Aaron D. Nielsen

(*Updated: July 30, 2024*)

Contact Information

Department of Statistics
Colorado State University
220 Statistics Building
Fort Collins, Colorado 80523

Email: aaron.nielsen@colostate.edu
Website: aaron-nielsen.github.io

Education

Ph.D. Applied Mathematics	University of Colorado – Denver	2018
M.S. Statistics	Colorado State University	2014
M.S. Applied Mathematics	University of Colorado – Denver	2012
M.S. Electrical Engineering	University of Colorado – Boulder	2008
B.S. Electrical Engineering and Mathematics	Colorado State University	2007
B.A. Philosophy	Colorado State University	2024

Current Position

Colorado State University, Department of Statistics — 2024 –
Associate Professor of Statistics

I am currently teaching and coordinating courses in statistics and mentoring graduate teaching assistants as an associate professor. I have taught over a dozen courses, designed two new classes in Sports Analytics, spearheaded the development of an undergraduate certificate in Sports Statistics and Analytics, and have advised undergraduate research projects and independent studies.

Academic Experience

Colorado State University, Department of Statistics — 2012 – 2015, 2018 –
Associate Professor of Statistics — 2024 –
Assistant Professor of Statistics — 2018 – 2024
Instructor of Statistics — 2015
Graduate Teaching Assistant in Statistics — 2012 – 2014

University of Colorado Denver, Department of Applied Mathematics — 2015 – 2018
Graduate Teaching Assistant in Mathematics — 2015 – 2018
Instructor of Mathematics — 2015

University of Colorado Boulder, Department of Electrical Engineering — 2007 – 2008
Graduate Research Assistant in Electrical Engineering — 2007 – 2008

Industry Experience

MacAulay-Brown, Inc., Aurora, Colorado — 2009 – 2012
Engineer III

I worked as a model and simulation engineer, focusing on algorithm development for detection and estimation applications in electronic intelligence. My primary tools for this development were MATLAB and C.

In 2009, I obtained a Top Secret/Sensitive Compartmented Information (TS/SCI) clearance and collaborated on multiple classified programs.

Teaching History

Colorado State University, Department of Statistics 2012 – 2015, 2018 –

I have taught the following undergraduate and graduate courses in statistics while as a faculty member and as a graduate student. In addition, I have served as the course coordinator and managed graduate teaching assistants for STAT 201, STAT 315, and STAT 472.

In 2022, I was nominated for CSU Best Teacher which is sponsored by CSU Alumni Association.

Courses Taught	Semesters Taught
STAT 100: Statistical Literacy	FA24, FA20
STAT 201: General Statistics	SP19, FA18, SM15
STAT 204: Statistics for Business Students	FA24, SM14, SP14, FA13
STAT 301: Applied Statistical Methods	SP15, FA14
STAT 305: Sampling Techniques	FA22, FA21
STAT 315: Theory and Practice of Statistics	FA 24, SM24, SP24, FA23, SM23, SP23, SP22, FA21, SP21, FA20, SM20, SP20, FA19, SM19, SP19 FA18
STAT 342: Statistical Data Analysis II	SP22
STAT 351: Sports Statistics and Analytics I	FA23, FA22
STAT 451: Sports Statistics and Analytics II	SP24, SP23
STAT 460: Applied Multivariate Analysis	SP20, SP19
STAT 472: Statistical Research	SP24, SP23, FA22, SP22, FA21, SP21, FA20, SP20, FA19, SP19
STAR 495: Independent Study: Sports Analytics	FA24, FA23
STAR 495: Independent Study: Philosophy and Statistics	FA23
STAR 502: Multivariate Analysis for Researchers	FA19
STAA 556: Statistical Consulting	SM21
STAA 574: Methods in Multivariate Analysis	SP20

University of Colorado Denver, Department of Mathematics and Statistics 2015 – 2018

I taught the following undergraduate and graduate courses in mathematics and statistics while completing a Ph.D. in Applied Mathematics.

In 2016, I received the Lynn Bateman Memorial Excellence in Teaching Award.

Courses Taught	Semesters Taught
MATH 1110: College Algebra	FA17
MATH 1401: Calculus I	FA16
MATH 2411: Calculus II	SP17
MATH 3191: Applied Linear Algebra	SP18
MATH 3382: Statistical Theory	SM17
MATH 3800: Probability and Statistics for Engineers	SM18, SM17, SM16, SP16, FA15
MATH 4810: Probability	SM15
MATH 4820/5320: Mathematical Statistics	SM16

Advising Experience

Graduate and Undergraduate Advisor, Colorado State University 2018 –

Advised and mentored undergraduate and graduate students while serving as a faculty member.

