

Message from the Chair: Dawn T. Robinson



From the Chair's Desk

Hello and happy spring. The academic year is cruising along, and days are getting longer! Meanwhile,

Mathematical Sociology Section

members have been hard at work producing new scholarship, organizing events, deliberating about section awards, and innovating new ways for us to connect to each other and to constituencies outside our traditional spheres.

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A Message from the Chair Cont.

Dawn T. Robinson

Our primary mode of communication as a section has changed this year with the introduction of ASA Connect. There is no longer a section announcement listserv, and I don't have the capabilities to send traditional, newsy emails. On the upside, ASA Connect gives all section members greater control over how and when they receive section related communication. More importantly, it gives all section members the ability to post directly to our ASA Connect page. Please take some time to adjust your communication settings to match your preferred rate of engagement. And please feel free to post announcements, calls for papers, job ads, or intellectual queries on ASA Connect. Meanwhile, my deepest thanks to Diego Leal and Jorge Zazueta for putting together this newsletter to update you about section happenings.

The nominations committee got to work early this fall and put together an outstanding slate of candidates for this year's election. Please be sure to keep your membership up to date in order to be able to vote in the ASA election in April-May. Thanks to Lynn Smith-Lovin (chair), Neha Gondal, Laura K. Nelson, Tim Liao, and Christopher Marcum for their work putting together such a fabulous slate, and thanks to the candidates for being willing to stand. See the full slate elsewhere on these pages.

In addition to our standing nominations and awards committees, this year section council renewed the DEI committee and created two new ad hoc committees – a Membership Affairs committee and an External Affairs committee. The Membership Affairs committee is being chaired by section chair-elect Noah Mark, and the primary focus this year is on developing a new mentoring program for the section. The External Affairs committee is being chaired by Elisa Bienenstock, and she is developing some innovative ideas about how to keep our section connected to trained mathematical sociologists who are employed outside of academia, non-sociologists who are doing scholarly work within our domain, and potential consumers of our mathematical sociological expertise. Be on the lookout for some more information about both of these committees' activities later this spring.

Three of the awards committees – the Tootell Dissertation-in-Progress Award, the Graduate Student Paper Award, and the Award for Progress in Mathematical Sociology– have announced deadline extensions deadlines. Look in this newsletter for details and consider nominating yourself or someone else. Thanks to all of the members of our five hardworking awards committees for their work this year.

Plans are well underway for a lively and productive set of meetings in Philadelphia this August. Thanks to the efforts of Past-Chair Lynn Smith-Lovin in bringing our membership up above 300 and cultivating a large number of multiyear session cosponsoring agreements, there will be six Mathematical Sociology Section sessions on the program this year! One session will feature Guillermina Jasso delivering the James. S. Coleman Address. The remaining five will be co-sponsored open-submission paper sessions(1) Computational Sociology, organized by Mario D. Molina and co-sponsored with Methodology, (2) Modeling Cultures, organized by Juan Pablo Pardo-Guerra and Ronald L. Breiger and co-sponsored with Culture, (3) Mathematical and Computational Analyses of Inequality and Mobility, organized by Tim Liao and co-sponsored with Poverty, Inequality, and Mobility, (4) Mathematical and Computational Approaches to Agency and Social Networks, organized by Tony Paik and cosponsored with Rationality and Society, and (5) Mathematical and Computational Models and Methods in Social Psychology, organized by Bryan Cannon and cosponsored with Social Psychology.

The intellectual stimulation won't stop there. As we did last year, we will partner with six other sections (this year: Methodology, Altruism, Morality, & Social Solidarity, Sociology of Emotions, Rationality & Society, Social Psychology, and Evolution, Biology & Society) to host a reception to write home about on Saturday, August 19th at Tír na nÓg <https://tirnanogphilly.com/> at 1600 Arch St., about two blocks from the convention center. There will be complimentary drink tickets and plenty of Irish pub food to fuel your new intellectual inspirations as we hob knob with our fellow familiars and meet new scholars.

I look forward to seeing you all in Philly!

Dawn T. Robinson

Mathematical Sociology Awards - Three Deadlines Extended Until March 15th, 2023

1. Award for Progress in Mathematical Sociology

Chair: Jennie E. Brand, UCLA.

