Chester Ivan Ismay

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Education

2013   **Ph.D. in Statistics**, Arizona State University
　　　　Advisor: Randall Eubank
　　　　Thesis: *Testing Independence of Parallel Pseudorandom Streams: Incorporating the Data's Multivariate Nature*

2008   **M.S. in Statistics** (with highest honors), Northern Arizona University
　　　　Emphasis: Actuarial Science

2006   **B.S. in Mathematics** (with honors), South Dakota School of Mines & Technology
　　　　Minor: Computer Science

Professional Appointments

Data Science Evangelist

DataRobot University team, DataRobot, Portland, OR, 2019 -

Head of Content Development (Belgium)

Content team, DataCamp, Portland, OR, 2019

Senior Curriculum Lead

Content team, DataCamp, Portland, OR, 2018 - 2019

Curriculum Lead

Content team, DataCamp, Portland, OR, 2017 - 2018

Member of the Board of Directors

R Consortium, 2017 - 2019

Adjunct Professor of Statistics

Sociology Department, Pacific University, Forest Grove, OR, 2016 - 2017

Visiting Assistant Professor of Mathematics

Mathematics Department, Reed College, Portland, OR, 2016 - 2017

Instructional Technologist for Quantitative Applications

Computing & Information Services, Reed College, Portland, OR, 2015 - 2017

Statistical and Data Science Consultant

Product Design, Mentor Graphics, Wilsonville, OR, 2015 - 2016

Statistical Consultant

Milliman IntelliScript, Milliman, Brookfield, WI, 2014

Business Analytics Consultant

Advanced Analytics, Promontory Growth and Innovation, LLC., Washington, DC, 2014

Tenure-Track Assistant Professor of Statistics

Department of Mathematical Sciences, Ripon College, Ripon, WI, 2013 - 2015

Excess and Surplus Actuarial Analyst

Scottsdale Insurance Company, Scottsdale, AZ, 2009-2010

Academic Teaching Experience

Adjunct Professor - Pacific University

Sociology Department, 2016-2017
- SOC 301 - Social Statistics (1 section Fall 2016, 1 section Spring 2017)

Visiting Assistant Professor - Reed College

Mathematics Department, 2016-2017
- MATH 141 - Introduction to Probability and Statistics (1 section + 3 labs Spring 2016)

Assistant Professor - Ripon College

Department of Mathematical Sciences, 2013-2015
- MTH 120 - Elementary Statistics (2 sections Fall 2013, 2 sections Spring 2014, 1 section Fall 2014, 2 sections Spring 2015)
- MTH 220 - Data Analysis (1 section Fall 2014)
- MTH 331 - Probability (1 section Fall 2013, 1 section Fall 2014)
- MTH 390 - Undergraduate Research (2 students Fall 2014, 2 students Spring 2015)
- MTH/CSC 501 - Senior Seminar (1 student Fall 2014)
- MTH/CSC 502 - Senior Seminar (1 student Spring 2016)
- MTH 432 - Mathematical Statistics (1 section Spring 2015)
- CSC 211 - Computer Science I (1 section Spring 2014)
- CSC 212 - Computer Science II (1 section Fall 2015) [Co-taught]
- IDS 150 - Fisk: Race and Diversity in the 21st Century (1 section Fall 2014) [Co-taught]

Teaching Assistant - Arizona State University

School of Mathematical and Statistical Sciences, 2010-2012
- STP 231 - Statistics for the Biosciences (1 section Spring 2011, 1 section Spring 2012)
- STP 226 - Elements of Statistics (1 section Fall 2010, 1 section Fall 2011)

Teaching Assistant - Northern Arizona University

Department of Mathematics and Statistics, 2006-2008
- STA 270 - Applied Statistics (1 section Fall 2007, 1 section Spring 2008)
- MAT 114 - Quantitative Reasoning (1 section Fall 2006, 2 sections Spring 2007)

Instructor - Northern Arizona University

Four Corners Upward Bound, Summer 2007
- Preparation for Mathematics Portion of ACT Exam (3 sections)

Recitation Leader - South Dakota School of Mines & Technology

Department of Mathematics and Computer Science, 2003-2006
- Trigonometry (1 section Fall 2003, 1 section Spring 2004, 1 section Fall 2004, 1 section Spring 2005)
- College Algebra (1 section Fall 2005, 1 section Spring 2006)