Graduate Advisory Committee Member

Sara Horton	M.M. Music Therapy	*(in progress)*
Shree Sowndarya S.V.	Ph.D. Chemistry	Summer 2024
Mantautas Rimkus	Ph.D. Statistics	Summer 2023
Aaron Lear	M.S. Mathematics	Summer 2022

Undergraduate Honor's Committee Advisor

Ryan Marquart	B.S. Data Science	Spring 2023
Ellie Martinez	B.S. Statistics/ B.A. Economics	Spring 2023
Adam Kiehl	B.S. Data Science	Spring 2022
Ethan Creagar	B.S. Data Science	Spring 2022

Undergraduate Honor's Committee Member

Boston Lee	B.S. Statistics/ B.A. Philosophy	Fall 2021

Undergraduate Summer Research Projects

Gabe Macklem	*College Football Data Analysis*	Summer 2024
Chandler Grote	*College Football Data Analysis*	Summer 2024
Danielle Contreras	*Statistical Analysis of College Softball Pitching Using Rapsodo Data*	Summer 2023
Aidan Feeley	*Analyzing Spin Direction for Division I Softball*	Summer 2023
Jake Shankles	*A Statistical Analysis of Philosophers on Philosophy*	Summer 2023
Justin Eldridge	*Nonparametric Estimation of Draft Pick Values for Professional Sports*	Summer 2023
Nick Brinegar	*Shiny App to Visualize ELO for Division I Softball Teams*	Summer 2023
Matthew Boyd	*Playing the Odds: Defensive Positioning Strategies to Minimize Batting Average in Major League Baseball*	Summer 2022

University Service

Colorado State University, Department of Statistics

College of Natural Sciences Scholarship Committee, Member	2023 –
Departmental Awards Committee, Member	2021 – 2023
Newsletter Committee, Member	2021 – 2022
GTA Evaluation and Mentoring Committee, Chair	2019 – 2021

Professional Development

Best Practices in Teaching at CSU: Teaching Online course participant	Summer 2023
Best Practices in Teaching at CSU: Inclusive Pedagogy course participant	Summer 2023
Best Practices in Teaching at CSU: First Four Weeks course participant	Summer 2022
Diversity, Equity, and Inclusion Foundations (CIEP 1) course participant	Fall 2021
Graduate Teaching Assistant Peer Mentee, University of Colorado Denver	2015 – 2016
Critical Issues in Math Education Seminar, University of Colorado Denver	2015 – 2018
Excellence in Teaching Symposium, University of Colorado Denver	August 2016

Research Interests

Sports Analytics, Sabermetrics, Statistics and Mathematics Education, Statistical Machine Learning, Biological Population Models

Publications

Simon, Burton, and **Nielsen, Aaron**. "Numerical Solutions and Animations of Group Selection Dynamics." *Evolutionary Ecology Research*, 14 (2012): 757-68.

Clubs

Faculty participant, CSU Statistics Book Club	2019 –
Faculty advisor, CSU Men's Club Soccer	2018 –
Co-founder and Vice President, UCD Machine Learning Club	2016 – 2018

Internships

Institute for Telecommunication Sciences, Boulder, Colorado — May – August 2007
Engineering Intern

Developed and maintained a MATLAB graphic user interface (GUI) to process real-time wireless communication data.

UV-B Monitoring and Research Program, Fort Collins, Colorado — May – August 2006
Engineering Intern

Tested and troubleshooted Ultraviolet Multifilter Rotating Shadowband Radiometers (UV-MFRSR) for use in measuring solar irradiance.

Honors and Awards

Lynn Bateman Memorial Excellence in Teaching Award	2016
CIMS Fellowship	2013
Williams Scholarship	2012 – 2013
GAANN Fellowship	2007 – 2008
Claude W. Wood Scholarship	2002 – 2006
Colorado Distinguished Scholar	2002 – 2006
Fort Collins High School Valedictorian	2002

Security Clearances

Top Secret / Sensitive Compartmented Information (TS-SCI) clearance	2009 – 2012
Counterintelligence (CI) polygraph	2009

Computer Skills

Basic: JMP, SAS, C, Java, Perl, BUGS, PLINK, SPICE, MathCAD, Adobe Photoshop
Intermediate: ggplot2, HTML, CSS, Microsoft Office, Unix/Linux, Microsoft Windows, OS X
Advanced: R, MATLAB, LaTeX

Professional Memberships

American Statistical Association (ASA)
Mathematical Association of America (MAA)
Society for Industrial and Applied Mathematics (SIAM)
Institute of Electrical and Electronics Engineers (IEEE)
Society for American Baseball Research (SABR)
Tau Beta Pi
Eta Kappa Nu