

Maria Tackett

Assistant Professor of the Practice

Duke University

✉ maria.tackett@duke.edu 🌐 maria-tackett.netlify.app

Education

Ph.D. in Statistics 2018
University of Virginia

M.S. in Statistics 2010
University of Tennessee-Knoxville

B.S. in Mathematics 2009
University of Tennessee-Knoxville

Academic Appointments

Assistant Professor of the Practice 2018 - present
Duke University, Department of Statistical Science

Teaching

Duke University

1. STA 199: Introduction to Data Science & Statistical Thinking Fall 2021, Fall 2020, Fall 2019, Spring 2019
2. STA 210: Regression Analysis Fall 2023, Fall 2022, Fall 2021, Spring 2021, Fall 2020, Spring 2020, Fall 2019, Spring 2019, Fall 2018
3. STA 221: Regression Analysis: Theory and Applications Fall 2024
4. STA 310: Generalized Linear Models Spring 2024, Spring 2022

University of Virginia

6. STAT 1100: An Introduction to Statistics Spring 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016, Fall 2015, Summer 2015
7. STAT 2120: Introduction to Statistical Analysis Summer 2017, Summer 2016

Virginia Commonwealth University

8. SLWK 609: Foundations of Research in Social Work Practice Spring 2017

University of Tennessee-Knoxville

9. STAT 201: Introduction to Statistics Fall 2010, Spring 2010

Workshops (Facilitator)

10. [Introduction to R](#). ASA/AMATYC Introduction to Data Science Technology Tools. Online. July 2024.
11. [Designing the Data Science Classroom](#). rstudio::conf(2022). National Harbor, MD. July 2022.
12. [STATPrep Workshop](#). Ft. Myers, FL. May 2022.
13. Introduction to R. ENAR Fostering Diversity in Biostatistics Workshop. Online. March 2022.
14. Strengthening Conceptual Understanding in Introductory Statistics: Incorporating active and inclusive teaching and learning strategies for in-person and virtual settings (6 session series). UT Austin Dana Center. June - July 2021.
15. Introduction to R. ENAR Fostering Diversity in Biostatistics Workshop. Online. March 2021.

Publications

Published and In Press: Peer Reviewed

Published

(* indicates undergraduate student)

1. **Tackett, M.** (2023). Three Principles for Modernizing an Undergraduate Regression Analysis Course. *Journal of Statistics and Data Science Education*, 31(2), 116-127. doi.org/10.1080/26939169.2023.2165989
2. Noll, J., **Tackett, M.** (2023). Insights from DataFest Point to New Opportunities for Undergraduate Statistics Courses: Team collaborations, Designing Research Questions, and Data Ethics. *Teaching Statistics*, 45(S1), S5-S21. doi.org/10.1111/test.12345
3. Easter, M., Schramm-Sapyta, N., **Tackett, M.**, Larsen, I.*, Tang, B., Ralph, M.*, Huynh, L.* (2023). Reliance on Community Emergency Departments by People Ever Detained in Jail: Retrospective Cross-Sectional Study. *Journal of Correctional Health Care*. doi.org/10.1089/jchc.22.02.0011
4. **Tackett, M.**, Viel, S., Manturuk, K. (2023). A validation of the short-form classroom community scale for undergraduate mathematics and statistics students. *Journal of University Teaching & Learning Practice*, 20(1). doi.org/10.53761/1.20.01.08
5. Schramm-Sapyta, N., Ralph, M.*, Huynh, L.*, Tang, B., **Tackett, M.**, Easter, M., Larsen, I.* (2023). Relationships between substance use disorders, 'severe mental illness' and re-arrest in a county detention facility: a 4-year follow-up cohort study. *Criminal Behaviour & Mental Health*, 33(3), 185-195. doi.org/10.1002/cbm.2277
6. Fannin, D., Elleby, J., **Tackett, M.**, Minga, J. (2023). Intersectionality of race and question asking in women after right hemisphere brain damage. *Journal of Speech, Language, and Hearing Research*, 66(1), 314-324. doi.org/10.1044/2022_JSLHR-22-00327
7. Beckman, M. D., Çetinkaya-Rundel, M., Horton, N. J., Rundel, C. W., Sullivan, A. J., **Tackett, M.** (2020). Implementing version control with Git and GitHub as a learning objective in statistics and data science courses. *Journal of Statistics Education*, 29(1), 132-144. doi.org/10.1080/10691898.2020.1848485
8. Dotson, M., Alvarez, V.*, **Tackett, M.**, Asturias, G., Leon, I., Ramanujam, M. (2020) Design Thinking-Based STEM Learning: Preliminary Results on Achieving Scale and Sustainability Through the IGNITE Model. *Frontiers in Education*, 5: 14-24. doi.org/10.3389/feduc.2020.00014

