (PI) $230,000/2 yrs.

PR-INBRE-IDeA_ Development Award for Early-Stage Investigators "Matrix-bound Vesicles as Tissue- Specific Signaling Factors for Wound Healing in Vocal Fold Treatment" Camilo Mora (PI) $200,000

NIH- NIDCD_ R01 "Vocal Fold Restoration via Incorporation of Matrix-bound Vesicles as Tissue- Specific Signaling Factors into Injectable Hydrogels" Camilo Mora (PI) $3,212,030

NSF-EBMS_CAREER "CAREER: Engineering Bioinstructive Substrates That Mimic the Extracellular Matrix Signaling Using Matrix-Bound Vesicles as Loadable Tissue-Specific Factors" Camilo Mora (PI) $597,958

"RII Track-4:NSF: Design of Bioresponsive Liquid Crystal Droplets for Sensing in Cellular Environments" PI: Claribel Acevedo-Vélez (collaborators: David Lynn and Sean Palecek, UW-Madison) Submitted to NSF EPSCoR in April 2023. Award Amount: $299,902. (Pending)

"DMREF: Closed-Loop Design of Liquid Crystal Droplet Arrays for Sensing of Aqueous Analytes" Lead PI: Reid Van Lehn (co-PIs: David Lynn, Victor Zavala, and Helen Blackwell, UW-Madison) PI at UPRM: Claribel Acevedo-Vélez Submitted to NSF DMR in March 2023. Award Amount: $1,999,891. (Pending)

DOD-Acquisition of an NMR for the Study of Novel Multi-Ionic Polymers DSULEIMAN (PI) (Pending).

PRSTRT-ARG-LOI: Polymer Nanocomposite Membrane Assembly for Water Purification on the International Space Station DSULEIMAN (PI), (Pending).

DOD-ARO: Sulfonated Poly(arylene-ether-ketone-sulfone) with Additional Elastomeric Domains for Protective Clothing and Fuel Cell Applications DSULEIMAN (PI), (Pending).

NSF-MRI: Acquisition of a Zeiss 560 VP FE-SEM for Chemical and Surface Characterization and Training (SP), DSULEIMAN (Approved-New).

EPIIC Preliminary Proposal: UPRM Strategic Partnerships to Advance Research Ecosystems (SPARE) (NSF, PI Córdova-Figueroa, $0)

Emerging Synchronization and Collective Intelligence in Self-Propelled Communicating Microunits (ONR MURI, Co-PI Córdova-Figueroa, $1,022,504 to UPRM – Penn State is lead institution)

Puerto Rico Science, Technology and Research Trust - Commercialization of a Turn-key System for Sampling and Analysis of Flowing Powder Blends. $150,000, R. Romanach, R. Mendez.

PR-INBRE-IDeA. Smalll Instrument Grant. Ultracentrifuge for Isolation of Extracellualr vesicles 60K CMORA (PI)

PR-INBRE-IDeA_ Development Award for Early-Stage Investigators "Matrix-bound Vesicles as Tissue- Specific Signaling Factors for Wound Healing in Vocal Fold Treatment" CMORA (PI) $300,000

NSF- "BioFoundry: The Artificial Intelligence-Driven RNA BioFoundry (AIRFoundry)" CMORA (senior personnel), $2,000,000 UPRM.

Forward PR Sci & Trust - “Catalyzing Innovation in Extracellular Vesicles: Exploiting Tissue-Specific ExtracellularVesicles for Bioinstructive Substrate Engineering via Titanium Particle Adsorption and Delivery.” CMORA$150,000

“Bioengineering technologies to study the impact of morphogen signaling strength on tumor cell fate”, Maribella Domenech (PI, INQU, UPR-Mayaguez), NIH-NCI, Total: $3,195,386, 08/2024 – 07/2029.

Cracking the developmental blueprint of life: Omics, Computational Science, and AI. Riccardo Pappa (PI, BIOL, UPR-Rio Piedras), Maribella Domenech (Co-PI, INQU, UPR-Mayaguez), NSF, Total: $7,000,000 (~$350,000 sub-award to UPR-Mayaguez) 08/2024 – 12/2029.

“Impact of Microgravity on microcarrier culture of mesenchymal stem cells”. Maribella Domenech (PI, INQU, UPR-Mayaguez). PRTRUST, Total: $50,000, 01/2024 – 12/2024.

“Unleashing Morphogen and ECM Synergy for Targeted Tissue Engineering and Biomedical Advancements”Maribella Domenech (PI, INQU, UPR-Mayaguez). NIH-NIGMS,Total:2,229,940, 08/2024 – 07/2029

Phase 2: Propel for the E-Team Program Venturewell Winter 2024: Per3DPRints (December 1 2023-June 30-2025). MLatorre, Accepted $19,988.00

EPIIC Preliminary Proposal: UPRM Strategic Partnerships to Advance Research Ecosystems (SPARE) (NSF, PI Córdova-Figueroa, $0)

Emerging Synchronization and Collective Intelligence in Self-Propelled Communicating Microunits (ONR MURI, Co-PI Córdova-Figueroa, $1,022,504 to UPRM – Penn State is lead institution)

NSF-EPSCoR Track II Internal Competition: “Assessing and enhancing climate-change resilience in coastal and rural communities through local waste-to-fuel conversions”. Invited for full proposal submission. Yomaira Pagan-Torres (UPRM-PI).

NSF conference proposal “CET: Powering Puerto Rico: Unleashing the Potential of Clean Renewable Energy Sources for a Sustainable Future” ($80,358). Yomaira Pagan-Torres (UPRM-SI).

“RII Track-4:NSF: Design of Bioresponsive Liquid Crystal Droplets for Sensing in Cellular Environments” PI: Claribel Acevedo-Vélez (collaborators: David Lynn and Sean Palecek, UW-Madison) Submitted to NSF EPSCoR in April 2023. Award Amount: $299,902. (Awarded on 6/November/2023)
“BioFoundry: Artificial Intelligence-Driven RNA BioFoundry” Lead PI: Daeyeon Lee (co-PIs: Claribel Acevedo-Vélez, David Issadore, Zachary Ives, Drew Weissman) PI at UPRM: Claribel Acevedo-Vélez. Sub-award Amount: $1,999,476. Submitted to NSF BioFoundries to Enable Access to Infrastructure and Resources for Advancing Modern Biology and Biotechnology (BioFoundries) in October 2023. Total Amount: $24,000,000. (Pending)
Integration of bifurcation analysis and optimal control on nonlinear chemical engineering problems, Lsridhar.

Number of new research and creative work projects.

New Projects:

NSF-CBET: “Collaborative Research: Selective Catalytic Transformations of Polycarbonates and Polyesters for Chemical Circularity of Waste Plastics”; PIs: Yomaira Pagan-Torres, Eranda Nikolla, Suljo Linic, $700,000/3 year 9/1/23

NSF-MRI: Acquisition of a Zeiss 560 VP FE-SEM for Chemical and Surface Characterization and Training (SP), DSuleiman (Approved-New).

NERSC-DOE: DFT Analysis of metal substituted zeolites for conversion of CH4 to fuels and chemicals; Brian Montejo; Maria Curet-Arana, (Tiempo computacional requerido para realizar la investigación de Wi-PREM.)

NSF-MRI: Acquisition of a Zeiss 560 VP FE-SEM for Chemical and Surface Characterization and Training (SP), DSULEIMAN (Approved-New).

Phase 2: Propel for the E-Team Program Venturewell Winter 2024: Per3DPRints (December 1 2023-June 30-2025).MLatorre, Accepted $19,988.00.

“RII Track-4:NSF: Design of Bioresponsive Liquid Crystal Droplets for Sensing in Cellular Environments” PI: Claribel Acevedo-Vélez (collaborators: David Lynn and Sean Palecek, UW-Madison) Submitted to NSF EPSCoR in April 2023. Award Amount: $299,902. (Awarded on 6/November/2023)

Number of ongoing research and creative work projects.

Ongoing Projects:

“MARC U-STAR @UPRM” al NIH (NIGMS) como Directora de Programa (M-PD) P. Ortiz (InQu) junto con el Dr. Carlos Ríos Velázquez (Biología) por $2,687,318/5 años.

ERC-NSF, UPRM- Engineering Research Center for Cell Manufacturing Technologies- Khris Roy (PI-Lead Georgia Tech), Sean Palecek(Co-PI, UW-Madison), UPRM personnel: Madeline Torres-Lugo (Co-PI, UPR-Mayaguez), Maribella Domenech (INQU Testbed 3 Co-lead), Jorge Almodovar (INQU Testbed 1 Co-lead), Wandaliz Torres (ININ, senior personnel), Agnes Padovani (INCM, Education Co-lead) and Pedro Resto (INME, senior personnel). $ 2,570,832 of total $10,000,000, 10/01/2022 to 08/14/2027.

Wisconsin - Puerto Rico Partnership for Research and Education in Materials (Wi(PR)2EM), Ubaldo M. Córdova-Figueroa (PI), Nicholas Abbott (CoPI), Nelson Cardona (CoPI), Anne Gillian-Daniel (CoPI); NSF, $4.2M, 10/01/18-10/31/2024 (6 years), (SP) Aldo Acevedo, Claribel Acevedo, Arturo Hernández, Yomaira Pagán, Rodolfo Romañach.

DOE-EFRC: “Center for Gas Separations” Y. Pagan (Role- UPRM PI and EFRC co-PI) (EFRC Budget-$16 MM/4 years) (UPRM Budget-$600K/ 4 years)

“Recruiting, Retaining, and Engaging Academically Talented Students from Economically Disadvantaged Groups into a Pathway to Successful EngineeringCareers” abreviado “Engineering PEARLS” del Recinto Universitario de Mayagüez., M. Jimenez, N. Cardona.

Los doctores Arturo Hernández-Maldonado (PI), Brad Weiner (Co-PI, UPR-RP) y Madeline Torres-Lugo (Co-PI) recibieron aprobación de la propuesta "Center for the Advancement of Wearable Technologies (CAWT): Engineered (Bio)Interfaces, Energy Harvesting/Storage and Data Analytics for Health and Diagnostic Monitoring" por parte de NSF y por $17,100,000/5 años. En este proyecto también participan los doctores Ubaldo Cordova y Maribella Domenech, al igual que un grupo de profesores de UPR-RP, y otras instituciones educativas y privadas de Puerto Rico (41 investigadores y educadores, 23 instituciones en total). 1 de julio 2019

Los doctores Arturo J. Hernández-Maldonado y Yomaira Pagán, junto a investigadores de la Universidad de Puerto Rico – Río Piedras recibieron aprobación de la propuesta "Puerto Rico Space Partnership for Research, Innovation and Training to Engage the Next Generation of Explorers (PR-SPRInT)" por parte del programa NASA MIRO y por $3,000,000 por tres años. 12 de julio de 2019

DOD, Multiblock Copolymers with Sulfonated Poly(arylene ethers) and Fluoropolymers for Improved Protective Capabilities and Energy Efficient Devices. Dr. David Suleiman.

