

# NATALIE C. GASCA

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## EDUCATION

- Ph.D., Biostatistics** 8/21  
University of Washington, Seattle, WA  
Advisor: Dr. Robyn McClelland  
Dissertation Title: [Sparse PLS Methods for Modeling Heart-Healthy Diets](#)  
Training: Data analysis and variable selection for correlated, survival, high-dimensional, and spatial data, particularly from observational and clinical trials
- B.S., Mathematics** (Emphasis: Statistics, Minor: Spanish) 6/14  
California State Polytechnic University, Pomona, Pomona, CA  
*Summa cum laude*

## PROFESSIONAL AND RESEARCH EXPERIENCE

- Science and Technology Policy Fellow** 11/21-Present  
California Council on Science and Technology, Sacramento, CA
- One of 16 fellows in a highly competitive [national fellowship program](#) for PhD scientists and engineers to gain experience and over 6 weeks of training in public policy. Placed in the California Department of Pesticide Regulation.
  - Leading inter-stakeholder groups and organizing public workshops to support the Department's strategic goals
  - Working collaboratively with communication, legislative, fiscal, and scientific teams as well as independent consultants
  - Directing production of communication material (English/Spanish) for the public and contributing to internal briefing documents for executive teams
- Graduate Research Assistant** with Dr. Robyn McClelland 9/18-9/21  
Collaborative Health Studies Coordinating Center, Seattle, WA 9/14-1/18
- Specified inter- and intra- rater agreement for different stroke types
  - Evaluated whether physical activity attenuates the relationship between depression, chronic burden, and risk of a cardiovascular event
- Diversity Summer Internship Program Intern** with Dr. Stan Becker 6/13-8/14  
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
- Projected trends in women's secret contraceptive use in Sub-Saharan Africa
- Undergraduate Research Student** with Dr. Randall Swift 4/13-4/14  
California State Polytechnic University, Pomona, Pomona, CA
- Verified stochastic, deterministic, and empirical models of homeless housing

## PEER-REVIEWED PUBLICATIONS

- A. Mishra, R. Malik, T. Hachiya, T. Jurgenson, S. Namba, D. Posner, ..., **N. Gasca**, et al. 2022. Stroke genetics informs drug discovery and risk prediction across ancestries. *Nature*. doi: 10.1038/s41586-022-05165-3.
- N. Gasca**, J. Reyes-Garza, S. Lozano-Esparza, P. Orozco del Pino, A. Olivas-Martinez, E. Ulloa-Perez, A. Garbuno-Inigo, J. Arroyo. 2022. Effect of Mexico's vaccination program on COVID-19 cases, hospitalizations, and deaths among older adults in Mexico City. *Salud Publica Mex* 64(4, julio-ago):424-8.
- J. Sanchez, M. Doose, C. Zeruto, V. Chollette, **N. Gasca**, D. Verhoeven, S. Weaver. 2022. Multilevel factors associated with inequities in multidisciplinary cancer consultation. *Health Services Research*. Epub 2022 May.
- W. Longstreth Jr, **N. Gasca**, R. Gottesman, J. Pierce, R. Sacco. 2018. Adjudication of Transient Ischemic Attack and Stroke in the Multi-Ethnic Study of Atherosclerosis. *Neuroepidemiology* 50(1-2):23-28. Epub 2018 Jan.
- N. Gasca** and S. Becker. 2018. Using couples' discordant reports to estimate female covert use of modern contraception in sub-Saharan Africa. *Journal of Biosocial Science* 50(3):326-346. doi: 10.1017/S0021932017000256. Epub 2017 Jul.
- R. Cohen, **N. Gasca**, R. McClelland, C. Alcántara, D. Jacobs Jr, A. Diez Roux, A. Rozanski, S. Shea. 2016. Effect of Physical Activity on the Relation Between Psychosocial Factors and Cardiovascular Events (from the Multi-Ethnic Study of Atherosclerosis). *American Journal of Cardiology* 117(10):1545-1551.
- J. Gani, **N. Gasca**, R. Swift. 2014. Models for homeless housing. *The Mathematical Scientist* 39(2):90-99.

## MANUSCRIPTS IN PREPARATION

- N. Gasca** and R. McClelland. Comparison of Dimension Reduction Methods for the Identification of Heart-Healthy Dietary Patterns. *Under review at Observational Studies*.