In Press

9. Easter, M., Schramm-Sapyta, N., Swartz, M., **Tackett, M.**, Greenblatt, L. Primary care need and engagement by people with criminal legal involvement: Descriptive and associational analysis using

retrospective data on the entire population ever detained in one southeastern U.S. county jail 2014-2020. *PLOS One*.

10. **Tackett, M.**, Roith, J. Teaching Probability and Probability Distributions. *STAT Prep MAA Notes*. Mathematical Association of America.
11. Viel, S., **Tackett, M.**, Das, S., Choo, J.* Classroom Community amid Covid-19: A Mixed-Methods Study of Undergraduate Students in Introductory Mathematics and Statistics. *Creating More Inclusive and Equitable Teaching and Learning: How Crises Can Transform the Higher Education Landscape*. Preprint available at <https://arxiv.org/abs/2206.00590>

Published: Other

12. **Tackett, M.**, & Çetinkaya-Rundel, M. (2023). Analyzing and Recreating Data Visualizations of W.E.B. Du Bois. *CHANCE*, 36(1), 40-47. doi.org/10.1080/09332480.2023.2179279
13. **Tackett, M.** (2022). My ASA Story: Maria Tackett. *Amstat News*, 20, 5.
14. **Tackett, M.**, Burbank, K., Canner, J., & Çetinkaya-Rundel, M. (2021). Teaching Courses Focused on Social Good. *CHANCE*, 34(3), 69-72. doi.org/10.1080/09332480.2021.1979821
15. **Tackett, M.** (2021, January 14). *A flipped classroom sparks online engagement*. Duke Covid Diaries Series.
16. **Tackett, M.**, & Çetinkaya-Rundel, M. (2020). COVID-19 Data in the Classroom. *CHANCE*, 33(3), 63-66. doi.org/10.1080/09332480.2020.1820257
17. **Tackett, M.** (2020, July 23). *Creating Interactive Web Apps for Statistics*. Duke Musings Blog.
18. Çetinkaya-Rundel, M., & **Tackett, M.** (2020). From drab to fab: Teaching visualization via incremental improvements. *CHANCE*, 33(2), 31-41. doi.org/10.1080/09332480.2020.1754074
19. Banks, D., **Tackett, M.** (2020). Bayesian Methods and Forensic Evidence. In Banks, D., Kafadar, K., Kaye, D., Tackett, M. (Eds.), *Handbook of Forensic Statistics* (pp. 73 - 90), Chapman & Hall.
20. Banks, D., Kafadar, K., Kaye, D., **Tackett, M.** (Eds.), *Handbook of Forensic Statistics*, Chapman & Hall.

In Review

(* indicates undergraduate student)

21. Rubin, N*, **Tackett, M.**, Çetinkaya-Rundel, M., Meyer, E. Evaluating Student Perceptions of Assessment in Introductory Quantitative Studies. Submitted to the *International Journal of STEM Education*.
22. Schramm-Sapyta, N., Larsen, I.*, Pandey, M.*, Feng, W.*, Tang, B., **Tackett, M.** Effect of Mental Illness, Substance Abuse and Cash Bail Reform on Rearrest for Low-Level Offenses. Submitted to *American Journal of Criminal Justice*.