EDA: Continuous Manufacturing (CMT) and Process Analytical Technology (PAT) training, R. Méndez and R. Romañach.

NASA - Center of sustainable technologies for water reclamation and reuse (CSTWR2). NASA, $1,125,000 / 3 years,DSuleiman (Co-PI) (Approved).

Distinct contributions of mesenchymal cell niches in the therapeutic potential of the hedgehog pathway in triple negative breast cancer. Maribella Domenech (PI, INQU, UPR-Mayaguez), Wandaliz Torres-Garcia (Co-I, ININ, UPR-Mayaguez) and Madeline Torres-Lugo (Senior personnel, INQU, UPR-Mayaguez). NIH-NIGMS SC1, $ 1,398,145total costs, 08/2020-07/2024.

Center to Centre: Global Cell Manufacturing Partnership (GCMP)- Johnna Temenoff (PI, Georgia Tech), Garry Duffy (PI, NUI-Galway), Reinhold Medina (PI, Queens University-Belfast), Maribella Domenech (senior personnel, UPRM) and Sean Palecek (senior personnel, UW-Madison). NSF-ERC C2C, UPRM Sub award to UPRM: $191,899 total costs, 10/2020-09/2023.

National Institute of Food and Agriculture: Project Based Education via Community Engagement for Disaster Relief and Resiliency, $750,000; 3 años, N. Cardona.

Liquid Crystal Droplet-Based Biosensors for Cell Manufacturing Processes". C. Acevedo, Submitted as PI to the NSF SMaT Seed Grant Program ($65,205, 1 yrs). Awarded on January 2022. Expected start date March 1, 2021.

"Small Instrumentation Grant – PR-INBRE: Acquisition of a KSV NIMA Langmuir Trough". Submitted by Dr. C. Acecedo as PI. Awarded on June 24, 2022 ($30,000).

Application for Small Instrumentation Grant (Latorre-Esteves, Co-PI) PR-INBRE. Amount requested: $25,000. Approved

Antiproliferative activity of Graviola extract-coated silver nanoparticles in a model of Head and Neck Cancers. (Latorre-Esteves, Co-PI) PRINBRE Developmental Research Project Program. Amount requested: $9,554.00. Approved

"Membrane-Catalyst Co-Design for Transformative Manufacturing" al US DoE. Sometida el 16 de marzo de 2022 – por los doctores Michael Tsapatsis (Johns Hopkins U.), Arturo Hernández-Maldonado, Ilja Siepmann (U. Minnesota), Rebecca Lindsey (Lawrence Livermore National Lab.), Chao Wang (Johns Hopkins U.), y Chao Wang (Johns Hopkins U.), y Brandon Bukowski (Johns Hopkins U.) 17 de marzo de 2022 – La pre-propuesta "Membrane-Catalyst Co-Design for Transformative Manufacturing" sometida al US DoE por los doctores Michael Tsapatsis (Johns Hopkins U.), Arturo Hernández-Maldonado, Ilja Siepmann (U. Minnesota), Rebecca Lindsey (Lawrence Livermore National Lab.), Chao Wang (Johns Hopkins U.), y Chao Wang (Johns Hopkins U.), y Brandon Bukowski (Johns Hopkins U.) fue aprobada. El grupo sometió la propuesta formal al US DoE por $4,500,000 por 3 años.

Unraveling modulators of polymicrobial interactions in human disease, $107,150/1.5 yr; Role: Patricia Ortiz Bermúdez, PI, INBRE NIH, granted

NIH-NIGMS, Diversity Supplement Program - Effect of Extracellular Matrix Components (tumor vs. normal) on the Hedgehog Pathway in Triple-Negative Breast Cancer –Maribella Domenech (PI), and Camilo Mora (faculty candidate). $300.000. 08/01/2022 to 07/30/2024.

Machine Learning Exploration of Materials for Cardiorespiratory Disease Biomarker Detection and Photovoltaic Energy Harvesting Devices, NSF CAWT, Wearable Technologies Seed Funding, $200,000 / 1 year, Dr. D. Suleiman (Co-PI), (approved).

Engineering Research Center for Cell Manufacturing Technologies- Khris Roy (PI-Lead Georgia Tech), Sean Palecek (Co-PI, UW-Madison), UPRM personnel: Madeline Torres-Lugo (Co-PI, UPR-Mayaguez), Maribella Domenech (INQU Testbed 1 Co-lead), Mauricio Cabrera (ININ, senior personnel), Camilo Mora (INQU, senior personnel) and Agnes Padovani (INCM, Education Co-lead). ERC-NSF, UPRM- $ 2,570,832 sub-award of a total $10,000,000, 10/01/2022 to 09/30/2027.

Distinct contributions of mesenchymal cell niches in the therapeutic potential of the hedgehog pathway in triple negative breast cancer. Maribella Domenech (PI, INQU, UPR-Mayaguez), Wandaliz Torres-Garcia (Co-I, ININ, UPR-Mayaguez) and Madeline Torres-Lugo (Senior personnel, INQU, UPR-Mayaguez). NIH-NIGMS SC1, $ 1,398,145total costs, 08/2020-07/2024.

Center to Centre: Global Cell Manufacturing Partnership (GCMP)- Johnna Temenoff (PI, Georgia Tech), Garry Duffy (PI, NUI-Galway), Reinhold Medina (PI, Queens University-Belfast), Maribella Domenech (senior personnel, UPRM) and Sean Palecek (senior personnel, UW-Madison). NSF-ERC C2C, UPRM Sub award to UPRM: $191,899 total costs,10/2020-09/2023.

NSF-CAWT, Machine Learning Exploration of Materials Used for Cardiorespiratory Disease Biomarker Detection and Photovoltaic Energy Harvesting Devices. (Co-PI) DSuleiman (Approved-New)

DoE Membrane-Catalyst Co-Design for Transformative Manufacturing. UPRM Subaward PI, sep/1/22, aug/31/25, $574,383. Externos (DoE), Dr. Arturo J. Hernández-Maldonado

NSF-CBET: "Collaborative Research: Selective Catalytic Transformations of Polycarbonates and Polyesters for Chemical Circularity of Waste Plastics"; PIs: Yomaira Pagan-Torres, Eranda Nikolla, Suljo Linic, $700,000/3 year 9/1/23

NSF-MRI: Acquisition of a Zeiss 560 VP FE-SEM for Chemical and Surface Characterization and Training (SP), DSuleiman (Approved-New).

NERSC-DOE: DFT Analysis of metal substituted zeolites for conversion of CH4 to fuels and chemicals; Brian Montejo; Maria Curet-Arana, (Tiempo computacional requerido para realizar la investigación de Wi-PREM.)

Johnson & Johnson (Kenvue), Las Piedras, PR, Phase I - Feasibility Study for the Continuous Mixing of a Pharmaceutical Formulation.R. Mendez, R. Romañach

Most relevant publications and presentations

Publications:

S. A. Sajadian, L. A. Estévez, M. Askarizadeh, B. Honarvar, "Solubility Measurement of Nilotinib Monohydrochloride Monohydrate in Supercritical Carbon Dioxide and Models Comparison," (2023). DOI: 10.2139/ssrn.4516325

S. Ardestani, S. A. Sajadian, N. Deepitha, L. A. Estévez "Solubility of famotidine in supercritical carbon dioxide: Experimental measurement and thermodynamic modeling," The Journal of Supercritical Fluids, 201, 106031 (2023). DOI: 10.1016/j.supflu.2023.106031

Tous-Granados, A.; Hernández-Maldonado, A.J. A SIFSIX-MOF Constructed from a Metalloligand Yields Enhanced Stability for Selective CO2 Adsorption. Chem. Comm. 2023, accepted. DOI: 10.1039/D3CC02683C

Tous-Granados, A.; Munoz-Senmache, J.C.; Arrieta-Pérez, R.R.; Hernández-Maldonado, A.J. Bimetallic Be/Cu Pillared-Layered Porous Coordination Polymer for Selective CO2 Removal via Adsorption. Cryst. Growth Des. 2023, 23(3), 1888–1897. DOI: 10.1021/acs.cgd.2c01371

Del Valle-Pérez, G.C.; Muñoz-Senmache, J.C.; Cruz-Tato, P.E.; Nicolau, E.; Hernández-Maldonado, A.J. Carbon Dioxide Removal from Humid Atmosphere by a Porous Hierarchical Silicoaluminophosphate/Carbon Composite Adsorbent. ACS Appl. Eng. Mater. 2023, 1(2), 790–801. DOI: 10.1021/acsaenm.2c00208.

Warin RF, Lizana-Vazques, G., Torres-Lugo, M., Dixon, R.B., Powderly, J.D., The application of autologous cancer immunotherpies in the age of memory NK cells, Front. Immunol., 14, 1167666. doi: 10.3389/fimmu.2023.1167666

Castro-Torres, J., Mendez-Vega, J., Torres-Lugo, M., Juan-Garcia, E.J., Development of Handheld Induction Heaters for Magnetic Fluid Hyperthermia Applications and In Vitro Evaluation on Ovarian and Prostate Cancer Cell Lines, Biomed. Phys. Eng., 9, 035010, 2023.