## SCIENCE COMMUNICATION PUBLICATIONS

- S. Lozano-Esparza, P. Orozco Del Pino, **N. Gasca**, A. Olivas, J. Arroyo, E. Ulloa, A. Garbuno. 3 May 2021. [Las vacunas: ¿qué son? y ¿podemos confiar en ellas?](#) [What are the COVID-19 vaccines, and can we trust them?]. *Nexos: Taller de datos*.
- N. Gasca**. 29 Jan. 2021. [Demystifying data science and \(bio\)statistics](#). *Bolstering the Advancement of Masters in Mathematics (BAMM!)*.
- N. Gasca**, S. Lozano-Esparza, J. Arroyo, A. Olivas, E. Ulloa, P. Orozco Del Pino. 19 Nov. 2020. [Pruebas para detectar COVID-19, ¿qué son, cuándo hacerlas, y cómo interpretarlas?](#) [COVID-19 tests: what are they, when to use them, and how to interpret them?]. *Nexos: Taller de datos*.
- E. Ulloa, J. Arroyo, **N. Gasca**, S. Lozano-Esparza, A. Olivas, P. Orozco Del Pino. 16 July 2020. [Descifrar el Modelo Centinela](#) [Deciphering the Sentinel Model: how the Mexican government was using the Sentinel System to estimate COVID-19 infections in May]. *Nexos: Taller de datos*.

## CONSULTING AND TEACHING EXPERIENCE

<b>Independent Consultant</b> , Seattle, WA	3/22, 11/21, 7/21, 8/20-10/20, 4/19
<ul style="list-style-type: none"><li>• Communicated the implications of modeling techniques for multilevel cancer care data and assisted in the interpretation of study results</li><li>• Designed code to identify Medicare patients that met study inclusion criteria</li></ul>	
<b>Client Liaison and Statistical Consultant</b>	1/19-9/19
<i>Statistics in the Community (StatCom)</i> , University of Washington	
<ul style="list-style-type: none"><li>• Led student consultants on the design and analysis of an intervention survey</li><li>• Advertised pro bono student-led consulting service to local nonprofits</li></ul>	
<b>Teaching Assistant</b> for Dr. Katie Kerr	9/17-12/17
<i>Categorical Data Analysis in Epidemiology</i> , University of Washington	
<ul style="list-style-type: none"><li>• Devised exercises and presented slides for weekly discussion sections attended primarily by (~25) public health graduate students</li><li>• Advised students via weekly office hours and online discussion boards</li><li>• Graded homework assignments and exams</li></ul>	
<b>Student Consultant</b> with Dr. Paul Sampson and Dr. Katie Kerr	1/17-3/17
<i>Biostatistical Consulting</i> , University of Washington	
<ul style="list-style-type: none"><li>• Led and assisted consulting discussions with 21 investigators across campus</li><li>• Evaluated the effectiveness of an undergraduate resilience course on reducing student stress and shared results in an accessible, in-depth report</li><li>• Designed and implemented client-consultant satisfaction surveys to get performance feedback (available upon request)</li></ul>	

## FELLOWSHIPS AND GRANTS

<b>NIH/National Heart, Lung, and Blood Institute</b> Diversity Supplement	1/20
<b>UW OMA&amp;D Seed Grant</b> : “Diversity, Equity and Inclusion in the Health Sciences: Mentoring the Next Generation through NIH Diversity Supplements”	8/19
<b>Bonderman Travel Fellowship</b> : Polynesia, Southeast Asia, and Latin America	1/18-8/18
<ul style="list-style-type: none"><li>• Independent self-directed travel to 11 countries to be immersed in less familiar cultures, challenge oneself, and learn from other ways of life</li></ul>	
<b>National Science Foundation</b> Graduate Research Fellowship	4/14
<b>Achievement Rewards for College Scientists</b> Fellowship	3/14
<b>NIH/National Institute of Child Health &amp; Human Development</b> Diversity Supplement	8/13

## SELECT AWARDS AND TRAVEL GRANTS

<b>American Statistical Association</b> Gertrude M. Cox Scholarship Award – Honorable Mention	8/21
<b>UW Latino Center for Health</b> Student Travel Award	10/19
<b>UW Biostatistics</b> Conference Travel Award	10/19
<b>UW Graduate and Professional Student Senate</b> Travel Grant	9/19
<b>WNAR</b> <a href="#">Student Most Outstanding Oral Paper Award</a>	6/19
<b>SACNAS</b> Health Graduate Student Poster Presentation Award	11/15
<b>UW GO-MAP</b> Conference Travel Grant	9/15
<b>UW Biostatistics</b> Poster Presentation Award	9/15
<b>Modern Math Workshop</b> Travel Scholarship Award	8/15
<b>UW Biostatistics</b> Student Travel Award	10/14

