

# Mary M. Ryan

## Curriculum Vitae

Updated March 2022

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### Postdoctoral Associate

Department of Biostatistics | Yale University School of Public Health | New Haven, CT 06511

✉ [mary.ryan@yale.edu](mailto:mary.ryan@yale.edu) [maryryan.netlify.app](http://maryryan.netlify.app)

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## RESEARCH INTERESTS

Clinical trials, cluster randomized trials, group sequential design, epidemiology of Alzheimer's disease, Alzheimer's disease biomarker discovery

## EDUCATION

University of California, Irvine	Irvine, CA
Ph.D., Statistics	2021
<i>Dissertation: Robustness and Efficiency in Modern Biostatistical Studies</i>	
<i>Advisor: Daniel L. Gillen, Professor and Chair of Statistics</i>	
M.S., Statistics	2019
University of Missouri	Columbia, MO
B.A., Statistics	2016
<i>Minor, Mathematics</i>	
B.J., Journalism	2016

## ACADEMIC POSITIONS

Yale University	New Haven, CT
Postdoctoral Associate, Department of Biostatistics	2021 - present
University of California, Irvine	Irvine, CA
Graduate Research Assistant, Department of Statistics	2017 - 2021
University of Missouri	Columbia, MO
Undergraduate Research Assistant, Department of Statistics	2014 - 2016

## COLLABORATIVE RESEARCH AFFILIATIONS & APPOINTMENTS

Yale University	New Haven, CT
Yale Center for Analytical Sciences	2021 - present
University of California, Irvine	Irvine, CA
Gillen/Grill Alzheimer's Disease Research Lab	2017 - present
Data Management and Statistics Core, Alzheimer's Disease Research Center	2017 - 2021

## ACADEMIC AWARDS & HONORS

UC Irvine   Carl W. Cotman Predoctoral Scholar Award	2021
UC System Nominee to the 70 <sup>th</sup> Lindau Nobel Laureate Meeting	2020
UC Irvine   Division of Teaching Excellence & Innovation Summer Fellow	2020
UC Irvine   Public Impact Fellow	2019-2020
Honorable Mention: JSM Biopharmaceutical Section Contributed Presentation Award	2019
UC Irvine   MIND Aging Fellow	2017-2019
University of Missouri   University Honors	2016
University of Missouri   Excellence in Undergraduate Research	2015
University of Missouri   Albert Winemiller Scholar	2013-2016

## REFEREED JOURNAL PUBLICATIONS

1. **Ryan, M.M.**, Gillen, D.L. (2022) "Sequential Sampling in Prospective Observational Studies." *Annals of Applied Statistics*. (Accepted).
2. **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2021). "Reasons for Undergoing Amyloid Imaging Among Cognitively Unimpaired Older Adults with Elevated and Not Elevated Amyloid." *Annals of Clinical and Translational Neurology*. [doi.org/10.1002/acn3.51414](https://doi.org/10.1002/acn3.51414)
3. **Ryan, M.M.**, Cox, C.G., Witbracht, M., Hoang, D., Gillen, D.L., Grill, J.D. (2020). "Using Direct-to-Consumer Genetic Testing Results to Accelerate Alzheimer's Disease Clinical Trial Recruitment." *Alzheimer Disease & Associated Disorders*. [doi.org/10.1097/wad.0000000000000421](https://doi.org/10.1097/wad.0000000000000421)
4. Cox, C.G., **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2020). "Is reluctance to share Alzheimer's disease biomarker status with a study partner a barrier to preclinical trial recruitment?" *The Journal of Prevention of Alzheimer's Disease*. [dx.doi.org/10.14283/jpad.2020.36](https://dx.doi.org/10.14283/jpad.2020.36)
5. **Ryan, M.M.**, Spotnitz, W.D., Gillen, D.L. (2020). "Variance estimation for the Kappa statistic in the presence of clustered data and heterogeneous observations." *Statistics in Medicine*. [doi.org/10.1002/sim.8522](https://doi.org/10.1002/sim.8522)
6. **Ryan, M.M.**, Grill, J.D., Gillen, D.L. (2019). "Participant and Study Partner Prediction and Identification of Cognitive Impairment in Preclinical Alzheimer's Disease: Study Partner vs. Participant Accuracy." *Alzheimer's Research & Therapy*. [doi.org/10.1186/s13195-019-0539-3](https://doi.org/10.1186/s13195-019-0539-3)
7. Cox, C.G., **Ryan, M.M.**, Gillen, D.L., Grill, J.D. (2019). "A preliminary study of clinical trial enrollment decisions among people with Mild Cognitive Impairment and their study partners." *The American Journal of Geriatric Psychiatry*. [doi.org/10.1016/j.jagp.2018.10.016](https://doi.org/10.1016/j.jagp.2018.10.016)

## MANUSCRIPTS UNDER REVIEW/IN PROGRESS

8. **Ryan, M.M.**, Esserman, D., Li, F. "Maximin optimal cluster randomized designs for assessing treatment effect heterogeneity." (Submitted).
9. **Ryan, M.M.**, Gillen, D.L. "Sequential Sampling for Studies Utilizing the Kappa Statistic." (In Preparation).

