KAMAL CHAWLA

University of Delaware
College of Education and Human Development   Email: kamalc@udel.edu
Willard Hall Education Building
Newark, DE 19716

EDUCATION AND TRAINING

2020-current   PhD Student, Educational Statistics & Research Methods
                      University of Delaware, School of Education
                      Advisor: Dr. Christina Areizaga Barbieri

2016   M.Sc, Industrial Mathematics & Informatics
                      Indian Institute of Technology, Roorkee, India
                      Advisor: Dr. Ram Jiwari

2013   B.Sc (Hons), Mathematics
                      Sri Venkateswara College, University of Delhi

AWARDS

- **Center for Measurement Justice Travel Scholarship ($3000);** National Council on Measurement in Education (NCME) for 2023-24

- **Ascendium Practitioner Fellowship Award ($2000);** Society for Research on Educational Effectiveness (SREE) for 2022-23

- **SREE Researchers of Color (SROC) Travel-Award ($1000)**; Society for Research on Educational Effectiveness (SREE) for 2021-22

- **Summer Research Apprenticeship ($4000)**; School of Education, University of Delaware, Newark, DE, for 2021-22

- **Meritorious Student (₹1000);** Essay Writing Competition conducted by Students' Council, IIT Roorkee

- **First prize (₹2000);** Essay Writing Competition at the District Level conducted by Agra REDCO's campaign "**My Clean City**"

- **ALL INDIA RANK-206;** Joint Admission Test for M.Sc (JAM) conducted by IITs Joint Admission Board in 2014

- **ALL INDIA RANK-50;** University of Delhi Entrance Test for M.Sc in Mathematics in 2013

EXTERNAL METHODOLOGICAL TRAINING

- Machine Learning, Natural Language Processing, and their Application in Educational Assessment, The Twentieth Annual MARC Conference, University of Maryland, Instructor: Dr. Jiangang Hao (November 2022)

- Power Analysis for RCTs with Multiple Outcomes, Society for Research on Educational Effectiveness (SREE), Arlington, VA, Instructor: Dr. Luke Miratrix (September 2022)

- Introduction to Qualitative Meta-Synthesis Methods: Achieving STEM Equity and Inclusion through Syntheses, Virtual, AERA-ICPSR PEERS Data Hub, Instructors: Dr. Maria Ong, Dr. Nuria Jaumot, Dr. Lisette Torres-Gerald, Dr. Christina B. Silva (May 2021)

- Advance Meta-Analysis, Virtual, AERA-ICPSR PEERS Data Hub, Instructors: Dr. Terri Pigott, Dr. Ryan Williams, Dr. Tasha Beretvas, Dr. Wim Van Den Noortgate (April 2021)

- Modern Meta-Analysis Research, Virtual, AERA-ICPSR PEERS Data Hub, Instructors: Dr. Terri Pigott, Dr. Ryan Williams (February 2021)

- Linear Algebra and its Applications, Lady Sri Ram College, University of Delhi; **Program:** MATLAB, Instructor: Dr. Souman Chakrabarti (November 2012)

INTERNAL TEACHER TRAINING

- Welcome to An Integrated Approach to Designing College Courses, Graduate College Professional Development Team, University of Delaware, Instructor: Dr. Matthew Trevett-Smith (December 2022)

- Engaging the whole Self in Classroom, Graduate College Professional Development Team, University of Delaware, Instructor: Dr. Adam Foley (November 2022)

PUBLICATIONS (published or under review)

Barbieri, C.A., Booth, J.L. & **Chawla, K**. (in press). Let's be rational: Worked examples supplemented textbooks improve pre-algebra students' conceptual and fraction magnitude knowledge. *Educational Psychology.* https://doi.org/10.1080/01443410.2022.2144142

Chawla, K & Barbieri, C.A. (under revision) An international comparison of dimensional, contextual, and mathematical features and cognitive demands of High School Geometry texts.

Collier, Z., Kong, M., Soyoye, O., **Chawla, K**., Aviles, A., & Payne, Y. (under review). Deep Learning Imputation for Unbalanced and Incomplete Likert-Type Items

Barbieri, C.A., Miller-Cotto, D., Clerjuste, S., & **Chawla, K.** (under revision). A Meta-analysis of the worked examples effect on mathematics performance

PUBLICATIONS (in preparation)

Chawla, K., Kim, S., & Antal, J. (in prep). IRT Score Error Estimates in Item Modeling- Analytical and Bootstrapping Methods [working title]

Chawla, K., Soyoye, O., & Collier, Z. (in prep). Multiple Imputation with Artificial Intelligence: Missing Data in Propensity Score Analysis. In Yi, Y. *Neuromorphic Computing*. ISBN: 978-1-80356-144-8

Chawla, K. (in prep). [Review of the book *Longitudinal Structural Equation Modeling with Mplus: A Latent State-Trait Perspective,* by C. Geiser] Guilford Press. 332 pages. ISBN 9781462538782.

