RESEARCH

AT THE UNIVERSITY OF GUAM

UNIVERSITY OF GUAM
UNIBETSEDÅT GUÅHAN

DESKUBRE

DESKUBRE • TO DISCOVER

The University of Guam is at the forefront of innovation in Micronesia. Research units at the University work locally and collaborate internationally to address some of the most important issues of our time. From cancer prevention to environmental sustainability and from coral reef preservation to cognitive challenges, UOG works to uncover new knowledge and provide the scientific data needed to inform solutions, impact policies, and improve lives across the region.

VIDEO | Powering Up Guam: Extracting Hydrogen from Seawater

HYDROGEN ENERGY FOR GUAM USING SEAWATER ELECTROLYSIS

Left Photo: Student researchers Anna Mallari (left) and Merry Remetira (right) and Dr. John Limitiaco, Assistant Professor of Chemistry (center) spent a few months at the Pacific Northwest National Laboratory (PNNL) exploring the potential for seawater to be tapped as a source of renewable energy. ***Right Photo:*** An electrochemical cell used to study seawater electrolysis. *(Photos and video by Eddie Pablo | Pacific Northwest National Laboratory)*

OUR EXPERTISE

The geographical location and diversity of Guam and Micronesia make the University of Guam a unique place for research on subjects specific to islands and tropical environments as well as on populations that are underrepresented in national data.

While the subjects researched at UOG are vast, UOG's research portfolio trends toward the areas of marine biology, terrestrial biology, agriculture, groundwater, Micronesian history and culture, health and welfare of Pacific Islanders, and regional public policy.

WHAT DRIVES OUR RESEARCH

Research projects are driven by faculty interest and the local and federal governments' need for data to inform plans and decisions, including managing and protecting natural resources.

Nearly half of UOG's 190 full-time faculty members are engaged in research with a desire to advance the regional and global body of knowledge.

UOG research activities are supported by the Office of Research & Sponsored Programs, which works to find, compete for, and manage external funding, to coordinate studies with public and private agencies, and to support research faculty and personnel.

HOW DOES OUR RESEARCH COMPARE?

The University of Guam performs well beyond other institutions of its size, even rivaling many larger universities, when it comes to research work and grant funding.