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**SELECTED PRESENTATIONS, POSTERS, & SHORT COURSES****INVITED PRESENTATIONS**

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- ASQ Silicon Valley Section's Statistics & Reliability Discussion Group April 2021  
*Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*
- ASA BIOP Webinar January 2021  
*Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*
- Orange County Biostatistics Symposium November 2020  
*Variance Estimation for the Kappa Statistic in the Presence of Clustered Data and Heterogeneous Observations*

**CONTRIBUTED PRESENTATIONS**

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- Society for Clinical Trials (San Diego, CA) May 2022  
*Maximin Optimal Cluster Randomized Designs Accounting for Treatment Effect Heterogeneity*
- Joint Statistical Meetings (Denver, CO) July 2019  
*An Extension of Cohen's Kappa for Clustered Data and Group Sequential Testing*  
★ Received JSM Contributed Presentation Honorable Mention Award from ASA Biopharmaceutical Section
- Western North American Region Annual Meeting (Portland, OR) June 2019  
*An Investigation of the Kappa Statistic Under Clustered Data and Group Sequential Testing, with an Application to Surgical Rating*

**POSTERS**

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- Clinical Trials on Alzheimer's Disease November 2020  
*Perceptions of Amyloid Imaging Among Cognitively Normal Older Adults with Elevated and Not Elevated Amyloid*
- Clinical Trials on Alzheimer's Disease (San Diego, CA) December 2019  
*Using Direct-to-Consumer Genetic Testing Results in Alzheimer's Disease Clinical Trial Recruitment*
- Alzheimer's Association International Conference (Los Angeles, CA) July 2019  
*Participant and Study Partner Prediction and Identification of Cognitive Impairment in Preclinical Alzheimer's Disease: Study Partner vs. Participant Accuracy*
- REMIND Emerging Scientists Symposium (Irvine, CA) March 2018  
*Scientific Necessity of Study Partners in Preclinical Alzheimer's Disease Trials*

**SHORT COURSES & WORKSHOPS**

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- Computer-Assisted Reporting Conference (Newport Beach, CA) March 2019

*R: Models for Clustered and Correlated Data  
Building Graphics in R*

Computer-Assisted Reporting Conference (Chicago, IL)

March 2018

*R: Machine Learning and Data Models*

## TEACHING EXPERIENCE

University of California, Irvine

Irvine, CA

\*Instructor of Record, Basic Statistics

Summer 2020

Teaching Assistant, Introduction to Biological Statistics

Winter 2020

Teaching Assistant, Introduction to Probability & Statistics for Computer Science

Fall 2019

\*Instructor of Record, Introduction to Biological Statistics

Summer 2017

University of Missouri

Columbia, MO

Teaching Assistant, Advanced Data Journalism

Spring 2016

## ACADEMIC & UNIVERSITY SERVICE

Conferences

*Topic Contributed Session Chair, "New Models, Diagnostics and Considerations in Evaluating Intervention and Policy Effects" - Joint Statistical Meetings (Washington, D.C.)*

August 2022

University of California, Irvine

Irvine, CA

*Student Representative, Department of Statistics Seminar Committee*

2020 - 2021

- Help ensure departmental seminars have broad representation of speakers and topics
- Suggest speakers for departmental seminar
- Elicit graduate student input on seminar speakers and topics

*Department of Statistics Student Representative, DECADE*

2019-2021

- Collaborate with DECADE faculty mentors to plan and organize events, initiatives, and meetings at the department level that bring faculty and graduate students together
- Serve as a liaison between Department of Statistics, the Office of Inclusive Excellence and Graduate Division

*Co-Chair, REMIND*

2018-2021

- Collaborate with other co-chairs to plan and organize annual graduate student and post-doctoral research symposium on neurodegenerative disease research
- Plan, organize, and execute community outreach and education events on neurodegenerative diseases
- Co-design application process and assist in selection of high school applicants for annual summer mentorship and brain research program
- Mentor high school students navigating the transition from high school to college

*Orangizer, Department of Statistics NSF GRFP Application Repository* 2019-2021

- Coordinate with past and current UCI Department of Statistics graduate students to collect and redact previously submitted NSF GRFP application materials
- Collaborate with IT department to create password-protected website to host past NSF GRFP application materials

*Department of Statistics Student Representative* 2017-2018

- Serve as a liaison between graduate students and faculty members
- Organize student lunches and meetings with faculty job candidates and seminar speakers
- Elicit student feedback about faculty job candidates for search committee
- Plan and organize Department of Statistics prospective PhD student visit day

## COMMUNITY INVOLVEMENT & OUTREACH

Workshop Instructor, Pathways to Science Summer Scholars (New Haven, CT) July 2022

*STEM Meets Storytelling: Using Data Science to Tell Stories about Our Communities*

Guest Lecturer, Explore Science Seminar Series (New Haven, CT) March 2022

## PROFESSIONAL ORGANIZATIONS

American Statistical Association, Member 2018 - present

ISTAART, Alzheimer's Association, Member 2019 - present

Caucus for Women in Statistics, Member 2020 - present

ENAR, Member 2021 - present

WNAR, Member 2019 - 2021

## STATISTICAL & PROGRAMMING LANGUAGES

R

Python

SAS

SQL

HTML/CSS