CONFERENCE PRESENTATIONS

Chawla, K. A mathematical approach to finding the IRT Score Error Estimates in Item Modeling. Submitted for presentation at the *2023 Modern Modelling Methods Conference, University of Connecticut*

Chawla, K., Kim, S., & Antal, J. (April 2023). IRT Score Error Estimates in Item Modeling- Analytical and Bootstrapping Methods. Accepted for the *2023 National Council on Measurement in Education Annual Meeting*

Collier, Z., **Chawla, K.,** & Soyoye, O. (April 2023). Multiple Imputation with Artificial Intelligence: Missing Data in Propensity Score Analysis. Accepted for the *2023 American Educational Research Association Annual Meeting*

Miller-Cotto, D, & Barbieri, C.A., Clerjuste, S., **Chawla, K.** (April 2023). A Meta-analysis of the worked example effect on mathematics performance. Accepted for the *2023 American Educational Research Association Annual Meeting*

Soyoye, O., **Chawla, K.,** & Collier, Z. (September 2022). Multiple Imputation with Artificial Intelligence: Missing Data in Propensity Score Analysis. *2022 Society for Research on Educational Effectiveness (SREE) Conference*

Clerjuste, S., **Chawla, K.,** Miller-Cotto, D, & Barbieri, C.A. (April 2022). A Meta-analysis of the worked example effect on mathematics performance. *Cognitive Development Society 2022 Biennial Meeting*

Chawla, K., Clerjuste, S., Miller-Cotto, D., Barbieri, C.A., McKinney, G., O'Neill, L., & O'Hara, E. (October 2021). A meta-analysis on the worked examples effect in mathematics. *2021 Society for Research on Educational Effectiveness (SREE) Conference*

DEPARTMENTAL TALKS

Chawla, K., McKinney, G., & Barbieri, C.A. (April 2022) Textbook analysis of high school geometry texts in the United States, Singapore, and India. *Steele Symposium 2022*, School of Education, University of Delaware

Chawla, K., Soyoye, O., & Collier, Z. (April 2022). *Multiple Imputation with Artificial Intelligence: Missing Data in Propensity Score Analysis.* Oral paper presentations presented at the *Steele Symposium 2022*, School of Education, University of Delaware.

Soyoye, O., **Chawla, K.,** Collier, Z. (March 2022). *Multiple Imputation with Artificial Intelligence: Missing Data in Propensity Score Analysis.* Lightning Talk presented at the University of Delaware's Delaware Day, virtual.

Chawla, K., Clerjuste, S., O'Hara, E., Phuc, L. H., Landy, J., Miller-Cotto, D., & Barbieri, C.A. (August 2021). The Effect of Worked Examples on Mathematics Performance: A Meta-Analytic Review. *SOURCE, 2021,* University of Delaware.

Chawla, K., Clerjuste, S., Barbieri, C.A., Miller-Cotto, D., McKinney, G., & O'Neil, L. (April 2021) A meta-analysis on the worked examples effect in mathematics. *Steele Symposium 2021,* School of Education, University of Delaware.

Clerjuste, S., **Chawla, K.,** Barbieri, C.A., Miller-Cotto, D., McKinney, G., & O'Neill, L. (March 2021) *Meta-analysis on the worked examples effect in mathematics.* Lightning Talk presented at the University of Delaware's Delaware Day, virtual.

RESEARCH EXPERIENCE

Jan '21 - current   Graduate Research Assistant, University of Delaware, PI: Dr. Christina Areizaga Barbieri
- Assistance in meta-analyses, supervising undergraduate research assistants, dissemination of research findings at conferences and in manuscripts, and research design for projects related to mathematics learning and instruction
- Conducted an independent study on Comparative Textbook Analysis

Jun '22 – Jul '22   Doctoral Psychometrics Internship, The College Board, PI: Dr. Sunny Kim
- Led the project named 'IRT Score Error Estimates in Item Modeling- Analytical and Bootstrapping Methods'
- Derived the mathematical equation for 2-PL IRT Ability estimate with variances in item parameters.

Jun '21 – Jul '21   Summer Research Apprenticeship, University of Delaware, PI: Dr. Lynsey Gibbons
- Assistance in annotated bibliography and developing research content for the project titled "Understanding How Elementary Teachers Take Up Discussion Practices to Promote Disciplinary Learning and Equity," funded by James S. McDonnel Foundation

Dec '15 – May '16   Master's Thesis, Indian Institute of Technology, Roorkee, India**,** PI: Dr. Ram Jiwari
- Performed Radial Based Differential Quadrature Method on Ordinary and Partial Differential Equations to solve various physical, mathematical, and scientific problems

Aug '15 - Nov '15   Research Assistant, Indian Institute of Technology, Roorkee, India, PI: Dr. Ram Jiwari
- Analyzed Differential Quadrature Method to solve ordinary differential equation

May '15 - July '15   Visiting Researcher, National Institute of Hydrology, India, PI: Dr. Rama Sharma
- Prepared a stage-discharge report of Dhond HO, a hydroelectric project in Maharashtra, India, using an Adaptive Neuro-Fuzzy Inference System (ANFIS)
- Compared the results of ANFIS with other statistical tools and concluded which tool is appropriate in finding out the results

INDUSTRY EXPERIENCE

Jun '22 – July '22   Psychometrician (Intern), The College Board, New York, US
May'18 – July' 20   Area Manager, Manya- The Princeton Review, Noida, India

TEACHING EXPERIENCE

Jan 2023 – May 2023   Teaching Assistant
                             Education Data Mining, University of Delaware
                             Instructor of Record: Dr. Zachary Collier

Dec 2021- Jan 2022   Co-course developer
                             Assistance in developing Introductory Statistics course
                             Instructor of Record: Dr. Christina A. Barbieri

Jun 2016-July 2020   Quantitative Aptitude Trainer
                             Manya-The Princeton Review, Noida, India

PROGRAMMING AND ANALYTICAL TOOLS

Programming and software: SPSS, R, SAS, MATLAB, HLM
Systematic Reviews: Abstrakr, Covidence

SERVICE

- Member of Student Life Committee, Graduate Student Government-University of Delaware for 2021-2023
- Senate member of Graduate Student Government-University of Delaware for 2021-22
- Assistance in reviewing AERA conference proposals

Professional Memberships

American Educational Research Association (AERA)
Society for Research on Educational Effectiveness (SREE)
National Council for Measurement in Education (NCME)