CNAS Annual Report AY 2024-2025

UNIVERSITY OF GUAM
COLLEGE OF NATURAL
& APPLIED SCIENCES

CNAS Annual Report AY 2024-2025

Layout and design by Marissa Villaverde.

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& APPLIED SCIENCES

Message from the Dean

College of Natural & Applied Sciences – AY2024–2025

Rachael T. Leon Guerrero, PhD, RDN
Dean, College of Natural & Applied Sciences
Director, UOG Extension Service
Director, agInnovation Research Center (aIRC/AES)

Buenas yan Håfa Adai!

It is with great pride and heartfelt gratitude that I present the inaugural edition of the *CNAS Annual Report*. More than a record of achievements and data, this report serves as a tribute to the extraordinary dedication of our faculty—who are, without question, the heart and soul of the College of Natural and Applied Sciences. Their passion for teaching, excellence in research, and unwavering commitment to our students and local community are what make CNAS truly exceptional.

Since stepping into the role of Dean 18 months ago, I have held fast to a bold vision: for CNAS to be recognized as the shining star of academic excellence in STEM, a leader in innovative tropical agricultural and terrestrial research, and a beacon of impactful community outreach across the Western Pacific. I envision CNAS as the "go-to" college for our local students—those eager to pursue a STEM education and contribute meaningfully to the future of our island and region.

As Nelson Mandela so wisely said, *"Education is the most powerful weapon we can use to change the world."* At CNAS, our faculty are empowering the next generation with that very weapon—through mentorship, research, and service that transforms lives.

May this report reflect not only our progress, but our deep appreciation for the people who make it all possible.

Si Yu'os Ma'åse',
Rachael T. Leon Guerrero, PhD, RDN

Message from the Interim Associate Dean

Håfa Adai and greetings to all CNAS faculty, staff, and students.

Academic Year 2024-2025 has been a transformative year of re-envisioning for our college. I extend my heartfelt *Si Yu'os Ma'åse'* to each of you for your dedicated engagement in Teaching, Research, Extension, Outreach, and Service. It has been an honor to work alongside such committed professionals who make our college and university an exceptional place to work and learn.

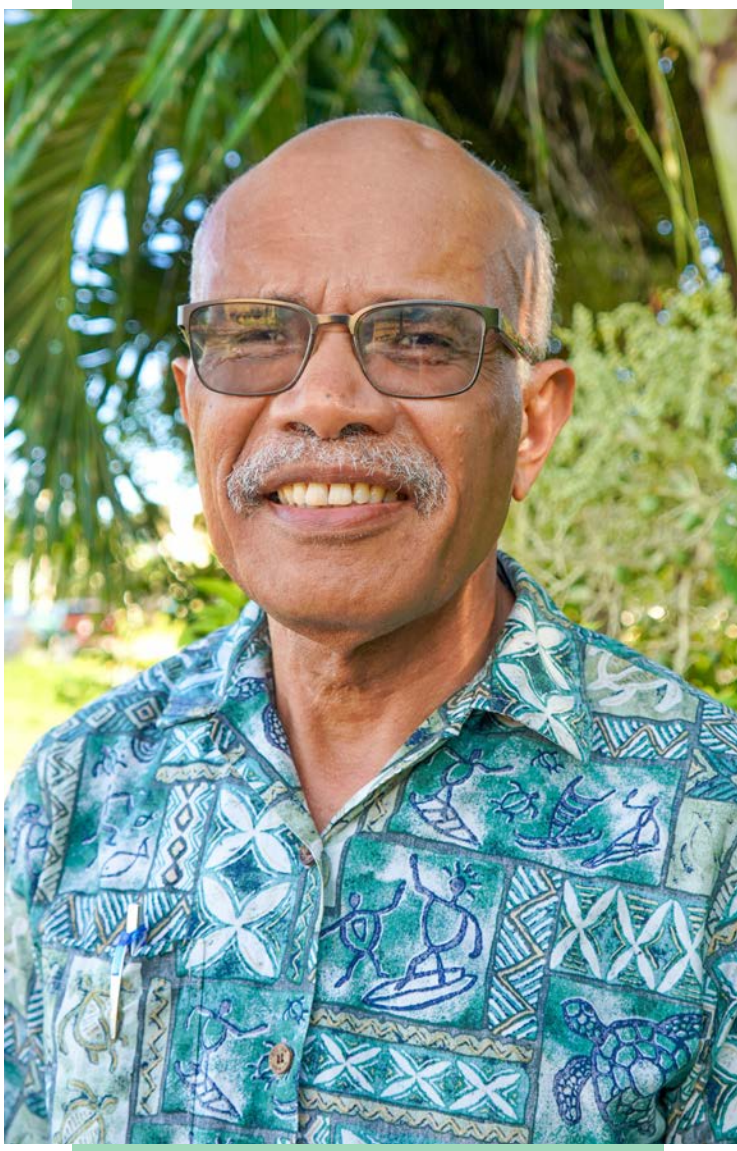
This annual report celebrates our collective achievements and reflects the remarkable impact we have made together. Our college generated 16,466 credit hours across all undergraduate courses and 614 credit hours for graduate programs, translating to approximately $3.8 million in estimated tuition revenue[1]. Additional revenue was secured through grants and contracts, with detailed information available in our CNAS Land Grant Impact Reports.

Two pivotal college retreats focused on Land Grant Strategic Planning and our Academic Master Plan established our vision for the future and catalyzed major academic program changes that will continue into the coming year. Our partnership expansion efforts yielded significant results, including a signed MOU with the College of Micronesia-FSM for a 2+2 pathway in Bachelor of Agriculture, Tropical Production Track. The continued success of our existing 2+2 pathway in Computer Science with GCC has demonstrated remarkable enrollment growth, validating our collaborative approach to education.

This year brought distinguished visitors and events that enriched our academic community. We had the privilege of hosting Fulbright Scholar Dr. Maciej Lisicki, Professor of Physics from the University of Warsaw, Poland, and conducted the 47th Island-wide Science Fair, where we evaluated 235 student projects. Our commitment to community outreach and engagement was exemplified through numerous successful events, including the 15th Annual Chemistry Titration Competition, 5th Chemistry Olympiad, and 14th Annual Math Day Event. Extensive school outreach continued through faculty initiatives, student clubs, 4-H programs, internships, and special projects, while our well-attended Family Fun Day and Charter Day celebrations strengthened our college community bonds.

While this summary cannot capture every accomplishment, it represents our collective dedication to excellence in education, research, and service. Thank you for your unwavering belief in our college's mission. Together, we have built a foundation for continued excellence, and we eagerly anticipate an even more impactful year ahead.

[1]Revenue estimate based upon resident tuition rates.



Maika Vuki, PhD
Interim Associate Dean, College of Natural & Applied Sciences
Professor, Chemistry


ACADEMIC
ENTERPRISE

STUDENTS PER MAJOR

FALL 2024

AGRICULTURE & LIFE SCIENCES	BIOLOGY	CHEMISTRY	COMPUTER SCIENCE	MATHEMATICS
57	208	55	96	16

GRADUATE DATA SCIENCE: 8 GRADUATE BIOLOGY: 32 GRADUATE EV: 13 GRADUATE SAFNR: 10

SPRING 2025

AGRICULTURE & LIFE SCIENCES	BIOLOGY	CHEMISTRY	COMPUTER SCIENCE	MATHEMATICS
56	197	48	94	16

GRADUATE DATA SCIENCE: 8 GRADUATE BIOLOGY: 28 GRADUATE EV: 14 GRADUATE SAFNR: 11

GRADUATES PER MAJOR

FALL 2024

AGRICULTURE & LIFE SCIENCES	BIOLOGY	CHEMISTRY	COMPUTER SCIENCE	MATHEMATICS
4	5	1	2	0

GRADUATE BIOLOGY: 5 GRADUATE EV: 1 GRADUATE SAFNR: 0

SPRING 2025

AGRICULTURE & LIFE SCIENCES	BIOLOGY	CHEMISTRY	COMPUTER SCIENCE	MATHEMATICS
5	32	1	8	2

GRADUATE BIOLOGY: 2 GRADUATE EV: 2 GRADUATE SAFNR: 1

CREDIT HOUR PRODUCTION BY MAJOR

ACADEMIC LEVEL	SUBJECT	FALL 2024		SPRING 2025		% OF UOG'S TOTAL REVENUE
		Course Enrollment	Credit Hour Production	Course Enrollment	Credit Hour Production	
UG	Agriculture & Life Sciences	304	702	331	773	2.196%
UG	Biology	1194	2380	933	1932	6.420%
UG	Chemistry	554	1162	469	968	3.171%
UG	Computer Science	175	579	124	437	1.513%
UG	Mathematics	913	3108	799	2745	8.714%
UG	Military Science & Leadership	96	244	71	190	0.646%
UG	Natural Science	0	0	56	112	0.167%
UG	Physics	234	606	201	528	1.688%
GR	Sustainable Agriculture, Food, and Natural Resources	15	38	25	56	0.140%
GR	Biology	61	131	58	98	0.341%
GR	Environmental Science	27	70	30	66	0.202%
GR	Data Science	37	85	26	70	0.231%

Note: CNAS undergraduate courses generate 24.5% of all tuition revenue for UOG.

