

Vince Campo



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Education

MIP Applied Mathematics
Arizona State University | 2024

B.S. Mathematics
University of Guam | 2019

Skills

Knowledge in the following programs:

LaTeX

Matlab

R

SageMath / CoCalc

SPSS

MS Office

Adobe

Interests

- Discrete Structures
- Numerical Methods & Software
- Probability Theory
- Statistics for Sciences
- Fourier Transformations
- Preparation for Industrial Careers in Mathematics
- Computer Science
- Physics
- Mass Communication
- Second Language: Chamorro
(Native Language of Guam)

References

Dr. Leslie Aquino
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Dr. Hyunju Oh
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Dr. Grazyna Badowski
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Natalie Johns
njohns@cdcfoundation.org

Dr. Ann Pobutsky
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Work Experience and Internships

Jan'23 - Present **Research Associate III** UOG Regional Center for Public Policy
The University of Guam was contracted to assess treatment court and programs servicing individuals on probation by the Judiciary of Guam. Through data collection and analysis, my role was to gather information and create an evaluation report on effectiveness and success. This report is utilized for grant funding by the Department of Justice to allot monies toward these treatment courts given standards are being met, also to make recommendations and highlights of these programs.

Jan'23 - Aug'23 **Program Coordinator II** Guam Department of Public Health & Social Services
This position continued the work done with the CDC Foundation but also worked to help the Epidemiology and Laboratory Capacity Program at Guam DPHSS to apply for federal grant funding. The role not only relied on my statistics and data science abilities but relied on providing training, budget allocation, and grant writing. This occupation required of me to track grant activities and accurately measure and report on the completion of these activities to ensure proper use of federal funds as well as apply for renewal or new grants.

Nov'20 - Dec'22 **Data Analyst** CDC Foundation
This job entails working for the Foundation for the Centers of Disease Control and Prevention (CDC Foundation) in junction with Guam's Department of Public Health & Social Services (DPHSS). The work consisted of creating actionable reports around the COVID-19 pandemic on the island of Guam. The job requires weekly comprehensive reporting and statistical analysis in the Situation Reports that incorporate: travel, age, sex, symptoms, testing type, isolation, contact tracing, etc. This occupation also requires I adhere to data requests that are going to be used in court rulings, law making, and policy review. It required the knowledge and skills to update and maintain a database, in particular the National Electronic Disease Surveillance System (NEDSS) Base System (NBS). As well as work with data analysis that is incorporated into NSSP for syndromic surveillance on the island. I was given the title of Surveillance Branch Director which entails that I supervise the flow of information to all branches of the DPHSS, and to coordinate with others on how to best combat COVID-19. This required of me to package data into actionable reports and visualizations using softwares available (ARCGIS, R Studio, SPSS) to accurately convey the status of the island during the pandemic.

Aug'19 - Aug'22 **Adjunct Instructor** University of Guam (UOG)
Teaching the *Introduction to College Algebra*, *Fundamentals of Mathematics*, and *Introductory Statistics* courses at the University of Guam. This job entails preparatory work before and after class to ensure the efficiency of instructional time. It entails being able to adjust from in classroom to online platforms without having gaps in skills and content. It incorporates teaching mathematical/statistical softwares and methodologies used in a professional setting. Recording and measuring performance of myself and my students. It required creating lesson plans, meet learning outcomes, be flexible through both in person and online learning, and meet students outside of lecture to further explain content. It requires great communication skills, proficiency, and creativity to help all students stay engaged and educated.

Oct - Dec'20 **Data Analyst** Guam Behavioral Health & Wellness Center (GBHWC)
This position worked under the Guam Behavioral Health and Wellness Center, as a Data Analyst for the Manguaig Ham Program. A Crisis Counseling program to help people impacted by COVID-19. This job helped me understand the data collection and databases through FEMA and SAMHSA. The job required of me to use statistical methods to generate reports of how the program impacted the people of the island.

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Mar - Oct'20

Research Assistant

WestCare Pacific Islands

This job required me to be literary competent and to analyze Guam youth data. This job had me research about youth substances and retrieve local data among the different organizations on Guam. It required a monthly coalition meeting with community leaders to strategize against youth substance abuse. Also, this work required to collect and conduct surveys that would help create policy to combat substance abuse.

Aug'17 - May19 Teaching Assistant

UOG

Working alongside professors to teach and assist in upper level mathematics. The job entails that I must meet with students to explain further in detail than what was covered in lecture. Creating solution keys for homework and a detailed explanation for test solutions. Grading is also done by the teaching assistant.

Aug'17 - May19 Mathematics Tutor

UOG

This job required me to tutor mathematics students at our math tutor lab. Students can come in for any math class from developmental mathematics to multivariable calculus or applied statistics. This required of me communication skills and a well versed knowledge in the math curriculum.

Research and Projects

Spring 22

COVID-19 Fatalities Dead on Arrival on the US Territory of Guam

The territory of Guam with a population of 156,836 experienced 355 deaths due to COVID-19. Out of these 355, 32% of these deaths were reported Dead on Arrival (DOA). This is comparable to Guam's normal 8% DOA rate and found unusual due to its 88% COVID vaccination uptake level for those who are eligible (≥ 5). A study was conducted to understand key factors and risk that may influence these DOA statuses. The study interviews families and medical notes to inform the community about potential high risk individuals.

Spring 20

Thrive Coalition - WestCare Pacific Islands

The Thrive Coalition is a group of community leaders that are committed to reducing misuse and abuse of alcohol, marijuana, and tobacco in youth from the village of Dededo. The project was to analyze and collect local and national data to draft a needs assessment to be turned in to federal grantors. The project used statistical methods to analyze data extracted from local departments such as: Guam's Police Department, Guam's Education Department, Judicial Court, and other key community organization.