Barraza-Vergara, L.F., Carmona-Sarabia, L., Torres-Garcia, W., Domenech-Garcia, M., Mendez-Vega, J., Torres-Lugo,M., In Vitro Assessment of Inflammatory Skin Potential of Poly(methyl methacrylate at Non-Cytotoxic Concentrations, J. Biomed. Mater. Res. A., in press, 2023, DOI: 10.1002/jbm.a.37591

Heizel M Rosado-Galindo and Maribella Domenech. "Surface Roughness modulates EGFR Signaling and Stemness of Triple-Negative Breast Cancer Cells". Front Cell Dev Biol. Mar 8;11:1124250.(2023)

Heizel M Rosado-Galindo and Maribella Domenech; "Substrate Topographies Modulate the Secretory Activity of Human Bone Marrow Mesenchymal Stem Cells". Stem Cell Research & Therapy ;Vol 14Article number: 208 (2023)

Roberto Delgado-Rivera, William García-Rodríguez, Luis López, Lisandro Cunci, Pedro J. Resto, Maribella Domenech. "PCL/PEO Polymer Membrane Prevents Biofouling in Wearable Detection Sensors" Membranes 13(8), 728 (2023)

Luisa F Barraza-Vergara , Lesly Carmona-Sarabia , Wandaliz Torres-García , Maribella Domenech-García , Janet Mendez-Vega , Madeline Torres-Lugo. " In vitro assessment of inflammatory skin potential of poly(methyl methacrylate) at non-cytotoxic concentrations" J Biomed Mater Res A. (2023)

Aceptado para publicación en julio de 2023: Nicolas Sluis-Cremer, Edwin E. Traverso Avilés, Orestes Q. González, Carlos Ríos-Velázquez, Patricia Ortiz-Bermudez, Robert Ross, Alan D. Levine, and Alan E. Greenberg. (2023) "Rustbelt Investigators for the Next Generation (RING) Program: The Rustbelt Center for AIDS Research (CFAR) Diversity, Equity and Inclusion Pathway Initiative", Journal of Acquired Immune Deficiency Syndromes (Supplemental Article)

Raúl S. Rangel-Gil, Nobel O. Sierra-Vega, Rodolfo J. Romañach, Rafael Méndez, Assessment of blend uniformity in a stream sampler device using Raman spectroscopy, International Journal of Pharmaceutics International Journal of Pharmaceutics 639 (2023) 122934.

Non-provisional utility patent application: Piñeres-Quiñones, O.H. Lynn, D.M.; Acevedo-Vélez, C. Liquid Crystal Emulsions Stabilized by Nanoparticles. Application Number 17/903,434 (Filed 6 September 2022), Publication Number US20230083183A1 (Published 16 March 2023).

Vega-Santander, D.R.; Arrieta-Pérez, R.; Rivera-Mirabal, D.; Del Valle-Pérez, G.C.; Sepúlveda-Pagán, M.; Muñoz-Senmache, J.C.; Pagan-Torres, Y.J.; Hernandez-Maldonado, A.J. Superior Single- and Multi-component Siloxane Removal from Water using a Faulted Silica DON Zeolite Adsorbent. Environ. Sci.: Adv. 2024, 3, 10-18. DOI: 10.1039/D3VA00282A

J. C. Rivera-Díaz and D. Suleiman. "Permeation of Urea and Water through Sulfonated Poly(styrene-isobutylene-styrene) Membranes with Counterion Substitution." Journal of Applied Polymer Science,2024, e55256.

G. Rivera-Ramos and D. Suleiman. "Sulfonated Poly(arylene ether sulfone) and Sulfonated Poly(arylene ether ketone) for Fuel Cell Applications." Journal of Applied Polymer Science, 2024,e55027.

K. Barrios Tarazona, G. Ramos-Rivera and D. Suleiman. "Synthesis and Characterization of Multi-Ionic Block Copolymers and Blended Membranes for Chemical Protective Clothing Applications." Journal of Applied Polymer Science, 140 (10), 2023.

Lizana-Vasquez, G.D., Ramasubramanian, S., Davarzani, A., Cappabianca, D., Saha, K., Lohitash Karumbaiah, L., Torres-Lugo, M., Thermo-responsive scaffold as a 3D synthetic matrix for in vitro study of CAR-T cell potency against glioblastoma spheroids, submitted, Bioactive Materials, 2023

Lizana-Vasquez, G., D., Mendez-Vega, J., Cappabianca, D., Saha, K., Torres-Lugo, M., In vitro encapsulation and expansion of T and CAR-T cells using 3D synthetic thermo-responsive matrices, submitted, J. Mater. Chem. B., 2023

Nathaly A. Movilla-Meza, Nobel O. Sierra-Vega, Bárbara B. Alvarado-Hernández, Rafael Méndez, Rodolfo J. Romañach. The use of a closed feed frame for the development of near-infrared spectroscopic calibration model to determine drug concentration. Pharmaceutical Research Journal, https://doi.org/10.1007/s11095-023-03601-1

Automated Cleaning in Continuous Manufacturing, Dhavalkumar Patel, Rafael Mendez, and Rodolfo Romañach.

The Validation of a Stream Sampler for Continuous Manufacturing, Juan Nasrala, Raul Rangel, Rafael Mendez, Rodolfo J Romañach.

Knowledge management of validating a NIR method - A case study with a closed feed frame, Nathaly Movilla Meza, Rodolfo J Romañach, Rafael Mendez.

Said Cifuentes and Maribella Domenech. "Heparin–collagen I bilayers stimulate FAK/ERK ½ signaling via α2β1 integrin to support the growth and anti-inflammatory potency of mesenchymal stromal cells". Journal of Biomedical Materials Research Part A 112 (1), 65-81 (2024)

Heizel M Rosado-Galindo and Maribella Domenech; "Substrate Topographies Modulate the Secretory Activity of Human Bone Marrow Mesenchymal Stem Cells". Stem Cell Research & Therapy ;Vol 14; Article number: 208 (2023)

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Wang, F.; Lynn, D. M.; Acevedo-Velez, C. "Pickering Emulsions of Thermotropic Liquid Crystals Stabilized by Amphiphilic Gold Nanoparticles". Langmuir 2024 Article ASAP. DOI: 10.1021/acs.langmuir.3c03940. (Impact factor: 4.331)

Acevedo-Vélez, C.; Kimble-Hill, A.C. "Virtual Special Issue Honoring the Legacy of Dr. Bettye Washington Greene". Langmuir 2023, 39 (49), 17563-17567. DOI: 10.1021/acs.langmuir.3c03570. (Impact factor: 4.331)

Wang F., Qin S., Acevedo-Velez C., Van Lehn R. C., Zavala V. M., Lynn D. M. "Decoding Optical Responses of Contact-Printed Arrays of Thermotropic Liquid Crystals Using Machine Learning: Detection and Reporting of Aqueous Amphiphiles with Enhanced Sensitivity and Selectivity". ACS Applied Materials & Interfaces 2023, 15 (43), 50532-50545. DOI: 10.1021/acsami.3c12905. (Impact factor: 10.383)

Sridhar, L, N. (2023). Multiobjective nonlinear model predictive control of the microbial process. Archives Clin MedMicrobiol, 2(2), 14-37.

Sridhar, L. N. (2023). Multi Objective Nonlinear Model Predictive Control of Diabetes Models Considering the Effects of Insulin and Exercise. Archives Clin Med Microbiol, 2(2), 23-32.

Sridhar, L. N. (2023). Multiobjective nonlinear model predictive control of microalgal culture processes. J OilGas Res Rev, 3(2), 84-98.

Sridhar, L. N., Bifurcation analysis and optimal control of the Crowley Martin phytoplankton-zooplankton model that considers the impact of nanoparticles, accepted for publication Exploratory Materials Science Research EMSR 5(1)2023; (54-60) DOI: https://dx.doi.org/10.47204/EMSR.5.1.2023.054-060

Sridhar. L. N., Bifurcation Analysis and Optimal Control of the Tu-mor Macrophage Interactions. Biomed J Sci & Tech Res 53(5)-2023. BJSTR. MS.ID.008470. DOI:10.26717/BJSTR.2023.53.008470

Presentations:

S. A. Sajadian, N. S. Ardestani, A. Rojas, M. J. Galotto, and L. A. Estévez, "Solubility of Lenalidomide in Supercritical Carbon Dioxide with/without Ethanol as Co-solvent," 11th World Congress of Chemical Engineering, Buenos Aires, Argentina, June 2023.

L. A. Estévez and C. E. Vázquez, "Sublimation Pressure from Solubility Data in Supercritical Fluids—The Case of Naproxen in Supercritical CO_2," 11th World Congress of Chemical Engineering, Buenos Aires, Argentina, June 2023.

S. A. Sajadian, N. Esfandiari, N. S. Ardestani, Ch. Garlapati, and L. A. Estévez, "Solubility of Glibenclamide in Supercritical Carbon Dioxide assisted by Ethanol as Co-Solvent," 11th World Congress of Chemical Engineering, Buenos Aires, Argentina, June 2023.

El doctor Arturo J. Hernández-Maldonado ofreció la presentación "Hierarchical Composite Porous Materials for the Adsorption of Contaminants of Emerging Concern from Water" a miembros del CIAPR y público en general. Presentación ofrecida en las facilidades del CIAPR en Mayagüez. 7 de marzo de 2023

Shaskya Castaño and Aldo Acevedo, Enhancement of Liquid Crystal Emulsion Stability by Nanoparticle Inclusion in the Interface Under Static & Dynamic Conditions, Poster Presentation at PREM Students Symposium, MRS Spring Conference, April 2023.

R. Feliciano Crespo, G. Ramos, K. Echevarria, W. García, P. Resto, and D. Suleiman. "Novel Multi-Ionic Polymers for Cardiovascular Biomarker Detection." 2023 NSF-CAWT Annual Meeting, Mayaguez, PR, May, 2023.

Montaño, and D. Suleiman. "Development of Organic Photovoltaic Devices for Wearable Technologies Using Novel Polymer Donors and Small Molecule Acceptors." 2023 NSF-CAWT Annual Meeting, Mayaguez, PR, May, 2023.

Ramos-Rivera and D. Suleiman. "Synthesis and Characterization of Novel Poly(arylene ether sulfone) as Donor-Acceptor Matrix for Organic Photovoltaic Devices." 2023 NSF-CAWT Annual Meeting, Mayaguez, PR, May, 2023.

R. Salas, and D. Suleiman. "Novel Polymer Donors and Small Molecule Acceptors in Organic Photovoltaic Devices for Wearable Technologies." 2023 NSF-CAWT Annual Meeting, Mayaguez, PR, May, 2023.

Torres-Lugo, M., Tailored Synthetic Hydrogels for Cell Culture, UPRM Chemistry Seminar, Feb 3,2023

Torres-Lugo, M., CMaT Faculty presentation for REU and RET students, July 20, 2023

Heizel Rosado-Galindo, Ana M. Reyes, Jan P. Ríos, Natalia Ramos-Acevedo , Miosotis Acevedo , Gabriela Ortiz-Soto, Michelle Martínez-Montemayor, Wandaliz Torres-Garcia and Maribella Domenech. Impact of Culture Proximity in Paracrine Hedgehog Signaling in Triple Negative Breast Cancer. University of Puerto Rico Comprehensive Cancer Center 1st Annual Scientific Congress: Advances in Cancer Care, Research & Health Policy, Puerto Rico Convention Center in San Juan, May 5-6, 2023. - 1st place award in the category: Basic and translational research.