This award is given annually for a discovery, technical innovation, or invention representing a significant contribution to progress in mathematical sociology. The contribution may have been made at any time prior to the award year. While this contribution will ordinarily be described in one or more publications, this award recognizes the intellectual contribution itself and not any publication arising from it. Up to three individuals may share a given award, provided that all meet the selection criteria. The committee will generate nominations and also encourages nominations from section members. Nominators and nominees must be members of the Mathematical Sociology Section. Self-nominations are welcome. Please submit nomination letters to Jennie E. Brand, Chair (brand@Soc.ucla.edu) by March 15, 2023

2. Outstanding Graduate Student Paper Award in Mathematical Sociology

Chair: Weihua An, Emory University.

This award is given annually for a paper that makes a significant contribution to mathematical sociology. Papers can be published or unpublished. The submission can consist of a dissertation chapter but not the entire dissertation. Eligible papers must have been written while the corresponding or first author was still a graduate student and during the three years before the award year, that is, in 2020-2023. Multiple-author papers are admissible, provided that the corresponding or first author meets the eligibility requirements and no non-student is co-first author. In the case of multi-authored papers with non-student authors, a letter from the most senior non-student author is required, which describes the student(s) contributions. Nominators and nominees must be members of the Mathematical Sociology Section at the time the nomination is submitted. Self-nominations are encouraged. On multiple-author papers including non-student authors who are Section members, the award is shared by the eligible student authors. Please email (1) a copy of the paper, (2) a brief nomination letter describing the reasons for the nomination, and if relevant, (3) a co-authorship letter to Weihua An, Chair (weihua.an@emory.edu) by March 15, 2023. Faculty co-authorship letters may be sent separately in case of self-nomination; in that case, please indicate the name of the co-authorship letter writer in the nomination letter.

3. Geoffrey Tootell Mathematical Sociology Outstanding Dissertation-in-Progress Award

Chair: Cassie McMillan, Northeastern University.

This award, given annually, provides a grant of \$5,000 to meet some of the scholarly expenses of a student whose dissertation employs mathematics in an interesting, imaginative, or ingenious way to advance sociological knowledge. The applicant should submit a copy of the approved dissertation proposal, with a list of any requirements added by the graduate committee. The application packet should also include a letter of support from the student's sponsor, which describes the student's qualifications for completing the work and the potential importance of the project. Applicants must be members of the Mathematical Sociology section and must agree to remain members through the period to be covered by the grant. Please send a copy of the dissertation proposal and an application letter to Cassie McMillan, Chair (c.mcmillan@northeastern.edu), by March 15, 2023. (Letters of support may be sent separately in cases of self-nomination; please indicate the name of the letter writer in the application letter.)

2023 Election Slate for MathSoc Section Offices

CHAIR-ELECT

Diane H. Felmlee, Pennsylvania State University

Omar Lizardo, University of California Los Angeles

COUNCIL

Charles J. Gomez, University of Arizona

Laura K. Nelson, University of British Columbia

Hana Shepherd, Rutgers University

Xi Song, University of Pennsylvania

STUDENT MEMBER OF COUNCIL

Maurice Bokanga, University of Chicago

Loring Thomas, University of California Irvine

2023 ASA Annual Meeting – Philadelphia

1. Section on Mathematical Sociology Business Meeting

Session Organizer and Chair: Dawn T. Robinson, University of Georgia.

2. Coleman Award Session

Presenter: Guillermina Jasso. **President:** Dawn T. Robinson.

3. Computational Sociology: Methods and Applications: Co-sponsored with Methodology Section

Session Organizer and President: Mario D. Molina, New York University Abu Dhabi.

This joint session of the Methodology and Mathematical Sociology Sections covers new work that develops new computational methods and/or applies computational methods to novel sources of data. Different techniques may include using computational approaches for causal inference (e.g., regression trees), measurement (e.g., natural language processing), discovery, and dimension reduction (e.g., clustering), as well as other relevant approaches. Different data sources may involve administrative records, historical archives, text and image data, social media, network data, and data that link traditional social surveys with emerging 'Big Data' in social sciences.

4. Modeling Cultures:

Co-sponsored with the Sociology of Culture Section

Session Organizers: Juan Pablo Pardo-Guerra, University of California – San Diego.
Ronald L. Breiger, University of Arizona.

There has been increased interest and excitement recently in identifying and using mathematical models and other formal concepts and approaches in the study of cultures and cultural practices. At the same time, there has been increasing interest among sociologists of science and knowledge in studying modeling itself as a cultural practice. This session is open to papers that develop and apply mathematical models to questions including (but not limited to) how cultures evolve, polarize, and transform social relations and how formal cultural analysis can be integrated across scales; the session is also open to papers that ask about meaningful practices among researchers and others who develop and use models, that investigate how models are interpreted, how models are different from each other and related tools, and how they do or do not travel across cultures.