Spring 20

Under Pressure - A Mathematical Assessment of GWA's Systems

For the island of Guam, the Guam Waterworks Authority is the main source of the islands water supply. The Tamuning area is riddled with low water pressures and outages. Water is not only a utility but a basic need for living. This study moves to identify key factors that would lead to these loss in pressure. Analyzing distance from the main water source and ratios of business to residential areas; as well as hourly usage and supply. We use statistical modeling to find trouble areas and recommend ways to improve the pressures within the area.

Spring 19

Modeling Expected Rainfall for Guam's Storm Return Periods

Using Statistical Methods, we aim to reevaluate the situation of Guam's Storm Return Periods. The study utilized collaboration between UOG Water and Environment Research Institute (WERI) along with the National Weather Service, to understand dynamics of tropical cyclones in the region and how it affects the island due to rainfall and flooding. We analyze daily rainfall data to better predict the future of rainfall to help evaluate our storm drain systems. This research utilizes the Generalized Extreme Value Family and Typhoon Track to analyze rainfall.

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Summer 18 Dog Vaccination And Quarantine: A Mathematical Approach on Rabies

With China as the second leading country with Rabies, this could lead to trouble for our island, with a main industry in tourism. By using mathematical modeling, the research proposes a model to represent the dynamic of the disease. Then by implementing multivariable calculus and linear algebra, we induce epidemiological rates of the disease. The research applies Nash's Game Theory and probabilities to propose the best choice for individual dog owners to take to combat rabies.

Spring 18 Using Mathematical Modeling to Predict Student Success

Using the Data gathered from UOG's 4000+ students, by applying Binary Logistic Regressions with key factors, one can predict the likelihood of students returning to the University for the next following academic year. The study focuses on students gender, English placement, Math placement, grades, and college seminar class as predictive variables. By using the Maximum Likelihood Estimator we optimize the parameters for the regression equation. This research can be applied to create markers on students that will enroll into the university that are not likely to succeed.

Achievements

Aug' 22 University of Guam's Regional Center for Public Policy (RCPP) Fellow
Became a Fellow for the RCPP at the University of Guam

Jun' 22 Council of State and Territorial Epidemiologist (CSTE) Conference
Presentation of COVID-19 DOA Deaths due to key risks

Apr' 22 Arizona State University Graduate College
Recipient of the Presidential Graduate Assistantship Program for Applied Mathematics PhD Program

Oct' 21 American Water Works Association
A presentation on SARS-CoV-2/COVID-19 Surveillance in Wastewater was given to field experts in Guam's water maintenance and research.

Aug' 19 MAA MathFest
A presentation in Cincinnati, Ohio at a special PIC Math Recognition Session for our research in storm modeling; where our team was one of the 8 picked out of 37.

Mar' 19 UOG-SIT Joint Workshop Presentation
Presentation at the second annual University of Guam - Shibaura Institute of Technology Joint workshop to explore the different fields of pure and applied mathematics.

Jan' 19 Joint Mathematics Meeting - AMS & MAA
Presentation was given at the Joint Mathematics Meeting in Baltimore, Maryland. The research was presented to experts in the field of mathematics at the biggest math conference in the world.

Nov' 18 Presenter at the Regional Mathematics and Statistics Conference
Abstract was accepted and research was presented at the Regional Mathematics and Statistics Conference at the University of North Carolina at Greensboro

Nov' 18 Basic Level Tutor Certification
Trained and Certified to be a Basic Level Tutor by the National Tutor Association.

Summer 18 Student Success Presentation
Presentation was given to the Shibaura Institute of Technology Omiya Campus in Tokyo, Japan during the summer as part of a joint math workshop to share ideas and research in the field of mathematics and computer science.

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Extra-Curricular

SGA Student Government Association Advisor
-Foster student ideas and policies to ensure they are in the best interest of the University and student committee
-Provide professional and legal advice on matters dealing with student and public funding
-Supervise a council of 15 members during events to ensure procedures and outcomes are being met
-Provide support where a faculty has more influence than a student would at the University

EMC² Engineering, Mathematics, and Computer Science Club President
- Promotes ideas of Science, Technology, Engineering, and Mathematics(STEM) to youth in the community.
- Collaborate with Guam public schools to help support STEM events.
- Coordinate events at the collegiate level to endorse STEM for the public.
- Create opportunities to lead students to explore different countries for projects at different universities in Math and Computer Science

SGA Student Government Association Treasurer
- Passed Bills and Resolutions as a voice of the student body
- Tend to students with concerns at the university
- Coordinated large university event to showcase the efforts of the university to the community

GTB Guam Territorial Band Board Member/ Saxophonist
- Lead Saxophonist
- Board Treasurer, keeps track of finances for a non profit
- Board Musicians' Council President, residing officer that gathers adult musicians to vote on policies and members of GTB

AC AmeriCorps Volunteer
- Create flyers and posters to promote events and programs
- Creating resources to engage, inform, and attract members to the program
- Assisted with planning and gathering of materials needed for a successful event

Publications

Mar' 24 Journal of Biological Systems
Game-Theoretical Model of COVID-19 Vaccination in Endemic Equilibrium

Apr' 22 Guam Medical Association Journal
Pobutsky A, S Kern Allely and V Campo. (2023). *The social epidemiology of COVID-19 health disparities on Guam, March 2020-February 2021*. Guam Medical Association Journal, 3:1.

Oct' 22 A Journal of Mathematical Biology - Springer
Campo, V.N., Palacios, J.L., Nagahashi, H. et al. *A game-theoretic model of rabies in domestic dogs with multiple voluntary preventive measures*. J. Math. Biol. 85, 57 (2022).
<https://doi.org/10.1007/s00285-022-01826-z>