CNAS GRADUATES FOR FANUCHÅNAN 2024

B.S. AGRICULTURE & LIFE SCIENCES		
Agriculture & Natural Resource Science Track	Uludong, Risel	Uson, Aubrie
Human Nutrition & Food Science Track	Santos, Sophie Danielle	
Tropical Agriculture Production Track	Davis, Scott Jr.	
B.S. AGRICULTURE & LIFE SCIENCES		
Applied Biology Track	Bautista, Serena Renee	Fagaragan, Mark Brian
Bio-Medical Track	Benitez, Naomi Gael	
Integrative Biology Track	Alvarez, Sherald Mae	Badowski, Antoni
Nauta, Sydney		
B.S. CHEMISTRY		
Pre-Pharmacy	Saliva, Ma Stephanie	
B.S. COMPUTER SCIENCE		
Bias, Christian	Ravela, Zuriel	Wyatt, William
M.S. BIOLOGY		
Barry, Olivia	Dressler, Courtney	Kleven, Reilly
Proietti, Joseph	Steward, D'Amy	
M.S. ENVIRONMENTAL SCIENCE		
Ko, Hazelle		

CNAS GRADUATES FOR FAÑOMNÅKAN 2025

B.S. AGRICULTURE & LIFE SCIENCES		
Agriculture & Natural Resource Science Track	Certeza, Christopher B.	Taimanao, Kateri Rosanne C.
Human Nutrition & Food Science Track	Badajos, Charlene Joy Baroro	
Tropical Agriculture Production Track	Artuz, Joshua Daniel Golez	Bettis, Ha'ani Irene Palacios
B.S. BIOLOGY		
Applied Biology Track	Bautista, Serena	Julien, Mark
Bio-Medical Track	Barcinas, Mikayla Dominique Angoco	Bermudes, Michelle D.
Dela Cruz, Abigail Quines	Dela Paz, Maygann Delaney Lorenzo	Delfin, Marc Ethan
Estrada, Candice Gaile Tiong	Garcia, Joselle Jayna Calma	Herrera, Calvin Kurt Deveria
Igcasenza, Ha'ani Leihua	Lalimarmo, Nayah Kristine Rapayrapay	Laxamana, Mae Anne Limbaga
Lee, Edina	Lee, Sieun	Mafnas, Teresa Jo Quichocho

Marzan, Claire Angela Galanza	Miranda, Khloe Ann Camia	Nguyen, Alena Le
Nguyen, Hong-Nhung L.	Ok, Jennifer Yuri	Paguio, Kayla Angeleen Ramirez
Pineda, Nicole Jean Poquiz	Rodrin, Sheened Cerrillo	Supnet, Vaneza Palma
Villacorta, Liana Mae Lopez	Villalada, Lena Megumi H.	
Integrative Biology Track	Del Rosario, Carl Jan Arjie Mallari	Gonzalez, Madeline Sage
Mian, Jeniel Calaor	Ngemaes, Mya Satomi Dilreng	Quichocho, Raianne Isabella Espina
B.S. CHEMISTRY		
Pre-Pharmacy	Gintu, Edward Louis Mariano	
B.S. COMPUTER SCIENCE		
Bandoy, Lester Macatangay	Desoyo, Marvin	Encio, Jacob Bien Cevallos
Galang, Mark Ira Donguila	Rebujio, Tom Sakano	Sangalang, Avery Dylan A.
Santos, Devin G.C.	Zhang, Yuhang	
B.S. MATHEMATICS		
Greene, Alexander William	McManus, Liam I'napu Soaladoab Bells	
M.S. BIOLOGY		
Kallen, Lauren Noelle	Macatugal, Ella Marie Santos	
M.S. ENVIRONMENTAL SCIENCE		
Cayanan, Cristian Monteverde	Taitingfong, Raina Justine Cruz	
M.S. SUSTAINABLE AGRICULTURE, FOOD, & NATURAL RESOURCES		
Keeler, Patrick Orr		

ROTC CADETS COMMISSIONED

FALL 2024		
Babauta, Franklin Jr.	Fagaragan, Mark	Iglesias, Constance
Margefa, Richard		
SPRING 2025		
Canlas, Brian Jay Garcia	Castro, Gabriel	Cruz, Napu Frank Baleto
Delfin, Marc Ethan	Delgado, Christian Joseph	Diego, Jordan T.E.
Hagel, Johnsey	Igisaiar, Jerrid Shane	Leon Guerrero, Marvin Mitchell Diaz
Miranda, Khloe Ann C.	Naholowa'a, Leimana	Paat, Kevin Ashley P.
Paat, Kyle Andre P.	Villegas, Cody Jurel J.	Whitt, Gavin
Yatar, Arren Jacob		

Empowering Guam's Next Generation Through USDA-Funded Education and Career Pathways

The University of Guam is leading transformative change in higher education and workforce development in the Western Pacific through two impactful USDA-funded NextGen initiatives. These programs aim to expand access to education and federal career opportunities for students from underrepresented communities in Guam and the broader Micronesian region.

The first initiative, *Creation of a Cooperative BS Degree Program for the Marianas Islands and Beyond* **(NextGen COMPASS)**, is a $10 million USDA/NIFA-funded effort to build a robust course-sharing partnership among UOG, Northern Marianas College, Guam Community College, and major land-grant institutions like the University of Florida, University of Hawai'i, and Utah State University. Students benefit from expanded access to FANH (food, agriculture, natural resources, and human sciences) coursework, study abroad, internships, and research opportunities.

In the past year, NextGen COMPASS served 179 students, including 119 who completed internships or attended professional training. It introduced new courses in agroecology, wildlife biology, and environmental technology while offering career-readiness symposia and mentoring. These experiences equip students with the credentials needed for federal employment, supporting long-term workforce sustainability in the region.

The second initiative, **Diverse NextGen Food Policy Leaders Trained in Resilient Systems and Federal Workforce-Ready**, is a $2 million subaward from the University of Alaska, Fairbanks. This program focuses on providing scholarships and internships to ALS, SAFNR, and Data Science students at UOG. During the past academic year, 51 students received over $127,000 in tuition support.

Innovative programming included the inaugural *Model USDA* simulation and academic advising workshops, fostering student understanding of policy and leadership roles within USDA. Internships—such as those with SNAP-Ed—offered real-world exposure to the intersections of agriculture, public health, and community resilience.

Together, these NextGen programs are cultivating a pipeline of locally rooted students who are equipped to become the next generation of leaders in the USDA and related fields. By blending financial support, hands-on learning, and strategic regional partnerships, UOG's NextGen initiatives are laying the foundation for a more skilled, resilient, and self-sustaining workforce in Guam and across the Pacific.

Pictured: Sophie Santos

Valedictorian, Class of Fall 2024

Sophie Santos, the valedictorian for University of Guam's Class of Fanuchånan 2024, exemplifies how challenges can become catalysts for purpose-driven education. Originally accepted to New York University to study applied psychology, Santos instead remained in Guam where she pursued a double major in Agriculture and Life Science (specializing in food nutrition and food science) and psychology. Her academic journey was deeply personal, sparked by her own struggles with an unhealthy relationship with food and guided by early inspiration from interviewing Dr. Tanisha Aflague, a registered dietitian nutritionist. As a homeschooled, first-generation college student, Santos embraced unfamiliar territory by diving into research opportunities, working as a research associate, and completing internships, ultimately conducting capstone projects on medical nutrition therapy for gestational diabetes and the impact of social pressure on disordered eating behaviors. Her experience studying in Guam connected her directly to local health issues and cultural considerations, leading her to plan a career as a registered dietitian nutritionist focused on researching nutrition-related problems specific to Guam's population, with the goal of helping "Guam's people heal with food as their medicine."

Valedictorians, Class of Spring 2025

Two Biology majors – biomedical track won the valedictorian awards for the class of Spring 2025. Co-Valedictorian Nicole Jean Pineda, a Biology: Biomedical track major, delivered the class address, sharing her transformation from burnout to purpose as she engaged in community service, research, and student leadership.

"It was through these experiences and encounters that I grasped the bridging role that education serves to our community," she said. "It opens doors to service and connection, and it was a reminder that the decisions I make today and goals I set…will impact a future patient, a future student, a future friend."

Pineda shares the valedictorian honor with her friend and colleague in the Biology: Biomedical track, Joselle Garcia.

Left, Nicole Pineda; right, Joselle Garcia

CNAS FACULTY

Division of Agriculture & Life Sciences

MARK ACOSTA, B.S.
Extension Agent I/Assistant Instructor of Sustainable Agriculture & Community Wellness
TANISHA F. AFLAGUE, PH.D., RDN
Extension Agent IV/Associate Professor of Nutrition
JESSE P. BAMBA, M.S.
Extension Agent II/Instructor of Plant Production
PETER R. BARCINAS, M.S.
Extension Agent III/Assistant Professor of Community Resource Development
ROBERT F. BEVACQUA, PH.D.
Extension Agent III/Assistant Professor of Horticulture
KUAN-JU CHEN, PH.D. *(Division Chair)*
Associate Professor of Agricultural Economics
TIM C. DE LA CRUZ, PH.D.
Extension Agent III/Assistant Professor of Family & Consumer Services
GLENN DULLA, PH.D.
Assistant Professor of Plant Pathology
SAHENA FERDOSH, PH.D.
Assistnat Professor of Natural Product Chemistry
MOHAMMAD H. GOLABI, PH.D.
Professor of Soil Science
HUI GONG JIANG, PH.D.
Associate Professor of Aquaculture
ALFRED DANIEL JOHNSON, PH.D.
Assistant Professor of Entomology
ROMINA KING, PH.D.
Associate Professor of Geography
CLIFFORD J. KYOTA, MPA
Extension Agent II/Instructor of 4-H & Youth Development
MICHELLE B. LAGUANA, PH.D. *(Program Chair)*
Extension Agent II/Instructor of Nutrition
JENG-HUNG "LEO" LIU, PH.D.
Assistant Professor of Animal Science
MARI MARUTANI, PH.D.
Professor of Horticulture
LENORA MATANANE, M.S., RDN, L.D.
Extension Agent II/Instructor of Nutrition
JAMES MCCONNELL, PH.D.
Professor of Ornamental Horticulture
ROSS H. MILLER, PH.D.
Professor of Entomology
ROLAND J. QUITUGUA, M.S.
Extension Agent II/Instructor of Horticulture
DAREON RIOS, M.S.
Extension Agent II/Instructor of 4-H & Youth Development
RICHARD R. SINGH, PH.D.
Assistant Professor of Sustainable Plant Production
JOSEPH E. TUQUERO, M.S.
Extension Agent III/Assistant Professor of Horticulture
JIAN YANG, PH.D.
Extension Specialist/Professor of Food Science

Division of Mathematics & Computer Science

LESLIE J. CAMACHO AQUINO, PH.D. *(Division Chair)*
Associate Professor of Mathematics
GRAZYNA BADOWSKI, PH.D.
Professor of Mathematics
JAE YONG CHOI, PH.D.
Assistant Professor of Mathematics
BYOUNG YONG LEE, PH.D.
Associate Professor of Computer Science

