Jesus E. Vazquez

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Education

University of North Carolina at Chapel Hill *Chapel Hill, NC*

Ph.D. Candidate in Biostatistics *August 2019 - May 2025*

M.S. in Biostatistics (2023)

- Dissertation: Advancing Huntington Disease Modeling: Robust and Efficient Solutions for Right-Censored Covariates.
- **Research Advisor:** Dr. Tanya P. Garcia.

University of New Mexico *Albuquerque, NM*

B.S. in Statistics, minor in Mathematics (GPA: 3.8/4.0) *August 2015 - May 2019*

B.A. in Economics, minor in Statistics (GPA: 3.8/4.0)

- Undergraduate honors thesis: Impact of household waste management on health: A case study of Siddharthanagar.
- Research Advisors: Dr. Fares Qeadan and Dr. Alok Bohara.

Study Abroad: Rupandehi, Nepal *December 2017 - January 2018*

- Identified risk factors for waterborne diseases using principal component analysis and logistic regression using survey data from the Rupandehi District, Nepal.
- Presented undergraduate honors thesis on the impact of waste management on public health to the the mayor and other community leaders.

Training Grants & Fellowships

R01 - Diversity Administrative Supplement *Chapel Hill, NC*

National Institute of Neurological Disorders and Stroke *January 2024 - Present*

- Wrote a successful Diversity Administrative Supplement application to *Developing a robust and efficient strategy for censored covariates to improve clinical trial design for neurodegenerative diseases (Tanya Garcia, PI) 1R01NS131225-01.*

T32 Environmental Sciences Training Grant *Chapel Hill, NC*

National Institute of Environmental Health Sciences *August 2020 - May 2023*

- Three-year predoctoral fellow dedicated to develop innovative methods for addressing challenges in public health and environmental sciences

Doctoral Merit Assistantship for Study in Biostatistics *Chapel Hill, NC*

University of North Carolina at Chapel Hill *Fall 2019 - Spring 2020*

- Nominated by academic program and selected through a university-wide competition of the most promising future scholars, policymakers, and innovators.

Ronald E. McNair Scholars Program *Albuquerque, NM*

University of New Mexico, Department of Economics *August 2017 - May 2019*

- Investigated the importance of pollution and waste management practices in the health of community members of Bhairahawa, Rupandehi, Nepal.

El Puente Undergraduate Research Fellowship *Albuquerque, NM*

University of New Mexico, Department of Economics *August 2016 - April 2017*

- Formulated research proposal to investigate how Corporate Social Performance (CSP) affects financial and market performance of companies in the southwest.

Research Experience

Predoctoral Fellow *Chapel Hill, NC*

Department of Biostatistics, University of North Carolina at Chapel Hill *August 2021 - Present*

- Created a statistical analysis pipeline for linear regression with right-censored covariates, and drew a comparative of robustness and efficiency of proposed methods.
- Adapted 5 methods from the missing covariate literature and proposed the Modified Augmented Complete Case method, for linear regression with a right-censored covariate.
- Proposed a pattern-mixture model approach for the joint-modeling of survival and longitudinal data when time-scale is indexed by time to event.
- **Research Advisor:** Dr. Tanya P. Garcia

Statistical Consultant

NORTH CAROLINA TRANSLATIONAL AND CLINICAL SCIENCES INSTITUTE, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Chapel Hill, NC

May 2022 - Present

- Led a repeated-measurement analysis for evaluating a new laser treatment option for basal cell carcinoma.
- Created a two-stage risk-score model for (1) surgery and (2) death for patients presenting with a pleural infection and treated with intrapleural enzyme therapy.
- Evaluated risk factors for respiratory viruses associated with mortality and severity of illness among children with COVID-19.
- **Research Advisor: Dr. Bahjat Qaqish**

Graduate Research Assistant

COLLABORATIVE STUDIES COORDINATING CENTER, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Chapel Hill, NC

May 2019 - August 2020

- Demonstrated that the Global Physical Activity Questionnaire has poor validity in measuring sedentary behavior and physical activity among Hispanics/Latinos in the US.
- **Research Advisor: Dr. Daniela Sotres-Alvarez**