BY THE NUMBERS

TOP 31%

OF U.S. UNIVERSITIES IN RESEARCH PERFORMANCE

Based on 2023 NSF Report on R&D Expenditures of Academic Institutions

9 DEDICATED RESEARCH CENTERS

100 Total research grant awards in 2023

80 Scholarly Publications in 2023

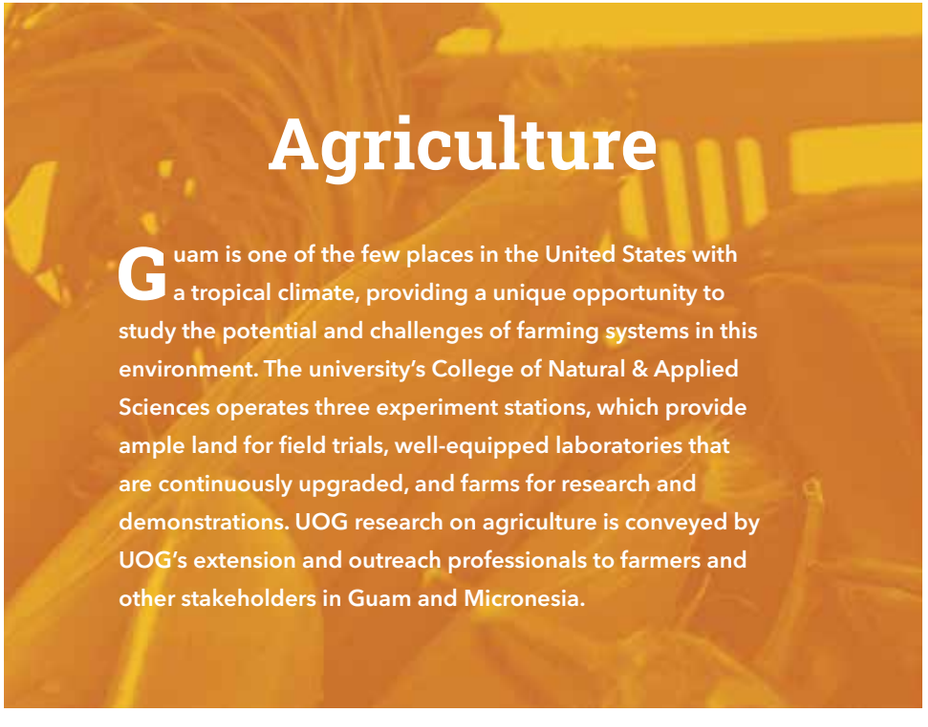
$64.04M RESEARCH GRANT FUNDING IN 2023

$22.78M FEDERAL RESEARCH FUNDS EXPENDED IN 2023

RESEARCH FOCUS AREAS

The University of Guam offers a unique environment to explore topics less studied globally as well as nationally. Guam – being U.S. soil but some 7,000 miles from the continental United States – is one of few places in the nation suitable for exploring a tropical environment, both on land and underwater, as well as the Pacific Islander populations that live within U.S. territories and associated states in the Western Pacific yet are largely underrepresented in national data. Moreover, research conducted at UOG often is informative and useful for tropical environments and island communities outside of Guam and the Micronesian region as well.

Driven by faculty interest, local need, and federal need in managing and protecting natural resources, the research endeavors at the University of Guam cover an array of topics and disciplines. While UOG has decades of experience in some disciplines, such as marine biology, agriculture, and Micronesian history and culture, other subjects of exploration are more recent in interest and need, such as studies on public policy and economics in the Micronesian region. This section highlights six of the University of Guam's most specialized areas of research and what UOG is uniquely able to bring to each.



Agriculture

Guam is one of the few places in the United States with a tropical climate, providing a unique opportunity to study the potential and challenges of farming systems in this environment. The university's College of Natural & Applied Sciences operates three experiment stations, which provide ample land for field trials, well-equipped laboratories that are continuously upgraded, and farms for research and demonstrations. UOG research on agriculture is conveyed by UOG's extension and outreach professionals to farmers and other stakeholders in Guam and Micronesia.

Health and Welfare

Pacific Islanders suffer some of the highest mortality rates from non-communicable diseases in the world. With faculty expertise in public health, nutrition, nursing, and geriatrics and an established Cancer Research Center in partnership with the University of Hawaii, the University of Guam is well-suited to study health among Pacific Islanders, particularly those living within the Micronesian region. The diverse population of the region has also allowed UOG to develop cultural competence in research activities and strengths in minority health and cultural determinants.

Marine Science

In this era of rapid climate change, Guam's biodiverse marine systems are faced with complex human-derived environmental issues that are common to island systems around the world. The University of Guam is unique in that it is located just outside the global center of marine diversity, the Coral Triangle. Further, it has a fully equipped marine station – the UOG Marine Laboratory – situated adjacent to coral reef ecosystems. This combination of factors is quite rare among universities and gives UOG researchers the advantage of being able to access the local marine environments year-round.

Micronesian History and Culture

Unique and comparatively unstudied, this region's history and culture intrigues scholars and Micronesian descendants not only from a discovery standpoint, but in that it also holds wisdom applicable to today. Home to the Micronesian Area Research Center, the largest research center in the world dedicated to Micronesia, the University of Guam has become an authority on the region's history. Researchers through MARC have been able to answer fundamental and long-standing questions about Micronesian peoples throughout time – from their origins to the experiences that influenced their modern practices, struggles, successes, and viewpoints.

Terrestrial Biology

Few places on Earth have suffered the devastating effects of invasive species like Guam has. These impacts have been fast, pronounced, and unabated. Simultaneously, the island itself is an outdoor laboratory for conducting research, making the University of Guam a prime place to understand species' competitive advantages, human and biophysical interactions, and restoration techniques in a tropical insular environment. Regional authorities on invasive species, plant pathology, soils, and the ecological relationships among them, UOG researchers provide expert advice to local and federal agencies and assist in efforts to create community awareness.

Public Policy and Economics

Guam and its surrounding region have seen an increasing demand for objective research on a range of social and humanitarian issues and proposed legislation to address them. As a land-grant university with more than 70 years of influence in the Western Pacific, the University of Guam is an honest knowledge broker intent on communicating comprehensive, unbiased research to policymakers, government leaders, and business managers. Researchers at UOG have produced and contributed to several key economics and public policy reports and projects with meaningful outcomes for the community.

Water Quality

The University of Guam is home to one of the 54 water research institutes established at land-grant institutions by U.S. Congress. The portfolio of core expertise at UOG's Water & Environmental Research Institute of the Western Pacific spans the natural water cycle from meteorology to surface and groundwater hydrology as well as essential water-use activities. The institute's facilities include a well-equipped Water Quality Laboratory capable of microbiological, chemical, and physical tests as well as a Hydrogeological and Meteorological Laboratory, and a Bioreactor Laboratory.

