JOSHUA R. NUGENT

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Summary of research interests, core qualifications, and skills

Graduate student in Biostatistics focusing on research in causal inference, network analysis, cluster randomized trials, and machine learning. Before that, eight years as an innovative math teacher working with diverse high school students, committed to helping all students develop strong math, reasoning, problem solving, and communication skills, and connecting their experience with social justice work. Strong background in the social sciences. Excellent collaboration, conflict resolution, and communication skills.

Education

PhD*, Biostatistics, University of Massachusetts, 2018 - 2022* (*anticipated).

M.Ed. Secondary Mathematics Education, University of Massachusetts, 2014.

A.B. Urban Studies, Brown University, 2003.

Study abroad at the Universidad de las Américas, Puebla, Mexico, Spring 2002.

Research and Work Experience

Graduate Research Assistant, University of Massachusetts Amherst, Department of Biostatistics and Epidemiology, September 2018 - present

Research projects:

Causal effects of pre-exposure HIV prophylaxis using propensity score matching (paper in process)

Social network analysis applied to HIV prevention, treatment, and outcomes

Design of discrete choice experiments to maximize family planning service uptake

Bias in generalized linear mixed model fitting algorithms (paper submitted)

Type I error control in small sample cluster randomized trials (paper under review)

Assistance with development of **clusterPower** R package for sample size calculation under complex trial designs

Mathematics Teacher, Amherst Regional High School, September 2010 – June 2018

Taught students in all grades at the AP, honors, college prep, and developmental level. Updated curricula, planned and executed lessons, assessed student work, communicated with parents about student progress. Led on-site professional development courses for colleagues focused on differentiated instruction. Worked with the department head to lead the transition to a discovery-based core curriculum. Worked with the principal on assessment modernization initiatives. Contributed to the development of Advisory curriculum focused on issues of social justice and social-emotional learning. Developed and piloted new discovery-based Statistics II course. Advised the Women's Rights Club as they prepared the "Consent Week" peer education event. Coached the national championship-winning girls varsity Ultimate Frisbee team.

Ombuds Assistant, University of Massachusetts Amherst, September 2009 – August 2010

Fielded and investigated complaints from various members of the University community, resolved conflicts and mediated disputes between faculty and students, oversaw academic honesty and academic grievance hearings, referred students to appropriate campus resources, oversaw the implementation of a new web site, led on-campus outreach.

Director, Peace from A to Z After-School Program at P.S. 24, September 2006 – June 2008

Oversaw all facets of a 350-student, 45-staff member after-school program at a public elementary school in Brooklyn, NY. Hired and trained staff, oversaw curriculum development in the arts, conflict resolution, and social justice, generated reports and data for funding agencies, communicated with families and teachers regarding students' academic and social-emotional progress, coordinated closely with the school administration to set goals and resolve problems, arranged for continuing professional development for staff, assisted in writing grant applications, led budgeting process, kept program in compliance with local, state, and federal reporting requirements and regulations, successfully led program through severe financial crisis in my first months as director.

Research Interests

Causal inference, cluster randomized trials, network analysis

Publications Under Review

1. Nugent, J. and K. Kleinman (2019). *Type I error control for cluster randomized trials under varying small sample structures.*

Editorial Service

Referee for *The International Journal of Biostatistics* (1).

University Service

University of Massachusetts - Amherst, Department of Biostatistics and Epidemiology

Graduate Student Representative, Fall 2019 - Spring 2020

Served as liaison between graduate students and faculty. Helped troubleshoot student problems and make suggestions for programmatic improvement. Worked with faculty and students to improve recruitment of diverse incoming students.

Team Lead, COVID-19 Academic Health Departments Collaborative, Spring 2020

Organized a team of graduate student volunteers to provide support services to the Peabody (Massachusetts) Health Department (PHD) in the midst of the COVID-19 pandemic, including contact tracing, phone counseling, and data aggregation. Worked closely with the director of the PHD to assess needs, train volunteers, and adapt resources as needs changed.

University Teaching

University of Massachusetts - Amherst, School of Public Health and Health Sciences

Teaching assistant for Dr. Scott Chasan-Taber, Public Health 223: Introduction to Biostatistics, Fall 2018 - present.

Delivered one lecture a week, held office hours, and provided assessment and feedback. Worked to make the curriculum accessible to all students, regardless of the statistical sophistication they had upon entering the course.

Awards

University of Massachusetts - Amherst, School of Public Health and Health Sciences

Outstanding Graduate Student Teaching Award, 2020

Workshops and Presentations

Math Education in the Age of IMP, Amherst College, February 2017.

Interactive presentation on the philosophy of modern Standards-based secondary math curricula to pre-service teachers.

Improving Instruction at the University Level, University of Massachusetts, Spring 2020.

Series of interactive workshops on high-leverage changes faculty can make in their classroom routines to improve student learning in small-to-mid-size undergraduate and graduate-level classes.

Miscellaneous

Software Expertise: R (with ggplot for visualization)
Software Fluency: Python, SQL, Stan, SAS, Stata, Java
Language Proficiency: English, Spanish