Maribella Domenech. Collagen-based culture technologies for breast cancer research. Invited Speaker, Graduate Seminar, Chemistry Department, UPR-Mayaguez, Amphitheater, 10th February 2023.

Alexxa Cruz and Maribella Domenech. The Impact of M2-polarized Macrophages on the oncogenic activity of hedgehog signaling activity in triple-negative breast cancer cells. Emerging Researchers National Conference 2023, Washington DC, February 09, 2023. - - 1st place award in the category: Graduate Oral Biological Sciences

Isabel Hortal-Sánchez, Cardona-Martínez, Nelson, Effect of Water Absence on Fructose Catalytic Conversion on Beta Zeolites, June 21, 2023, Providence, RI.

Manuel, A. J.; Luisa, G.; Aidsa, I. S.-R.; Nayda, G. S.; Pedro, O. Q.; Carla Lopez Del, P.; Nelson, C.-M.; Sonia, M. B.-S., Boosting Study Program Awareness via a Structured Introductory Experience to Engineering. In ASEE Conferences: Baltimore , Maryland, June 2023.

Manuel, A. J.; Luisa, G.; Aidsa, I. S.-R.; Oscar Marcelo, S.; Nayda, G. S.; Carla Lopez Del, P.; Pedro, O. Q.; Anidza, V.; Nelson, C.-M.; Sonia, M. B.-S., Board 356: Perspectives from an Intervention Model to Improve Retention and Success Among Low-income Hispanic Engineering Students. In ASEE Conferences: Baltimore, Maryland, June 2023.

Ortiz-Bermudez, P. Unraveling clues to polymicrobial interactions through functional metagenomics from Puerto Rican ecosystems. Invited speaker: Cambridge Infectious Diseases Center, Cambridge, UK. May 22, 2023.

Ortiz-Bermudez, P. Unraveling clues to polymicrobial interactions through functional metagenomics from Puerto Rican ecosystems. 2023 Annual Symposium, "Sociedad de Microbiólogos de Puerto Rico", Pontifical Catholic University of Puerto Rico, Ponce, P.R., June 9, 2023.

Pagan-Torres, Yomaira, Invited seminar speaker of the Department of Chemical Engineering Seminar Series from the University of Notre Dame, March 2023.

Pagan-Torres, Yomaira, Technical presentation of WiPREM project presented at the ACS Spring National Meeting, March 2023.

Pagan-Torres, Yomaira, Technical presentation of WiPREM project presented at North American Catalysis Society Meeting, June 2023.

Poster presented by Pagan-Torres at the Gordon Research Conference on Plastics Upcycling, July 2023.

Pagan-Torres, Yomaira, “Tuning Heterogeneous Catalyst Surfaces for Chemical Conversions”, Invited Seminar Speaker at the University of Notre Dame, Indiana, March 2023.

Pagan-Torres, Yomaira, “Heterogeneous metal/metal-oxide catalysts for CO2 reduction to methanol”, 2023 ACS Spring Annual Meeting, Indiana, March 2023.

Pagan-Torres, Yomaira, Invited Panelist, “North American Catalysis Society Meeting Pathways and Networks in Early-Career Catalysis Research”, 2023 NAM Meeting, Rhode Island, June 2023.

Pagan-Torres, Yomaira, “Mechanistic Investigation of Selective CuGaZr Catalysts for the Hydrogenation of CO2 to Methanol”, 2023 NAM Meetings, Rhode Island, June 2023.

Pagan-Torres, Yomaira, “Heterogeneous Bifunctional Catalysts for Selective Hydrogenolysis of Single-Use Mixed Plastic Waste”, Gordon Research Conference, New Hampshire, July 2023.

UCordova Lessons from the University of Puerto Rico, National Academies, Beyond Broadening Participation: Research to Progress to Hybrid Workshop (Washington DC, 15 – 18 de mayo de 2023)

UCordova Self-assembly of magnetic Janus particles via Brownian Dynamics simulations, 34th International Conference on Science and Technology of Complex Fluids (San Luis Potosí, MX, 24 de junio al 1 de julio de 2023)

S. Ayus, et. Al, C Mora "Endothelial Matrix-bound Vesicles As Signaling Factors For Stem Cell Differentiation" TERMIS-AM 2023 Boston, MA

L. Rivera et. al, C Mora "Detection of endothelial markers in Matrix-bound vesicles" 2nd BioX Symposium (EEMBS) Mayaguez, PR

S. Ayus, C Mora "Development of a Chamber for Immunofuctionalization of Screen Printed Electrodes for EVsensing" 2nd BioX Symposium (EEMBS) Mayaguez, PR

S Ayus and W Meza et al, C Mora "MAtrix-Bound Vesicles as Tissue-specific Extracellular Vesicles Models for Biosensor Development" ISEV 2023 Seattle, Wa

W Meza et al, C Mora “Development of a Screen Printed Electrode to Detect Extracellular Vesicles in Saliva” CAWT Annual Meeting Mayaguez, PR

L. Burgos, et al, C Mora "Development of a Chamber for Immunofuctionalization of Screen Printed Electrodes for EV-sensing" CAWT Annual Meeting Mayaguez, PR

S. Ayus "Endothelial Matrix-bound Vesicles As Signaling Factors For Stem Cell Differentiation" CAWT Annual Meeting Mayaguez, PR

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Lynn, D.M.; Acevedo-Velez, C. “Liquid Crystal Droplets Stabilized by Nanoparticles as Platforms for Chemical and Biomolecular Sensing”. Invited seminar at the REU/RET Seminar Series, Materials Research Science and Engineering Center, UW-Madison. July 2023. Virtual Presentation.

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Lynn, D.M.; Acevedo-Velez, C. “Thermotropic Liquid Crystal Emulsions with Long-Term Colloidal Stability and Enhanced Sensitivity for Detection of Amphiphilic Analytes”. 2023 Gordon Research Conference on Liquid Crystals, Manchester, NH. June 2023. Poster Presentation.

Piñeres-Quiñones, O.; Lynn, D. M.; Acevedo-Vélez, C. “Liquid Crystal Emulsions Stabilized by Nanoparticle-Surfactant Complexes”. University of Puerto Rico-Mayaguez Research Symposium, Mayaguez, PR. May 2023. Poster Presentation.

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Acevedo-Velez, C. “Development of a Biosensing Platform Based on Nanoparticle-Stabilized Liquid Crystal Droplets for Detection of Extracellular Vesicles Derived from Human Cells”. 2023 CAWT Annual Meeting. Mayaguez, PR. May 2023. Poster

Presentation.

Oñate-Socarras, M. K.; Piñeres-Quiñones, O.H.; Acevedo-Velez, C. “Liquid Crystal Droplet-Based Biosensors for Cell Manufacturing Processes”. CMaT Site Visit, Atlanta, GA. April 2023. Poster Presentation.

Oñate-Socarras, M. K.; Acevedo-Velez, C. “Development of an Optical Sensor Based on Liquid Crystal Emulsions Stabilized by Nanoparticles”. University of Puerto Rico-Mayagüez Research Symposium. January 2023. Poster Presentation.

3 de noviembre de 2023 – El doctor Arturo J. Hernández-Maldonado ofreció un seminario de su trabajo de investigación en el Departamento de Química de UPRM. El título del mismo fue “Trace CO2 Removal from Humid Gas Using HierarchicalSilicoaluminophosphate/Carbon Composite Adsorbents.”

S. Sánchez González, G. Muratti López, and D. Suleiman. “Synthesis and Characterization of Magnetically Aligned Sulfonated Poly(Styrene-Isobutylene-Styrene) for Fuel Cell Applications.” 2023 AIChE Annual Meeting, Orlando, FL, Nov, 2023.

S. Ayus, C Mora et. Al, "MAtrix-Bound Vesicles as Tissue-specific Extracellular VEsicles Models for Biosensor DEvelopment", BMES Anual Meeting 2023, Seattle, Wa

M. Buendia, C. Mora et. Al, "Evaluating the Matrix-Bound Vesicles Extraction Process from Blood-Rich Tissue vs Cartilage Tissue", BMES Anual Meeting 2023, Seattle, Wa

Luis Gabriel. Burgos, II, C. Mora, "Electrode Funtion alization for the Development of an Amperometric Biosensor Capable of Detecting Endothelial Extracellular Vesicles", ABRCMS Annual meating 2023, Pheonix, Az.

J. Jiménez, C. Mora, et., “Extracellular Vesicles Adsorption on TiO2 for Metabolite Analysis as Predictive Tool in Mesenchymal Stem Cell Manufacturing”, CMaT Annual Meeting, Mayaguez, PR

L. Rivera, S. Ayus, C. Mo, “Isolation of Cardiac Endothelial Matrix-Bound Vesicles as Biomarker Models for EVbiosensor Development”, BMES CMBE Conference, San Juan, PR

J. Jiménez, C. Mora, et., “Extracellular Vesicles Adsorption on TiO2 for Metabolite Analysis as Predictive Tool in Mesenchymal Stem Cell Manufacturing”, CMat Annual Retreat, San Juan, PR

J. Jiménez, C. Mora, et., “Extracellular Vesicles Adsorption on TiO2 for Metabolite Analysis as Predictive Tool in Mesenchymal Stem Cell Manufacturing”, FORWARD Summit, San Juan, PR

W Meza, C Mora et al., "Development of a Screen Printed Electrode to Detect Extracellular Vesicles in Saliva", FORWARD Summit, San Juan, PR
Fabiola Y. Rodríguez-Rodríguez, Isabel Hortal-Sánchez, Cardona-Martínez, Nelson, Effect of Zeolite Acidity and Solvent on the Conversion of Fructose to High-Value Compounds, 2023 AIChE Annual Meeting, November 6, 2023, Orlando, FL.