Data Analyst

ALBUQUERQUE AREA SOUTHWEST TRIBAL EPIDEMIOLOGY CENTER

Albuquerque, NM

January 2018 - June 2019

- Created disease prevalence reports using SAS for health-surveillance among Native American communities in New Mexico.
- Investigated the impact of transitioning from ICD-9 to ICD-10 billing codes on the reported prevalence of diseases.
- **Research Advisor: Dr. Fares Qeadan**

SUMMER RESEARCH EXPERIENCES FOR UNDERGRADUATES

Advanced Computational Research Experience for Students

DEPARTMENT OF COMPUTATIONAL MATHEMATICS AND ENGINEERING, MICHIGAN STATE UNIVERSITY

East Lansing, MI

May 2018 - July 2018

- Explored the use of word-vectors using neural networks to glean similarity and semantic relationships between biomedical entities – e.g. genes, cellular functions, diseases, and drugs.
- **Research Advisor: Dr. Arjun Krishnan**

Life Sciences Summer Undergraduate Research Program

DEPARTMENT OF HORTICULTURAL SCIENCE, UNIVERSITY OF MINNESOTA

Minneapolis, MN

June 2017 - August 2017

- Conducted ANOVA and non-parametric tests to understand the effects of sodium chloride in the growth of plants.
- **Research Advisor: Dr. Neil Anderson**

Other Relevant Experience

Graduate Student Intern

SANDIA NATIONAL LABORATORIES

Albuquerque, NM

May 2023 - August 2023

- Led research project estimating and testing the reduction in photovoltaic energy production during the 2018 Camp Wildfire using spatial regression methods based on Markov Random Fields.
- Trained and evaluated semi-parametric and machine learning models for predicting photovoltaic energy production by integrating diverse ocean, atmospheric, and terrain spatial data sources.
- **Research Advisor: Dr. Alex Washburne**

Data Scientist Intern

GOOGLE

San Francisco, CA

May 2020 - August 2020

- Proposed an Inter-Platform-Reliability metric to measure the reliability of users when answering YouTube surveys. The validity of the metric was then evaluated using a simulation study.
- Recommended safe-hypothesis testing practices for Kappa coefficients under small sample-sizes.

Research Papers

PUBLISHED PEER-REVIEWED

8. Boerwinkle, V.; Nowlene, M; **Vazquez, J.E.**; et.al.; **Resting State fMRI seizure onset localization meta-analysis: Comparing rs-fMRI to other seizure localizing modalities and surgical outcomes.** *Frontiers in Neuroimaging.* 2024+ (in review)

7. Adatsi, G.; Hiba, F.; Togo, E.; Young, A; Hane, A.A.; **Vazquez, J.E.**; et. al.; **"It Won't Break You": A survival guide for Black, Asian, and minority ethnic graduate students of color in their first year post-George Floyd.** *Journal of Race Ethnicity and Education.* 2024+ (in review)

6. Park, M; **Vazquez, J.E.**; Qaqish, B.; Jolly, P.S.; **CO2 Laser Assisted Photodynamic Therapy as a Treatment for Basal Cell Carcinoma.** *British Journal of Dermatology.* 2024+ (in review)

5. Alexander-Savino, C.V; **Vazquez, J.E.**; Qaqish, B.; Culton, D.A.; **A retrospective chart review on social determinants of health in pemphigus patients at a tertiary care referral center from 2014-2022 in the United States.** *Journal of the American Medical Association - Dermatology.* 2024+ (in review)

4. **Vazquez, J.E.**; Ashner, M.C.; Ma, Y.; Marder, K.; Garcia, T.P; **Establishing the parallels between right-censored and missing covariates.** *Journal of the American Statistical Association*. 2024+. (in review). arXiv

3. **Vazquez, J.E.**; Sotres-Alvarez, D.; Carlson, J.; Talavera, G.; Gallo, L; Castañeda, S.; Evenson, K.; **Concurrent validity of the global physical activity questionnaire to accelerometry in Hispanic/Latino adults: The Hispanic Community Health Study/Study of Latinos (HCHS/SOL).** *Journal of Science and Medicine in Sport.* 2024. DOI:10.1016/j.jsams.2024.06.005

