University of Puerto Rico at Cayey
Capability Statement

Institution: University of Puerto Rico at Cayey
UEI No.: KFJ7WLKY6987 **Federal EIN No**.: 66-0433766 **Cage Code:**3K3P4
NAICS ID: 611310

Certificates, Registrations, Accreditations: Higher Education Board of PR (JIPS- Spanish acronym), Middle States Commission on Higher Education (MSCHE), Council for the Accreditation of Educator Preparation (CAEP), including the Standards of Professional Accreditation (SPA), Association for Childhood Education (ACEI), National Association for Sports and Physical Education (NASPE), National Science-Teachers Association (NSTA), Council for Exceptional Children (CEC), and Teachers of English to Speakers of Other Languages (TESOL). The Business Administration and Office Technology and Administration Programs are accredited by the Accreditation Council for Business Schools and Programs (ACBSP). The General Library is recognized by the Association for College and Research Libraries (ACRL) and The Center for the Interdisciplinary Development of Students (CEDE) is accredited by the International Association of Counseling Services (IACS).

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OVERVIEW

The University of Puerto Rico at Cayey (UPR-C) is a four-year public institution, that offers 27 bachelor's degrees. Its mission emphasizes in providing an excellent education that integrates interdisciplinary approaches, research, and community engagement to the academic experience of students. Furthermore, UPR- C offers students the opportunity to participate in a number of educational activities that support the academic, social, and cultural experience, making UPR-C a vibrant campus with more than 56 active student organizations. The student body is 99% Hispanic and 65% female, with a five-year average time to degree. UPR-C is classified as a Baccalaureate College of Arts & Sciences Focus by the Carnegie Foundation. It is licensed by the Higher Education Board of Puerto Rico and accredited by the Middle States Commission on Higher Education (MSCHE). To support the Institution in achieving its mission, the UPR-Cayey has a highly qualified professional staff of 211 full-time faculty members, including teaching and non-teaching faculty (i.e., Researchers, Librarians, Psychologists, and Counselors). The faculty is highly experienced and qualified, many with doctoral degrees from some of the most prestigious institutions in the world. The cultural diversity of the faculty is also strong; professors from India, France, Germany, Spain, Chile, Colombia, Cuba, and the mainland United States, among other

countries. UPR Cayey students and faculty work together through the interdisciplinary curriculum in a stimulating research-based framework. The institution hosts great talent and forms creative thinkers to continue to make a mark in discovery, innovation, and design in the sciences, entrepreneurship, arts, and education.

Research Capabilities:

Facilities

New Science Building

Our campus has a *State-of-the-Art* Science Building of 53,820 square feet that comprises an amphitheater with 150 seating facilities, in addition to 24 faculty offices and over 26 labs fully equipped for Chemistry Biology, Physics and Mathematics for teaching and research activities. The building, a three-story structure, provides departments the opportunity to develop biomedical research.

Additional facilities

The Arturo Morales Carrión, the Miguel Meléndez Muñoz (MMM), the New Science Building and the Carlos Iñiguez buildings hold a total of 79 classrooms. The Miguel Meléndez Muñoz building contains some of the science classrooms and the research facilities in science. The biology faculty research area in the MMM Building and associated laboratories, covers approximately three thousand square feet, and includes computers, a biochemical laboratory, a dark room, a cell-tissue culture room, and a common instrumentation area. An additional 120 square foot lab is dedicated to histology. Equipment in other laboratories associated with research training programs such as the RISE, NSF are located at Research Laboratories (MMM 200-201, 210 and 211 for a total of 900 square feet), divided in instrumentation and laboratory areas, and is available if necessary. Research laboratory (32 x 32 square feet) and an instrumentation facility (11 x 9 square feet) that is located in the second floor.

Institute of Interdisciplinary Research (IIR)

The IIR has three (3) research laboratories equipped with a total of 18 computers with research software and statistical programs, telecommunications equipment and meeting/training spaces for faculty members of the institution.