HIDEO NAGAHASHI, PH.D.
Professor or Mathematics
HYUNJU OH, PH.D.
Professor or Mathematics
RAYMOND M. PAULINO, PH.D. *(Program Chair)*
Assistant Professor of Mathematics
KATRINA MARIE G. QUINATA, MAT
Instructor of Mathematics
JUNHAO "JAMES" REN, M.A.
Instructor of Mathematics
CARL T. SWANSON, JR., PH.D.
Associate Professor of Computer Science
ZOLTAN SZEKELY, PH.D.
Associate Professor of Mathematics
YOSHIFUMI TAKENOUCHI, PH.D.
Associate Professor of Mathematics
YOUSOU "JOSEPH" ZOU, PH.D.
Associate Professor of Computer Science

Division of Natural Sciences

TEDROS BEZABEH, PH.D. *(Program Chair)*
Professor of Chemistry
LAURA A.F. BIGGS, PH.D.
Associate Professor of Biology
KARA J. COFFMAN-REA, PH.D.
Assistant Professor of Biology
G. CURT FIEDLER, PH.D. *(Program Chair)*
Professor of Biology
SUBIR GHOSH, PH.D.
Professor of Biology
RACHEL L. JOLLEY, PH.D.
Assistant Professor of Restoration Ecology
REBECCA KIM, M.S.
Instructor of Biology
SUN KYU KIM, PH.D.
Associate Professor of Chemistry
JOHN F.K. LIMTIACO, PH.D.
Assistant Professor of Chemistry
DANIEL P. LINDSTROM, PH.D.
Associate Professor of Biology
KATHARINE L. LOFDAHL, PH.D.
Associate Professor of Biology
KATHLEEN A. MOOTS, PH.D.
Associate Professor of Biology
CHRISTINA P. NGUYEN
Instructor of Biology
MICHAEL ORR, PH.D. *(Division Chair)*
Associate Professor of Biology
JIN PARK, PH.D.
Assistant Professor of Chemistry
BULAN WU, PH.D.
Associate Professor of Chemistry
WEI XIAO, PH.D.
Associate Professor of Biology
JOO CHUL YOON, PH.D.
Assistant Professor of Physics

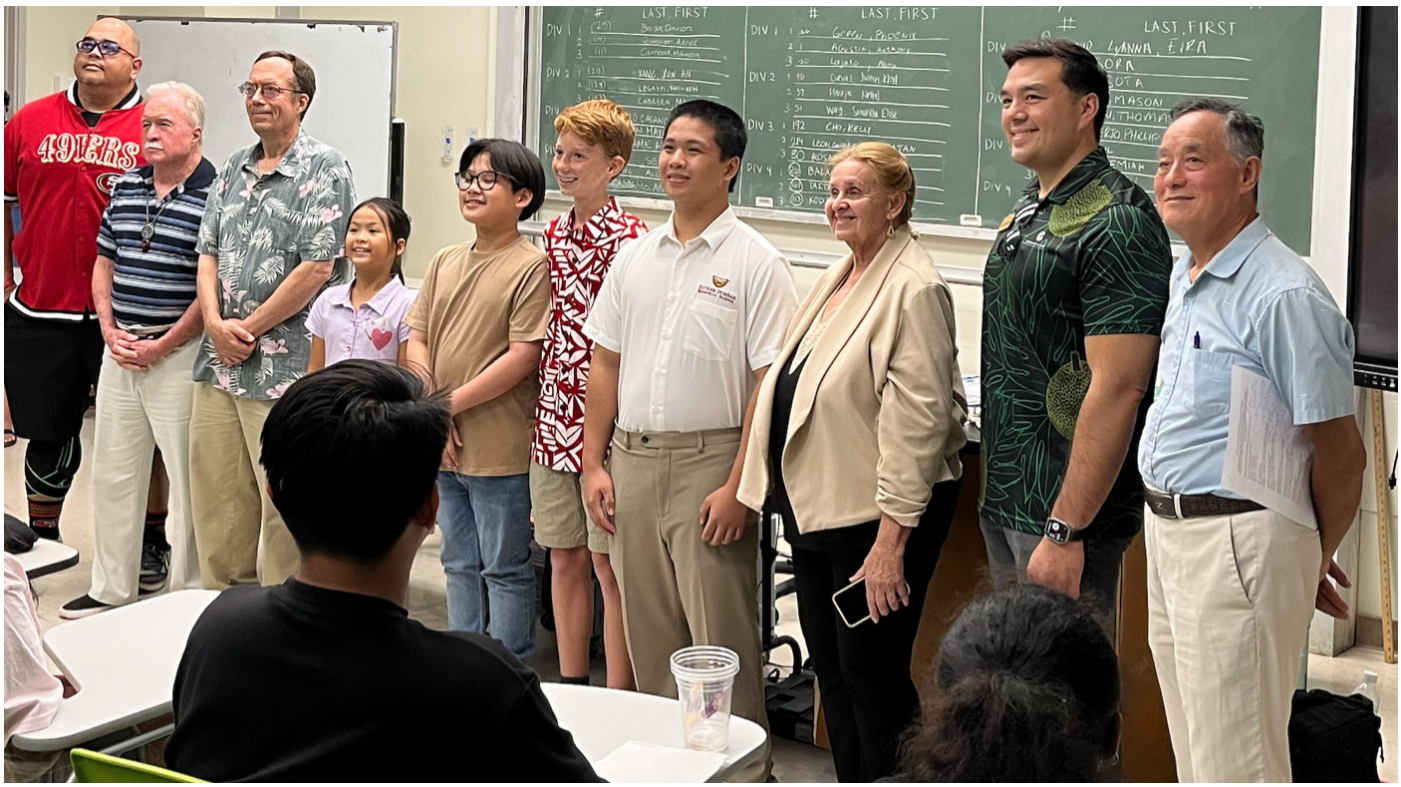
Army ROTC

LT. COL. NEIL G. ARMSTRONG *(Division Chair)*
Professor of Military Sciences
JOHN W. HOWERTON, M.A.
Recruiting Operations Officer/ROTC Adviser

OUTREACH ACTIVITIES

Inspiring the Next Generation of STEM Students

The University of Guam's 2025 Annual Island Wide Science Fair, held on April 5th, exemplified the institution's deep commitment to fostering scientific excellence throughout Guam's educational community. With 235 projects across six categories and robust participation from UOG faculty, students, and clubs from the College of Natural & Applied Sciences and School of Engineering, the event showcased impressive student achievement, particularly highlighted by Division 4 winner Alexander Cruz, a Father Duenas Memorial School sophomore whose sophisticated AI project on chest X-ray diagnosis using convolutional neural networks demonstrated remarkable diagnostic accuracy and represented the advanced caliber of research being conducted by Guam's students. Through this continued investment in scientific education—providing judges, volunteers, and university resources—UOG not only advances its educational mission but establishes itself as a regional catalyst for innovation and scientific development, nurturing the next generation of researchers and scientists who will drive Guam's technological future.



Winners of the 2025 Science Fair with the Board of Science Advancement in Guam.

UOG Math Day: Where Numbers Come Alive!

The 14th University of Guam Math Day brought together 70 students and their teachers from 16 middle and high schools for an engaging mathematics event. This event has been organized by the Math Program to inspire local students about college-ready math courses and build confidence for pursuing STEM degrees and careers.

The event has proven successful in its mission, with Dr. Hideo Nagahashi (lead organizer) noting that several UOG math majors first experienced Math Day during high school. This year marked the first time middle school students joined the traditionally high school-focused event. Students competed in teams answering timed questions covering algebra, geometry, statistics, pre-calculus, and calculus. Eleven teams competed in the middle school quiz competition, and the first-place award was shared by Luis P. Untalan Middle School and St. John's School. For the High School level, two categories were contested. One was Algebra, Geometry, and Statistics and the other was Pre-Calculus, Calculus. Fourteen teams competed for the Algebra category and the top three teams were from St. John's School and Harvest Christian Academy. Ten teams competed for the Pre-Calculus category and four teams tied for the first place. The winners were Harvest Christian Academy, John F. Kennedy High School, and St. John's School.

Winners of the Math Day high school level quiz competition from John F. Kennedy High School, St. John's School, and Harvest Christian Academy.

Winners of the Math Day middle school level quiz competition from St. John's School and Luis P. Untalan Middle School.

Winners of the 2025 Chemistry Titration Competition with Chemistry Faculty.

Chemistry Titration Competition

The University of Guam's annual High School Chemistry Titration Competition celebrated its 15th anniversary as part of UOG's Charter Day, bringing together seven high schools from across Guam with four students each participating. This significant academic event has evolved to showcase growing participation from both private and public schools, with public institutions increasingly competitive alongside their private counterparts. The competition tests students' chemical analysis skills through titration techniques, recognizing excellence in individual performance, laboratory skills, and team collaboration, demonstrating the strong chemistry education foundation across Guam's secondary schools.

Notre Dame High School won the first prize for Best Individual, and the Best Team categories followed by Father Duenas then St. John's School. In the Best Laboratory skill, St. John's worn the first place, followed by Father Duenas Memorial School then Okkodo High School.

Chemistry Olympiad

The University of Guam hosted its largest-ever High School Chemistry Olympiad on April 26, 2025, with 122 students from four local schools competing in Honors and Standard categories. This event is run jointly by the Chemistry program and the Chemical Society of Guam. The growing interest in the competition, and support from local sponsors including Lotte Duty Free Guam and Pacific Grocers, demonstrates strong interest in chemical sciences and STEM in general among Guam's youth. Such event challenges students academically while exploring STEM career pathways at UOG.

Under the Honors category, Harvest Christian Academy won the first place, followed by St. John's School then Father Duenas Memorial School. For the Standard category, St. John's School won the first place, followed by a home-schooled student, then Notre Dame High School.