In Revision

23. **Tackett, M.**, Cellini, B.*, Ralph, M.*, Huynh, L.*, Tang, B., Schramm-Sapyta, N.* A longitudinal study of healthcare utilization and recidivism in a large southern county. Submitted to *Criminal Justice and Behavior*.

In Preparation

24. **Tackett, M.** *Introduction to Regression Analysis: A Data Science Approach*. Expected 2026. (Under contract with Chapman and Hall/CRC Press).

Invited Talks

1. Tackett, M. *The data just got real: Preparing students to use statistics beyond the classroom*. Electronic Conference on Teaching Statistics (eCOTS). Online. June 2024. (Keynote).
2. Tackett, M. *More than methods: Preparing students for data-driven work outside the classroom*. CANSSI Applied Research Education seminar. Toronto, ON. April 2024.
3. Tackett, M. *Three principles for modernizing an undergraduate regression analysis course*. Teaching Statistics Section seminar. Royal Statistical Society. Online. February 2024.
4. Tackett, M. *Communication as a learning objective in an intermediate statistics course*. Teaching and Evaluating Data Communication At Scale. Institute for Mathematical and Statistical Innovation. Chicago, IL. January 2024.
5. Tackett, M. *Teaching intro data science*. Preparing to Teach Workshop. George Mason University. August 2022.
6. Tackett, M. *Knit, Commit, and Push: Teaching version control in undergraduate statistics courses*. Toronto Workshop on Reproducibility. Online. February 2022.
7. Tackett, M. *Mentoring Undergraduate Research: Creating productive experiences and sharing student work*. ASA Mentoring Undergraduate Research Panel. Online. February 2022.
8. Tackett, M. *Women in Industry and Academia*. FEMMES+ Hacks Conference. Online. October 2021. (Panelist)
9. Tackett, M. *What a tap class has taught me about teaching statistics*. USCOTS. Online. June 2021.
10. Tackett, M. *Building Websites in RStudio*. RLadies Baltimore. Online. April 2021.
11. Tackett, M. *Building Websites in RStudio*. RLadies Amherst. Online. March 2021.
12. Tackett, M. *Telling stories with data*. Abraham Lincoln High School. Online (Philadelphia, PA). January 2021.
13. Tackett, M. *Undergraduate research in statistics*. OURFA²M² Conference. Online. December 2020.
14. Tackett, M. *Thinking about lectures in an intro data science course*. Toronto Data Workshop. Online (University of Toronto Department of Statistical Sciences). December 2020.
15. Tackett, M. *Women in Statistics and Computing*. FEMMES Hacks Conference. Online. October 2020. (Panelist)
16. Tackett, M. *Opportunities in Statistics and Data Science: Lightning Talks (Academia, Government, & NonProfit)*. StatFest. Online. September 2020. (Panelist)
17. Tackett, M. *Who's Underrepresented? Modeling Undercounts in the U.S. Census*. Joint Statistical Meeting. Online. August 2020.
18. Tackett, M. *Making remote lectures active and inclusive in a large undergraduate course*. Teaching Statistics Teaching and Learning Statistics Online. Online (Royal Statistical Society Teaching Statistics Special Interest Group). July 2020.
19. Tackett, M. *You don't have to be an expert to create something meaningful*. rstudio::conf. San Francisco, CA. January 2020.
20. Tackett, M. *Reproducible Research - Education and Practice*. Duke Center for Data and Visualization Sciences. Durham, NC. November 2019. (Panelist)

21. Tackett, M. *My Journey in Statistics*. FEMMES Hacks Conference. Durham, NC. November 2019. (Keynote)
22. Tackett, M. *Statistics in Practice*. FOCUS Cluster Dinner Series at Duke University: What if? Explaining the Past/Predicting the Future. Durham, NC. November 2019.
23. Tackett, M. *Beyond the Buzzword: A Look at Data Science in Practice and How You Can Be a Part of It*. SAMSI Diversity in Data Science and Machine Learning Conference. Washington, DC. October 2019. (Plenary talk)
24. Tackett, M. *Women in Machine Learning and Data Science*. Duke Machine Learning Day. Durham, NC. March 2019. (Panelist)
25. Tackett, M. *Women in Industry*. Duke University Business Oriented Women Meeting. Durham, NC. September 2018. (Panelist)

