

Rosalia Hernandez

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EDUCATION

B.S. University of California, Santa Barbara (UCSB)
Major: Actuarial Science
Expected Graduation Date: June 2021

A.S. Butte-Glenn Community College
Major: Mathematics, with Honors
Graduation Date: June 2018

RESEARCH INTERESTS:

Biostatistics, Global Health, Public Health, Health Inequalities, Bayesian Statistics, Predictive Modeling, Machine Learning, Causal Inference, Markov Chains, Data Visualization

PUBLICATIONS

2020 Rosalia Hernandez (2020). "From Data to Interactive Visualizations: A Tool for Modeling and Forecasting Longevity Across U.S. Subpopulations," URCA Journal Volume II. Undergraduate Research and Creative Activities at the University of California Santa Barbara. (Online Publication of Journal Pending)

RESEARCH EXPERIENCE

2020 - Present Independent Research, Shiny Dashboard Quantifying the Impact of COVID-19 Through Excess Deaths

Dr. Michael Ludkovski, Statistics and Applied Probability, University of California Santa Barbara

- Developed a Shiny dashboard to measure the impact of COVID-19 through excess deaths in various countries using Gaussian Process modeling to create a counterfactual baseline.
- Date Source: Human Mortality Database's Short-Term Mortality Fluctuations
Language: R, Shiny Dashboard:

https://rosalia1010.shinyapps.io/COVID19_ExcessDeaths/

2019 - Present Independent Research, Longevity Forecasting Among Different Populations

Dr. Michael Ludkovski, Statistics and Applied Probability, University of California Santa Barbara

- Study longevity in the US Population, focusing on subpopulations grouped by race, gender, and cause of death with Gaussian Process modeling.
- Further analyze specific malignant cancer trends among these populations.
- Date Source: CDC Wonder Detailed Mortality Data and United States Human Mortality Database. Language: R, Shiny Dashboard:

https://rosalia1010.shinyapps.io/Longevity_Forecasting_Tool/

- Work funded by the UCSB McNair Scholars Program and Edison Scholars Program at UCSB.

- 2018 Research Intern at Research for Undergraduates Summer Institute of Statistics (RUSIS)
Korvis Professor of Statistics Dr. Javier Rojo, Oregon State University
- Explore the causes for the home run surge in Major League Baseball since 2015. We imported data from the web to use in our statistical analysis of average ‘new player’ characteristics. We evaluated if there had been a significant change in the overall physical characteristics of incoming players that would change the general player make-up of each team and ultimately result in a home run surge. Our logistic regression showed no such significance.
 - Summer research experience for undergraduates (REU) funded by the National Security Agency (NSA) and the National Science Foundation (NSF).
- 2017-2018 Student Research Intern at Biochar Research and Development
Dr. Stephen I. Feher, Engineering and Technical Director, Butte College
- Study the water retention properties of biochar by creating and executing field experiments, to collect and analyze data. We performed a youth outreach component at the local high school where we analyzed the knowledge and attitudes towards sustainability of high school students before and after our presentations.
 - Work funded by the United States Environmental Protection Agency People, Prosperity and Planet (P3), Energize Colleges, and Pacific Gas & Electric.
- 2017-2018 Student Research Intern at MESATalks: Frontiers That Matter
Melissa Melendrez, Math Engineering and Science Achievement (MESA), Butte College
- Individual research reviewing literature on the neuroscience of learning, specifically the roles of the default mode neural network and the central executive neural network, as they pertain to facilitating learning and memory.

RESEARCH PRESENTATIONS

- 2020 “A Tool for Modeling Longevity Across Different U.S. Populations,” 2020 SACNAS – The National Diversity in STEM Virtual Conference, Virtual, October 20.
- 2020 “Facilitating Data Insights with Shiny: Using Gaussian Process Regression to Model Mortality Data for COVID-19 Excess Deaths,” McNair Scholars Program Summer Research Virtual Symposium, Virtual, August 13.
- 2020 “From Data to Interactive Visualizations: A Tool for Modeling and Forecasting Longevity Across U.S. Subpopulations,” The 2020 UCLA Virtual National McNair Conference, Virtual, July 29.
- 2018 “Are Pitchers Being Babies? The Home Run Surge in Major League Baseball,” RUSIS Research Presentations, Corvallis, OR, August 23. (Oral Presentation)

- 2018 “Biochar Research and Development,” Energize Colleges Intern Culmination Poster Event, Oroville, CA, May 18. (Poster Presentation)
- 2018 “To Break or Not to Break: The Neuroscience of Learning,” Say Yes to Research Symposium, Oroville, CA, April 25. (Poster Presentation)
- 2018 “To Break or Not to Break: The Neuroscience of Learning,” MESATalks: Frontiers that matter, Oroville, CA, March 7. (Oral Presentation)

OTHER PRESENTATIONS

- 2020 “Gaussian Process Modeling for Covid-19 Excess Deaths: Putting the R(Shiny) in ActuaRial,” 2020 Actuarial Research Conference at University of Nebraska-Lincoln, Virtual, August 11, (Presenter: Michael Ludkovski, UCSB), **Co-Authorship**

TEACHING EXPERIENCE

- 2017-18 Supplemental Instruction Program at Center for Academic Success, Butte College
MATH 30: Calculus I Supplemental Instruction Leader for Instructor Lisa Duke
- Teaching assistant role; Create involved activities to facilitate teamwork among peers to work together and learn difficult topics in calculus.
- 2016-18 Math Lab at Mathematics Department, Butte College
Math Tutor
- Tutored remedial algebra to college algebra, calculus series, linear algebra and differential equations.

PROFESSIONAL EXPERIENCE

- 2019-2020 Undergraduate Research and Creative Activities, UCSB
URCA Journal Volume II Editor, Peer Mentor
- URCA Journal is UCSB’s undergraduate research journal.
 - Collaborated in the execution of the URCA Journal Volume II from start to finish; call for papers, reviewing, editing, and publishing of the journal.
 - Organized an event in collaboration with the Special Research Collections at the UCSB Library to promote the varying methods of research.

HONORS AND AWARDS

- 2020 SACNAS Conference Registration Scholarship (National, \$205)
- 2019-2021 Tau Sigma, Theto Iota Chapter
- 2019-2020 Edison Research Scholarship (Local, \$1,600)
- 2018-2021 UCSB McNair Scholars Program
- 2018-2021 3X Hispanic Scholarship Fund Scholar (National, \$3,500)
- 2017 PEO Scholarship Chapter DS (Local, \$300)
- 2017 Butte College Fern and Leo Barceloux Memorial Scholarship (Local, \$200)
- 2016-2018 Phi Theta Kappa Honors

LANGUAGES

Spanish (native speaker, advanced reading and writing)

TECHNICAL SKILLS

Computer Languages: JavaScript, C++, MATLAB, R, LaTeX, Python

Software & Tools: Microsoft: Word, Excel, PowerPoint, R: Stan, Shiny, SQL

PROFESSIONAL MEMBERSHIPS

2020 – Present American Statistical Association Student Member

2020 – Present Organization of Latino Actuaries (OLA)

2020 – Present Data Visualization Society, non-profit organization

2018 – Present Society for Advancement of Chicanos/Hispanics and Native Americans in
Science (SACNAS) Student Member

2018 – 2020 Actuary Club at UCSB