Aaron D. Nielsen

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Contact Information

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

Cell Phone: (e-mail to request)
Departmental Phone: (970) 491-1109
E-mail: aaron.nielsen@colostate.edu
Website: www.stat.colostate.edu/∼nielsen

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. Mathematics, Colorado State University (2007)
B.S. Electrical Engineering, Colorado State University (2007)

Professional Experience

Colorado State University, Department of Statistics 2018 –
Assistant Professor

Currently teaching and coordinating undergraduate courses in statistics and mentoring graduate teaching assistants as an assistant professor.

Courses taught:

Stat 201: General Statistics (4 sections)
An introductory statistics course for students in the humanities and human sciences.
- Spring 2019, Fall 2018 (2 sec.), Summer 2015

Stat 204: Statistics for Business Students (3 sections)
An introductory statistics course for business students.
- Summer 2014, Spring 2014, Fall 2013

Stat 301: Introduction to Statistical Methods (4 sections)
An introductory statistics course for students in the natural sciences.
- Spring 2015 (3 sec.), Fall 2014

Stat 315: Introduction to the Theory and Practice of Statistics (7 sections)
An introductory statistics course for students in statistics, engineering, and natural sciences.
- *Spring 2020*, Fall 2019 (2 sec.), Summer 2019, Spring 2019 (2 sec.), Fall 2018

Stat 460: Applied Multivariate Analysis (2 sections)
Senior-year elective course covering PCA, Factor Analysis, and other multivariate methods.
- *Spring 2020*, Spring 2019

Stat 472: Statistical Research (3 sections)
A team project-based course emphasizing research reproducibility and speaking/writing skills.
- *Spring 2020*, Fall 2019, Spring 2019

Stat 581: Applied Multivariate Analysis for Researchers (1 section)
A graduate level course in multivariate analysis for non-majors.
- Fall 2019

App. Stat 574: Methods in Multivariate Analysis (1 section)
A graduate level course in multivariate analysis for MAS students.
- *Spring 2020*

Teaching Experience (cont.)

University of Colorado, Denver, Colorado 2015 – 2018

Courses taught:

Math 1110: College Algebra (Fall 2017)
Math 1401: Calculus I (Fall 2016)
Math 2411: Calculus II (Spring 2017)
Math 3191: Applied Linear Algebra (Spring 2018)
Math 3382: Statistical Theory (Summer 2017)
Math 3800: Probability and Statistics for Engineers (5 sections)
Fall 2015, Spring 2016, Summer 2016, Summer 2017, Summer 2018
Math 4810: Introduction to Probability (Summer 2015)
Math 4820/5320: Introduction to Mathematical Statistics (Summer 2016)

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.

Industry Experience

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

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.

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.

Advising Experience

Master's Advisory Committee Member, Colorado State University 2018 –

Students	Degree	Department	Completed
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.

Research Interests

Statistics and Mathematics Education, Applied Probability and Simulation, Statistical Machine Learning, Statistical Signal Processing, 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

100^{th} 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
Met biweekly with a statistics faculty member to receive advice and tips on teaching.

Critical Issues in Math Education Seminar, University of Colorado Denver — 2015 – 2018
Weekly seminar series discussing pedagogy.

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 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

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

References

Ben Prytherch, M.S., Instructor
Department of Statistics. Colorado State University.
Email: prytherc@stat.colostate.edu

Burt Simon, Ph.D., Associate Professor
Department of Mathematical and Statistical Sciences. University of Colorado Denver.
Email: burt.simon@ucdenver.edu

Stephanie Santorico, Ph.D., Professor
Department of Mathematical and Statistical Sciences. University of Colorado Denver.
Email: stephanie.santorico@ucdenver.edu