2. Lotspeich, S. C.; Ashner, M. C.; **Vazquez, J.E.**; Richardson, B. D.; Grosser, K. F.; Bodek, B. E.; Garcia, T. P.; **Making sense of censored covariates: statistical methods for studies of Huntington's disease.** *Annual Review of Statistics and Its Application.* 2024. PMID:38962579

1. Rahman, M.M.; A. Bohara; **Vazquez, J.E.**; **Geospatial analysis of health risks and solid waste management behaviour.** *Journal of Environmental Economics and Policy.* 2021. [DOI:10.1080/21606544.2021.1903560](DOI:10.1080/21606544.2021.1903560)

In progress

5. **Vazquez, J.E.**; Lotspeich, S.C.; Ma Y.; Garcia, T.P; **Robustness of parametric maximum likelihood estimation for handling right censored covariates in generalized linear models.**

4. **Vazquez, J.E.**; Ma Y.; Garcia, T.P. **Longitudinal regression models with a right censored covariates.**

3. Diddams M.D.; **Vazquez, J.E.**; et. al.; **The IET Score: A 30- and 90-day mortality prediction model for patients presenting with complicated pleural infection and treated with intrapleural enzyme therapy.**

2. Choi, H.J.; **Vazquez, J.E.**; et. al.; **Risk factors of 30- and 90-day mortality for patients presenting with complicated pleural infection and treated with intrapleural enzyme therapy.**

1. Pizzuto, M.; Menozzi, S.E.; **Vazquez, J.E.**; Qaqish, B.; **Detection of multiple respiratory viruses associated with mortality and severity of illness among children with COVID-19.**

Papers completed (not published)

3. Qeadan, F.; **Vazquez, J.E.**; Layne, L.; English, K; **Changes in contact prevalence of health conditions from electronic health records after implementation of ICD-10-CM.** Albuquerque Area Southwest Tribal Epidemiology Center. 2019.

2. **Vazquez, J.E.**, Qeadan, F; Carlson, A; **Electronic medical record-based analysis of optimal screening ages for cerebral aneurysms in adults with Autosomal Dominant Polycystic Kidney Disease (ADPKD).** Albuquerque Area Southwest Tribal Epidemiology Center. 2019.

1. **Vazquez, J.E.**; A. Yannakopoulos; K. Johnson; C. Mancuso, Ph.D.; A. Krishnan, Ph.D. **Learning numerical representations of biomedical concepts from 28 million abstracts using neural networks.** Department of Computational Mathematics Science & Engineering at Michigan State University. 2018.

Presentations

* (invited guest speaker)

Guest Lectures

1. Wake Forest University, STA779: Applied Survival Analysis; **Joint modeling of survival and longitudinal data.** November 2024. *

Oral Presentations

6. **Vazquez, J.E.**; Ashner, M.C.; Ma, Y.; Mardner, K.; Garcia, T.P; **The missing link: Establishing the parallels between right-censored and missing covariates.** International Society for Clinical Biostatistics. Thessaloniki, GR. July 2024.*

5. **Vazquez, J.E.**; Ashner, M.C.; Ma, Y.; Mardner, K.; Garcia, T.P; **Evaluating the robustness and efficiency of estimators under informative covariate censoring**. Banff International Research Station. Banff, CA. February 2024. * [(Video)](Video)

4. **Vazquez, J.E.**; Ma, Y.; Mardner, K.; Garcia, T.P; **Using biostatistics estimators used to model the progression of symptoms for Huntington's Disease in astronomy**. iid2022: Statistical Methods for Event Data Illuminating the Dynamic Universe. Huntsville, AL. November 2022.

3. **Vazquez, J.E.**, F. Qeadan, Ph.D.; A. Carlson, MD.;**Autosomal Dominant Polycystic Kidney Disease (ADPKD) and Cerebral Aneurysms.** Clinical & Translational Investigators Program Seminar, UNM School of Medicine. Albuquerque, NM. February 2019.