Contributed Talks & Posters

1. *Teaching-Intensive Positions at R1 Universities in the US*. Joint Statistical Meeting. Portland, OR. August 2024.
2. Viel, S., Tackett, M. *Classroom Community in Introduction Undergraduate Mathematics and Statistics*. The Converging Challenges for Inclusive Education. Online. July 2024.
3. Tackett, M., *Using Quarto for Making and Organizing Teaching Materials*. Joint Statistical Meeting. Toronto, ON. August 2023.
4. Tackett, M., Viel, S. *Undergraduate Students' Sense of Community in Introductory Math and Statistics Courses*. eCOTS. Online. May 2022.
5. Tackett, M., Çetinkaya-Rundel, M., Presman, R. *Modernizing the undergraduate regression analysis course*. eCOTS. Online. May 2022.
6. Tackett, M., Viel, S. *Undergraduate Students' Sense of Community in Introductory Math and Statistics Courses*. Pandemic Pedagogy Research Symposium. Online. May 2022.
7. Tackett, M. *Version control as a learning objective in statistics and data science courses*. 63rd World Statistics Congress. Online. July 2021.
8. Horton, N., Tackett, M. *GitHub and intro stats: technology to support group and project-based learning*. USCOTS. Online. July 2021. (Poster)
9. Tackett, M., Li, S. Mokel, M., Tian, S. *Developing Interactive Statistics Apps: A look at the project and student experience*. USCOTS. Online. July 2021. (Poster)
10. Tackett, M. *You don't have to be an expert to create something meaningful*. Women in Statistics and Data Science Conference. Online. October 2020.
11. Tackett, M. *Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course*. Women in Statistics and Data Science Conference. Bellevue, WA. October 2019.
12. Tackett, M. *Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course*. Joint Statistical Meeting. Denver, CO. July 2019.
13. Tackett, M. *Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course*. United States Conference on Teaching Statistics. State College, PA. May 2019. (Poster)
14. *Teaching Large Classes in Statistics Using Active Learning Spaces*. Innovation in Pedagogy Summit. Charlottesville, VA. May 2016. (Panelist)

15. Tackett, M. *Clustering High-Dimensional Categorical Data Using a Bayesian Finite Mixture Model*. Quantitative Collaborative Fellows Poster Session. Charlottesville, VA. April 2017. (Poster)
16. Tackett, M. *Understanding Variability Between Groups of Sequences Using a Bayesian Object-Oriented Data Model*. Joint Statistical Meeting. Seattle, WA. August 2016.
17. Tackett, M. *Understanding Object-Oriented Data Using Optimal Matching*. Quantitative Collaborative Fellows Poster Session. Charlottesville, VA. April 2015. (Poster)

Honors & Awards

Bass Connections Leadership Award, 2024.

Mathematically Gifted and Black Circle of Excellence Honoree, 2020.

Grants & Fellowships

National Institutes of Health R25: Research Education Program. *Developing a Pathway for Preparing Underrepresented Minority Students for a Career in Otolaryngology and Communication Sciences*, 2024 - 2029, Role: Statistician, \$154,416.

Collaborative Project Courses Faculty Fellows, 2024 - 2025.

National Science Foundation ECR: Broadening Participation in STEM. *Achieving Critical Transformations in Undergraduate Programs in Mathematics (ACT UP MATH)*, 2022 - 2025, Role: Duke Co-PI, \$237,749 (to Duke).

Duke Trinity Research Enhancement Fund. *Toward a More Sustainable Culture of Undergraduate Research in Statistical Science*, 2022 - 2023, Role: PI, \$13,000.

