



## NAGPS Pre-Conference Graduate Research Methods Forum

Thursday, November 2

Bird Library 114 (Peter Graham Scholarly Commons)

[REGISTER HERE](#) for all or part of the Forum

**8:15**            **light breakfast and welcome**

**8:30-9:30**      **Methods and Approaches in Environmental Science**

chair: TBD

*A Rapid Step-by-Step Approach to Quantifying Long-Term Effects of Dams on Downstream River Peak Flow*

Ge Pu, SUNY-ESF

The environmental impacts of dams are numerous across the globe, with many having direct impacts to the biological, chemical and physical properties of rivers and riparian environments. Dams can often dramatically alter natural flood regimes, which then reduce or even eliminate many important functions of natural flood events. To assess the degree and extent of alteration of stream flow by dams is an important research question that has bearing on a range of environmental and water management issues. This project aims to produce and implement a simple step-by-step approach to quantify long-term effects of dams on downstream river peak flow. It utilizes statistical methods and provides detailed example codes in R. Overall, with our developed approach, anyone with sufficient streamflow data can now quantify the magnitude of hydrologic alterations by any dams around the globe.

*Hydrology and Biogeochemistry at the Aquatic-Terrestrial Interface:  
Quantifying Groundwater–Surface Water Interactions*

Molly Welsh, SUNY-ESF

Stream restoration is undertaken along agricultural waterways to reduce erosion and improve water quality. Restoration typically involves re-vegetating stream banks and installing rock structures in the channel. However, the effectiveness of different restoration approaches in improving ecosystem function—e.g., increasing pollutant (nitrogen and phosphorus) removal capability—is understudied. It is necessary to investigate how changes in hydrology (stream discharge, groundwater table flux, soil moisture) following restoration influence removal or release of pollutants. Therefore, this research uses a network of moisture sensors, water level loggers, wells, and chambers to investigate water movement and to quantify tradeoffs in water quality (nitrogen and phosphorus) and greenhouse gas emissions across the stream–land interface. I will also consider social science perspectives to provide a framework for enhancing restoration effectiveness.

*Disproportionality and Industrial Pollution: Linking EPA Toxics Release Inventory Data with Other Public and Private Data Sets*

Dustin Hill, SUNY-ESF

The U.S. collects pollution data each year through the federal EPA program known as the Toxics Release Inventory. This provides a wealth of data which is the foundation for current research on pollution over time and variance in facility performance. In addition, this data, when merged with economic statistics, can provide an avenue for answering many research questions, including why some facilities in the U.S. emit higher amounts of hazardous emissions than other facilities. Various economic indicators such as changes in employment patterns are tested to see what impacts pollution output. Using a disproportionality framework focusing on a minority of bad actors, this research can inform regulatory practice and be applied to economic and social theory regarding how the actions of a few can define trends in pollution over time.

**9:45-10:30 Research Skills session 1**

*Systematic Reviews: What Are They and Why Should I Care?*

Anita Kuiken and Emily Hart, Syracuse University Libraries

Systematic Reviews are a type of research methodology that use evidence from the literature to establish the best intervention for a desired outcome. Unlike other research methodologies, however, Systematic Reviews follow an established research protocol, are team-based in approach, utilize pre-determined criteria aimed at being comprehensive in nature, and account for bias. In this session, researchers will understand the strengths of systematic reviews, how they are developed, and why they are important to the information landscape.

**10:45-11:45 Critical Perspectives on Research Practice**

chair: Bonnie Ryan, Syracuse University Libraries

*New Standards for Developing Psychological Measures: What's Different?*

Damon Chambers and Johnny Reyes de la Cruz, Western Michigan University

The Standards for Educational and Psychological Testing are the definitive technical, professional and operational standards for all forms of assessment that are professionally developed and used in a variety of setting. The presenters will highlight the background on the standards and revision process. A comparison of the 1999 versus the 2014 standards will be provided, especially looking at validity, reliability/precision, design and development, and fairness. We will give examples of a validity evidence framework based on the standards, and offer some practical recommendations.

*Reflections on Conducting International Interdisciplinary Research*

Melinda Gurr, Syracuse University

There has been an embrace of interdisciplinarity and international research collaborations within academia and among funding agencies. This raises a number of questions. How do these partnerships work in practice? What strategies potentially maximize return on research? In this presentation, I offer reflections on the strengths and difficulties involved in two distinct projects

I have been part of (in 2017, in Chile and Brazil), in terms of research design, data management, and analysis, with the hope of opening a productive dialogue about best research methods and practices.

*Reporting Missing Data in Journal Articles*

Damon Chambers and Johnny Reyes de la Cruz, Western Michigan University

The practice of reporting missing data in journal articles has not been consistent across disciplines. Missing data is neither acknowledged nor reported properly. The presenters will share a content analysis on missing data in a journal over the last 10 years. Presenters will discuss what has been the trend in handling missing data. A missing-data analysis will also be conducted using a data set in SAS. The analysis will be conducted to determine the characteristics of missingness and the nature of missingness (e.g., MNAR, MAR or MCAR). Once missingness is established, an imputation will be used to statistically combine the individual analyses and report on the aggregate findings.