5. Mathematical and Computational Analyses of Inequality and Mobility:
Co-sponsored with the Poverty, Inequality, and Mobility Section

Session Organizer: Tim Futing Liao, Stony Brook University.

The session aims to bring together a set of high-quality papers on facets of inequality in society and/or on intergenerational or intragenerational social mobility in any domain by using mathematical models or computational methods. As such, we envision a session with papers engaging the foci of both sections and can have either a methodological or a substantive objective.

6. Mathematical and Computational Approaches to Agency and Social Networks:
Co-sponsored with the Rationality & Society Section

Session Organizer and President: Anthony Paik, University of Massachusetts

This session will examine the interplay between agency and social networks through mathematical concepts or computational techniques. With varying levels of agency, actors strategically form social networks or find themselves embedded within them. Social networks, conversely, shape behavior through the former's structure, culture, and the characteristics of the network actors. Moreover, action and networks can co-evolve. This session will feature papers that either make novel mathematical or computational extensions or identify key empirical findings using an existing model.

7. Mathematical and Computational Models and Methods in Social Psychology:
Co-sponsored with the Social Psychology Section

Session Organizer: Bryan Christopher Cannon, Franklin, and Marshall College.

This session will build on the longstanding connections between mathematical sociology and social psychology and explore new opportunities for further development. We invite papers that advance, extend, test, or build on existing computational and mathematically formalized theoretical models in social psychology (or introduce new models or extensions); employ mathematical and computational models and methods (including but not limited to network analysis, agent-based models, text analysis, machine learning, and mathematical modeling) to explore social psychological questions and/or theory in innovative ways; work employing unique sources of data/complex data and computational methods to explore social psychological questions and/or theory; and work that demonstrates how social psychological theory and insights may be utilized by the broader population of mathematical and computational sociologists across the discipline.

Profile: MathSoc Graduate Student Representative

I am a mathematical sociologist through and through. As an undergraduate, I double majored in physics and sociology. My love for math is only matched by my urge to understand the causal mechanisms that underpin social problems. As a Ph.D. candidate at Emory University (currently in my third year), my research primarily focuses on using differential calculus to extrapolate the total effect of any given pathway when conducting path analysis and extending this method to Structural Equation Modeling (SEM) in general. My research goal is to use mathematical tools and techniques commonly found in physics to further our understanding of causal structures in the social sciences

My most recent article focuses on causality in network analysis. Published in the *Annual Review of Sociology*, my co-authors and I reviewed popular models and methods for causal network analysis, with a focus on causal inference threats (such as measurement error, missing data, network endogeneity, contextual confounding, simultaneity, and collinearity) and potential solutions (such as instrumental variables, specialized experiments, and leveraging longitudinal data). We covered major models and methods for both network formation and network effects and for both socio-centric networks and egocentric networks. Moreover, we discussed future directions for causal network analysis.

Currently, I am working on the second part of a three-part dissertation. The first part introduces a novel method for conducting path analysis using differential calculus in the social sciences. This method fundamentally differs from the current approach in two ways. First, it does not assume the functional form of the structural equation associated with a given path diagram (referred to as DAGs in the health sciences). The relaxing of this assumption allows for non-linear causal structures to be analyzed. Second, this method does not assume that the total effect is the sum of the direct and indirect effects, as the constituents of the total effect are necessarily unknown. Additionally, I applied this method to an extended version of The Wisconsin Model of Status Attainment.

Thus, the first part serves as an introduction and subsequent application of the method. The second part delineates the methodology behind the method introduced in part one by explicitly comparing and contrasting the mathematics of differential calculus vs the covariance algebra that underpins contemporary path analysis. The third part of my dissertation will extend on the second part by including factor analysis in the formulation. Therefore, the goal of my dissertation is to develop a new formulation of SEM-based in calculus for the social sciences.

When I am not doing research or taking classes, I love traveling across the country and competing against professional, amateur, and collegiate sprinters in the 100m dash at university and local track meets. During the week, I enjoy preparing for these bi-weekly races by lifting heavy weights at high speeds twice a week, sprinting three times a week, doing plyometrics once a week, stretching every night, and ensuring my nutrition is on point at least most of time as I love snacks. My personal goal is to break 10 seconds in the 100m dash. However, I will settle for the fun will have on this journey.

