Aaron D. Nielsen

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Contact Information

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Education

Ph.D. Applied Mathematics, University of Colorado – Denver (2018)
Thesis: *"Statistical Analysis of Some Problems in Evolutionary Population Dynamics"*
Concentration: Applied Probability and Statistics
Advisor: Burt Simon, Ph.D.
M.S. Statistics, Colorado State University (2014)
M.S. Applied Mathematics, University of Colorado – Denver (2012)
Concentration: Applied Probability
M.S. Electrical Engineering, University of Colorado – Boulder (2008)
Concentration: Digital Signal Processing and Digital Communications
B.S. Electrical Engineering and Mathematics, Colorado State University (2007)

Academic Experience

Colorado State University, Department of Statistics 2018 –
Assistant Professor

I am currently teaching and coordinating courses in statistics and mentoring graduate teaching assistants as an assistant professor.

Recent Courses Taught

Spring 2022:	STAT 315, STAT 472, STAT 342
Fall 2021:	STAT 315, STAT 472, STAT 305
Summer 2021:	STAA 556
Spring 2021:	STAT 315, STAT 472
Fall 2020:	STAT 315, STAT 472, STAT 100
Summer 2020:	STAT 315
Spring 2020:	STAT 315, STAT 472, STAT 460, STAA 574
Fall 2019:	STAT 315, STAT 472, STAR 502
Summer 2019:	STAT 315
Spring 2019:	STAT 315, STAT 201, STAT 460, STAT 472
Fall 2018:	STAT 315, STAT 201

Industry Experience

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

I worked as a model and simulation engineer, specifically in the area of algorithm development. This algorithm development dealt with detection and estimation applications for electronic intelligence. MATLAB and C were the primary tools for this development.

In 2009, I acquired a Top Secret/Sensitive Compartmentalized Information (TS/SCI) clearance and collaborated in multiple classified programs.

Teaching Experience

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

Courses Taught	Semesters Taught
STAT 100: Statistical Literacy	FA20
STAT 201: General Statistics	SP19, FA18, SM15
STAT 204: Statistics for Business Students	SM14, SP14, FA13
STAT 301: Applied Statistical Methods	SP15, FA14
STAT 305: Sampling Techniques	FA21
STAT 315: Theory and Practice of Statistics	SP22, FA21, SP21, FA20, SM20, SP20, FA19, SM19, SP19, FA18
STAT 342: Statistical Data Analysis II	SP22
STAT 460: Applied Multivariate Analysis	SP20, SP19
STAT 472: Statistical Research	SP22, FA21, SP21, FA20, SP20, FA19, SP19
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

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

Additional Academic Experience

University of Colorado Denver, Department of Mathematics and Statistics 2015 – 2018
Teaching Assistant / Instructor

Taught undergraduate and graduate courses in mathematics and statistics for majors and non-majors while completing Ph.D. in Applied Mathematics. Received the Lynn Bateman Memorial Excellence in Teaching Award in 2016.

Colorado State University, Department of Statistics 2012 – 2015
Teaching Assistant / Instructor

Taught undergraduate courses and recitations in statistics for non-majors while completing M.S. in Statistics. Received the James S. Williams Memorial Scholarship in 2012.

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

Conducted research involving the applications of Algebraic Number Theory in the area of MIMO Wireless Communications while completing M.S. in Electrical Engineering. Funded by GAANN Fellowship.

Advising Experience

Graduate Advisory Committee Member, Colorado State University 2018 –

Students	Degree	Department	Completed
Shree Sowndarya S.V.	Ph.D.	Chemistry	*(in progress)*
Aaron Lear	M.S.	Mathematics	*(in progress)*
Sara Horton	M.M.	Music Therapy	*(in progress)*

Mentoring Experience

Course Coordinator, Colorado State University 2018 –

Coordinated graduate students teaching undergraduate courses and recitations and provided feedback on their teaching methods. Courses have included STAT 201, STAT 315, STAT 472

Graduate Teaching Assistant Peer Mentor, University of Colorado Denver 2015 – 2018

Mentored first and second year graduate students on mathematics education and pedagogy. Met biweekly with students, observed their classes, and offered feedback on their methods.

Undergraduate Research Mentor, University of Colorado Denver Fall 2016

Supervised and mentored two undergraduate economics majors on an independent research project analyzing faculty/course questionnaire results. This project utilized a variety of machine learning methods and the final project was presented at the graduate student seminar series.

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.

Departmental Service

GTA Evaluation and Mentoring Committee, Department of Statistics 2019 – 2021
Committee Chair

Developed and implemented evaluation system for graduate students teaching or grading.

Research Interests

Statistics and Mathematics Education, Applied Probability and Simulation, Statistical Machine Learning, Sabermetrics

Peer-Reviewed Publications

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

Nielsen, Aaron and Simon, Burton. "Fixation Times in Group-Structured Populations." (In preparation)

Nielsen, Aaron and Simon, Burton. "Multiple Levels of Cooperation in Evolutionary Dynamics Models." (In preparation)

Presentations/ Talks

Dissertation defense. University of Colorado Denver.	June 2018
100th Anniversary MAA Rocky Mountain Section Conference. Pueblo, Colorado.	April 2017
Statistics Research Seminar. University of Colorado Denver.	April 2017
SIAM Front Range Student Conference. Denver, Colorado.	March 2017
Graduate Student-Led Seminar.† University of Colorado Denver.	December 2016

Poster Presentations

"Analyzing FCQ Results Using Advanced Data Analytics" — April 2017
Research and Creative Activities Symposium.† University of Colorado Denver.

"A Survey of Recent Genetic Developments in Ant Social Polymorphism" — December 2015
Topics in Statistical Genetics. University of Colorado Denver.

"A Stochastic Model of Sediment Transport" (advised undergraduate statistics majors) — May 2014
Undergraduate Research Symposium. Colorado State University.

"Dual Polarization Radar Signal Processing" — May 2007
Engineering Senior Design Project Poster Session. Colorado State University.

Professional Development

Graduate Teaching Assistant Peer Mentee, University of Colorado Denver	2015 – 2016
Critical Issues in Math Education Seminar, University of Colorado Denver	2015 – 2018

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

Clubs

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

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