Winners of the 2025 Chemistry Olympiad with Chemistry Teachers, UOG Chemistry faculty and Administrator. From left to right, Dr. Maika Vuki (Interim Associate Dean, CNAS) Sean Lee (St. John's School), Allan Zeng (St. John's School), Sumin Kim (Home School), Hanna Yo (Harvest Christian Academy), Ms Ashley McNelly (Harvest Christian Academy), Ms. Evangeline Mangune (Father Duenas Memorial School), Ms. Kate Atero (Notre Dame High School), Dr. John Limtiaco (UOG Chemistry faculty)

2025 CNAS Charter Day Activities

At the 2025 University of Guam Charter Day celebration, the College of Natural and Applied Sciences (CNAS) transformed both the Science and ALS Buildings into vibrant centers of discovery, featuring an engaging mix of interactive exhibits, hands-on demonstrations, and educational experiences. The ALS Building hosted the popular Land Grant Festival, where visitors explored displays of plants and local produce, sampled nutritious food, and interacted with booths focused on agriculture, nutrition, and natural resource management. Highlights included the UOG Drone Corps flight demonstrations, a live livestock exhibition with pigs, ducks, and chicks, and the "Paws & Learn" booth in partnership with GAIN, which offered opportunities to meet adoptable pets and learn about animal care.

Simultaneously, the Science Building offered a diverse lineup of activities spotlighting biology, chemistry, and health sciences. Guests observed high school students compete in the Chemistry Titration Competition, explored marine ecosystems at the UOG MO'NA touch tanks, and engaged with preserved specimens in the interactive biological exhibit. Additional attractions included the Herbarium Tour, a detailed Anatomy Exhibition, and fun, student-led learning stations such as "Eye See You: Exploring Vision Science" and "Slime Slime Slime & Chemistry Jeopardy." With approximately 1,700 students participating in tours and competitions, the day served as a powerful showcase of CNAS's Land Grant mission—fostering community engagement, promoting science literacy, and fostering environmental stewardship and well-being across generations in Guam.


TRITON FARM
University of Guam
Triton farm


anatomy
EXHIBIT

CNAS hosts Dr. Maciej Lisicki - Fulbright Scholar

In August 2024, the University of Guam's College of Natural and Applied Sciences had the privilege of hosting Dr. Maciej Lisicki, a distinguished Fulbright Scholar, for a specialized lecture series titled "The Flow Tale Series." The visit took place from August 19-23, 2024.

Dr. Lisicki presented three discipline specific talks. The biology-focused lecture, "Tales of Tails: Fluid Dynamics of Microscale Locomotion," provided valuable insights into the intersection of biological systems and fluid mechanics. His mathematics and data science presentation, "Physical Universality in Biological Diversity," showcased innovative methodologies from the Bank of Swimming Organisms at the Micron Scale (BOSO-Micro), demonstrating how large datasets can reveal patterns in biological systems. The chemistry and physics community benefited from his expertise on "Light-Switchable Propulsion of Active Particles with Reversible Interactions," introducing advanced concepts in molecular interactions and particle behavior. A feature event of his visit was a public lecture titled "Culinary Fluid Mechanics: The Surprising Phenomena in the Kitchen Inspiring Research."

Pictured: Dr. Maciej Lisicki

UOG President Dr. Anita Borja Enriquez and COM-FSM President and CEO Theresa Koroivulaono seal the formal agreement for the 2+2 degree pathway in BS Agriculture Tropical Production Track.

UOG, COM-FSM Establish a 2+2 Degree Pathway

The University of Guam and the College of Micronesia – Federated States of Micronesia have established a new "COM-FSM to UOG 2+2 Pathway in Agriculture" transfer agreement that allows students with a two-year associate degree in Agriculture & Natural Resources Management from COM-FSM to transfer directly into the junior year of UOG's Agriculture & Life Sciences bachelor's program under the Tropical Agriculture Production track. Signed on December 10, 2024, by the presidents of both institutions, this partnership creates an efficient pathway to a four-year degree by aligning COM-FSM courses with UOG's courses in the specified track. COM-FSM students must maintain a cumulative GPA of 2.8 and a minimum 3.0 GPA in core STEM courses to qualify for transfer, with their associate degree satisfying at least 64 credit hours toward their bachelor's degree. CNAS hopes to expand the same agreement to other regional colleges and for other degree tracks.

Summer Math Research Program Tackles Real-World Challenges

The University of Guam's Division of Mathematics & Computer Science successfully conducted an intensive eight-week summer research program that brought together 22 students from diverse academic backgrounds to apply advanced mathematics to pressing real-world problems. The program ran from late May through July 2024, combining four distinct research initiatives: the NSA-funded Math Research Experience for Undergraduates (REU), the Young Scholars Research Experience in Math (YSREM) for high school students, the NSF-funded Incorporating Human Behavior in Epidemiological Models (IHBEM) REU, and the GECCO Summer Math Research Experience supported by Guam EPSCoR.

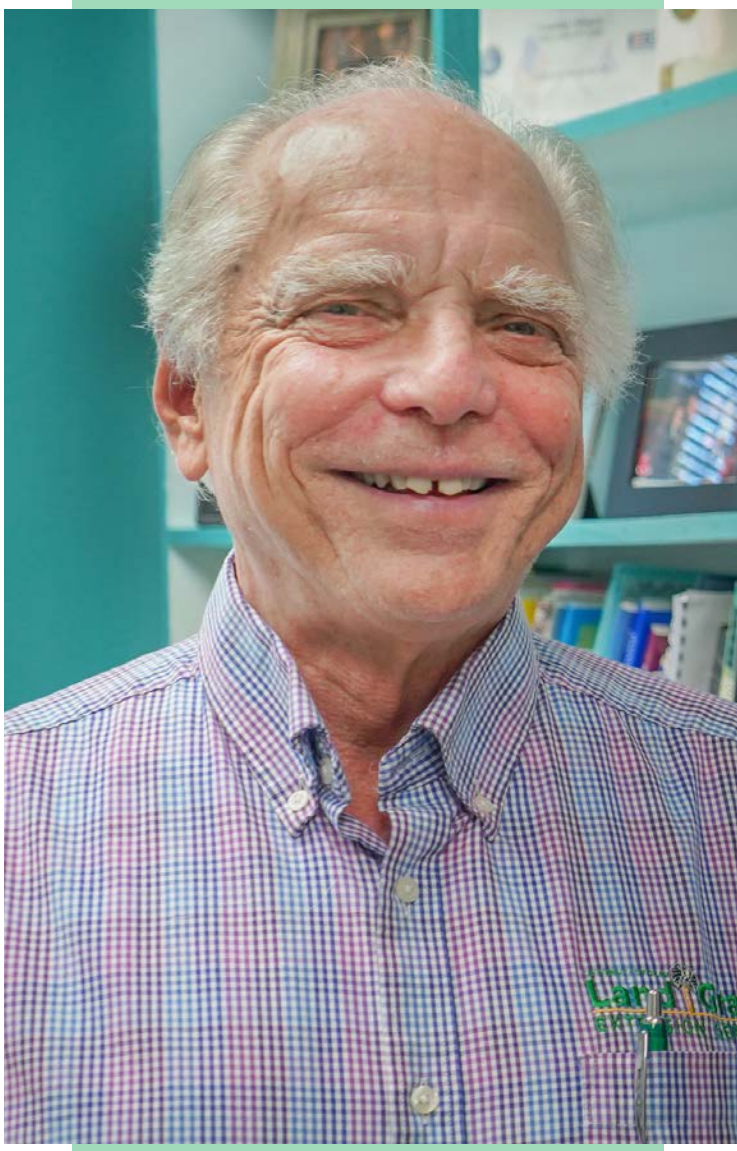
Participants included two high school students, 17 UOG undergraduates, and three students from mainland universities including Willamette College, University of Texas at Austin, and Lewis & Clark College. This diverse composition fostered collaborative learning and brought multiple perspectives to complex mathematical challenges.

Working in teams under faculty mentorship, students tackled sophisticated research projects that demonstrated mathematics' practical applications. Research topics included using graph theory to analyze sudoku puzzles and gout patterns, applying game theory to model disease transmission for Mpox and trachoma, and studying bacterial networks in transplanted corals. These projects required students to apply advanced mathematical concepts including calculus, linear and abstract algebra, differential equations, and group theory.

This summer program exemplifies UOG's commitment to undergraduate research excellence and demonstrates how mathematical theory can address contemporary challenges in public health, disease modeling, and environmental science.

Message from the Interim Associate Director

During AY 2024–2025, the University of Guam Cooperative Extension Service offered a comprehensive array of workshops across three main program areas: Agriculture & Natural Resources, Family & Consumer Sciences, and 4-H Youth Development. In Agriculture & Natural Resources, over 30 workshops were held, covering topics such as pesticide safety, fruit tree cultivation, soil and composting techniques, livestock and poultry management, health seminars for farmers, and sustainable agriculture practices. Notable events included a multi-day Farmer Focus Conference in Yap, a regional Guam AgrAbility conference, and technical training on hemp crop management. In Family & Consumer Sciences, more than 40 public workshops and series were conducted, focusing on nutrition education (such as "Nihi/Let's Cook" sessions), health and wellness camps, food safety, and value-added processing of local produce like turmeric and dragon fruit. These included both one-time events and year-long programs such as SNAP-Ed and EFNEP series for both adults and youth. The 4-H program complemented these efforts with more than a dozen themed summer camps (e.g., STEAM, health & wellness, fisheries, and aviation), school field trips, and community outreach events, including the Annual Migratory Bird Celebration and UOG Charter Day. Collectively, these activities highlight the Extension Service's wide-reaching educational impact on diverse sectors of Guam's population. The following is a detailed listing of Extension workshops.



