# Aaron D. Nielsen

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| CONTACT INFORMATION | Department of Statistics | *Cell Phone:* (e-mail to request) |
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| | Fort Collins, Colorado 80523 | *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** (in progress) | Colorado State University | (2024) |

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

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| 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 472, STAA 460 |
| Fall 2018: | STAT 315, STAT 201 |

I am also currently coordinating the creation of a Sports Analytics certificate. As a part of this effort, I am developing two foundational courses for this certificate.

STAT 3XX: Sports Statistics and Analytics Methods – an introductory course in Sports Analytics that applies and extends introductory statistical methods to analyze sports data.

STAT 4XX: Sports Statistics and Analytics Research – an advanced level course in Sports Analytics that applies methods from multivariate analysis and machine learning to analyze sports data.

| TEACHING EXPERIENCE | **Colorado State University**, Department of Statistics | 2018 – |
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| 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 |
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*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

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| ADVISING EXPERIENCE | **Graduate and Undergraduate Advisor**, Colorado State University | | 2018 – |

**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

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

Undergraduate Honor's Committee Advisor

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| Adam Kiehl | B.S. Data Science | *(in progress)* |
| Ethan Creagar | B.S. Data Science | *(in progress)* |

Undergraduate Honor's Committee Member

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| Boston Lee | B.S. Data Science/ | Dec. 2021 |
| | B.A. Philosophy | |

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

**Colorado State University**, Department of Statistics
Departmental Awards Committee, Member 2021 –
Newsletter Committee, Member 2021 –
GTA Evaluation and Mentoring Committee, Chair 2019 – 2021

RESEARCH INTERESTS

Statistics and Mathematics Education, Applied Probability and Simulation, Statistical Machine Learning, Sports Analytics, 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)

| INDUSTRY EXPERIENCE | **MacAulay-Brown, Inc.**, Aurora, Colorado | 2009 – 2012 |
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| | *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.

| INTERNSHIPS | **Institute for Telecommunication Sciences**, Boulder, Colorado | May – August 2007 |
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| | *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.

| 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 | Diversity, Equity, and Inclusion Foundations (CIEP 1) course participant | Fall 2021 |
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| | 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 |
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| | 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<br>CLEARANCES | Top Secret / Sensitive Compartmented Information (TS-SCI) clearance | 2009 – 2012 |
| | Counterintelligence (CI) polygraph | 2009 |
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| 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 |