Non-academic Teaching Experience

Creator at DataCamp

1. Joining Data in SQL, Premium Content.
2. Effective Data Storytelling using the tidyverse (FREE), Community Content.

Reviewer/Project Manager at DataCamp

Python

1. Big Data Fundamentals via PySpark
2. Creating Robust Python Workflows
3. Designing Machine Learning Workflows in Python
4. Experimental Design in Python (in development)
5. Exploratory Data Analysis in Python
6. Forecasting Using ARIMA Models in Python (in development)
7. Generalized Linear Models in Python (in development)
8. Hyperparameter Tuning in Python (in development)
9. Introduction to Matplotlib
10. Machine Learning for Finance in Python
11. Model Validation in Python
12. Recurrent Neural Networks for Language Modeling in Python (in development)
13. Sentiment Analysis in Python (in development)
14. Working with Dates and Times in Python
15. Writing Efficient Python Code

R

1. A/B Testing in R
2. Advanced Dimensionality Reduction in R
3. Analyzing Election and Polling Data in R
4. Analyzing Survey Data in R
5. Analyzing US Census Data in R
6. Anomaly Detection in R
7. Bayesian Modeling with RJAGS
8. Bayesian Regression Modeling with rstanarm
9. Building Dashboards with flexdashboard
10. Building Dashboards with shinydashboard
11. Building Response Models in R
12. Categorical Data in the Tidyverse
13. Communicating with Data in the Tidyverse
14. Data Privacy and Anonymization in R
15. Factor Analysis in R
16. Feature Engineering in R
17. Fitting Elastic Nets in R (in development)
18. Foundations of Inference
19. Fraud Detection in R
20. Fundamentals of Bayesian Data Analysis in R
21. GARCH Models in R
22. Generalized Linear Models in R
23. Hierarchical and Mixed Effects Models
24. Highcharter for Finance in R
25. Hyperparameter Tuning in R
26. Inference for Categorical Data
27. Inference for Linear Regression
28. Inference for Numerical Data
29. Insurance Pricing Analytics in R (in development)
30. Interactive Data Visualization with plotly in R
31. Interactive Data Visualization with rbokeh
32. Interactive Maps with leaflet in R
33. Intermediate Functional Programming with purrr
34. Intermediate Interactive Data Visualization with plotly in R
35. Introduction to Text Analysis in R
36. Introduction to the Tidyverse
37. Linear Algebra for Data Science in R
38. Machine Learning in the Tidyverse
39. Marketing Analytics in R: Choice Modeling
40. Marketing Analytics in R: Statistical Modeling
41. Mixture Models in R
42. Modeling with Data in the Tidyverse
43. Multivariate Probability Distributions in R
44. Network Analysis in R: Case Studies
45. Network Science in R - A Tidy Approach
46. Predictive Analytics using Networked Data in R
47. Probability Puzzles in R

48. Structural Equation Modeling with lavaan in R
49. Supervised Learning in R: Case Studies
50. Support Vector Machines in R
51. Survey and Measurement Development in R (in development)
52. Visualization Best Practices in R
53. Working with Data in the Tidyverse

Spreadsheets

1. Conditional Formatting in Spreadsheets
2. Error and Uncertainty in Spreadsheets (in development)
3. Financial Analytics in Spreadsheets
4. Introduction to Options Trading in Spreadsheets (in development)
5. Loan Amortization in Spreadsheets (in development)
6. Marketing Analytics in Spreadsheets (in development)
7. Statistics in Spreadsheets (in development)

SQL

1. Applying SQL to Real-World Problems (in development)
2. First and Last Touch Attribution for Marketing in SQL (in development)
3. Time Series Analysis in SQL Server (in development)
4. Writing Functions and Stored Procedures in SQL Server

Teaching Interests

- Applied Statistics
- Introduction to Statistics / Data Science
- Data Analysis
- Data Cleaning
- Intermediate Data Science
- Probability
- Machine Learning
- Mathematical Statistics
- Statistics in Current Events
- Statistical Modeling

Research Interests

- Applied statistics
- Statistical computing with R and C++
- Statistics education
    - Investigating the effect of computer simulations in providing students with opportunities to construct a mature understanding of fundamental statistical ideas
    - Developing individual and group projects and in-class activities that actively engage students in developing statistical literacy
    - Evaluating the effect of inquiry-based instructional methods in statistics education
    - Supporting pre-service secondary mathematics teachers in developing an understanding of statistics that allows them to convey meaning while teaching statistics concepts
- Improving public awareness and knowledge of statistics and data science
- The intersection of computer science and data science

Publications

Books in Preparation

- Ismay, C. and Kim, A. Y. (2019) Statistical Inference via Data Science: A ModernDive into R and the Tidyverse. *CRC Press*.

