

# ELIJAH MEYER

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## EDUCATION

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<b>Montana State University</b> BS Statistics	Bozeman, MT - Dec 2015
<b>Montana State University</b> MS Statistics	Bozeman, MT - May 2018
<b>Montana State University</b> PhD Statistics with a focus in Education	Bozeman, MT - July 2022
<b>Duke University</b> Postdoctoral Associate	Durham, NC - Present

## CURRENT

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Currently a postdoctoral associate at Duke University working with Dr. Mine Çetinkaya-Rundel. Lead instructor of STA 199 Introduction to Data Science.

### Research

- Aim to provide a more holistic understanding about statistics and data science instruction, specifically as it relates to recommended active learning techniques and newer instructors.
- Current work in longitudinal mixed methods studies and instrument development.
- Additional work in creating a flexible blueprint for instructors to navigate curricular, pedagogical, and computational challenges when designing or modernizing an introductory data science course; developing a data science course on Coursara; mentoring an undergraduate student through the creation of dynamic shiny application to help better the teachings and learnings of data science.

### Teaching

- Over eight years of lead instructor experience in a variety of introductory to intermediate statistics and data science courses. Includes instructing large class sizes of over 150 students.
- Training and experience in both developing and instructing in-person and online courses in statistics and data science.
- Experience in developing statistics curriculum and data science workshops.
- Experience and interest in mentoring undergraduate students in both teaching and research

## EXPERIENCE

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### Duke University: Introduction to Data Science and Statistical Thinking

*Postdoctoral Associate Instructor*

Aug 2022 | Present

- Taught two sections of Introduction to Data Science and Statistical Thinking in-person with class sizes from 150-179 students. Facilitated collaborative learning environment for students to learn GitHub, Quarto, and R-studio, who often have little to no statistics, data science, or coding experience when first entering the class. Lead weekly meetings, supervised, and helped prepare 10-13 teaching assistants (undergraduate, master's and Ph.D. level assistants) for their assigned roles. These roles included grading, holding office hours, and facilitating weekly labs.
- Taught one section of Introduction to Data Science and Statistical Thinking in-person during a six-week Summer session with a class size of 15 students. Developed and organized a topic schedule for the Summer course. Supervised and helped prepare one teaching assistant throughout the session by creating and discussing material that would be used for lab.

### Coursera Course Creation

*Developer*

2023 | Present

- Currently working with Dr. Mine Çetinkaya-Rundel on creating a multi-module data science course that to be hosted on Coursera. Upon completion, participants will earn a professional certificate of introductory level data science. Topics include data wrangling and munging, exploratory data analysis, predictive modeling, and data visualization, and effective communication of results.

### Undergraduate Research Mentor

*Mentoring*

2023 | Present

- Co-mentored undergraduate student through the writing and presentation of their undergraduate thesis research. Helped organize, facilitate, and lead weekly meetings with student to discuss research, writing, and presentation strategies
- Currently working side-by-side with an undergraduate student to create a dynamic interactive shiny application in R to better students' understanding of statistics and data science. Will lead weekly to bi-weekly meetings to discuss and help facilitate the creation of this R shiny application. Strong emphasis on research concepts such as practical importance and utility of research during the mentoring process.

## **Data Fest**

*Organizer*

2023

- Helped organize and facilitate Data Fest at Duke University 2023. This included contacting other potential participating universities, leading activities during Data Fest, and answering questions groups of students had while participating in the competition.

## **Introductory and Intermediate Statistics**

*Graduate Teaching Assistant - Lead Instructor*

Jan 2013 | 2021

- Taught 11 sections of Introductory Statistics both in-person and online. Facilitated collaborative learning environment using a technology enhanced active learning classroom while supervising an undergraduate assistant and managing 20 - 60 students in class.
- Taught seven sections of Intermediate Statistics both in-person and online. Developed course materials in collaboration with other graduate teaching assistants. Held live online coding sessions to allow students to learn by doing and receive immediate feedback in the online setting.

## **Introductory Statistics with R Curriculum**

*Developer*

2020

- Collaborated on the reform of the Introductory Statistics curriculum at Montana State University. Played an integral role in incorporating the use of R and R-studio. Emphasized the importance of statistical literacy and statistical reasoning through the development of case study assignments that have students explore and connect ideas through published literature.

## **R-studio Data Science Workshops**

*Instructor*

September 2019 | March 2020

- Helped create, modify, and instruct content. Ran a series of four R-workshops for undergraduates, graduate students, and faculty at Montana State University. Lead instructor for the workshops: Introduction to R; Intermediate R; Data Visualization; Data Wrangling.