Gravitational Effect of Pathogenesis on S. cerevisiae. Magda Latorre Esteves, Cacimar Ramos, Magda Latorre-Esteves. Forward Resaearch and Innovation Summit: Science and Space Edition. November 30 2023, Hotel Caribe Hilton, San Juan, PR

Automated Cleaning in Continuous Manufacturing, Dhavalkumar Patel, Rafael Mendez, and Rodolfo Romañach, IFPAC Summit SJ sept 2023

The Validation of a Stream Sampler for Continuous Manufacturing, Juan Nasrala, Raul Rangel, Rafael Mendez, Rodolfo J Romañach, IFPAC Summit SJ sept 2023

Knowledge management of validating a NIR method - A case study with a closed feed frame, Nathaly Movilla Meza, Rodolfo J Romañach, Rafael Mendez IFPAC Summit SJ sept 2023

Invited seminar speaker of the Department of Chemical Engineering Seminar Series from the University of Alabama, YPagan, October 2023.

Invited seminar speaker of the Department of Chemistry Seminar Series from the University of Puerto Rico at Mayaguez, YPagan, September 2023.

Technical presentation at the 2023 AIChE Annual Meeting titled, “Tuning Oxygen Vacancies in Ni/CeO2 for CO2 Methanation” YPagan.

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Lynn, D.M.; Acevedo-Velez, C. “Environmentally Responsive Liquid Crystal Emulsions with Long-term Colloidal Stability and Enhanced Sensitivity to Amphiphilic Analytes”. 2023 AIChE Annual Meeting, November 2023. Oral Presentation.

Qin, S.; Wang, F.; Acevedo-Velez, C.; Van Lehn, R.; Zavala, V.; Lynn, D.M. “Decoding Optical Responses of Contact-Printed Arrays of Liquid Crystals Using Machine Learning: Detection of Aqueous Amphiphiles with Enhanced Sensitvity and Selectvity.” 2023 AIChE Annual Meeting, November 2023. Oral Presentation.

Piñeres-Quiñones, O.H.; Oñate-Socarras, M. K.; Lynn, D.M.; Acevedo-Velez, C. “Liquid Crystal Microdroplets Stabilized by Nanoparticles: New Approaches to Design Droplet-based Sensors for Detection of Amphiphilic Analytes”. 2023 LatinXinChe Virtual Symposium: Advances and Contributions of LatinX Chemical Engineers, September 2023. Oral Presentation.

Wang, F.; Qin, S.; Acevedo-Velez, C.; Van Lehn, R.; Zavala, V.; Lynn, D.M. “Decoding Optical Responses of Surface-Immobilized Liquid Crystal Droplets using Machine Learning for Detection of Aqueous Amphiphiles with Enhanced Sensitivity and Selectivity.” ACS Fall 2023 National Meeting, August 2023, San Francisco, CA. Oral Presentation.

Oñate-Socarras, M. K.; Piñeres-Quiñones, O.H.; Acevedo-Velez, C. “Liquid Crystal Droplet-Based Biosensors for Cell Manufacturing Processes”. CMaT Annual Retreat, San Juan, PR. November 2023. Invited Oral Presentation. Oñate-Socarras, M. K.; Piñeres-Quiñones, O.H.; Acevedo-Velez, C. “Liquid Crystal Droplet-Based Biosensors for Cell Manufacturing Processes”. CMaT Annual Retreat, San Juan, PR. November 2023. Poster Presentation.

Acevedo-Vélez, C.; Mora-Navarro, C. “Establish a BioFoundry to Advance Agricultural Biotechnology in PR”.Puerto Rico Agricultural Biotechnology Industry Association (PRABIA) monthly meeting. Virtual, September 2023. Invited Oral Presentation.

Patents:

Hernández-Maldonado, A.; Tous-Granados, A. Bi-Metallic Pillared-Layered Coordination Polymers for Carbon Dioxide Removal Prov. Patent App. 18/361,319 (2023).

Hernández-Maldonado, A.; Cheng, Z.; Arrieta-Perez, R.; Rivera-Mirabal, D.; Del Valle-Pérez, G.; Zhao, Y.; Lin, S.; Vega-Santander, D. Nanoporous Pure Silica Zeolites. US Patent App. 18/258,105 (2023).

Isabel Hortal-Sánchez, Cardona-Martínez, Nelson, Ive Hermans, Wei-Shang Lo, Edgard A. Lebrón Rodríguez, P230017US01 DRAFT Provisional Patent Application, June 12, 2023.

Invention Disclosure:

Invention Id: 23-031-DISC-UPR, DSuleiman, Title: Sulfonated poly(arylene ether sulfone) and sulfonated poly(arylene ether ketone) membranes for improved fuel cell performance

Computer Science and Engineering Department

Active Grants during or until 2022-2023

Heidy Sierra (PI), CAREER: Computational Optics and Photonics for Deep Imaging of Live Tissue, NSF, $498,905, 5/1/18-4/30/24

Emmanuel Arzuaga (Co-I), Remote Sensing of Sargassum Accumulation and Impacts on Tropical Marine Ecosystems: A Multi-Scale Approach, NASA, $749,721, 08/2021 – 07/2024

Manuel Rodriguez (PI), R15 THS: Using Twitter and Big Data Analytics to Track and Predict Health Conditions, NIH, $359,367, 9/15/21-5/1/24

Stackable Certifications in Computing Programs at the College of Engineering of the University of Puerto Rico, Mayaguez, Manuel Rodriguez (PI), DDEC, Budget: $300,000.

Collaborative Research: CCRI: ENS: Enhanced Open Networked Airborne Computing Platform, Kejie Lu (PI), NSF, $287,019.

Development of Biosensing System from Power to Analysis for GFAP and UCH-L1, Lisandro Cunci (PI), Emmanuel Arzuaga (Co-PI), CAWT Integrative Research Exploratory Grants, $150,000.

Juan Medina Lee (PI), CAWT: Driver monitoring system for takeover time prediction based on wearable devices

Juan Pararroyo (PI), CAWT: An AI-based wearable framework to integrate and correlate motion analysis with other sensors and biomarkers.
Proposals Submitted

Manuel Rodriguez (PI), Heidy Sierra (Co-PI), Emmanuel Arzuaga (Co-PI), MRI: Track 1 Acquisition of GPU Cluster for AI-HSI - a campus-wide cyberinfrastructure to support AI, hyperspectral imaging, and optics research at UPRM, NSF, $513K, 06/01/2024-05/30/2027 (Awarded)

Wilson Rivera (Co-PI), An educational approach to precision livestock farming for current and potential undergraduate students through research, extension, internship, and study abroad experiences using small ruminants as models, USDA NIFA, $199K, 08/01/2024-07/31/2027 (Awarded)

Publications
Jinran Zhang, Kejie Lu, Yan Wan, Junfei Xie, Shengli Fu, "Empowering UAV-Based Airborne Computing Platform with SDR: Building an LTE Base Station for Enhanced Aerial Connectivity," Published online, IEEE Transactions on Vehicular Technology, Jun. 2024.

Jin Wang, Wei Jiang, Jingya Zhou, Zhaobo Lu, Kejie Lu, and Jianping Wang, "Partial Decode and Compare: An Efficient Verification Scheme for Coded Edge Computing," Published online, IEEE Transactions on Cloud Computing, Mar. 2024.

Haomeng Zhang, Baoqian Wang, Ruitao Wu, Junfei Xie, Yan Wan, Shengli Fu, and Kejie Lu, "Exploring Networked Airborne Computing: A Comprehensive Approach with Advanced Simulator and Hardware Testbed," Published online, Unmanned Systems, Nov. 2023.

Jin Wang, Zhaobo Lu, Mingjia Fu, Jianping Wang, Kejie Lu, and Admela Jukan, "Decode-and-Compare: An Efficient Verification Scheme for Coded Distributed Edge Computing," IEEE Transactions on Cloud Computing, Vol. 11, No. 3, pp. 2784-2802, Jul. 2023.

Justin S. Lee, Nicholas Palmer, Junfei Xie, Yan Wan, Kejie Lu, and Shengli Fu, "RAPTURE: a Remotely Accessible Platform of Testbeds for UAS Research and Education," to appear in Proc. AIAA 2024, Jul. 2024.

Haomeng Zhang, Junfei Xie, Yan Wan, Shengli Fu, and Kejie Lu, "Advancing Networked Airborne Computing with mmWave for Air-to-Air Communications," to appear in Proc. ISICN 2024, Mar. 2024.

Dong Wang, Edwin Florez-Gomez, and Kejie Lu, "A Survey on Digital Twin Networks: Use Cases and Enabling Technologies," to appear in Proc. ISICN 2024, Mar. 2024.

Juan Medina Lee et al., Self-configuring motion planner for automated vehicles based on human driving styles, 2024 IEEE Intelligent Vehicles Symposium (IV).

Juan Medina Lee et al., Integrating occlusion awareness in urban motion prediction for enhanced autonomous vehicle navigation, 2024 IEEE Intelligent Vehicles Symposium (IV).

J.F. Patarroyo, Juan, et al. "Considerations for Digital Real-Time Simulation, Control-HIL, and Power-HIL in Microgrids/DER Studies." Microgrids: Theory and Practice (2024): 579-614.

Gonzalez-Candelario CO, Darbali-Zamora R, Aponte-Bezares EE, Flicker JD, Neely JC, Rashkin LJ, Patarroyo-Montenegro JF, Rengifo FA. Evaluation of an Autonomous Control Scheme for Interconnected DC Microgrids Using a Power Hardware-in-the-Loop Platform. IEEE Access. 2023

Sun C, Ali SQ, Joos G, Paquin JN, Montenegro JF. Design and CHIL testing of microgrid controller with general rule-based dispatch. Applied Energy. 2023 Sep 1;345:121313.

2023.Alvarez, M., Arzuaga, E., & Sierra, H. (2023, September). Using Monte Carlo simulated PPGs signals to train a deep learning model to predict hemoglobin levels. In Emerging Topics in Artificial Intelligence (ETAI) 2023 (Vol. 12655, pp. 15-22). SPIE.https://doi.org/10.1117/12.2677499
G. Bonilla, and M. Rodriguez-Martinez, Deep Learning Methods to Help Predict Properties of Molecules from SMILES, 2024 International Symposium on Computational and Network Intelligence, Springer, San Juan, PR.

Mechanical Engineering Department

Mechanical Engineering Department
Quantity of external funds received, by source, for research and creative work.
CAWT: $45,000 + $45,000
USDA: $200,000
DOE: $150,000 (subaward) + $408,000 (subaward) + $620,000 (subaward)
NIST: $7.5 M
IACMI: $229,265
NIH: $245,000
P&W Turbolab: $45,000 + $45,000 + $38,975
Total: $9.57M
Total number of proposals submitted and approved by department.
8
Number of new research and creative work projects.
12

Brief description of new and ongoing projects with significant impact.