UW GO-MAP Graduate Opportunity Program Research Assistantship Award	8/14
SACNAS Mathematics Undergraduate Student Poster Presentation Award	11/13
SACNAS Travel Scholarship Award	10/13
Cal Poly Pomona Kellogg Honors College Travel Scholarship	3/13
SACNAS Travel Scholarship Award	10/12
Cal Poly Pomona Student Award for Civic Leadership	5/12
• For most meaningful community service involvement out of 22,000 undergraduates	
Infinite Possibilities Conference Travel Award	3/12

## PROFESSIONAL ACTIVITIES

<b>Memberships</b>	American Statistical Association
	Western North American Region of the International Biometric Society
	Society for the Advancement of Chicanos and Native Americans in Science
	Pacific Math Alliance
<b>Peer Reviewer</b>	BMJ Global Health
	Taylor & Francis

## INTERDISCIPLINARY INTERESTS

Community-engaged research, food justice, education access, immigrant health, transportation access, homelessness, prison reform, obesity, complementary medicine, science communication

## SKILLS

Most experienced with R and L<sup>A</sup>T<sub>E</sub>X, and some experience with STATA and C++  
 Fluent in Spanish (speaking, reading, writing)  
 Problem solving, science communication, student travel grant proposals, and budgeting  
 Team management, coordinating events, motivating students, and focusing on details

## RESEARCH ORAL PRESENTATIONS

<b>Joint Mathematical Meetings</b> [ <i>invited</i> ]. Sparse Partial Least Squares Regression to Model the Relationship Between Correlated Diet Data and Risk of Heart Disease Events.	1/21
<b>WNAR of the International Biometric Society</b> . Using Dimension-Reduction Methods to Identify Interpretable Diet Patterns Related to Body Mass Index (BMI) in the Multi-Ethnic Study of Atherosclerosis (MESA).	6/19
<b>Collaborative Health Studies Coordinating Center Seminar</b> . Using Dimension-Reduction Methods to Identify Interpretable Dietary Patterns Related to BMI in the Multi-Ethnic Study of Atherosclerosis (MESA).	6/19
<b>Biostatistics Student Seminar</b> . Using Supervised Methods to Understand Heart-Healthy Diets.	11/17
<b>Biostatistics Student Seminar</b> . How Physical Activity Impacts the Relationship Between Psychosocial Factors and Cardiovascular Events: Results from the Multi-Ethnic Study of Atherosclerosis (MESA).	10/15
<b>Environmental (Bio)statistics Working Group</b> . Spatial Model Selection for Subnetworks of Air Pollution Monitoring Data.	10/15
<b>International Indian Statistical Association Conference</b> . Models for Homeless Housing.	7/14
<b>Population Association of America Annual Meeting</b> . Levels, Trends, and Determinants of Female Covert Use of Contraception in Sub-Saharan Africa <i>with S. Becker</i> .	5/14

<b>Preparing Undergraduates through Mentoring towards PhDs Research Symposium.</b> Deterministic and Stochastic Modeling of Population Phenomena <i>with G. Lim.</i>	10/13
<b>Diversity Summer Internship Program Research Symposium.</b> Levels, Trends, and Determinants of Covert Use of Contraception in Sub-Saharan Africa.	8/13