Research Centers

With nine dedicated research centers, the University of Guam is able to conduct projects that advance regional and global knowledge in a breadth of subjects, in particular the unique needs and topics of relevance to the Western Pacific region.

Each of the units highlighted here has a team of faculty and staff who work to manage grant funding, carry out lab and field work, analyze the results, and bring the results to scholarly and public audiences.

Cancer Research Center

The University of Guam Cancer Research Center, established in 2009, is the only U.S. cancer research infrastructure established west of Hawaii. It houses the Pacific Island Partnership for Cancer Health Equity, which supports research on cancers of significance in the Hawaii-Pacific region, in particular to the underserved populations of CHamorus, Chuukese, and Marshallese.

Principal Investigator: Rachael Leon Guerrero, Ph.D.
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Established Program to Stimulate Competitive Research (Guam EPSCoR)

Guam EPSCoR is a $20 million National Science Foundation grant that the University of Guam is utilizing to implement the Guam Ecosystems Collaboratorium for Corals and Oceans. The collaboratorium at UOG is focusing on increasing the collection, documentation, integration, and analyses of complex genetic and oceanographic data from coral reefs within the region.

Principle Investigator: Terry Donaldson, Ph.D.
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Regional Center for Public Policy

The Regional Center for Public Policy under the UOG School of Business & Public Administration was launched in 2016 to innovate and improve governance, leadership, and public policy for the people and institutions of Guam, the Asia-Pacific region, and the world. The center aims to become the premier policy research nexus in the region.

Director: Roseann Jones, Ph.D.
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Center for Excellence in Developmental Disabilities Education, Research & Service

The Center for Excellence in Developmental Disabilities Education, Research & Service at the University of Guam is one of 67 federally funded university centers of its kind found in every U.S. state and territory. The center aims to create pathways that enhance and support the quality of life of individuals with developmental disabilities and their families.

Interim Director: June De Leon, M.Ed.
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Marine Laboratory

Established in 1970, the Marine Laboratory at the University of Guam plays an important role in regional as well as national marine research. It facilitates research on tropical coral reef and marine organisms with an emphasis on conservation, adaptation to climate change, and development of marine resources in Guam and Micronesia.

Director: Laurie Raymundo, Ph.D.
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Water & Environmental Research Institute of the Western Pacific

The Water & Environmental Research Institute of the Western Pacific at the University of Guam is one of 54 institutes nationwide established by the federal Water Resources Research Act. WERI provides trustworthy and timely research to support the scientifically informed development and effective management of freshwater resources in Guam, the Northern Mariana Islands, and the Federated States of Micronesia.

Director: Yuming Wen, Ph.D.
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Center for Island Sustainability

The UOG Center for Island Sustainability was established in 2009 to lead and support the transition of island communities toward a sustainable future. It has since become a focal institute in the Western Pacific region for sustainability-related research and community outreach to help meet island needs in the areas of education, human society, natural environment, and the economy.

Director: Austin Shelton, Ph.D.
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Micronesian Area Research Center

The Richard Flores Taitano Micronesian Area Research Center (MARC) at the University of Guam houses the largest collection in the world of historical documents related to Micronesia.The center was established in 1967 to serve as an educational institution that acquires, preserves, and provides access to unique collections about the Micronesian region.

Director: Carlos Madrid Álvarez-Piñer, Ph.D.
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Western Pacific Tropical Research Center

The Western Pacific Tropical Research Center at the UOG College of Natural & Applied Sciences operates three agricultural research stations, the Triton Farm, and the Aquaculture Development & Training Center. With federal and local grants, WPTRC concentrates on applied research that directly impacts agriculture in Guam, Micronesia, the Western Pacific, and the tropics in general.

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NAVIGATING OUR OCEAN OF POSSIBILITIES TOGETHER

The University of Guam is committed to serving as a pillar of support and opportunity for Micronesia. For more than 72 years, UOG has propelled students, researchers, and professionals into pathways to success, building a strong professional workforce, well-informed public employees, and a repository of knowledge for the region and beyond. UOG continues to stand as a beacon of learning, where education meets innovation and island wisdom and traditions guide our journey to a sustainable and prosperous future.

Join us and let's navigate this ocean of possibilities together.

Learn more about the University of Guam at:
www.uog.edu