“Aerospace Institute for Research (AIR): Enhancing Capabilities in Research, Development and Aerospace-Related Economic Development”, NIST, $7.425M. Construction of a new facility for capacity building the aerospace research.

"Addressing Challenges in Energy: Floating Wind in a Changing Climate", DOE Energy Earthshot Research Center, $19M ($408K UPRM subaward). The global shift from nonrenewable to clean renewable energy sources is an all-hands mission. Reaching net-zero carbon emissions requires focus and support comparable to landing a spaceship on the moon. In fact, the U.S. Department of Energy (DOE) calls this 21st century mission Energy Earthshots™. To support DOE’s Energy Earthshots™, Pacific Northwest National Laboratory (PNNL) will lead two separate Energy Earthshot Research Centers (EERCs). These centers build upon PNNL’s established expertise in performing the basic science underpinning (1) geothermal energy and (2) floating offshore wind energy. Earth scientist Larry Berg heads the effort to make floating offshore wind a long-term viable energy source through the center titled Addressing Challenges in Energy: Floating Wind in a Changing Climate (ACE-FWICC). ACE-FWICC will advance the design and control of floating offshore wind turbines and their integration into the grid by incorporating knowledge of weather and ocean conditions. Dr. Umberto Ciri will be the champion from UPRM in this project.

“DOE Onsite Energy Technical Assistance Partnerships”, US Department of Energy, $1.5M ($150K UPRM subaward). The U.S. Department of Energy’s (DOE) Industrial Efficiency and Decarbonization Office (IEDO) has announced the selection of nine organizations that will establish a network of Technical Assistance Partnerships (TAPs) to help industrial facilities and other large energy users increase the adoption of onsite energy technologies. As one of the awardees, the NC Clean Energy Technology Center at NC State University will lead this proposed team for a DOE Southeast Onsite Energy TAP, in collaboration with team members from the University of Puerto Rico Mayagüez (UPRM) and Tennessee Tech. The award is for $1.5 million over three years, and will support technical assistance on a wide variety on technologies, including battery storage, combined heat and power (CHP), district energy, fuel cells, geothermal, industrial heat pumps, renewable fuels, solar photovoltaics, solar thermal, thermal storage, and wind power. This award represents for UPRM and for the people of Puerto Rico a unique opportunity to help transform the energy generation system. Our partnership with NC State University on this DoE TAP will be pivotal for the future of the island, “ said Pedro Quintero, Professor, Department of Mechanical Engineering, University of Puerto Rico at Mayaguez.

Impact outcomes of research and creative work projects (e.g., patents, discoveries).

Dr. Rubén Díaz Rivera, Marco Becerra, Provisional Patent Application, “IMPEDANCE-BASED CLASSIFICATION OF BIOLOGICAL CELLS OR OTHER PARTICLES VIA MACHINE LEARNING METHODS”, Docket No.: 118347-0110

Initiatives to involve students in research and creative work projects.

Activities to promote the graduate program: Coffee-Date with Faculty in Research, April 2, 2024.

Most relevant publications and presentations.

U Ciri, JMB Tubije, MA Guzman-Hernandez, S Rodriguez-Abudo, S Leonardi. "Direct numerical simulations of oscillatory boundary layers over rough walls", International Journal of Heat and Fluid Flow 103: 109170 (2023)

Echeverría-Altamar K, Alvarado-Hernandez BB, Resto-Irizarry P, Romañach RJ. Identification of Four Similar Cell Culture Media According to their Glucose, Glutamine, and Pyruvate Content by Handheld Raman Spectroscopy. Pharm Res. 2023 Aug 18. doi: 10.1007/s11095-023-03584-z

Delgado-Rivera, R.; García-Rodríguez, W.; López, L.; Cunci, L.; Resto, P.J.; Domenech, M. PCL/PEO Polymer Membrane Prevents Biofouling in Wearable Detection Sensors. Membranes 2023, 13, 728. doi: 10.3390/membranes13080728

Guerrero, M., Ozdemir, O., and Quintero, P., “Cold Gas Spraying Copper Metal on ALN Ceramics as an Alternative to Thick DBC Substrates for Power Electronics”, Proceedings of the ASME 2023 International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems (InterPACK 2023), October 24-26, 2023, San Diego, California.

Jimenez, M., Lopez Del Puerto, C, Bartolomei, S., and Quintero, P., “An Industry-Academy Partnership to Bridge the SES Gap in Engineering Education”, 2023 IEEE ASEE Frontiers in Education Conference, College Station, Texas, October 18–21, 2023.

F. Feddersen, Andre Amador, Kanoa Pick, A. Vizuet, Kaden Quinn, Eric Wolfinger, J. H. MacMahan & Adam Fincham (2023) The wavedrifter: a low-cost IMU-based Lagrangian drifter to observe steepening and overturning of surface gravity waves and the transition to turbulence, Coastal Engineering Journal, DOI: 10.1080/21664250.2023.2238949

N. Perez, Material Science, Theory and Engineering 2023 (submitted to Springer Nature)

S. Candelaria, M. Menegozzo, D. Serrano, Sandwich Core Structures with Internal Non-prismatic Reinforcements, 3rd International Conference on Mechanics of Advanced Materials and Structures (ICMAMS 2023, Universidad de Texas A&M, College Station, TX

Marco Menegozzo, Andres Cecchini Brigi, Ryan Joseph Spencer, Brandon Turner White, Ryan Christian Ogle, Uday Kumar Vaidya, Using Natural Fiber-Reinforced Polymer to increase Energy Absorption of 3d-Printed Honeycomb Structures under Low-Velocity Impact Loads, 20th International Conference on Experimental Mechanics (ICEM20, en Porto, Portugal)

López Ramos, E., Rivera Bengoechea, M., Cancelos Mancini, S. and Marín Martín, C., 2023. Bubble rupture & viability of red blood cells under resonant acoustic standing waves. Undersea & Hyperbaric Medicine, 50(4).

J. Banerjee and J. Rivera-Rodriguez, A comparison of the process variables between electromagnetic forming and hydrostatic bulge forming in metal working industries, International Conference on Mechanics and Materials in Design 2024.

Raquel Feliciano Crespo, William Garcia Rodriguez, Gilberto Ramos Rivera, Karla Echeverria, Vanessa Psarras Roman, David Suleiman Rosado and Pedro Resto Irizarry, “Cardiac Troponin I detection using Screen Printed Electrodes modified with Sulfonated Styrene-Isobutylene-Styrene (SIBS) Block Copolymer”, ACS Spring Meeting, New Orleans, LA, March, 2024.

The 4th International Electronic Conference on Biosensors (20–22 May 2024, online). Submission ID: sciforum-086969. Title: Label-Free Classification of L-Histidine Vs Artificial Human Sweat Using Laser Scribed Electrodes and a Machine Learning Algorithm. Author: William E García-Rodríguez, Pedro J Resto Irizarry. Event: The 4th International Electronic Conference on Biosensors. Section: Artificial Intelligence in Biosensors.

The 4th International Electronic Conference on Biosensors (20–22 May 2024, online). Submission ID: sciforum-086929. Title:Rapid, portable and low-cost water quality device using machine learning.. Author: Andrés Saavedra Ruiz, Pedro J Resto Irizarry. Event: The 4th International Electronic Conference on Biosensors. Section: Artificial Intelligence in Biosensors.

Mudd, K, Ho, A., Amador, A., Lodise, J., Behrens, J., Merrifield, S. T. (2024). Wind velocity estimates from wave observing platforms. Coastal Engineering Journal.

Electrical and Computer Engineering Department

Proposals 2023/2024

DOE-EpSCOR (Alaska): “Development and validation of models to assess dynamic response of converter-dominated power systems across multiple spatiotemporal scales.”

RISE-UP (NSF): “Building Capacity: A Collaborative Undergraduate STEM Program in Resilient and Sustainable Infrastructure.”

STORM (NSF): Collaborative Research: RII Track-2 FEC: STORM: Data-Driven Approaches for Secure Electric Grids in Communities Disproportionately Impacted by Climate Change

DOE-ORNL: “Resilient Operation of Networked Community Microgrids with High Solar Penetration”

Interconnected DCMGs Under Geographical Dispersion

Evaluation of Resilience Tools for the Puerto Rico Electric Grid Restoration

MDT Applied to Rural Communities Resilience

DOE-SLN-FEMA (RES PR 100) Opportunities for Distributed Solar to Improve Resilience and Energy Justice in Puerto Rico

“Hurricane Fiona Response: Evaluation of Resilience Tools for the Puerto Rico Electric Grid Restoration”

Continuation of the TI Analog, Digital, & Mixed Signal Electronics Program at the UPRM

Recruiting, Retaining, and Engaging Academically Talented Students from Economically Disadvantaged Groups into a Pathway to Successful Engineering Careers

Center for Advanced Radio Science & Engineering (CARSE)

Bridging Resources and Ideas to Grow Higher Technologists in Computer Engineering (BRIGHT-CE)

UNIFI Grid-Forming-Inverters Consortium

Innovative Wide Area Sensing (IWAS) Mitigation Technologies For Countering Weapons of Mass Destructions

AGM CHRES

UPRM’s Solar Boat: The Solar Splash Competition

NSF-PFI-TT – Development of Miniature Induction Heaters for Cancer Treatment

FEC: STORM: Data-Driven Approaches for Secure Electric Grids in Communities Disproportionately Impacted, PR100 (fondos externos Sandia)

WCRP (fondos externos CDBG-DR)

Poder Solar Comunitario (fondos externos EDF) Extension 3: Dynamic modeling of converter- dominated power systems (en colaboración con Universidad de Alaska y Universidad de Dakota del Sur)

PR 100

Dual-band, low SWaP UAS-mounted Microwave Radiometer for Salinity Mapping (MiRaS)

SpectrumX – An NSF Spectrum Innovation Center

Development of reconfigurable antennas using vanadium oxides

Low SWaP digital receiver for dual-band microwave radiometer.

Research and Education on TLEs: Artificial Intelligence / Machine Learning Application for Identification and Categorization of TLEs

Graph based deep learning architecture for modeling ecosystem dynamics integrating hyperspectral and remote sensing data over the Alaskan Boreal región

RII Track-2 FEC: STORM: Data-Driven Approaches for Secure Electric Grids in Communities Disproportionately Impacted by Climate Change.