L. Robert Barber Jr., PhD
Interim Associate Director, UOG Land Grant Extension Service, College of Natural & Applied Sciences
Extension Specialist
Professor, Agricultural Economics & Sustainable Agriculture

EXTENSION ENGAGEMENT

AGRICULTURE & NATURAL RESOURCES PUBLIC WORKSHOPS

Pesticide Safety in Agriculture for Growers and Trainers	Jan 17–18
Pesticide Safety Education Program: Core Training	Feb 19–20
Pesticide Safety Education Program: Core Training	Feb 26–27
Promising Fruit Trees for Guam	Mar 9
Farmer-Run Agriculture Production Monitoring Training	Mar 26
Farmer-Run Agriculture Production Monitoring Training	Apr 17
New Farmer Training for Small Acreages: Sheet Mulching	May 25
Avocado Production	Jun 1
New Farmer Training for Small Acreages: Plant Propagation	Jun 8
New Farmer Training for Small Acreages: Soil	Jun 15
New Farmer Training for Small Acreages: Container Production and Composting	Jul 6
New Farmer Training for Small Acreages: Slope Farming, Homemade Pesticides, Government Programs	Jul1 3
New Farmer Training for Small Acreages: Drip Irrigation, Raised Bed Gardening	Jul 20
Farmer Focus Youth Horticulture Workshop	Jul 11
Farmer Focus Conference: Yap	Jul 23–25
Companion Animal Welfare Workshop	Jul 23
Companion Animal Welfare Workshop	Jul 24
Companion Animal Welfare Workshop	Jul 25
Farmer Focus Community Health Checkup	Aug 13
Farmer Focus Community Health Checkup	Aug 15
Farmer Focus Community Health Checkup	Aug 17
Farmer Focus Community Health Checkup	Aug 20
BBQ Bootcamp: Boston Butt	Aug 23
Farmer Focus Community Health Seminar	Aug 22
Farmer Focus Community Health Seminar	Aug 24
Expert Panel on Poultry & Livestock Production	Aug 24
Strategies for Sustainable Agriculture Seminar	Aug 24
Guam AgrAbility Regional Conference	Oct 29–30
Practical Integrated Crop Management for Hemp	Nov 1

FAMILY & CONSUMER SCIENCES PUBLIC WORKSHOPS

Nihi/Let's Cook: Nutrient-Dense and Low-Sodium Foods	Jan. 10
Nihi/Let's Cook: Nutrient-Dense and Low-Sodium Foods	Feb. 10
Nihi/Let's Cook: Nutrient-Dense and Low-Sodium Foods	Feb. 21
After-School Health & Wellness Camp	Feb. 22
GALA Health & Wellness Camp	12–Mar
After-School Health & Wellness Camp	19–Mar
GALA Health & Wellness Camp	20–Mar

Nihi/Let's Cook: More Calcium, Less Fat	20-Mar
Nihi/Let's Cook: More Calcium, Less Fat	20-Apr
After-School Health & Wellness Camp	24-Apr
Nihi/Let's Cook/Keys to Embracing Aging: Let's Chesa!	5-Jun
Nihi/Let's Cook/Keys to Embracing Aging: Let's Bake!	8-Jun
Nihi/Let's Cook/Keys to Embracing Aging: Let's Make Soup & Salad!	12-Jun
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook on a Budget!	15-Jun
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook Breakfast!	19-Jun
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook Local!	22-Jun
GALA Health & Wellness Camp	23-Jul
UOG New Student Orientation: Building Healthy Habits	August
Nihi/Let's Cook/Keys to Embracing Aging: Let's Chesa!	Aug. 7
Dragon Fruit Post-Harvest and Value-Added Products	Aug. 9
Nihi/Let's Cook/Keys to Embracing Aging: Let's Bake!	Aug. 10
Nihi/Let's Cook/Keys to Embracing Aging: Let's Make Soup & Salad!	Aug. 14
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook on a Budget!	Aug. 17
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook Breakfast!	Aug. 21
Nihi/Let's Cook/Keys to Embracing Aging: Let's Cook Local!	Aug. 24
Financial Literacy and Eating Smart for Upward Bound Students	July 8-19
Value-Added Food Processing: Turmeric	Sept. 14
Value-Added Food Processing: Dragon Fruit	Sept. 28
Introduction to Produce Safety	Oct. 9
Processing Value-Added Products	Oct. 17
Nihi/Let's Cook: Focus on Fiber	Nov. 6
Nihi/Let's Cook: Reducing Added Sugars	Nov. 9
Nihi/Let's Cook: Nutrient-Dense and Low-Sodium Foods	Nov. 13
Nihi/Let's Cook: More Calcium, Less Fat	Nov. 16
Value-Added Food Processing: Turmeric	Dec. 14
Prevent T2 Modules	Year-long
SNAP Ed: Eat Smart, Live Strong Series	Year-long
SNAP-Ed: Plan, Shop, Save, Cook Series	Year-long
SNAP-Ed: Cooking Matters Store Tours	Year-long
SNAP-Ed: Food Smarts for Youth Series	Year-long
EFNEP: Adult Lessons	Year-long
EFNEP: Youth Lessons	Year-long

2,742+

Workshop & Conference Participants

4-H ON-CAMPUS EVENTS

Air Force and Navy Schools Spring Event	Mar 28
4-H Summer Camp: Crime Scene Investigation	May 28–31
4-H Summer Camp: High Flyers Aviation	May 28–31
4-H Summer Camp: Health & Wellness	May 28–31
4-H Summer Camp: Creative Me	May 28–31
4-H Summer Camp: Little Gardeners	Jun 3–7
4-H Summer Camp: Crazy Experiments	Jun 3–7
4-H Summer Camp: Bugs & Us	Jun 3–7
4-H Summer Camp: STEAM	Jun 3–7
4-H Summer Camp: Ethixquest Philosophy Camp	Jun 3–7
4-H Summer Camp: Home Economics	Jun 24–28
4-H Summer Camp: Smart Start	Jun 24–28
4-H Summer Camp: High School Fisheries	Jul 1–12
Military Child & Youth Camp	Jul 8–12
4-H Summer Camp: Junior Fisheries	Jul 15–Aug 2

560+
4-H Event Participants

COMMUNITY OUTREACH EVENTS

EFNEP/SNAP-Ed In-Store Cooking Demos	Monthly
3rd Annual Migratory Bird Celebration	Feb 17
UOG Charter Day	Mar 7
Island-Wide Easter Egg Hunt	Mar 27
Huegon Manamko' Senior Games	Aug 29

SCHOOL FIELD TRIPS

	Field Trips	Participants
Triton Farm Field Trips	60	1,850
Head Start Field Trips	6	98 youths/ 94 adults
CNAS Aquapark	13	195
STEM Day with SIFA Charter School	1	175

Field Trips
80

Participants
2,258

PROFESSIONAL TRAININGS HELD

Forest Inventory & Analysis	January, April

SCHOLARLY ACTIVITIES OF NASA FACULTY

Message from the Interim Associate Director

Frank Camacho, PhD
Interim Associate Director, UOG Land Grant agInnovation Research Center, College of Natural & Applied Sciences
agInnovation Research Center (aIRC/AES)

Advancing Research for Island Resilience and Sustainability

From climate change adaptation and human health to sustainable food production and energy resilience, researchers at the College of Natural and Applied Sciences (CNAS) at the University of Guam are tackling some of the most urgent and complex challenges facing Guam and the broader Micronesian region. CNAS scientists lead diverse research initiatives that reflect the unique needs of island communities, including efforts to conserve rare and endangered species, model the dynamics of infectious diseases, and apply molecular and genetic tools to assess the biodiversity of culturally and economically significant crops.

In addition to advancing scientific knowledge, these research activities provide invaluable experiential learning and training opportunities for undergraduate and graduate students. By involving students in fieldwork, laboratory analysis, and scholarly dissemination, CNAS plays a vital role in developing the next generation of scientists, agriculturalists, and environmental stewards from our region.

Looking ahead, CNAS remains committed to pursuing research that informs policy, enhances local capacity, and contributes to the long-term health, sustainability, and prosperity of island communities across the Western Pacific. Through these initiatives, CNAS will continue to serve as a hub for scientific discovery and problem-solving rooted in the unique cultural and environmental context of Micronesia.

PEER-REVIEWED PAPERS

Unit	Citation for Peer Reviewed Publications
MCS	Aquino, L. J. C., Cruz, A., Dominguez, R.-M., Lee, B., Oh, H., Rychta´r, J., & Taylor, D. (2024). Game-Theoretic Model of SARS Precautions. *Kyungpook Mathematical Journal, 64* (3), 371–393. doi.org/10.5666/KMJ.2024.64.3.371
MCS	Badowski G, Teria R, Nagata M, Legaspi J, Dulana LJB, Bordallo R, Hernandez BY. Ethnic disparities in early-onset colorectal cancer incidence, screening rates and risk factors prevalence in Guam. Prev Med Rep. 2024;43:102774. Epub 20240528. doi: 10.1016/j.pmedr.2024.102774.
ALS	Borja J, Fausto, King R, Aquino LJC. The University of Guam Drone Corps Program – Paving the Way for the Future of an Island Community's Drone Industry. Journal of Drone Law and Policy. April 2024;2:59-85.
MCS	Choi J, Badowski G, Shvetsov YB, Dulana L, Teria R, Jin SB, Aguon C, Bordallo R, Leon Guerrero RT. Disparities in Colorectal Cancer Incidence among Asian and Pacific Islander Populations in Guam, Hawai'i, and the United States. Int J Environ Res Public Health. 2024;21(2). Epub 20240201. doi: 10.3390/ijerph21020170.
MCS	Choi J, Badowski G, Shvetsov YB, Dulana L, Teria R, Jin SB, Aguon C, Bordallo R, Leon Guerrero RT. Disparities in Colorectal Cancer Incidence among Asian and Pacific Islander Populations in Guam, Hawai'i, and the United States. Int J Environ Res Public Health. 2024;21(2). Epub 20240201. doi: 10.3390/ijerph21020170.
ALS	Dela Cruz R, Galbreath J, Butel J, Yamanaka AB, Wilkens LR, Aflague T, Coleman P, Shallcross L, McFall P, Novotny R. Social determinants of health literacy among parents and caregivers in the US-Affiliated Pacific. Health Promot Int. 2024;39(1). doi: 10.1093/heapro/daae002.
ALS	Dela Cruz R, Galbreath J, Butel J, Yamanaka AB, Wilkens LR, Aflague T, Coleman P, Shallcross L, McFall P, Novotny R. Social determinants of health literacy among parents and caregivers in the US-Affiliated Pacific. Health Promot Int. 2024;39(1). doi: 10.1093/heapro/daae002.
ALS	Easmin, S., Sarker, Z.I., Khatib, A., Sahena Ferdosh, Jaffri, J., Uddin, A.H., Murugesu, S., Balan, T., & Perumal, V. (2024). Metabolomics combined with chemometric analysis to identify a-glucosidase inhibitors in Phaleria macrocarpa fruit extracts and its molecular docking simulation. South African Journal of Botany. 168; 352-359 doi.org/10.1016/j.sajb.2024.03.025
ALS	Ferdosh S, Ashikin NAB, Wu, B., Zaidul ISM. (2024). Supercritical fluid extraction of phenolics from Anisophyllea disticha (Jack) Baill. and evaluation of their antioxidant activities. *The Natural Product Journal*. DOI:10.2174/2210315513666230607123047
ALS	Ferdosh, Sahena (2024). The extraction of bioactive agents from *Calophyllum inophyllum* l., and their pharmacological properties. Scientia Pharmaceutica. 92 (1); 06. doi.org/10.3390/scipharm92010006
ALS	Fernandez, M.A.P., B. San Nicolas, J. McConnell & M. Marutani. 2024. A PCR-Based Method for Sex Determination of Cycas micronesica (Cycadaceae). Micronesica. 2024-4: 1-11. Published online 20 November 2024. http://micronesica.org/volumes/2024