## **Statistical Consulting and Research Services (SCRS)**

*Graduate Research Assistant*

September 2019 | May 2020

- Provided high-quality statistical and research consulting and collaboration.
- Assisted researchers in the entire research process: study design and methodology, alignment of research questions with statistical analysis, data visualization, analysis and modeling, interpretation and dissemination of results.

## **Graduate Statistical Methods for Data Analysis II**

*Teaching Assistant*

September 2019 | December 2019

- Collaborated with the instructor on the creation of weekly labs for students. Helped facilitate instruction of weekly labs to groups of students.

## **Online Intermediate Statistics with R**

*Developer & Lead Instructor*

Summer 2019

- Developed and implemented the first online version of Intermediate Statistics with R at Montana State University. Incorporated the use of WebEx, R and R-studio to communicate statistical procedures and concepts to 20 students over the course of 8 weeks. Implemented novel instructional strategies into the course, including the facilitation of online group discussions and the use of New York Times: What's Going On in This Graph? to build students' experiences with real data and emphasize the creativity in data visualization.

**Excellence in Teaching Symposium: Teaching Assistant Training**  
*Graduate Student Leader*

2017 | 2018

- Collaboratively redesigned and led year-long teaching program for new graduate students.
- Organized and executed weekly hour-long teaching symposiums, such as Responding to Student Contributions in the Classroom
- Mentored new graduate students on how to effectively communicate mathematical and statistical concepts to diverse learners.

**Duke Statistical Science Head Teaching Assistant Training**  
*Creator & Instructor*

2023

- Collaboratively redesigned and updated training preparation materials for teaching assistants in leadership positions in the statistical sciences department at Duke. Co-lead training meeting to prepare teaching assistants on their administrative and teaching responsibilities.

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PUBLICATIONS

Meyer, E., Green, J., Arnold, L., & Wickstrom, M., (in preparation) Understanding How and When Graduate Student Instructors Break through Challenges with Active Learning. Accepted with revisions to International Journal of Research in Undergraduate Mathematics Education

Meyer, E., & Çetinkaya-Rundel (in preparation) Introductory Data Science: A Blueprint to Design Curriculum and Pedagogy. To be submitted to the Journal of Statistics and Data Science Education.

Rubin, N., Tackett, M., Çetinkaya-Rundel, M., & Meyer, E (corresponding author)., (in preparation) Evaluating Student Perceptions of Assessment in Introductory Quantitative Studies. To be submitted to the International Journal of Science Education.

Meyer, E., Green, J., Hildrith, L., Hancock, S., (in preparation) Motivation Matters: Developing an Instrument to Measure Newer Instructors' Situational Motivation to Use Active Learning in the Classroom When Teaching Statistics. To be submitted to the Journal of Statistics and Data Science Education.

Meyer, E., Green, J., Hildrith, L., Hancock, S., (in preparation) A Framework for Understanding Statistics Instructors' Motivations to Use Active Learning. To be submitted to the Journal of Education Psychology.

Carnegie, N., Hancock, S., Meyer, E., Schmidt, J., & Yager, M. (2021). Montana State Introductory Statistics with R. Montana State University.  
<https://mtstateintrostats.github.io/IntroStatTextbook/>. Adapted from Çetinkaya-Rundel, M. & Hardin, J. (2021). Introduction to Modern Statistics. OpenIntro.  
<https://openintro-ims.netlify.app/>

Co-authored current book used in Introductory Statistics at Montana State University

Hammack, R., Gannon, P., Foreman, C., & Meyer, E. (2021). Impacts of professional development focused on teaching engineering applications of mathematics and science. School Science and Mathematics. 2020; 120: 413-424. <https://doi.org/10.1111/ssm.12430>

Cleaned data and performed statistical analysis to explore the impacts of a summer professional development program on in-service K-12 teachers'.

Meyer, E., Greenwood, M., & Tran, T. (2016) Statistical methods for detecting groups of patterns in daily step count activity profiles. Skyline: The Big Sky Undergraduate Journal, 4 (1).  
<https://scholarworks.montana.edu/xmlui/handle/1/14924>

Paper received a 2016 Skyline Journal Publication Contest Award. Used hierarchical clustering and related techniques to distinguish patterns in daily step count profiles for Fitbit data

Meyer, E., Greenwood, M., & Tran, T. (2016). Daily Step Count Profile Data for 61 Days [dataset]. Montana State University ScholarWorks. <http://doi.org/10.15788/M2BC7C>.

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AWARDS

**Teaching Excellence at Montana State University**

2022

Competitive award given to one graduating student per department. This award honors students who have made a high impact on undergraduates' lives by helping them grow in knowledge, skill, and confidence.