PARTNER: Innovating AI for efficient and insightful data transformations

Oasis de Luz (DOE - Puerto Rico Resilience Hubs)

Consortium for Hybrid Resilient Energy Systems

NIFA USDA.of Agriculture - Enhancing Experiential Learning by Assessing Food Quality of Tropical Crops Using Advanced Chemical Sensors and Unnamed Aerial Vehicles

Extension 3: Dynamic modeling of converter- dominated power systems (en colaboración con Universidad de Alaska y Universidad de Dakota del Sur)

Submitted publications

ISGT: Microgrid Design Toolkit Evaluation and Trade-offs Analysis for Rural Community in Cayey Puerto Rico

J. D. Vasquez-Plaza, J. M. R. Scarpetta, T. M. Hansen, R. Tonkoski and F. A. Rengifo, "Smooth Mathematical Representation of the DER_A Aggregated Model," in IEEE Access, vol.11, pp. 101398-101408, 2023, doi: 10.1109/ACCESS.2023.3315245.

Subedi, S., Guruwacharya, N., Poudel, B., Vasquez-Plaza, J. D., Andrade, F., Fourney, R., ... & Tonkoski, R. (2023). Leveraging Data-Driven Models for Accurate Analysis of Grid-Tied Smart Inverters Dynamics. arXiv preprint arXiv:2310.02056.

T. Wright et al., "Nearest-Neighbor Gaussian Process to Downscale Solar Forecasting at the Grid- Edge for Increased Situational Awareness," 2023 North American Power Symposium (NAPS), Asheville, NC, USA, 2023, pp. 1-6, doi: 10.1109/NAPS58826.2023.10318558.

J. D. Vasquez-Plaza, O. F. Rodriguez-Martinez, C. J. Delgado, D. D. Campo-Ossa, A. C. Luna and F. Andrade, "Grid Impedance Estimation for DC/AC Converter Applications Using Moving Horizon Estimation on Cloud-Computing," 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), San Juan, PR, USA, 2023, pp. 380-384, doi: 10.1109/ISGT-LA56058.2023.10328260.

L. M. Lamboy Sanabria et al., "Project-Based Learning to Address Infrastructure Challenges: Designing Modular Classrooms for Natural Disasters," 2023 IEEE Frontiers in Education Conference (FIE), College Station, TX, USA, 2023, pp. 1-4, doi: 10.1109/FIE58773.2023.10342643.

J. L. Diaz et al., "Comparison of Battery Degradation in a Microgrid Operating Under Two Different DER Scheduling Strategies," 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), San Juan, PR, USA, 2023, pp. 390-394, doi: 10.1109/ISGT-LA56058.2023.10328318.

Vega Penagos, Cesar A., Jan L. Diaz, Omar F. Rodriguez-Martinez, Fabio Andrade, and Adriana C. Luna. 2024. "Metrics and Strategies Used in Power Grid Resilience" Energies 17, no. 1: 168.

O. D. Garzon et al., "Integration and Assessment of Photovoltaic Systems in Puerto Rican Communities," 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), San Juan, PR, USA, 2023, pp. 375-379, doi: 10.1109/ISGT-LA56058.2023.10328316.

O. F. Rodriguez-Martinez, J. L. Diaz, M. P. Gomez, A. C. L. Hernández and F. Andrade, "Centralized Secondary Microgrid Controller Based on Smith Predictor and Fuzzy Logic to Address Communication Delay Uncertainties," 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), San Juan, PR, USA, 2023, pp. 385-389, doi: 10.1109/ISGT-LA56058.2023.10328290.

Montano, J., Garzón, O.D., Herrera-Jaramillo, D.A. et al. Estimating the Parameters of a Three-Phase Induction Motor using the Vortex Search Algorithm. Iran J Sci Technol Trans Electr Eng (2023). https://doi.org/10.1007/s40998-023-00673-y

63601191 20231205 APP.FILE.REC 69584241 PATENTE CON NUMERO SULFHB 12 7 2023

Viajes y Presentaciones:

Single Events Effects Data Post Processing GUI (Poster Session at IAP)
TLP Characterization for Low Current Devices (Poster Session at IAP)

Design And Development Of An Electronic Circuit For Concentration Measurement And Diagnosis Of Sulfhemoglobin In Blood

E. Alfaro-Mejia, V. Manian, J. Ortiz, and R. Tokars, A blind convolutional deep autoencoder for spectral unmixing of hyperspectral images over waterbodies, Frontiers, Earth Science, Vol. 11, 2023.

P. Quintero, M. Jimenez, C. López del Puerto, A. Santiago, S. Bartolomei-Suarez, L. Guillemard, N. Santiago, N. Cardona, and O.M. Suarez, "An Industry-Academy Partnership to Bridge the SES Gap in Engineering Education", In Proc. of the 2023 IEEE Frontiers in Education Conference (FIE-2023), College Station, TX, Oct. 18-21, 2023

C. López del Puerto, M. Jimenez, N. Santiago, P. Quintero, S. Bartolomei-Suarez, L. Guillemard, O.M. Suarez, N. Cardona, and A. Santiago, "Exploring Servingness for Low-Income Academically Talented Students (LIATS) through Individual Development Plans (IDPs)", In Proc. of the 2023 IEEE Frontiers in Education Conference (FIE-2023), College Station, TX, Oct. 18-21, 2023

International Symposium on Circuits and Systems (ISCAS) – "An 84.5% PCE RF-DC Rectifier with 22 dB Dynamic Range for a 900MHz Energy Harvester"

Integration and Assessment of Photovoltaic Systems in Puerto Rican Communities, Authors: Oscar D Garzon;Anny Huaman-Rivera; Matias Patino Gomez; Jan L. Diaz; Yuly V Garcia; Fabio Andrade; Adriana C. Luna Hernández; Agustin A. Irizarry-Rivera

Grid Impedance Estimation for DC/AC Converter Applications Using Moving Horizon Estimation on Cloud Computing, Authors: Jesus David Vasquez Plaza; Omar F. Rodriguez-Martinez; Carlos Julian Delgado, Daniel Campo and Adriana C. Luna Hernández; Fabio Andrade.

N. Díaz, F. Guinjoan, G. Velasco-Quesada, A. Luna, J. M. Guerrero, "Fuzzy-based cooperative interaction between stand-alone microgrids interconnected through VSC-based multiterminal converter", International Journal of Electrical Power \& Energy Systems, Volume 152, 2023, 109226, ISSN 0142-0615,

Vega Penagos, Cesar A., Jan L. Diaz, Omar F. Rodriguez-Martinez, Fabio Andrade, and Adriana C. Luna. 2024. "Metrics and Strategies Used in Power Grid Resilience" Energies 17, no. 1: 168. https://doi.org/10.3390/en17010168

Jan L. Diaz, Andres Rosales, Oscar D Garzon, Cesar A Vega Penagos, Jesus David Vasquez Plaza, Carlos Julian Delgado, Adriana C. Luna Hernández, Fabio Andrade. "Comparison of Battery Degradation in a Microgrid Operating Under Two Different DER Scheduling Strategies". 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA). San Juan, PR, November 6-9, 2023.

Jan L. Diaz, Y. Garcia, Omar F. Rodriguez-Martinez, Vega Penagos, Cesar A., Fabio Andrade, and Adriana C. Luna, "Energy Management System for a Cluster of Microgrids Using Game Theory", Accepted to be presented in the 2024 IEEE PES General Meeting, 21-25 July 2024 Seattle, WA, USA

D.G. Rosero, E. Sanabria, N.L. Díaz, C.L. Trujillo, A. Luna, F. Andrade, "Full-deployed energy management system tested in a microgrid cluster". Applied Energy, 2023

Javier Moscoso, Pablo Méndez, Willian Pacheco, Carlos Peña, Alexis Burgos, Miguel de Jesús, Marcel Castro-Sitiriche, "Boricua Energy Justice as a Humanitarian Claim", IEEE International Humanitarian Technologies Conference (IHTC) 2023, Cartagena, Colombia, November 2, 2023.

Robert, García-Cooper, Marcel Castro-Sitiriche, Agsutín Irizarry-Rivera, Fabio Andrade-Rengifo, "The True Cost of Electric Service: What reliability metrics alone fail to communicate", The Electricity Journal, accepted with changes.

Javier Moscoso-Cabrera, Lyam Rivera-Moctezuma, Alexis Burgos-Rivera, Reiner Simshauser-Arroyo, Marcel Castro-Sitiriche, "Puerto Rico Solar Power Futures: Bottom-Up Grid" International Conference on Appropriate Technology 2022, Best paper selection, Khartoum, Sudan, November 24, 2022. Submitted to the African Journal of Science, Technology, Innovation and Development.

Submitted & approved pre IAP proposal "The Hybrid Drone Aerostat (HyDrA) Project".

Hernandez-Torres, Wilbert; Diaz, Brian; Ortiz-Rivera, Eduardo I.; "Artificial Intelligence and Unmanned Aerial Vehicle Applications on Electrical Power Systems", 2023 IEEE PES General Meeting, 16-20 July, 2023 Orlando, FL, USA.

One paper submitted to the 2024 IEEE PES General Meeting. The title of the submitted paper is "Basic GUIs for Education on PV Simulations". The authors were Diego Merchan, Eduardo Ortiz, and Dilcia Santos.

One paper submitted to the 2024 IEEE PES General Meeting. The title of the submitted paper is "A Simplified Non-Ideal Battery Discrete Model". The authors were Javier Moscoso, Eduardo Ortiz, and Adrian Gonzalez.

Articles presented

A. Huaman-Rivera, A. Irizarry-Rivera, and R. Calloquispe-Huallpa, "Evaluation of hosting capacity increase using smart inverter volt-var and volt-watt functions," in 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), Nov. 6-9, 2023, pp. 410–414.

O. D. Garzon, A. Huaman-Rivera, M. P. Gomez, J. L. Diaz, Y. V. Garcia, F. Andrade, A. C. L. Hernández, A. A.Irizarry-Rivera, "Integration and Assessment of Photovoltaic Systems in Puerto Rican Communities", in 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), pp. 375–379, IEEE, Nov. 6-9, 2023.