2. **Vazquez, J.E.**; A. Yannakopoulos; K. Johnson; C. Mancuso, Ph.D.; A. Krishnan, Ph.D.; **Learning numerical representations of biomedical concepts from 28 million abstracts.**

October 2018	**Ronald McNair Research Scholars Conference**, University of Maryland	*Baltimore, MD*
October 2018	**Ronald McNair Research Scholars Conference**, University of New Mexico	*Albuquerque, NM*
July 2018	**iCER Symposium**, Michigan State University	*East Lansing, MI*

1. **Vazquez, J.E.** and A. Bohara, Ph.D.; **Household waste management effects on health, and behavior: A case study of Siddharthanagar.** Pratiman-Neema Memorial Health Institute. Rupandehi District, NEP. December 2017

Poster Presentations

7. **Vazquez, J.E.**; Ma, Y.; Mardner, K.; Garcia, T.P; **Estimators for longitudinal mixed models to account for right censored covariates.**

March 2023	**Eastern North American Regional Conference**, ENAR	*Nashville, TN*
December 2022	**International Mathematical Statistics Conference**, IMS	*Florence, IT*

6.   **Vazquez, J.E.**; Sotres-Alvarez, D.; Carlson, J.; Talavera, G.; Gallo, L; Castañeda, S.; Evenson, K.; **Validity of the global physical activity questionnaire in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL).** University of North Carolina at Chapel Hill. Chapel Hill, NC. November 2019

5.   **Vazquez, J.E.**, Collman, B, Morris, R.M.; **Biased Childhood Asthma Mortality Rates in the US: A Vector Autoregressive Approach.** University of New Mexico. Albuquerque, NM. May 2019

4.   **Vazquez, J.E.**, F. Qeadan, Ph.D.; A. Carlson, MD.; **Autosomal Dominant Polycystic Kidney Disease (ADPKD) and Cerebral Aneurysms.** University of New Mexico School of Medicine. Albuquerque, NM. May 2018

3.   **Vazquez, J.E.** and A. Bohara, Ph.D.; **Household Waste Management Effects on Health, and Behavior: A Case Study of Siddharthanagar.** Undergraduate Research Opportunity Conference, University of New Mexico. Albuquerque, NM. April 2017

2.   **Vazquez, J.E.**, N. Riera Villa, MS; N. Anderson, Ph.D.; **NaCl effects on hydroponically grown Kale and Mustard Greens.** University of Minnesota. Minneapolis, MN. December 2017

1.   **Vazquez, J.E.** and A. Bohara, Ph.D.; **Is Arsenic Contamination The Real Problem, Or Is It Just One Of The Factors?** University of New Mexico. Albuquerque, NM. May 2017

Awards

Biostatistics Annual Award
Chapel Hill, NC

Biostatistics Department, University of North Carolina at Chapel Hill
Fall 2019 - Spring 2020

- Selected by department to receive funding in recognition of strong academic ability and potential to contribute to finding and implementing public health solutions.

Gary Koch Biostatistics Poster Award
Chapel Hill, NC

Biostatistics Department, University of North Carolina at Chapel Hill
Fall 2019

- Award given to the top two graduate student poster presentations based on impact, intellectual merit, and delivery during the 70th-UNC Biostatistics Departmental Anniversary.

Hobart Scholarship
Albuquerque, NM

School of Medicine, University of New Mexico
Fall 2018

- School of Medicine stipend given to teacher assistants in biostatistics.

Regents Study Abroad Scholarship
Albuquerque, NM

University of New Mexico
Fall 2017

- University of New Mexico scholarship given to students with academic excellence with the intention to promote non-traditional languages and cultural diversity.

El Centro Professional Development Scholarship
Albuquerque, NM

El Centro de la Raza, University of New Mexico
Fall 2016, Fall 2017

- University of New Mexico scholarship given to students with the intention of helping their community after using the funds to help them travel to conferences and/or help them pay for training fees.