Manuscripts Published

- Kim, A. Y., **Ismay, C.**, Chunn, J. (2018) The fivethirtyeight R Package: "Tame Data" Principles for Introductory Statistics and Data Science Courses. *Technology Innovations in Statistics Education.* Also available at `https://bit.ly/538-r-paper`.

Book Reviews

- Book Review of *bookdown: Authoring Books and Technical Documents with R Markdown*. The American Statistician, April 2018, Vol. 72, No. 1.

- Book Review of *The Art of Data Analysis: How to Answer Almost Any Question Using Basic Statistics*. The American Statistician, May 2015, Vol. 69, No. 2.

Conference Proceedings

- McShane, J. M., Mlsna, P., Maynard, J., **Ismay, C.**, and Brown, S. (2008) How prepared mathematically are entry level engineering students? *Proceedings of the 2008 Annual Conference & Exposition of the National Society for Engineering Education.*

Published Abstracts

- Soich, L. and **Ismay, C.** (2015) A Modified Team-Based Learning Approach to a First Semester Mathematical Statistics Course. *Abstracts of Papers Presented to the American Mathematical Society*, 36(1), 334.

- Ismay, C. (2014) Increasing Communication and Problem-Solving Skills in a Liberal Arts Probability Course. *Abstracts of Papers Presented to the American Mathematical Society*, 35(1), 526.

- Ismay, C. (2013) Testing Independence of Parallel Pseudorandom Streams: Incorporating the Data's Multivariate Nature. *Abstracts of Papers Presented to the American Mathematical Society*, 34(1), 493.

- McShane, J. M., Mlsna, P., Maynard, J., **Ismay, C.**, and Brown, S. (2008) Mathematics Skills Assessment and Training in Freshman Engineering Courses. *Abstracts of Papers Presented at MathFest 2008*, 52.

Presentations

Conference Presentations

- *Using Data to Drive Curriculum Development*. Joint Statistical Meetings. Vancouver, Canada. July 30, 2018. Slides available at `https://bit.ly/ismay-jsm`.
- *Statistical Inference: A Tidy Approach*. useR Conference. Brisbane, Australia. July 12, 2018. Video available at `https://www.youtube.com/watch?v=BCMjVc9ncFo`.
- *Something old, something new, something borrowed, something blue: Ways to teach data science (and learn it too!)*. rstudio::conf 2018. San Diego, CA. February 3, 2018. Video available at `https://bit.ly/ismay-rstudioconf-2018`.
- *infer: An R package for tidy statistical inference*. R User Day at Data Day Texas. Austin, TX. January 27, 2018. Slides available at `https://bit.ly/infer-austin`.
- *Teaching Introductory Statistics Using the tidyverse via bookdown*. rstudio::conf 2017. Orlando, FL. January 13, 2017. Video available at `https://bit.ly/ismay-rstudioconf-2017`.
- *Using the bookdown R package to create a free modern introductory statistics textbook focused on data visualization, reproducibility, and resampling techniques*. Joint Mathematics Meetings. Atlanta, GA. January 7, 2017.

- *A Modified Team-Based Learning Approach to a First Semester Mathematical Statistics Course* (with Logan Soich). Joint Mathematics Meetings. San Antonio, TX. January 11, 2015.
- *A Smorgasbord of Ideas in Leading a Probability Course*. Project NExT Wisconsin Fall Conference. Baraboo, WI. October 4-5, 2014.
- *Teaching Introductory Statistics Using Simulation in a Flipped Classroom Environment*. Mathematical Association of America Wisconsin Section Meeting. Whitewater, WI. April 4-5, 2014.
- *Increasing Communication and Problem-Solving Skills in a Liberal Arts Probability Course*. Joint Mathematics Meetings. Baltimore, MD. January 15-18, 2014.
- *A Multivariate Extension for* TestU01. Joint Mathematics Meetings. San Diego, CA. January 9-12, 2013.
- *Mathematics Skills Assessment and Training in Freshman Engineering Courses* (with Maynard, J., and Brown, S.). American Society of Engineering Education. Pittsburgh, PA. June 22-25, 2008.
- *Which NFL Team is Best? Using Mathematics to Provide An Answer*. Rocky Mountain Section of the Mathematical Association of America. Mesa State College (now Colorado Mesa University), Grand Junction, CO. April 14-15, 2006.