Duke Learning Innovation's Carry the Innovation Forward. *Building Community and Self-Efficacy Through Inclusive Teaching Practices*, 2021 - 2023, Role: Co-PI, \$4,616.

Duke Trinity Research Enhancement Fund. *Toward a More Sustainable Culture of Undergraduate Research in Statistical Science*, 2021 - 2022, Role: PI, \$11,000.

Duke Bass Connections - Brain & Society. *Mental Health and the Justice System in Durham*, 2020 - 2024, Role: Co-PI, \$14,200 each academic year.

Duke Data+. *Mental Health and the Justice System in Durham*. 2020 - 2024, Role: Co-PI, \$17,500 each year.

Duke Trinity Research Enhancement Fund. *Toward a More Sustainable Culture of Undergraduate Research in Statistical Science*, 2020 - 2021, Role: PI, \$3,000.

Duke Learning Innovation Jump Start Grant, 2019, Role: PI.

National Science Foundation. *Collaborative Research: Accelerating the Pace of Research and Implementation of Writing-to-Learn Pedagogies Across STEM Disciplines*, 2018 - 2020, Role: Key Faculty.

Duke University Learning Innovation Active Learning Fellows, 2019 - 2020.

University of Virginia Course Design Institute Fellowship, 2016.

Service to Profession

Course design & Curriculum development

Guidelines for Assessment and Instruction in Statistics Education (GAISE) Revision Steering Committee, 2023 - present

- Revising guidelines for teaching undergraduate statistics and data science

- Revising learning objectives for introductory statistics
- Part of sub-team focused on learning objectives and course design for introductory data science
- Authoring revised report expected to release 2025

Bill & Melinda Gates Foundation High School Math Pathways Data Science Group Team, 2023 - 2024

- Developed course design principles for educators teaching high school data science
- Invited to join sub-team that developed learning objectives for high school data science

UT-Austin Dana Center Introductory Statistics Curriculum Authoring Group, 2021

- Authored 5 lessons for the Statistical Reasoning curriculum used by educators teaching undergraduate introductory statistics. Each lesson contained a preview assignment, in-class assignment with student and instructor guides, practice assignment, and co-requisite assignment.
- Invited to join sub-team that developed 3 projects for an introductory statistics course. Each project contained a student guide, instructor guide, and rubric.

UT-Austin Dana Center Introductory Statistics Curriculum Design Team, 2020

- Developed course design principles and learning objectives for introductory statistics courses

Howard Hughes Medical Institute Data Exploration Course Advisory Committee, 2020 - 2021

- Advised the development of data-driven high school biology lessons

Editorial service

Journal of Data Science Special Issue: Symposium on Data Science and Statistics, Associate Editor, 2022 & 2024

Journal of Statistics and Data Science Education, Associate Editor, 2020 - present

CHANCE Magazine Statistics Education Column: Taking a Chance in the Classroom, Editor, 2019 - present

Journal Reviews: *Journal of Statistics and Data Science Education*, *Technology Innovations in Statistics Education*, *Harvard Data Science Review*, *Criminology*, *Criminal Justice*, *Law & Society*

Book Reviews: Chapman & Hall

ASA and Statistics Education

Bill & Melinda Gates Foundation High School Math Pathways Advisory Group, 2023 - present

ASA/MAA Joint Committee on Undergraduate Statistics and Data Science Education, 2022 - present

Bill & Melinda Gates Foundation Statistics Courseware Advisory Group, 2022 - present

Symposium on Data Science and Statistics Program Committee, Short Course Chair, 2022 - 2023

Symposium on Data Science and Statistics Program Committee, Poster Chair, 2021 - 2022

CAUSE Undergraduate Statistics Project Competition Co-Chair, 2020 - 2023

ASA Section on Statistics and Data Science Education, Communications Officer, 2020 - 2022

ASA DataFest Steering Committee, 2019 - 2022

CAUSE Undergraduate Statistics Project Competition Judge, 2019

ASA Section on Bayesian Statistical Science Student Paper Competition Review Committee, 2019