Hispanic Scholarship Foundation Scholarship
Albuquerque, NM

Hispanic Scholarship Foundation
Fall 2017

- The HSF Scholarship aims to assist competitive and academically talented students of Hispanic heritage obtain a university degree.

Kia-Motors America Scholarship
Albuquerque, NM

Kia-Motors
Fall 2018

- The Kia-Motors America scholarship aims to help academically inclined students in the areas of Mathematics, Statistics, and other STEM fields obtain a university degree.

Travel Support Awarded

July. 2024	**2024 International Society for Clinical Biostatistics, Invited Speaker**, ISCB	*Thessaloniki, GR*
January 2024	**2024 Banff International Research Station, Invited Speaker**, BIRS	*Banff, CA*
December 2022	**2022 Graduate Student Transportation Grant**, University of North Carolina	*Chapel Hill, NC*
October 2022	**2022 SACNAS National Diversity in STEM Conference in Puerto Rico**, SACNAS	*San Juan, PR*
August 2022	**2022 JSM Diversity Workshop and Mentoring Program**, Joint Statistical Meeting	*Washington, DC*
November 2018	**7th Conference to Increase Diversity in Mathematical Modeling & Public Health**, Harvard University	*Boston, MA*

Leadership & Service Roles

Garcia/Lotspeich Lab Facilitator
Chapel Hill, NC

Biostatistics Department, University of North Carolina at Chapel Hill
August 2024 - Present

- Schedule meetings, send out calendar invites, and booked meeting rooms.
- Organize talks and arrange snacks schedule.

Social Media Committee Member
Chapel Hill, NC

EASTERN NORTH AMERICAN REGION (ENAR) INTERNATIONAL BIOMETRIC SOCIETY
August 2023 - Present

- Announced awards and winners, industry guidance updates and regulatory updates, among other material.
- Created content and shared announcements from new journal issues of Biometrics and JABES; Providing timely commentaries and other news from the Biometric Bulletin.

Interdepartmental Student Liason
Chapel Hill, NC

UNC BIOSTATISTICS STUDENT ASSOCIATION
August 2019 - May 2022

- Ensured the Biostatistics Department was regularly updated on events from the Statistics & Operations Research Department (STOR) to strengthen interdepartmental partnerships.

Departmental Student Representative
Chapel Hill, NC

UNC GILLINGS SCHOOL OF PUBLIC HEALTH STUDENT GOVERNMENT ASSOCIATION
August 2020 - May 2022

- Addressed concerns of Biostatistics students and organized fundraising events to support student activities within the public health school.

Teaching Experience

GR (GRADUATE LEVEL), UG (UNDERGRADUATE LEVEL)

BIOS H500: Intro to Biostatistics (UG)
Chapel Hill, NC

TEACHING ASSISTANT-BIOSTATISTICS DEPARTMENT, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Fall 2022

- Held office hours that guided students in sampling design, descriptive statistics, probability, confidence intervals, ANOVA, nonparametric methods, regression, survival analysis.

BIOS 664: Applied Survey Data Analysis (GR)
Chapel Hill, NC

GRADER- BIOSTATISTICS DEPARTMENT, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Spring 2022

- Fundamental principles and methods of sampling populations, with emphasis on simple random, stratified, and cluster sampling.

BIOS 667: Applied Longitudinal Data Analysis (GR)
Chapel Hill, NC

TEACHING ASSISTANT- BIOSTATISTICS DEPARTMENT, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Fall 2021

- Guided students to help understand linear and generalized linear models marginal and mixed effects models, methods of estimation (MLE, REML, GEE), variance components, hypothesis testing and confidence intervals, prediction of random effects, regression diagnostics, sample size calculation.

BIOS 663: Intermediate Linear Models (GR)
Chapel Hill, NC

TEACHING ASSISTANT- BIOSTATISTICS DEPARTMENT, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
Spring 2021

- Led recitations and created HW answer keys for matrix-based treatment of regression, one-way and two-way ANOVA, and ANCOVA, with applications in the health sciences.