Invited Talks

- *Tidyverse Tools for Data Science and Statistical Inference*. Journal Club, OCHIN. Portland, OR. June 20, 2018. Slides available at https://bit.ly/ochin-ismay.
- *Online Training in Data Science Using R*. College of Public Health and Human Sciences Seminar Series, Oregon State University. Corvallis, OR. March 2, 2018.
- *Something old, something new, something borrowed, something blue: Ways to teach data science (and learn it too!)*. American Statistical Association Oregon Chapter Fall 2017 Meeting, Oregon State University. Corvallis, OR. October 19, 2017.
- *Creating the fivethirtyeight R package*. Portland R User Group. Portland, OR. May 30, 2017. Video available at https://www.youtube.com/watch?v=UUc5u0NOvhg&t=2s.
- *Creating and using templates in R Markdown*. Portland R User Group. Portland, OR. August 17, 2016. Video available at https://www.youtube.com/watch?v=3YTxGDoBeS0.
- *New Ideas in Teaching and Assessment in Introductory Statistics*. Indiana University Department of Statistics, Teaching Colloquium. Bloomington, IN. March 24, 2015.
- *Calculating Probabilities for a Lottery Game using Recursion and Parallel Computing*. Indiana University Department of Statistics, Department Colloquium. Bloomington, IN. March 23, 2015.
- *Using Parallel Computing and Recursion to Compute a Probability Tree for a Lottery Game*. University of Wisconsin - Stevens Point, Department of Mathematical Sciences Colloquium. Stevens Point, WI. January 29, 2015.
- *New Ways to Compute a Probability Tree for a Lottery Game*. Northern Arizona University Department of Mathematics and Statistics Colloquium. Flagstaff, AZ. September 30, 2014.
- *Random Numbers: Their Importance and Rules for (Almost) Creating Them*. Friday Afternoon Mathematics Undergraduate Seminar. Northern Arizona University, Flagstaff, AZ. October 19, 2012.
- *Ranking Methods: Determining the Best NFL Team Using Several Mathematical Techniques*. Math and Computer Science Colloquium. South Dakota School of Mines & Technology, Rapid City, SD. April 26, 2006.

Campus Talks

- *Slack/git/GitHub*. Reed College, Portland, OR. January 26, 2017. Slides available at `https://bit.ly/reed-git17`.
- *Effective Data Stories via Visualization*. Reed College, Portland, OR. January 19, 2017. Slides available at `https://bit.ly/paideia-viz17`.
- *Using the R Markdown Senior Thesis Template*. Reed College, Portland, OR. January 19, 2017. Slides available at `https://bit.ly/thesisdown17`.
- **Variety of other academic talks given in Portland, Oregon**. Slides available at `http://rpubs.com/cismay`.
- *Practical Applications for iClickers, Google Apps, and Google Classroom*. Ripon College, Workshop. Ripon, WI. April 28, 2015.
- *New Ideas in Undergraduate Research: Developing Probability Curriculum Materials and Interactive Applets*. Ripon College, Brown Bag Lunch Series. Ripon, WI. April 16, 2015.
- *Show me the data!* TED Talks and Tea Event. Ripon College, Ripon, WI. September 11, 2014.
- *No More Strange Assumptions or Ugly Formulas: How the Introductory Statistics Curriculum Is Changing to Increase Student Enjoyment and Understanding*. Brown Bag Lunch Series. Ripon College, Ripon, WI. March 6, 2014.
- *One Way That Math, Computer Science, and Statistics Can Be Used to Predict NFL Game Outcomes*. Math and Computer Science Colloquium. Ripon College, Ripon, WI. November 15, 2013.

Workshops

- *Statistical Inference: A Tidy Approach*. New England Statistical Symposium. University of Massachusetts, Amherst. Amherst, MA. April 14, 2018. Slides available at `https://bit.ly/ness-infer`.

- *A Fully Customizable Textbook for Introductory Statistics/Data Science Courses* (with Albert Y. Kim). United States Conference on Teaching Statistics. Penn State University. State College, PA. May 17-18, 2017. Materials availabe at `https://ismayc.github.io/moderndive-workshops/`.

Honors and Awards

- Harnessing Big Data: Planning for Collaborative Courses in Data Science, Faculty Career Enhancement Grant, $5500, Associated Colleges of the Midwest, 2014-2015
- Project NExT Fellow, Mathematical Association of America and American Statistical Association, 2014-
- United States of America Department of Education Graduate Assistance in Areas of National Need Research Fellowship, Spring 2013
- Arizona State University Block Grant Research Fellowship, Summer 2012
- Northern Arizona University Master of Science Graduate With Highest Honors, 2008
- Northern Arizona University Department of Mathematics and Statistics Graduate Student Scholar of the Year, 2007-2008
- South Dakota School of Mines and Technology *Cum Laude* Graduate, 2006
- South Dakota School of Mines and Technology Mathematics Senior of the Year, 2005-2006