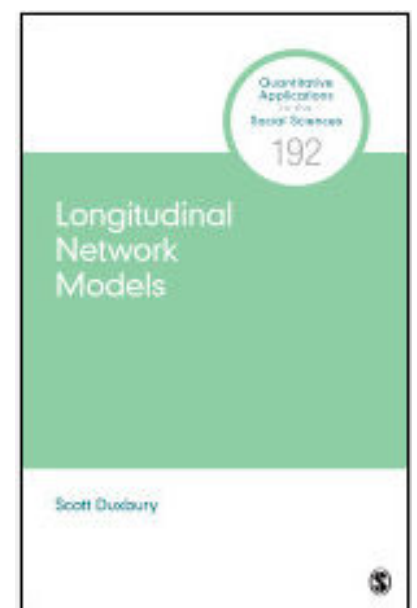
Roberson Beauville, Emory University

Work by Members of Our Community

BOOKS

Duxbury, Scott W. 2022. Longitudinal Network Models. *SAGE: Quantitative Applications in the Social Sciences* [[Link](#)]

Description: Although longitudinal social network data are increasingly collected, there are few guides on how to navigate the range of available tools for longitudinal network analysis. The applied social scientist is left to wonder: Which model is most appropriate for my data? How should I get started with this modeling strategy? And how do I know if my model is any good? This book answers these questions. Author Scott Duxbury assumes that the reader is familiar with network measurement, description, and notation, and is versed in regression analysis but is likely unfamiliar with statistical network methods. The goal of the book is to guide readers towards choosing, applying, assessing, and interpreting a longitudinal network model, and each chapter is organized with a specific data structure or research question in mind. A companion website for the book [here](#) includes data and R code to replicate the examples in the book.



ARTICLES & BOOK CHAPTERS

Frank, Kenneth A., Qinyun Lin, Ran Xu, Spiro Maroulis, and Anna S. Mueller. 2022. "Quantifying the Robustness of Causal Inferences: Sensitivity Analysis for Pragmatic Social Science." *Social Science Research*: 102815. [[link](#)]

Jasso, Guillermina. 2022. "Notes on the History of Social Science Research: In Celebration of Its 50th Anniversary." *Social Science Research* 105: 102780. [[link](#)]

Jasso, Guillermina. 2022. "On the Essential Unity of Mathematics, Science, and Art: The Justice Evaluation." Pp. 57-84 in Nima Rezaei (ed.), *Transdisciplinarity. Integrated Science*, Vol 5. Cham, Switzerland: Springer [[link](#)]

Opportunities

1. Call For Nomination: Herriot Award 2023

Nominations are sought for the 2023 Roger Herriot Award for Innovation in Federal Statistics. The award is intended to reflect the characteristics that marked Roger Herriot's career, including:

- Dedication to the issues of measurement;
- Improvements in the efficiency of data collection programs; and
- Improvements and use of statistical data for policy analysis.

The award is not limited to senior members of an organization, nor is it to be considered a culmination of a long period of service. Individuals or teams at all levels within Federal statistical agencies, other government organizations, nonprofit organizations, the private sector, and the academic community may be nominated on the basis of their contributions.

Nominations for the 2023 award will be accepted until **April 14, 2023**. Nomination packages should contain the following:

- A nomination letter that includes references to specific examples of the nominee's contributions to innovation in Federal statistics. These contributions can be to methodology, procedure, organization, administration, or other areas of Federal statistics and need not have been made by or while a Federal employee.
- Up to three supporting letters that further demonstrate the nominee's contributions.
- A CV for the nominee with current contact information. For team nominations, the CVs of all team members should be included.

Nomination packages submitted for the first time in 2022 but not selected for the award may be considered again by request from the nominator.

Please see this website for more information on the award and where to send the nomination package:

<https://washstat.org/awards/herriot.html>

2. Online Workshop:

Scott Duxbury will be offering an online workshop (dates TBD) on "Mediation and Moderation Analysis in ERGM using ergMargins" through the International Network for Social Network Analysis Conference

Newsletter Co-Editors



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Mission Statement of the Mathematical Sociology Section

The purpose of the Mathematical Sociology Section of the American Sociological Association is to encourage, enhance and foster research, teaching, and other professional activities in mathematical sociology, for the development of sociology and the benefit of society, through organized meetings, conferences, newsletters, publications, awards and other means deemed appropriate by the Section Council. The Section seeks to promote communication, collaboration, and consultation among scholars in sociology in general, mathematical sociology, and allied scientific disciplines.