University & departmental service

Service to Duke University

College Advisor, 2022 - present

Master in Interdisciplinary Data Science Faculty Search Committee, 2022

Library Council, 2021 - 2024

Women in Research House Course, Faculty Advisor, 2021

A.B. Duke Scholars Program Interviewer, 2021

Trinity Arts & Sciences Committee on Curriculum, 2019 - 2021

Master in Interdisciplinary Data Science Admissions Committee, 2020

Duke SPIRE Fellows Program Mentor, 2019 - present

Females Excelling More in Math, Engineering, & Science (FEMMES) Capstone, 2019

Service to Department of Statistical Science

Statistical Science Anti-Racism Committee, 2021 - 2022

ASA DataFest@Duke Lead Organizer, 2020 - 2021

ASA DataFest@Duke Organizing Committee, 2019 - present

Statistical Science Undergraduate Curriculum Committee, 2019 - present

Statistical Science Master's Student Advisor, 2019 - present

Statistical Science Committee on Departmental Code of Conduct, 2019

Statistical Science Master's Program Admissions Committee, 2019 & 2021

Statistical Science Undergraduate Major Advisor, 2018 - present

Duke Datathon Judge, 2018 & 2021

Advising

Mental Health and the Justice System in Durham County (Data+ & Bass Connections)

- Jacqueline Dinh, 2024 - present
- Christina Lee, 2024 - present
- Miranda Li, 2024 - present
- Irene Biju, 2023 - present
- Foxx Hart, 2023 - present
- Will Lieber, 2023 - present
- Jordan Hamelsky, 2022 - present
- Zoe Svec, 2022 - 2024
- Andrew Shi, 2022
- Maya Pandey, 2021 - 2024
- Brianna Cellini, 2021 - 2022
- William Feng, 2021 - 2023
- John Liakos, 2021
- Isabella Larson, 2020 - 2023
- Liz Huynh, 2020 - 2023
- Matthew Ralph, 2020 - 2022

Undergraduate thesis advisees

- Jordan Hamelsky, 2024 - 2025
- Shelby Tisdale, 2024 - 2025
- Naomi Rubin, 2022 - 2023

Undergraduate thesis committees

- Jerry Hou, 2024
- Benjamin Thorpe, 2024
- Malavi Ravindran, 2021
- Michael Model, 2020
- Daniel Levine, 2019
- Ben Feder, 2019
- Srini Sunil, 2019

Doctoral thesis committees

- Meng Xie, 2021

Independent study

- Nathan Yang, 2024
- Joe Choo, 2022
- Larry Chen, 2022
- Steven Herrera, 2020
- Caroline Levenson, 2019

Other supervised research

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| • Garrett Allen, 2022 | • Emmanuel Mokel, 2021 |
| • Martin Olarte, 2022 | • Shari Tian, 2021 |
| • Angela Kan, 2022 | • Joe Choo, 2020 |
| • Allison Li, 2022 | • Abbey List, 2020 |
| • Aarushi Verma, 2022 | • Glenn Morgenstern, 2020 |
| • Jenny Yang, 2022 | • Samantha Owusu-Antwi, 2020 |
| • Sean Li, 2021 | |

Professional Experience

Data Science Academy Mentor

2022

Posit

Led cohort of industry professionals through 10-session curriculum to learn R programming skills for data science

Senior Statistician

2013

Capital One, Richmond, VA

Developed the first generation of statistical models to perform deposit forecasts for Capital One Bank

Statistician

2011 - 2012

Capital One, Richmond, VA

Designed experiments for mail marketing campaigns in Capital One Bank

Professional Affiliations

Mathematical Association of America, 2022 - present

International Statistical Institute, 2022 - present

Caucus for Women in Statistics, 2021 - present

International Society for Bayesian Analysis, 2021 - present

RStudio Certified Instructor, 2020 - present

American Statistical Association, 2017 - present

National Math Alliance, 2019 - present

Center for Statistics and Applications in Forensic Evidence, 2017 - 2019