

Maria Tackett

Assistant Professor of the Practice

Duke University

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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 2024Spring 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

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

Publications: Peer Reviewed

(* 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., Ellebya, 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

Publications: Other

9. **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
10. **Tackett, M.** (2022). My ASA Story: Maria Tackett. *Amstat News*, 20, 5.

11. **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
12. **Tackett, M.** (2021, January 14). *A flipped classroom sparks online engagement*. Duke Covid Diaries Series.
13. **Tackett, M.**, & Çetinkaya-Rundel, M. (2020). COVID-19 Data in the Classroom. *CHANCE*, 33(3), 63-66. doi.org/10.1080/09332480.2020.1820257
14. **Tackett, M.** (2020, July 23). *Creating Interactive Web Apps for Statistics*. Duke Musings Blog.
15. 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
16. 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.
17. Banks, D., Kafadar, K., Kaye, D., **Tackett, M.** (Eds.), *Handbook of Forensic Statistics*, Chapman & Hall.

Publications: Forthcoming

(* indicates undergraduate student)

18. **Tackett, M.**, Roith, J. *Teaching Probability and Probability Distributions*.
19. 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*.

Publications: In Review

(* indicates undergraduate student)

20. 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*.
21. **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*.
22. 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. Submitted to *PLOS ONE*.

Publications: In Preparation

1. **Tackett, M.** *Introduction to Regression Analysis: A Data Science Approach*. Expected 2026. (Under contract with Chapman and Hall/CRC Press).
2. 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.

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. Viel, S., Tackett, M. *Classroom Community in Introduction Undergraduate Mathematics and Statistics*. The Converging Challenges for Inclusive Education. Online. July 2024.
2. Tackett, M., *Using Quarto for Making and Organizing Teaching Materials*. JSM. Toronto, ON. August 2023.
3. Tackett, M., Viel, S. *Undergraduate Students' Sense of Community in Introductory Math and Statistics Courses*. eCOTS. Online. May 2022.
4. Tackett, M., Çetinkaya-Rundel, M., Presman, R. *Modernizing the undergraduate regression analysis course*. eCOTS. Online. May 2022.
5. Tackett, M., Viel, S. *Undergraduate Students' Sense of Community in Introductory Math and Statistics Courses*. Pandemic Pedagogy Research Symposium. Online. May 2022.
6. Tackett, M. *Version control as a learning objective in statistics and data science courses*. 63rd World Statistics Congress. Online. July 2021.
7. Horton, N., Tackett, M. *GitHub and intro stats: technology to support group and project-based learning*. USCOTS. Online. July 2021. (Poster)
8. 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)
9. Tackett, M. *You don't have to be an expert to create something meaningful*. Women in Statistics and Data Science Conference. Online. October 2020.
10. 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.
11. Tackett, M. *Using GitHub and RStudio to Facilitate Authentic Learning Experiences in a Regression Analysis Course*. Joint Statistical Meeting. Denver, CO. July 2019.
12. 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)
13. Tackett, M. *Teaching Large Classes in Statistics Using Active Learning Spaces*. Innovation in Pedagogy Summit. Charlottesville, VA. May 2016. (Panelist)
14. Tackett, M. *Clustering High-Dimensional Categorical Data Using a Bayesian Finite Mixture Model*. Quantitative Collaborative Fellows Poster Session. Charlottesville, VA. April 2017. (Poster)
15. Tackett, M. *Understanding Variability Between Groups of Sequences Using a Bayesian Object-Oriented Data Model*. Joint Statistical Meeting. Seattle, WA. August 2016.
16. 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

Grants & Fellowships

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

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

Duke Learning Innovation's Carry the Innovation Forward Fund. *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, \$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, \$3,000.

Duke Learning Innovation Jump Start Grant, 2019.

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, \$1,000.

University of Virginia Course Design Institute Fellowship, 2016.

Service to Profession

Course design & Curriculum development

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

Invited to join small team to develop course design principles and learning objectives for high school data science courses

UT-Austin Dana Center Statistics Curriculum Authoring Group, 2021

Group of 20 authors writing lessons for an introductory statistics course.

Describe what is included in each lesson.

Invited to join 2-person team to develop projects and corresponding rubrics for introductory statistics.

Link to find the curriculum? Something about how widely it's used?

UT-Austin Dana Center Statistics Curriculum Advisory Group, 2020

Developed course design principles for introductory data courses (?) is this correct?

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

Editorial service

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

Served as the associate editor for X numbers.

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

Served as editor for X columns s

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

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

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

Part of small team revising the GAISE guidelines and report for expected release in 2025

Writing learning objectives for undergraduate introductory statistics courses

Part of subteam writing guidelines for undergraduate introductory data science

Part of team leading the writing for the revised report

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

Meets quarterly to provide feedback and advise on development of courseware for introductory statistics and chemistry courses

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

Symposium on Statistics & Data Science 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 & Department Service

College Advisor, 2022 - present

Pre-major advisor for X undergraduate students in Trinity college

Library Council, 2021 - present

Women in Research House Course, Faculty Advisor, 2021

A.B. Duke Scholars Program Interviewer, 2021

Statistical Science Anti-Racism Committee, 2021 - present

Trinity Arts & Sciences Committee on Curriculum, 2019 - 2021
 ASA DataFest@Duke Organizer, 2019 - 2022
 Master in Interdisciplinary Data Science Admissions Committee, 2020
 Statistical Science Undergraduate Curriculum Committee, 2019 - present
 Statistical Science Master's Student Advisor, 2019 - present
 Advisor for X Master's students
 Duke SPIRE Mentor, 2019 - present
 Statistical Science Undergraduate Major Advisor, 2018 - present
 Major advisor for X students in the statistical science major and IDMs
 Statistical Science Committee on Departmental Code of Conduct, 2019
 Females Excelling More in Math, Engineering, & Science (FEMMES) Capstone, 2019
 Statistical Science Master's Program Admissions Committee, 2019 & 2021
 Duke Datathon Judge, 2018 & 2021

Advising

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

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

Undergraduate thesis advisees

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

Undergraduate thesis committees

Benjamin Thorpe, 2024
 Malavi Ravindran, 2021
 Michael Model, 2020
 Daniel Levine, 2019
 Ben Feder, 2019
 Srinil 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

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

Sean Li, 2021

Samantha Owusu-Antwi, 2020

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