Unit	Citation for Peer Reviewed Publications
MCS	Ham S, Choi J, Kwak S, & Kim J. (2024). A structure-preserving explicit numerical scheme for the Allen–Cahn equation with a logarithmic potential. Journal of Mathematical Analysis and Applications, 538(1), 128425. https://doi.org/10.1016/j.jmaa.2024.128425
DNS	Kim RH, Paulino YC, Kawabata Y. Validating Constructs of the Depression, Anxiety, and Stress Scale-21 and Exploring Health Indicators to Predict the Psychological Outcomes of Students Enrolled in the Pacific Islands Cohort of College Students. Int J Environ Res Public Health. 2024;21(4). Epub 20240419. doi: 10.3390/ijerph21040509.
MCS	Kim RH, Paulino YC, Kawabata Y. Validating Constructs of the Depression, Anxiety, and Stress Scale-21 and Exploring Health Indicators to Predict the Psychological Outcomes of Students Enrolled in the Pacific Islands Cohort of College Students. Int J Environ Res Public Health. 2024;21(4). Epub 20240419. doi: 10.3390/ijerph21040509.
ALS	Liu TY, Chen CH, Ko YC, Wu ZC, Liao TZ, Lee HH, Tsai IJ, Chang TT, Wu ML, Tsai JN, Klopfenstein NB, Kim MS, Stewart JE, Atibalentja N, Brooks FE, Cannon PG, Farid AM, Hattori T, Kwan HS, Ching Lam RY, Ota Y, Sahashi N, Schlub RL, Shuey LS, Tang AMC, Chung CL. Development and Evaluation of Real-Time Quantitative PCR Assays for Detection of *Phellinus noxius* Causing Brown Root Rot Disease. Plant Dis. 2024 Nov;108(11):3288-3299. doi: 10.1094/PDIS-01-24-0238-RE. Epub 2024 Oct 22.
DNS	Lobban, C.S. & A. Witkowski. 2024. Marine benthic diatoms in the flora of Guam: New records, Dictyoneis apapae sp. nov., and updates to the checklist. *Micronesica* 2023-2: 1–75.
DNS	Lobban, C.S. & A. Witkowski. 2024. Simulacra in the diatom genus Diploneis (Bacillariophyceae: Naviculales): Caribbean *D. gravelleana* and other small, strongly constricted species resolved from ultrastructure. Bull. Mar. Sci. 100: 429–438. https://doi.org/10.5343/bms.2023.0088
MCS	Marquez RMA, Minas MS, Santos JVT, Yoon K, Campo VN, Oh H, Rychtar J, Taylor D (2024). Game-theoretical model of COVID-19 vaccination, Journal of Biological Systems, Vol. 32 (2024) 2450013. doi.org/10.1142/S021833902450013X
MCS	Mendez AJ, Somera L, Badowski G, Mummert A, Castro LJ, Antolin A, Dulana LJ, Sablan D. Knowledge, Attitudes, Beliefs, Practices Regarding Human Papillomavirus (HPV), and Barriers to Vaccination Against HPV Infection: A Cross-Sectional Survey of Guam Residents. Hawaii J Health Soc Welf. 2024;83(2):54-60.
ALS	Paudel S, Dobhal S, Lowe-Power T, Schlub RL, Hu J, Allen C, Alvarez AM, Arif M. RSSC-Lineage Multiplex PCR Assay Detects and Differentiates Ralstonia solanacearum, R. pseudosolanacearum, R. syzygii, and the R3bv2 Subgroup. PhytoFrontiers. Aug 2024. 4(3): 328-338. doi.org/10.1094/PHYTOFR-07-23-0087-R
DNS	Paulino, Y.C., Camacho, F., Paulino, T.V., Lee, D.J., Natividad, L.L., Matisoo-Smith, E., Merriman, T.R. and Gosling, A., 2024. Building capacity to conduct genetic epidemiology research on hyperuricaemia and gout in an Indigenous community in Guam. *Research square*, pp.rs-3. DOI: https://doi.org/10.21203/rs.3.rs-3955100/v1

Unit	Citation for Peer Reviewed Publications
ALS	Ryan ST, Okely AD, Chong KH, Stanley RM, Randle M, Waqa G, Yamanaka AB, Leon Guerrero R, Coleman P, Shallcross L, Wilkens LR, Deenik JL, Novotny R. Proportion and Correlates of Children in the US-Affiliated Pacific Region Meeting Sleep, Screen Time, and Physical Activity Guidelines. J Phys Act Health. 2024 Mar 26:1-11. doi: 10.1123/jpah.2023-0463.
ALS	Singh, R.R, Demeestere. K & Kyndt, T. 2024."Ascorbate oxidation stimulates rice root growth via effects on auxin and abscisic acid levels." Plant Growth Regulation 103, no. 1, 151-163. http://doi.org/10.1007/s10725-023-01096-9
ALS	Sparks KS, Fialkowski MK, Dela Cruz R, Grandinetti A, Wilkens L, Banna JC, Bersamin A, Paulino Y, Aflague T, Coleman P, Deenik J, Fleming T, Novotny R. Acculturation and Health Status in the Children's Healthy Living Program in the Pacific Region. Int J Environ Res Public Health. 2024;21(4):448. Published 2024 Apr 6. doi:10.3390/ijerph21040448
ALS	Tay, W.T.; Marshall, S.D.G.; Popa-Baez, A.D.; Dulla, G.F.J.; Blas, A.L.; Sambiran, J.W.; Hosang, M.; Millado, J.B.H.; Melzer, M.; Rane, R.V.; et al. Alternative DNA Markers to Detect Guam-Specific CRB-G (Clade I) Oryctes rhinoceros (Coleoptera: Scarabaeidae) Indicate That the Beetle Did Not Disperse from Guam to the Solomon Islands or Palau. Diversity 2024, 16, 634. https://doi.org/10.3390/d16100634
ALS	Tek TW, Marshall SDG, Popa-Báez AD, Dulla GFJ, et al. Alternative DNA Markers to Detect Guam-Specific CRB-G (Clade I) Oryctes rhinoceros (Coleoptera: Scarabaeidae) Indicate That the Beetle Did Not Disperse from Guam to the Solomon Islands or Palau. Diversity (2024): n. pag. DOI:10.3390/d16100634
ALS	Yamanaka AB, Seale LA, Hammond K, Lim E, Shallcross L, Aflague T, Novotny R. Micronutrient Intake and Metabolic Status Among Children in the US-Affiliated Pacific Region. Current Developments in Nutrition. 2024 Jul 1;8. doi:https://doi.org/10.1016/j.cdnut.2024.103384
MCS	Zou YJ, Andrada J. (2024) Prediction of Guam's Registered Voters Based on Data Analysis - A Case Study. Journal of Mathematics and Computer Applications. SRC/JMCA-151. DOI: doi.org/10.47363/JMCA/2024(3)133
MCS	Zou YJ, Huang SJ, Luo X, Zou A. Combining Numeric Method and Visualization Method Together to Analyze Big Data and the Prediction of the Rate of Accidental Death in China's Coal Mining Industry. 2024. Vol 39, Issue 5, PP 102-110. Article no. JAMCS.116107.

GRADUATE STUDENT THESES

Cristian "CJ" Cayanan
M.S. Environmental Science
('15 B.A. Biological Sciences, Smith College)
Thesis: Professional Internship Project: Five-Year Status Reviews for the U.S. Fish & Wildlife Service
Advisor: Dr. Frank Camacho

Ella Marie Santos Macatugal
M.S. Biology
('20 B.S. Biology, UOG)
Thesis: Liver Disease Risk: Cyanotoxins in Water and Food Sources on Guam
Advisor: Dr. Laura Biggs

Raina J.C. Taitingfong
M.S. Environmental Science
('14 B.S. Biology, Seattle University)
Thesis: Sätba I Sihek : An Update on the Sihek Recovery Project
Advisor: Dr. Rachel Jolley

Patrick Keeler
M.S. Sustainable Agriculture, Food & Natural Resources
(B.A., University of Nevada – Las Vegas)
Thesis: Evaluating the Effects of Biochar *Acacia auriculiformis* and *Pterocarpus indicus* Seedling Health and Survivorship in Southern Guam
Advisor: Dr. Romina King

Lauren Noelle Kallen
M.S. Biology
(B.S. University of California, Santa Cruz)
Thesis: Genetic Characterization of the Corallivore *Drupella fragum* Outbreaks on Guam
Advisor: Dr. Sarah Lemer