## POSTER PRESENTATIONS

<b>EPI   Lifestyle 2021 Scientific Sessions.</b> Sparse Partial Least Squares Regression: A Promising Technique to Identify Heart-healthy Dietary Patterns in the Multi-Ethnic Study of Atherosclerosis (MESA).	5/21
<b>Joint Statistical Meetings.</b> Sparse Partial Least Squares Regression for the Cox Proportional Hazards Model.	8/20
<b>SACNAS National Conference.</b> Using Supervised Methods to Identify Heart-Healthy Dietary Patterns in the Multi-Ethnic Study of Atherosclerosis (MESA).	10/19
<b>Women in Statistics and Data Science Conference.</b> Using Dimension-Reduction Methods to Identify Interpretable Dietary Patterns Related to Body Mass Index (BMI) in the Multi-Ethnic Study of Atherosclerosis (MESA).	10/19
<b>Biostatistics Department Retreat.</b> Using Supervised Methods to Understand Heart-Healthy Diets.	11/17
<b>SACNAS National Conference.</b> Spatial Model Selection for Subnetworks of Air Pollution Monitoring Data.	10/16
<b>SACNAS National Conference.</b> How Physical Activity Impacts the Relationship Between Psychosocial Factors and Cardiovascular Events: Results from the Multi-Ethnic Study of Atherosclerosis (MESA).	10/15
<b>Biostatistics Department Retreat.</b> Spatial Model Selection for Subnetworks of Air Pollution Monitoring Data.	9/15
<b>9<sup>th</sup> Annual Science Research Symposium.</b> Models for Homeless Housing.	5/14
<b>Kellogg Honors College Convocation.</b> Models for Homeless Housing.	5/14
<b>SACNAS National Conference.</b> Levels, Trends, and Determinants of Covert Use of Contraception in Sub-Saharan Africa.	10/13
<b>Johns Hopkins Medicine Summer Internship Programs Joint Poster Session.</b> Levels, Trends, and Determinants of Covert Use of Contraception in Sub-Saharan Africa.	8/13

## SERVICE ACTIVITIES

<b>Contributor</b> for <a href="#">Mexicanos en Estadística y Salud</a> [Mexicans in Statistics and Health]	4/20-Present
<b>Member of Board of Directors</b> for <a href="#">Piña Soul</a>	10/19-Present
<b>Mentor Judge</b> for SACNAS	9/21-10/21
<b>Making Connections Mentor</b> for UW Women's Center (awarded <i>Mentor of the Year</i> )	1/19-6/19
<ul style="list-style-type: none"> <li>Guided first-generation high school senior through scholarship applications and being successfully admitted to the University of Washington</li> </ul>	
<b>Alumni Relations Representative</b> for UW Biostatistics	10/16-9/17
<b>First-Year Peer Mentor</b> for UW Biostatistics	9/16-9/17
<b>First-Time Student Presenter Mentor</b> for SACNAS	8/16-10/16
<b>Student/Faculty Relations Representative</b> for UW Biostatistics	10/15-10/16
<b>Intern, Tutor, and Summer Camp Presenter</b> for <a href="#">Insan Foundation for Humanity</a>	3/12-8/14
<ul style="list-style-type: none"> <li>Tutored underserved youth in math and science and fed homeless families</li> </ul>	
<b>Officer</b> for Cal Poly Pomona The National Society of Leadership and Success (NSLS)	1/11-8/14
<ul style="list-style-type: none"> <li>Organized peer-accountability groups, leveraged relationships across majors, and developed an entrepreneurial workshop led by industry professionals</li> </ul>	

## OUTREACH PRESENTATIONS

<b>Learning and Doing Data for Good.</b> Exploring Career Paths Panel.	9/22
<b>WNAR of the International Biometric Society</b> [ <i>invited</i> ]. The alternative hypothesis: Underrepresented (bio)statisticians share graduate school experiences.	6/22
<b>Bolstering the Advancement of Masters in Mathematics (BAMM!) Meeting.</b> Former CSU Students in Doctoral Programs Panel.	3/21
<b>Pacific Math Alliance Webinar Series.</b> Graduate Students Demystifying Graduate School.	10/20
<b>Cal Poly Pomona Department of Mathematics and Statistics Colloquium.</b> How to participate in 2020 SACNAS (The National Diversity in STEM Conference).	5/20
<b>Biostatistics Student Seminar.</b> Grant Information Session.	11/19
<b>Biostatistics Peer Mentoring Program.</b> NSF GRFP Information Session.	10/17
<b>Decolonizing the Environmental Discourse (AIS 475 B).</b> Food Sovereignty Panel.	4/17
<b>Decolonizing the Environmental Discourse (ESRM 490 B).</b> Food Sovereignty Panel.	1/17
<b>Biostatistics Student Seminar.</b> Applying for Outside Funding Opportunities.	10/16
<b>GO-MAP Undergraduate/Graduate Diversity Mixer.</b> Navigating the Application and Admissions Process.	2/15
<b>PUMP Summer Program in Mathematics.</b> Graduate School and Research Panel.	7/14
<b>SIAM Club.</b> Graduate School, Fellowships, and Research Panel.	5/14
<b>INSAN Parent Get Together.</b> Finding Resources and Getting to College.	4/14
<b>Cal State Bakersfield NSLS.</b> Getting Involved with NSLS.	2/14
<b>KME Math Club.</b> Summer REU Panel.	10/13