# 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)

**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.

**Teaching Experience**

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

Recent Courses Taught

| | |
|---|---|
| Summer 2021: | STAA 556 |
| Spring 2021: | STAT 315 (2 sec.), STAT 472 |
| Fall 2020: | STAT 100, STAT 315 (3 sec.), STAT 472 |
| Summer 2020: | STAT 315 |
| Spring 2020: | STAT 315, STAT 460, STAT 472, STAA 574 |
| Fall 2019: | STAT 315 (2 sec.), STAT 472, STAR 502 |
| Summer 2019: | STAT 315 |
| Spring 2019: | STAT 201, STAT 315 (2 sec.), STAT 460, STAT 472 |
| Fall 2018: | STAT 201 (2 sec.), STAT 315 |

| Courses Taught | Last Taught |
|---|---|
| STAT 100: Statistical Literacy | Fall 2020 |
| STAT 201: General Statistics* | Spring 2019 |
| STAT 204: Statistics for Business Students | Summer 2014 |
| STAT 301: Applied Statistical Methods | Spring 2015 |
| STAT 315: Theory and Practice of Statistics* | Spring 2021 |
| STAT 460: Applied Multivariate Analysis | Spring 2020 |
| STAT 472: Statistical Research – Design, Data, Methods* | Spring 2021 |
| STAR 502: Multivariate Analysis for Researchers | Fall 2019 |
| STAA 556: Statistical Consulting | Summer 2021 |
| STAA 574: Methods in Multivariate Analysis | Spring 2020 |

*also served as course coordinator

## Teaching Experience (cont.)

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

| Courses Taught | Semester 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 | Summer 2018 (+ 4 other semesters) |
| MATH 4810: Probability | Summer 2015 |
| MATH 4820/5320: 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 |
|---|---|---|---|
| Shree Sowndarya S.V. | M.S./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.

## 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 |
| $100^{\text{th}}$ 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.$^{\dagger}$ 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 – 2020 |
| 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

## References

Ben Prytherch, M.S., Senior 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