Non-teaching Academic Experience

Graduate Statistical Consultant - Arizona State University

School of Mathematical and Statistical Sciences, Fall 2012

Graduate Statistical Consultant - Northern Arizona University

Department of Mathematics and Statistics, Spring 2008

Teaching Assistant/Grader - Arizona State University

School of Mathematical and Statistical Sciences, 2011-2012
- STP 226 - Elements of Statistics (online) (1 section Spring 2012)
- STP 420 - Introductory Applied Statistics (1 section Fall 2011)

Research Assistant - Arizona State University

School of Mathematical and Statistical Sciences, Summer 2011, Summer 2012, Spring 2013

Data Analyst/Tutor - Northern Arizona University

Training Intuition in Math for Engineering Success (TIMES) Grant, Mathematics and Engineering Departments, 2007-2008

Laboratory Assistant - South Dakota School of Mines & Technology

Department of Computer Engineering, 2002-2003
- CENG 244 - Introduction to Digital Systems (2 sections Fall 2002, 2 sections Spring 2003)

Service

Service to Profession
- Vice President, Oregon Chapter of the American Statistical Association, 2019-
- Secretary and Treasurer, Oregon Chapter of the American Statistical Association, 2018-2019
- Director, Wisconsin Chapter of the American Statistical Association, 2014-2015
- Member, Project NExT Mathematical Association of America Wisconsin Chapter, 2014-2015
- Chair of Planning Committee for Spring 2015 Meeting, Mathematical Association of America Wisconsin Section
- Mentee, American Statistical Association Applied Statistics Program

Textbook Manuscript Reviews
- Kokoska, S. (2013) *Introductory Statistics: A Problem-Solving Approach*, 2nd ed. New York: W. H. Freeman.
- Bruce. P. (2013) *Stats: Data and Analytics*. New York: John Wiley & Sons, Inc.

College Service
- Fourth reader for Senior Thesis by Heather Milne (2016), Reed College
- Fourth reader for Senior Thesis by Hans Trautlein (2016), Reed College
- Fourth reader for Senior Thesis by Dean Young (2016), Reed College
- Third reader for Senior Thesis by Will Jones (2016), Reed College
- Academic Advisor to 9 students (1 senior, 1 junior, 3 sophomores, 4 freshmen) (2014-2015), Ripon College
- Senior thesis advisor for Logan Soich (2014-2015), Ripon College
- Runner-up, Mr. Ripon Comedy Pageant (2014), Ripon College

- Co-chair of Planning Committee (2014-2015), Ripon College Scholars' Week, Ripon College
- Co-chair of Planning Committee (2014-2015), Senior Scholarship Showcase, Ripon College
- Member of Planning Committee (2014-2015), Martin Luther King Junior Week, Ripon College
- Data Analyst (2013-2015), Senior Scholarship Showcase, Ripon College
- Consultant and Data Analyst (2013-2015), Center for Social Responsibility, Ripon College
- Case Study Judge (2013-2014), Hazing Prevention Week, Ripon College
- Auditor, Miss Ripon Pageant 2013, Ripon College
- Mentor, Actuarial Exam P/1 Preparation, Ripon College
- Mentor, Actuarial Exam FM/2 Preparation, Ripon College

Departmental Service

- Department Liaison to Information Technology Services, Ripon College
- Faculty Advisor, Math Club Homecoming Events Planning, Ripon College
- Co-organizer, SMURF (Statistics and Mathematics Undergraduate Research Forum), Ripon College
- Co-advisor, Math Club, Ripon College
- Colloquium Planner and Coordinator, Ripon College

Related Professional Skills

Programming Languages

- C++
- CSS
- Git/GitHub
- OpenMP application programming interface
- Python
- R (including knitr/LaTeX, shiny, R Markdown, and Sweave)
- SQL
- VBA for Microsoft Excel

Mathematical/Statistical Software Packages

- Excel/Google Sheets
- JMP
- Maple
- Mathematica
- Minitab
- RStudio
- SAS
- SPSS
- Stata

Organizational Involvement

Membership

- American Statistical Association
- American Mathematical Society

- Association for Computing Machinery
- The Bernoulli Society for Mathematical Statistics and Probability
- Institute of Mathematical Statistics
- The International Association for Statistical Education
- The International Association for Statistical Computing
- Mathematical Association of America

Service

- Ripon College Math Club Mentor
- Ripon College SMURF (Statistics and Mathematics Undergraduate Research Forum) Advisor
- Arizona State University Graduate Statistics Club Public Relations Officer
- Arizona State University Graduate Statistics Club Events Coordinator
- South Dakota School of Mines & Technology Math Club Treasurer