TECHNICAL & EXTENSION REPORTS

Citation	UOG Faculty	URL
Bamba, Jesse Hahn Elizabeth, Perez Katherine, Quitugua Roland, Wall Phoebe. Guam Fruit and Vegetable Pesticide Guide 6th edition (2024). UOG Cooperative Extension & Outreach, Agriculture & Natrual Resources Program, University of Guam Mangilao GU. 210p.	Jesse Bamba	https://www.uog.edu/_resources/files/extension/pest-management/2024-guam-fruit-vegetable-pesticide-guide-6th-ed.pdf
Fiedler, G.C. 2024. Annual (FY23) Report For USFWS Permit: TE76800D-0, Population Estimates of Listed Tree Snails in the Marianas. 7 pp.	G. Curt Fiedler	
Takai G, Acosta M, Tuquero J. Case Study #02-24: Case study: Evaluation of the effects of mulch on operation costs and yield of hot pepper. 2024. UOG Cooperative Extension & Outreach, Agriculture & Natrual Resources Program, University of Guam Mangilao GU. 4p.	Mark Acosta, Joseph Tuquero	https://www.uog.edu/_resources/files/extension/2024-uog-extension-hot-pepper-mulch-case-study.pdf
Xiao, W, Sablan N, Alvarez S, Badowski A, Batusin A, Cruz K, De Vega J, Dela Cruz M, Fagaragan M, Gatus A, Gonzalez M, Julien M, Naputi R, Nauta S, Perez K, Poppe S, Rios A, Sanele A, Simpson J, Tuazon K, Vice A. Technical Report CNAS-01-2024: An update to the known weeds of Guam. July 2024. UOG Division of Natural Sciences, University of Guam Mangilao, GU. 5 p.	W. Xiao	https://www.uog.edu/_resources/files/schools-and-colleges/college-of-natural-and-applied-sciences/2024-uog-cnas-technical-report-on-weeds.pdf
Yang J, Barcinas C, deLeon E. Tumeric Golden Milk. Recipe Card. December 2024. College of Natural & Applied Sciences, Cooperative Extension & Outreach, University of Guam.	Clarissa Barcinas, Elaine de Leon, Jian Yang,	
Yang J. Dragon Fruit Gummies. Recipe Card. December 2024. College of Natural & Applied Sciences, Cooperative Extension & Outreach, University of Guam.	Sophie Santos, Jian Yang	
Yang J. Thanksgiving Food Safety. Extension Brochure. November 2024. College of Natural & Applied Sciences, Cooperative Extension & Outreach, University of Guam	Jian Yang	

PROFESSIONAL PRESENTATIONS

T. Aflague, G. Badowski, R. Leon Guerrero. Association between added sugar intake and childhood overweight/obesity (OWOB) in Guam and Pohnpei. 2024 Nutrition & Growth Conference; Lisbon, Portugal, Feb 15, 2024.

Kuan-Ju Chen, Tim de La Cruz, Harley Edeluchel, Jr., and KristiAnna Whitman. Farmer Focus Project: Supporting Farmer Wellness and Behavioral Health on Guam and Micronesia, The 2024 Annual AgrAbility National Training Workshop Meeting, Atlanta, GA, March 25-28, 2024.

Marutani, M, Presentation of USDA NIFA Hatch Horticulure programs at the Western Extension and Research Directors Associations meeting in Palau April 29-May 2, 2024.

Miller, R.H. 2024. War in the Pacific-The struggle against invasive spceis in the Western Pacific. Pacific Branch Ent. Soc. America, Waikoloa, HI, April 1, 2024.

Sayama, J. and R.H. Miller. 2024. Pollen identificaion in Apis mellifer L. (Hymenoptera: Apidae) apiaries on Guam using DNA metabarcoding. Pacific Branch Ent. Soc. America, Waikoloa, HI, April 1, 2024.

C. Rosario and R.H. Miller. 2024. Greater banded hornet on Guam. Pacific Branch Ent. Soc. America, Waikoloa, HI, April 1, 2024.

Marutani, M, Presentation of USDA NIFA Hatch Horticulure programs at the Western Extension and Research Directors Associations meeting in Palau April 29-May 2, 2024.

Marutani, M, M. Delfin: Student experiences representing the abundance of opportunities under the University of Guam, Agriculture and Life Sciences UOG CIS Conference, April 11, 2024,

Kaelan Arciaga, Scott Davis, and Kuan-Ju Chen. Leveraging Virtual Reality Technology to Tackle Farm Labor Shortages and Foster Agricultural Interest: A Case Study from Guam, Conference of Island Sustainability (CIS) Annual Meeting, Guam, April 11, 2024.

Marutani, M. Presentation on (1) RIIA "Planning Activity" 1023427, 2020-2022: Linking Insular Institutions for Higher Education Success, and (2) RIIA "Resident Instruction" 1031320, 2023-2025: Building sustainable agriculture education systems in Micronesian region for next decade at the NIFA ANNH and Insular Areas Programs Project Directors (PD) Meeting, Kansas City, Missouri May 29-31, 2024.

Chen, K. J. USDA RIIA "Resident Instruction" 2022-2025: 2022-70008-38345 "Adaption of Virtual Reality Technology (VRT) in Advancement of Agriculture and Food Sciences Education in Insular Institutions" at the NIFA ANNH and Insular Areas Programs Project Directors (PD) Meeting, Kansas City, Missouri May 29-31, 2024.

Ya-Shiou Chang and Jeng-Hung Liu. The influence of sodium alginate combined with NaCl on the quality attributes of cooked chicken filets, 77th Reciprocal Meat Conference of American Meat Science Association, Oklahoma City, OA, June 14-17th, 2024

Andrew Gio Kang, Cara Lin, Stephanie Santos and Glenn Dulla, Assessing Seagrass Wasting Disease (Labyrinthula spp.) on Guam's Various Tape Grass (Enhalus acoroides) Populations. Pacific STEP-UP, Nation Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health, Grant Number: 5R25DK078386-18. 07/01/2024

Chen, K. J. International Agricultural Marketing, 2024 University of Guam Agriculture & Life Science "Future of AG Study-Abroad Experience" Summer Study Abroad Program, July 1-15, 2024.

Jeng-Hung, Liu. 1029889, 2022-2027: Establishing An Educational Pipeline To Strengthen The Meat and Poultry processing Inudstry Workforce in Guam at the NIFA ANNH and Insular Areas Program Project Directors (PD) Meeting, Kansas City, Missouri May 29-31, 2024.

Marutani, M. Insights on Agri-tourism and Value-added products
from the Taiwan Tour 2023-2024 at the Agritourism Conference at UOG Aug. 26, 2024.

Chen, K. J. Agricultural Marketing, USDA RIIA "Resident Instruction" 2023-2025: "Building sustainable agriculture education systems in Micronesian region for next decade" at the Project Team Meeting, Pohnpei, September 1-5, 2024.

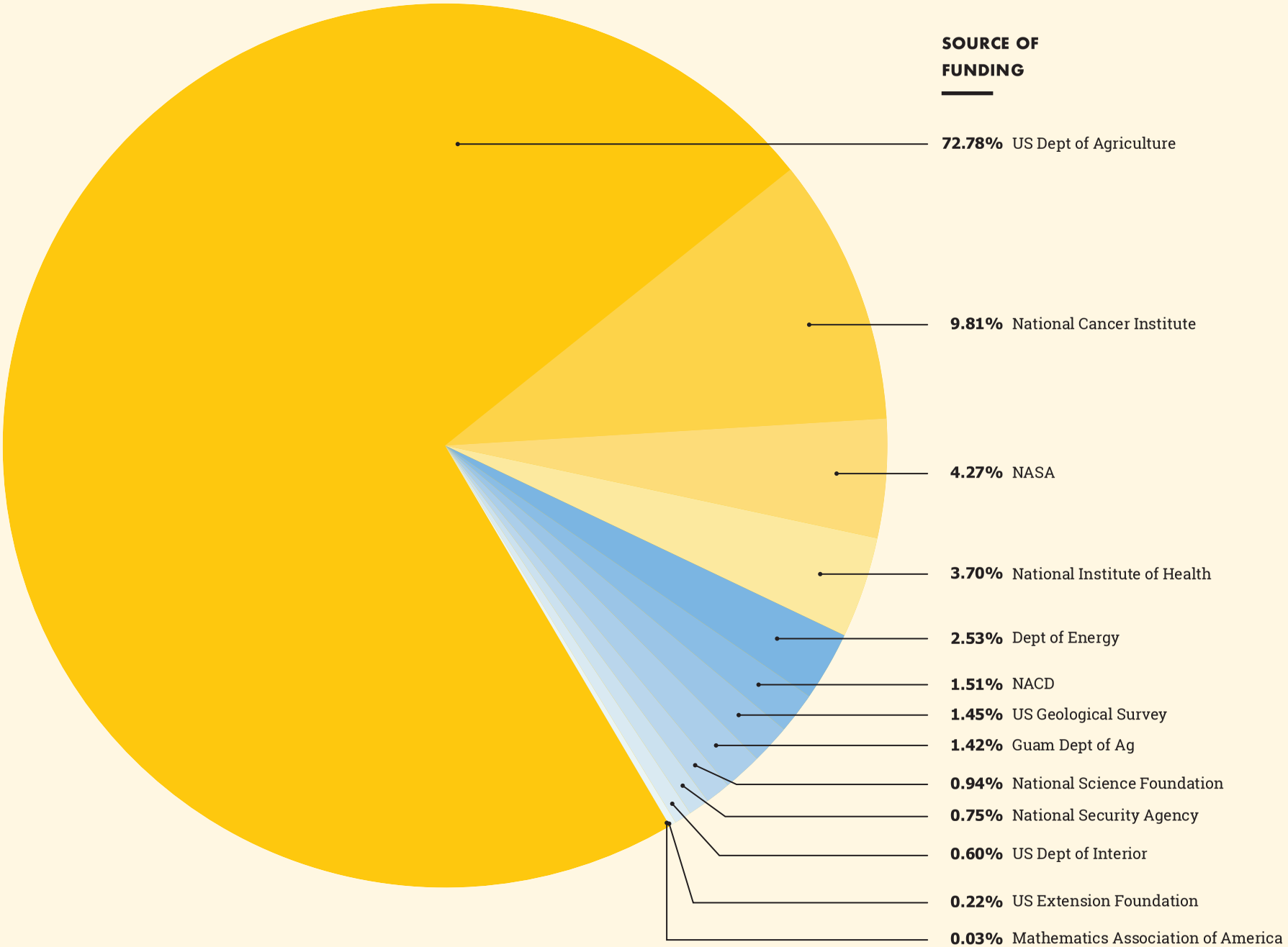
Barcinas P. The Guam Silver Lining (Guam Silver Jackets) to Local Capacity Building for Mitigating and Addressing Community Flood Issues, Extension Disaster Education Network Conference, Oct 24, 2024.