[https://www.montana.edu/gradschool/excellence\\_awards.html](https://www.montana.edu/gradschool/excellence_awards.html)

**Dr. Gary G. Sackett Awards, Montana State University Department of Mathematical Sciences** 2019 & 2021  
Competitive award to financially support graduate student while conducting research **Outstanding**

**Graduate Teaching Assistant Award, Montana State University College of Letters and Science** 2020  
Competitive award issued annually to two graduate teaching assistants within the Montana State University College of Letters and Sciences.

<http://www.montana.edu/lettersandscience/awards/awardmeyer.html>

**Outstanding Graduate Student Award, Montana State University Department of Mathematical Sciences** 2019

Competitive award issued annually in recognition of academic excellence as a graduate student.

**Student Research Travel Grant Award** 2018

Competitive award issued to undergraduate and graduate students to present original research, papers, or posters at professional and academic conferences.

**Outstanding Graduate Teaching Assistant Award, Montana State University Department of Mathematical Sciences** 2017

Competitive award issued annually to graduate student instructors in the Department of Mathematical Sciences in recognition for superior teaching achievement.

**Skyline Journal Publication Contest Award** 2016

Recognition of outstanding scholarship in undergraduate research.

**Member of Pi Mu Epsilon** 2016

Inducted into national mathematics society.

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#### PRESENTATIONS

\*Presenting authors

\*Meyer, E. S. Teaching Quarto in Introductory Data Science. Topic-Contributed Paper Session at Joint Statistical Meetings (JSM) titled Teaching (with) Quarto, August, 2023. With Çetinkaya-Rundel, M., Bodwin, K., Rundel, C., and Tackett, M.

Meyer, E. S. Students in Statistics Education. Session at Electronic Conference on Teaching Statistics, May 2022. With Legacy, C., Phadke, S., and Rao, V.

\*Meyer, E. S., Green, J. L., & Arnold, E. G. New perspectives on understanding graduate student instructors' longitudinal experiences with active learning. Refereed poster presentation at the United States Conference on Teaching Statistics (virtual), July, 2021.

\*Meyer, E. S., Green, J. L., & Arnold, E. G. A longitudinal study of GTAs' experiences with active learning. Refereed poster presentation at the United States Conference on Teaching Statistics, State College, PA, May, 2019.

\*Arnold, E. L., \*Meyer, E. S., & \*Green, J. L. Investigating future secondary mathematics teachers' development in statistics. Refereed virtual breakout session at United States Conference on Teaching Statistics, State College, PA, May, 2019.

\*Meyer, E. S., & Green, J. L. Statistics behind the skill: Cluster analysis and data visualization on disc golf data. Refereed presentation at The Cascadia Symposium on Statistics in Sports, Vancouver, BC, August, 2018.

\*Meyer, E. S., & Green, J. L. Statistics behind the skill: Cluster analysis and data visualization on disc golf data. Contributed poster presentation at the Joint Statistical Meetings, Vancouver, BC, July, 2018.

\*Meyer, E. S., Green, J. L., & Arnold, E. G. Graduate teaching assistants' evolving conceptualizations of active learning. Refereed poster presentation at the Electronic Conference on Teaching Statistics, May, 2018. <https://www.causeweb.org/cause/ecots/ecots18/posters/2-04>

\*Meyer, E. S., \*Arnold, E. G., & \*Green, J. L. Graduate teaching assistants' evolving conceptualizations of active learning. Refereed poster presentation at the Conference on Research in Undergraduate Mathematics Education, San Diego, CA, February, 2018.

\*Green, J. L., Arnold, E. G., & Meyer, E. S. Enhancing instruction: Preparing graduate teaching assistants for active learning. Contributed presentation at the Joint Statistical Meetings, Baltimore, MD, July, 2017.

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#### PROFESSIONAL DEVELOPMENT AND WORKSHOPS

**STEM Storytellers Fellowship**

September 2019 | May 2020

Engaged in a year-long National Science Foundation funded fellowship program to improve oral communication skills through improv techniques.

**Teaching Online Program**

September 2019 | December 2019

Completed optional course offered for faculty to support online teaching. Used information to develop the first online Intermediate Statistics course for Montana State University; learned and implemented best practices for teaching online.

**TECHNICAL SKILLS**

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Programming Languages: R, SAS  
Operating Systems: Mac OS, Windows

**SERVICE**

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**Presenting Research Results (Panelist)**

2019

Served on panel that answered graduate students' questions about giving oral presentations.

**Training Graduate Students in Statistics How to Teach Statistics, American Statistical Association**

2018

Helped construct a list of resources that describe programs, courses, and materials others can use to help prepare graduate students to teach statistics.