Census Information Center (CIC)

The Census Information Center lab space (housed at the IIR) has 9 computers and printers, and two Interdisciplinary Research Laboratories equipped with telecommunications equipment and meeting/training spaces, including research software, projectors, printers and small research equipment such as recorders and transcribers that is shared as a research facility. A meeting room completes the IIR headquarters facilities it is available for meetings and conferences.

Informatics Building:

Three story building that houses 14 computer labs. A Cyber Faculty Lounge lab located in the second floor is available 24/7 exclusively for the faculty and researchers. A specific Computer research lab (located in the Informatics Building Lab 313) is equipped with software for environmental cartography, bio-informatics and computational biology. Resources include PyMOl software, databases for GIS and remote sensing, and special computers for 3D imaging.

Research Equipment: Nanodrop, Fluoroscan, Thermocycler, AKTA Prime Plus, Shakers (3), UV/Vis Transilluminator, Autoclaves (2), Fraction collectors (2), Peristaltic pumps (4), UV/Vis Microplate Reader, Chromatography Refrigerator, Ultra low Freezer, Lyophilizer, Rockers (4),

Incubators, Electrophoresis units, Western Blotting Equipment, Centrifuge with temperature control (2), fluorescence spectrophotometer, UV-VisSpectrophotometer, HPLC, GC, FTIR, and Gel Documentation Unit, 3 computers and 2 printers. An incubator shaker for cell culture.

Past and Current Performances:
In terms of experience in procuring external grants for the benefit of students, the UPR-C has more than 20 years of experience with large NIH-funded programs
Research Initiative Scientific Enhancement Program (RISE 2003-2022), for more than 20 years we have been granted funds to provide students with research experiences
NIH-IPERT (2016- 2021)
RIMI (2004-2009),
BRIC (2010-2015),
BRAD (2015-2020),
UPR- IPERT (2016-2021)
NIH- METAS applied research initiative, which aims to implement scientific approaches to understand the effectiveness of biomedical research training and to enhance diversity, is fully consonant with our institutional goals and mission
Alzheimer Association International Research Grant Program (2019-2021)- Dementia care in networks of care in Puerto Rico.
Alfred Sloan Foundation (2021-2022)- Pathways for students in the Chemistry Program to enter STEM Masters and doctoral graduate programs,
NASA
Lawrence Livermore National Lab.- Revisiting the electronic structure of FE XVII with ab initio CI+MBPT calculations
PR INBRE- Infrastructure for the Computer-Aided Protein Design Laboratory at UPR Cayey
NSF- NRT-URoL: Puerto Rico Graduate Preparation in Excellence and Advanced Knowledge in biomolecular Recognition, also the Effects of substrate and particle size on the catalyctic properties of metal-supported calyssts and a Network Theory Approach to Harnessing Data Revolution in Big Data.
Training Grants: Develop a diverse pool of undergraduates who complete their BA and transition to and complete biomedical research- focused higher degree programs. Enhance research training through Empowerment, Resilience and Civic engagement. Maintaining, engaging and tracking Alumni in Science and Health Research. Enhance Pathways for students in the Chemistry Program to enter STEM Masters and doctoral graduate programs,

Health Disparities Grants: resilience and help seeking in health and illness by and for the elderly, Racial Equity, Dementia care in networks of care in Puerto Rico and Health Disparities-Skin Color, Ethno-racial Classification.

Nanotechnology Grants: Design of Novel Polymeric Membranes and Responsive Molecules for Co2 Removal and Water Reclamation in Future Long-term missions. Center for the Advancement of Wearable Technologies (CAWT) Engineered (Bio) Interfaced, Energy harvesting /Storage and Data Analytics of Health and Diagnostic Monitoring. Studies on the Molecular Structure of Water Nanobubbles.

Biology Grant- Puerto Rico Science and Technology Research Trust: Discovery and Development of Anxiolytic agents from Tropical Marine Macroalgae.

Quality of water Biomedical research, PR-HuSVI (Puerto Rico Hurricane Social Vulnerability Index), Persistence in the Face of Adversity: Resiliency among Students, Puerto Rico Dunes after Hurricane María: a case study.

Chemistry

Substrate and particle size on the catalytic properties of metal-supported metal catalysts

Environmental neuroscience