**11:45-12:45 lunch and poster session**

Poster presentations include:

*RT-PCR Analysis of Colorectal and Cervical Tissues in Ex-Vivo Explant Model for Expression of Transporters and Metabolizing Enzymes*

Elizabeth Koo, University of Pittsburgh

Topical microbicides are a pre-exposure prophylaxis option against HIV-1 transmission. It has been shown that local drug concentration is associated with effective HIV inhibition, therefore increasing the amount of a drug in local tissues is desirable. An ex vivo explant tissue model is commonly used to screen potential microbicide drug candidates for their ability to inhibit HIV infection. However, it is currently unknown if this model mimics the in vivo impact of drug transporters and metabolizing enzymes on drug pharmacokinetics and hence bioactivity. RT-PCR analyses of cervical and colorectal tissues were performed in ex vivo explant model for transporters and enzymes. Transporters (CNT2, CNT3, ENT2, MCT1, MRP5, OATP-E) and enzymes (CYP3A5, CYP2E1, CYP2C18, CYP2B6) relevant for evaluation were chosen based upon published literature. Expression of several transporters and enzymes was confirmed.

*A Look at Demographic Factors that Impact One's View of News Media and the Economic and Political Outlook*

Peta Leitermann-Long, Syracuse University

The impression of news media on the construction of the political message is pertinent to the development of ideas about politics. Significant to this process is whether consumers are avid viewers or followers of certain content, and whether they are influenced by certain kinds of demographics which would imply access to content, as well as significance of the political/societal ideology one holds. My study seeks to understand, through statistical analysis, the relationship between key demographics (age, education, income, use of telecommunication devices, ethnicity, political affiliation and the potential for democratic participation) and prominent news stories.

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Ge Pu, SUNY-ESF

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*Among U.S. Adults, Veteran Status of Any Branch Affiliation Is Associated with Increased Incidence of Any/All Cancers*

Krystal Sarcone, Brown University

Participating in the United States military may increase the risk of developing cancer. Prior research on the link between military service and cancer has focused on specific exposures, branches, or assignments. Limited research exists on the overall association between service and cancer considering all branches of military and any/all solid-organ and skin cancers. Using data from the Behavioral Risk Factor Surveillance Survey (BRFSS) from 2013 (n = 491,773) a cross-sectional analysis was used to determine the association between veteran status (members of any branch of the U.S. armed forces) and a history of any/all cancers. Unadjusted rates of cancer diagnosis were higher among veterans (20%) compared to non-veterans/civilians (10%,  $P < 0.001$ ). In a multi-variable logistic regression model controlling for age, sex, ethnicity, smoking status, and access to a primary care doctor, veteran status was associated with 45% increased odds of a cancer diagnosis (OR 1.45, 95% CI 1.38, 1.52).

**12:45-1:30    Research Skills session 2**

*Cool New Tools: An Introduction to REDCap, DMPTool, and Open Science Framework*

Paul Bern, Syracuse University Libraries

Finding the right tools for your research needs can save countless hours over the course of a graduate program or thesis/dissertation project. But with new tools, products, and upgrades entering the fray on a seemingly daily basis, it can be hard for the already overworked grad student to stay on top of what's out there and evaluate their usefulness. In this session, Syracuse University Data Services Librarian Paul Bern will provide an overview of three powerful, free tools that can help grad students conduct their research and data analysis more effectively and efficiently: REDCap, a secure web application for building and managing online surveys and databases; DMPTool, which simplifies the task of making data management plans; and Open Science Framework, a tool for managing collaborative research projects.

**1:30-2:30      Spatial Analyses and Qualitative Data**

chair: Glenn Wright, Syracuse University Graduate School

*Marginalized Consumers: Exploring Disability, Body Image, and Clothing Consumption*

Krystal Sarcone, Brown University

The status quo of the fashion industry fails to offer access to comfortable, functional, and stylish clothing to people with disabilities (PWDs). Thus their basic practical and symbolic needs in apparel are not met, impacting their self-esteem, physical health, afforded opportunities and participation in society. Qualitative interviews were conducted (n = 20) to describe the lived experiences of how individuals with disabilities engage with clothing. Interviews were audio recorded, transcribed and then coded utilizing the theoretical framework of the International Classification of Functioning, Disability and Health (ICF), allowing for inductive and deductive analysis. Three major themes emerged: 1) participants express a desire for inclusive design to be integrated with current clothing brands and venues; 2) in addition to frustrations that directly relate to unique characteristics associated with their disability, participants also describe clothing frustrations that are similar to “able-bodied” individuals; 3) clothing is intimately connected with all three aspects of the ICF model.

*The Policy Cycle of Industrial Symbiosis: The Case of South Korea’s Eco-Industrial Park, 2005–2015*

Kyungsun Lee, SUNY-ESF

How can the theoretical idea of Eco-Industrial Parks be implemented in a practical way? This research uses Historical Event Analysis to answer this question. Inspired by process analysis, Historical Event Analysis focuses on quantitative indicators to map key processes of innovation over time, based on qualitative data. We use data gathered from secondary sources and field-based interviews. After conceptual coding with NVivo for Mac, we can map and visualize the process of diffusion and implementation of Eco-Industrial Parks in South Korea from 2005 to 2016, identifying key processes to foster or hamper the transition towards Eco-Industrial Parks.

*Spatial Correlation between Health Site Prevalence and Incidence of Malaria*

Krystal Sarcone, Brown University

Conventional techniques to combat malaria have notably improved over the past several decades, yet eradication will require novel approaches and new perspectives. Geographic Information Systems (GIS) and spatial analyses can provide that. Most malaria studies are based on environmental factors; few address the role of infrastructure design and the correlation with malarial health outcomes. My research looks at the dispersion of health sites (hospitals, clinics and dispensaries) relating to present-day incidence of *p. falciparum*, the most common and dangerous strain of malaria for humans. Accounting for environmental factors, clear terrestrial “hotspots” of high malaria incidence are revealed within southern Kigoma and western Shinyanga regions, correlating with notably low numbers or the absence of health sites of any type.