R. Calloquispe-Huallpa, A. Huaman-Rivera, A. F. Ordoñez-Benavides, Y. V. Garcia-Garcia, F. Andrade-Rengifo, E E. Aponte-Bezares, A. Irizarry-Rivera, "A Comparison Between Genetic Algorithm and Particle Swarm Optimization for Economic Dispatch in a Microgrid", in 2023 IEEE PES Innovative Smart Grid Technologies Latin America (ISGT-LA), pp. 415–419, IEEE, Nov. 6-9, 2023

Doctors Luis Montejo and Aidcer Vidot received approval from the Nuclear Regulatory Commission for their project titled: "Development and assessment of spectrally matched records for linear and nonlinear analysis of structures, systems, and components in nuclear facilities." The total allocation of approved funds is $499,963. This is the most recent active project in our department.

Civil Engineering and Surveying Department

Researchers	Tittle	Amount	Agency
Alesandra Morales (Co-PI) and Stephen Hughes	Puerto Rico Landslide Hazard Reduction	$500k	USGS
Rodríguez Román D (PI), Héctor Carlo (Co-PI), Nayda Santiago (Co-PI)	Center for Research on Equitable and Accessible Rural Mobility	$350k	5 marzo 2024
PI-RUM: Alberto Figueroa Medina, Co-PIs RUM: Ismael Pagán Trinidad, Carla López del Puerto and Carlos del Valle González (ECON)	Research Center for Mobility Equity. Propuesta colaborativa con Southern Illinois University Edwardsville (lead), Purdue University, Washington State University, Jackson State University y el RUM	$237,600	USDOT
Pedro Tarafa, Marco de Jesús, Matías Cáfaro, Arturo Hernández y Samuel Hernández	Characterization, detection and degradation of persistent emerging contaminants in air, soils and irrigation districts of Puerto Rico	$3.6M	NSF
Pedro Tarafa, Brenda García (Savanah River National Laboratory), Gerard Rowe (University of South Carolina)	Developing a diverse fuel cycle workforce	$224k	DoE
Rodríguez Román D (PI), Héctor Carlo (Co-PI), Nayda Santiago (Co-PI)	Mobility and Aging in Collaboration (MAGIC): A Transportation Platform for Older Adults	$20,000	NSF
Ricardo Fuentes Ramírez (PI), Marcel Castro Sitriche, Francisco Maldonado Fortunet and Alexandra Gregor (Co-PIs)	Enhancing Community Resilience through Participatory Asset Management and Technology-Based Solutions.	$74,983	NSF
Alberto Figueroa Medina, Carla López del Puerto, Ismael Pagán	CREATE UTC (COASTAL RESEARCH AND EDUCATION ACTIONS FOR TRANSPORTATION EQUITY)	$200k annually for five years	USDOT
Rodríguez Román D (PI), Héctor Carlo (Co-PI), Nayda Santiago (Co-PI)	A Pricing Integrated Carpool-Based Smart Parking System	$150k	PR Science, Technology and Research Trust
Alberto Figueroa Medina and Didier Valdés Díaz	Operation of the Puerto Rico LTAP-T² Transportation Technology Transfer Center and Every Day Counts (EDC) Program at the University of Puerto Rico at Mayagüez	$530,000	ACT

Number of ongoing research and creative work projects: For the first semester of the 2023-2024 academic year, the total number of projects in the department was 30. The external funds added to $5,009,833.

Most relevant publications and presentations:

Title	Authors	Date	Type
State Transportation In Novemberation Councils- How LTAP Centers and STICs are Collaborating to Benefit Local Transportation Agencies	Benjamín Colucci Ríos	July 16-20, 2023	Presentation
Autonomous Vehicles and Security Implications for Puerto Rico	Alberto Figueroa	August 8, 2023	Webinar
¨Factors influencing traveler use of transit before, during, and after the COVID-19 pandemic¨	Mark Burris, Alexander Brown, Hardik Gupta, Jasper Wang, Alberto M. Figueroa-Medina, Carlos A. del Valle-González, Adel F. del Valle-Pérez	September, 2023	Publication
Advanced Mechanics of Materials for Civil Engineers	Ali Saffar	September 11, 2023	Book
Basic Concepts of Classification and Typical Road Sections	Alberto Figueroa Medina	September 27, 2023	Webinar
Temporary Traffic Control Plans for Rural Roads. Puerto Rico	Alberto Figueroa Medina.	September 29, 2023	Seminar
Degradation and quantification of urea by a multivariable PLS model using UV-Vis spectrophotometry.	Huber Ávila, Joselyn del Pilar and Pedro Tarafa	November 3 - 4, 2023	Presentation
Carpool-based Parking Assignment Policy	Rodriguez-Roman, D.	October 19, 2023	Webinar
Policy, Public Preference, and Implementation of a Carpool-based Parking Assignment	Rodriguez-Roman, D., Carlo Colón, H., Santiago Santiago, N., Figueroa Medina, A., Deida Villafañe, C., MOctoberuzuma Rivera, M., Santiago Morales, J., Leoncio Cabán, R.	October 23, 2023	Conference / Poster presentation
Optimizing the location and configuration of disaster resilience hubs under transportation and electric power network failures	Rodriguez-Roman, D., Carloa, Sperling, J., Duvall, A., Leoncio-Cabán, R., López del Puerto, C.	January 8, 2024	Conference / Poster presentation
Assessment of the Terrace Neighborhood's Trolleybus Transit System After Redirecting Traffic Flow Patterns: A Case Study on Mobility	Dieppa Ortíz, J., Rodriguez-Roman, D.	January 8, 2024	Conference / Poster presentation
Casual Carpooling with Incentivized Parking at Universities	Yang, X. Rodriguez-Roman, D., Chen, P., Tao, R., Carlo, H. Figueroa-Medina, A.M.	January 10, 2024	Presentation

Estimates of the Willingness to Accept Monetary Incentives for the Selection of Transit and E-Scooter Modes in Puerto Rico.	Carlos del Valle González y Alberto Figueroa-Medina	January 10, 2024	Presentation
Incorporating Equity in the Vehicle Rebalancing Operations of Dockless Micromobility Services	Lina M. Villa-Zapata, Daniel Rodríguez-Román, Juan E. Flórez-Coronel, Juan M. González-López, Alberto M. Figueroa-Medina	January, 2024	Publication
Optimizing the Location and Configuration of Disaster Resilience Hubs Under Transportation and Electric Power Network Failures	Daniel Rodríguez Román	March 8, 2024	Webinar
Joint Optimization of Fixed Route Bus Networks and Complementary Paratransit Service Area https://doi.org/10.1080/19427867.2024.2320499	Rodriguez-Roman, D., Lopez Martínez, J., Figueroa Medina, A.M.	February 28, 2024	Publication
Optimizing the location and configuration of disaster resilience hubs under transportation and electric power network failures	Rodríguez-Román D, Carlo H, Sperling J, Duvall A, Leoncio Cabán R, López del Puerto C.	March 24, 2024	Publication
Optimizing the location and configuration of disaster resilience hubs under transportation and electric power network failures	Rodríguez-Román D, Carlo H, Sperling J, Duvall A, Leoncio Cabán R, López del Puerto C.	March 14, 2024	Webinar
Water Quality in Three Rivers of the Western Region of Puerto Rico and Removal of Atrazine through Adsorption Processes.	Pedro Tarafa Vélez	April 5, 2024	Conference
Capacity Building for Infrastructure Subjected to Multi-hazards: Mitigating the Risks of Coastal Communities	Dr. Alberto Figueroa, Carla López del Puerto and Ismael Pagán Trinidad	April 5, 2024	Conference
The Origin, Construction, and Use of the Driving Simulator at the Diverging Diamond Interchange (DDI).	Didier Valdés, Alberto Figueroa, Ing. Juan C. Rivera (FHWA), Ing. Lissette Lugo (ACT), and Ing. Regino Navarro (ACT).	April 5, 2024	Conference
Elucidating Wind Speedup and Load Amplification Due to Escarpments: A Comparative Study of CFD and ASCE 7-22 Methodologies.	Julio A. Martínez, Luis D. Aponte Bermúdez	April 5, 2024	Presentation
Puerto Rico LTAP Center Update.	Alberto Figueroa and Didier Valdés	April 8-11, 2024	Presentation
Synthesis and Potential Applications of LaTiO2N in Urea Degradation	Huber Ávila, Joselyn del Pilar and Pedro Tarafa	April 19, 2024	Poster presentation
Synthesis and Potential Applications of $LaTiO_2N$ in Urea Degradation.	Huber Ávila, Joselyn del Pilar and Pedro Tarafa	April 20, 2024	Poster presentation
ROCS Smart Carpool App: Experiences and Lessons Learned	Daniel Rodríguez Román	April 25, 2024	Presentation

Appendix E. The collections for this fiscal year

- Collection Receipt System
  - Collections - $9,351,045.89
  - Batch submitted to the financial system SIA – 433
  - Receipts issued to collectors – 807
- Online Regular Payment
  - Collections - $17,785,897.31
  - Transactions – 41,021
  - WEB ADI submitted to the financial system SIA – 481
- NEXT Online Payment
  - Collections - $343,977.50
  - Transactions – 23,026
  - Daily closing runs to the financial system – 246
- Reimbursements and Debt referrals
  - Total of reimbursements – 777 cases for $446,963.13
  - Evaluated cases do not proceed – 64
  - 1,488 cases of debt referrals for a total amount of $1,145,541.34

- Tuition Processes for the Academic Year 2023-24
  - 2023 Summer (July 2023)
    - 421 enrolled students $273,357.00
    - Private Grant – 1 student $571.00
    - Medical Insurance Payment – 3 students $558.00
    - Exemptions – 35 students $12,219.00
  - First Semester 2023-2024
    - 10,724 enrolled students $25,458,773.60
    - Pell Grant - 5,944 students $13,649,728.07
    - Private Grants – 279 students $406,113.70
    - Installment Payment Plans – 1,998 students $2,830,681.42
    - Medical Insurance Payment – 827 students $428,784.00
    - Financial Aid – 1,914 students $2,658,172.14
    - Exemptions – 907 students $1,125,285.00
  - Second Semester 2023-24
    - 10,104 enrolled students $23,767,783.60
    - Pell Grant – 5,758 students $13,099,430.35
    - Private Grants – 307 students $520,891.78
    - Installment Payment Plans – 1,971 students $2,589,505.38
    - Financial Aid – 1,556 students $2,057,302.90
    - Exemptions – 856 students $1,026,534.50
  - 2024 Summer (June 2024)
    - 2,788 enrolled students $1,941,600.00
    - Private Grant – 4 students $3,060.40
    - Medical Insurance Payment – 15 students $3,420.00
    - Exemptions – 139 students $53,424.00