BIOM 505: Biostatistics 1 & 2 (GR)
Albuquerque, NM

TEACHING ASSISTANT- SCHOOL OF MEDICINE, THE UNIVERSITY OF NEW MEXICO
Fall 2018 & Spring 2019

- Supported and held office hours for medical students without a statistical background in regression, ANOVA, survival analysis and power analysis.

Econ 395: Economic Issues (UG)
Albuquerque, NM

TEACHING ASSISTANT - ECONOMICS DEPARTMENT, UNIVERSITY OF NEW MEXICO
Fall 2017

- Assisted students in using STATA for data analysis in public health, focusing on multiple linear regression, probability concepts, and survey design applications.

UNIV101: Transitional Studies (UG)
Albuquerque, NM

TEACHING ASSISTANT, UNIVERSITY OF NEW MEXICO
Spring 2017

- Supported the course by recommending readings to first-generation college students, grading assignments, and helping students coordinate community service projects.

Diversity, Equity, and Inclusion (DEI)

Fostering Diversity in Biostatistics Workshop Committee Member
Chapel Hill, NC

EASTERN NORTH AMERICAN REGION (ENAR) INTERNATIONAL BIOMETRIC SOCIETY
September 2024 - Present

- Assisted in the planning and organization of the the Spring of 2025 ENAR Fostering Diversity in Biostatistics.

Graduate School Application Reviewer and Mentor Program
Chapel Hill, NC

MENTORSHIP AND ADVICE FOR PROSPECTIVE STUDENTS, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
August 2024 - Present

- Assisted underrepresented biostatistics applicants in reviewing their graduate school application materials to optimize their chances of being accepted to the Department of Biostatistics, University of North Carolina at Chapel Hill.

Public Relations Manager & Founding Member
Chapel Hill, NC

Latine Graduate & Professional Student Association (LGPSA), University of North Carolina at Chapel Hill
April 2022 - April 2023

- Co-founded organization seeking to uphold a welcoming environment for Latine graduate and professional students.
- Responsible for raising awareness and visibility of LGPSA across the UNC-Chapel Hill community through channels such as radio show interviews and organizing panel discussions of graduate students.
- Led fundraising events including designing and selling t-shirts.

Project Assistant
Albuquerque, NM

College Assistance Migrant Program, University of New Mexico
August 2016 - December 2017

- Assisted in planning student activities, collecting data, administering outreach, and evaluating programs for undergraduate students from low-income and farmworker backgrounds.
- Met with local farmworkers and members of the community to organize the 2017 Farmworkers Awareness Week.

VOLUNTEERING

Fall 2024	**Maureen Joy Charter School,** Spanish interpreter for Hispanic/Latino parents.	*Durham, NC*
Summer 2023	**MESA National Engineering Design Competition,** Discussed personal struggles of homelessness and path to higher education in STEM to High School students.	*Albuquerque, NM*
Spring 2023	**Adelante Education Coalition,** Led a group of Hispanic/Latinx high school students into various workshops focused on exploring their aspirations beyond professional life.	*High Point, NC*
Summer 2022	**Biostatistics Undergraduate Student Internships,** Helped organize symposium for the student-led summer internship program for biostatistics undergraduate students at UNC.	*Chapel Hill, NC*
Summer 2022	**EqualityNC,** Helped distribute information of EqualityNC's support LGTBQ programs during the Raleigh Pride 2022.	*Raleigh, NC*
Summer 2022	**Juntos Summer Academy,** Presented about personal journey in conducting research in public health and Biostatistics to Latino/Hispanic High School Students. Presented them with opportunities for them to get involved.	*Raleigh, NC*
Spring 2022	**Codepath,** Participated as a resume reviewer to increase minority representation in technology.	*Chapel Hill, NC*

References

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Dr. Tanya P. Garcia, Associate Professor of Biostatistics

Dissertation Advisor (tpgarcia@email.unc.edu)

Dr. Daniela Sotres-Alvarez, Professor of Biostatistics

Collaborator, Faculty Mentor, and Former Research Supervisor (dsotres@email.unc.edu)

Dr. Bahjat Qaqish, Professor of Biostatistics

Research Supervisor (qaqish@bios.unc.edu)