C. Rosario and R.H.Miller. 2024. Effectiveness of traps and baits for catching greater banded hornet, Vespa Tropica. Ent. Soc. America, Phoneix, AZ, Nov 1, 2024.

S. Vogt, M.H. Jingco, & E. Bandoy. Tree snail populations and typhoon bottlenecks. Mariana Island Conservation Conference (Saipan), Feb 25 - March 1, 2024

Lindstrom D.P. Genetic Barcoding and Population Biology of Guam's native Diadromous Fauna. 154th Annual Meeting of the American Fisheries Society, Honolulu, HI, September 15-19, 2024.

FEDERAL FUNDING



EXTRAMURAL GRANTS

AWARD TITLE	PRINCIPAL INVESTIGATOR	FUNDING AGENCY
Information Network for Sustainable Pacific Islands Research and Education (INSPIRE) Project	Acosta, Mark	USDA
Diabetes Surveillance to Examine Health and Nutrition Access & Availability (DISEHA)	Aflague, Tanisha	UNT-NIH
EFNEP FY2025 (Expanded Food & Nutrition Education Program)	Aflague, Tanisha	USDA-NIFA
Dopble Kopble: Double Up SNAP Bucks for Local Produce in Guam	Aflague, Tanisha	USDA-NIFA
SNAP-Ed Program FY2024	Aflague, Tanisha	USDA-DPHSS
U54 PIPCHE Pilot Project III - Traditional and New Lifestyle Interventions for Breast Cancer (TANICA) Individual plus Policy Systems and Environment (I+PSE) Approach: A Pilot Study	Aflague, Tanisha	NIH/NCI
Hanom Fresko: A cross-disciplinary study of coastal freshwater discharge hydrology and near-shore and coastal ecology	Aquino, Leslie	NASA
NSA Math REU: Game Theory and Graph Theory	Aquino, Leslie	NSA
Promoting Beginning Farmer Training	Ares, Adrian	USDA
U54 PIPCHE Pilot Project III - Breast Cancer Risk Assessment in Hawai'i and Guam	Badowski, Grazyna	NIH/NCI
AI-Driven Insights on Risk Factors from Economic, Behavioral, and Social Determinants for Predicting Lung Cancer in Guam (AIRE)	Badowski, Grazyna	UNTHSC-NIH
Five Future Trainers - FCAG	Bamba, Jesse	USDA-MSU
Guam PSEFMP FY2024 (Pest Safety Education Funds Management Program	Bamba, Jesse	USEPA-Extension Foundation
Guam PSEFMP FY2025 (Pest Safety Education Funds Management Program	Bamba, Jesse	USEPA-Extension Foundation
Diverse NextGen Food Policy Leaders Trained in Resilient Systems & Federal Workforce-Ready	Bamba, Jesse	USDA-UAF
Western Plant Diagnostic Network (2022-2026)	Bamba, Jesse	USDA-UCDavis
Pesticide Safety Education for Pacific Island Educators and Stakeholders	Bamba, Jesse	MSU-USDA
Guam Three Year State Professional Development Program Plan FY2024-2026	Barber, Bob	USDA
WSARE State Implementation for Guam	Barber, Bob	USDA

AWARD TITLE	PRINCIPAL INVESTIGATOR	FUNDING AGENCY
RREA FY2024: Engaging Landowners and Communities increasing Ecosystem Services of Guam Forests	Barber, Bob	USDA–NIFA
RREA FY2025: Engaging Landowners and Communities in Increasing Ecosystem Services of Guam Forests: Demonstration, and Education of Agroforestry	Barber, Bob	USDA–NIFA
Guam Census FY2023	Barcinas, Peter	USDA–NASS
HIES (Household Income & Expenditures Survey	Barcinas, Peter	USDOI–BSP
Compacts of Free Association (COFA) Subsample Survey	Barcinas, Peter	USDOI–BSP
RCUH PACIOOS	Biggs, Laura	RCUH
U54 PIPCHE Pre-Pilot Project VI - Human exposure to cyanobacteria and cyanotoxins	Biggs, Laura	NIH/NCI
Developing Economic Sustainability and Viability of Value-added on Guam	Chen, Kuan	USDA
CNAS-DOAG USDA Black Pepper (Implementing the Introduction and Establishment of Black Pepper Seed Stock for Local Producers on Island Project)	Chen, Kuan	USDA
Western Regional Agricultural Stress Assistance Program (WRASAP)	Chen, Kuan	USDA–WSU
Enhancing International Agriculture Sciences Education for Pacific Islanders	Chen, Kuan	USDA–NIFA
Guam Development & Production Costs & Returns of Selected Crops Grown Small Farms	Chen, Kuan	USDA–NRCS
Western Region Agricultural Stress Assistance Program (WRASAP) III 23-24	Chen, Kuan	USDA–WSU
Western Region Agricultural Stress Assistance Program (WRASAP) IV 24-25	Chen, Kuan	USDA–WSU
Guam Agrability Regional Workshop: Supporting Sustainable Knowledge Continuance in Agriculture & Mental Health within the Western Pacific	Chen, Kuan	USDA–WSU
USDA VRT Ag & Food	Chen, Kuan	USDA
Strengthening Human Nutrition/Food Science & Child & Family Life Science Program at the University of Guam	Dela Cruz, Timmy	USDA–NIFA
Improvement of Plant Pathology Research Lab and Plant Pathology, and Student Nursery Spaces at the University of Guam	Dulla, Glenn	USDA–NIFA
NACD REPI	Dulla, Glenn	NACD
Erwinia Survey and Development of a Rapid Detection Assay	Dulla, Glenn	USDA
Forest Health Technical Assistance for the RMI	Dulla, Glenn	USDA
Guam Ports of Entry Coconut Rhinoceros Beetle Management Plan	Dulla, Glenn	USDA
GU FY2024 PPA Solanaceous Commodity 1S.054	Dulla, Glenn	USDA

AWARD TITLE	PRINCIPAL INVESTIGATOR	FUNDING AGENCY
NextGen: Agritourism: Regenerate Workforce Initiative for African & Insular Communities	Ferdosh, Sahena	USDA-NMC
U54 PIPCHE Pre-Pilot Project V - Discovery of Natural Products of Physalis Peruviana (Poha) and Annona Muricata (Soursop) Against Fusobacterium Nucleatum, A Key Pathogen Associated with Colorectal Cancer	Ferdosh, Sahena	NIH/NCI
Development of Online Courses in Tropical Wildlife Mangement	Fiedler, G. Curt	USDA
Forecasting Daily Ref. Evapotranspiration & Rainfall for Water Resources Conservation & Sustainable Agriculture	Golabi, Mohammad	USDA-HI
CNAS-USDA Forest Service: Tropical Forest Ecology	Jolley, Rachel	USDA
Creation of a Cooperative BS Degree Program for the Marianas Islands and Beyond	Jolley, Rachel	USDA
Mapping and Prioritizing Potential Privately-Owned Forest Stewardship Lands - Guam	King, Romina	USDA
USDA Forest Service, National Woodland Owner Survey (SWOS)	King, Romina	USDA
Predicting and Managing the Future of Onegeim'Tketau (Jellyfish Lake), Palau in a Changing Climate	King, Romina	UH-USGS
Smart Commodities and Practices to Reduce Greenhouse Gas Emissions in Pacific Island Agriculture and Forestry Systems	King, Romina	USDA
Guam Ports of Entry Coconut Rhinoceros Beetle Management Plan	King, Romina	USDA
RISC Support at UOG	King, Romina	USDA
4-H and Youth Development Year Long Membership Program; STEAM Life Long Learning	Kyota, Clifford	GDOE
U54 PIPCHE Pre-Pilot Project IV - Obesity and Cancer Across the Lifespan in the Pacific	Laguana, Michelle	NIH/NCI
U54 PIPCHE Administrative Supplement "Establishing UOG Data Science Center"	Leon Guerrero, Rachael	NIH/NCI
U54 PIPCHE Cancer Grant YEAR 5	Leon Guerrero, Rachael	NIH/NCI
Controlling Electrochemical Reactions	Limtiaco, John	DOE
The Promotion of Heat Stress Awareness and Animal Nutrition for Egg and Hog Production on Guam	Liu, Jeng-Hung	USDA
Establishing An Educational Pipeline to Strengthen The Meat Poultry Processing Industry Workforce in Guam	Liu, Jeng-Hung	USDA
CNAS-DOAG USDA Black Pepper (Implementing the Introduction and Establishment of Black Pepper Seed Stock for Local Producers on Island Project)	Marutani, Mari	DOAG-USDA
Improving Hot Pepper Production of Increasing Value-Added Products in Guam	Marutani, Mari	USDA
NIFA 2023 RIAA Instruction	Marutani, Mari	USDA

AWARD TITLE	PRINCIPAL INVESTIGATOR	FUNDING AGENCY
NIFA 2023 RIAA/AGFEI Equipment	Marutani, Mari	USDA
Forest Inventory and Monitoring Program in the Pacific Islands (FIA 2023)	McConnell, James	USDA
Developing a Certification Program in Forest Conservation and Management in Micronesia	Miller, Ross	USDA
CAPS Asian Citrus	Miller, Ross	USDA
CAPS Citrus Pests	Miller, Ross	USDA
CAPS Fire ants	Miller, Ross	USDA
CAPS Honey Bee	Miller, Ross	USDA
CAPS Nursery Survey	Miller, Ross	USDA
NMC Insect Collection	Miller, Ross	USDA
Course in Tropical Forest Ecology of the Mariana Islands	Miller, Ross	USDA
Dolciani Mathematics Enrichment Program	Nagahashi, Hideo	MAA – Mathematics Association of America
Promoting Seed Plant Quality of Sweetpotato in Guam and Micronesia Pacific Islands	Nwe, Yin	USDA-UCDavis
IHBEM Multidisciplinary Analysis of Vaccination Games of Equity (MAVEN)	Oh, Hyunju	NSF
Mathematical Sciences Program University of Guam - Game Theory, Graph Theory, and the Magic of Coding	Oh, Hyunju	NSA
RIAA: Developing Multidisciplinary Research Opportunities at UOG	Wu, Bulan	USDA
Pacific Food Safety & Training Collaborative	Yang, Jian	USDA-OSU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