Department of Epidemiology and Biostatistics
2018 Summer Workshop Series Schedule and Descriptions

Monday, May 7 at 9 a.m. – 12 p.m. & 1 p.m. – 4 p.m.
Longitudinal data analyses (Latent Growth Modeling) (Part 1 & 2)

Workshop Description:

This one-day intensive workshop will focus on the practical application of structural equation modeling for analysis of longitudinal data with specific applications for health and social researchers. The morning session will cover the theory and practice of working with longitudinal data. The afternoon session will include hands-on applications of basic techniques for longitudinal data using Mplus software. Participants are expected to have knowledge of multiple linear regression models. Prior knowledge and experience with structural equation modeling techniques and Mplus software is beneficial, but not a requirement for this workshop. Registration fee includes bound copy of course notes and training dataset.

Presenter:
Dr. Piotr Wilk
Assistant Professor
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Cost: $90 (double session @ $39.82 + tx = $45/session)

Monday, May 7 at 5:30 p.m. – 7:30 p.m.
Understanding study design and data analyses for clinicians

Workshop Description:

This workshop will provide an overview of how to approach and understand medical literature. Intended for medical students or new clinical researchers, the workshop will cover key study designs and statistical analyses with a focus on interpretation and critical analysis of research findings. Study designs that will be featured include randomized controlled trials, retrospective and prospective cohort studies, cross-section studies, and systematic reviews. Statistical analyses that will be featured include the t-test, chi-square test, analysis of variance (ANOVA), and Kaplan-Meier estimator. The workshop will also emphasize how to efficiently search medical literature to find research on a particular patient population or clinical procedure.

Presenters:
Jacqueline Kueper and Jordan Edwards
PhD Candidates
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Cost: $39.82 + tx = $45

Tuesday, May 8 at 9 a.m. – 12 p.m. & 1 p.m. - 4 p.m.
Manipulating Data and Analytics Using SAS

Workshop Description:

This introduction to SAS University Edition hands-on workshop demonstrates the use of menu driven tasks and SAS code in SAS University Edition 4.3, used to perform common reporting and research tasks: querying, reporting, and analyzing data. Several statistical procedures will be used to analyze data and produce reports. SAS University Edition provides a SAS graphical point-and-click interface as well as code that helps you exploit the power of SAS and publish dynamic results in a Microsoft Windows client application. Demonstrations in the presentation will use research type data and tasks in illustrating the functionality of SAS University Edition.

In this course you will learn to access your data, combine tables, compute new variables, explore data with simple statistics and graphs, and perform sophisticated statistical analyses with SAS University Edition. This course does not teach statistical concepts, but teaches how to use these tools in SAS University Edition.

The afternoon will cover Global Academic Program resources, including paths to SAS Certification and other free learning resources for students who would like to extend their SAS learning experience beyond the classroom.
No programming experience or SAS knowledge is required. Having completed an undergraduate course in statistics covering p-values, hypothesis testing, analysis of variance and regression is helpful, but not required.

Presenter:
Andre de Waal, SAS Institute

Cost: $39.82 + tx = $45 (total for full day, only $45/2 sessions)

Wednesday, May 9 at 9 a.m. – 12 p.m.
Introduction to systematic review and meta-analyses

Workshop Description:

This workshop will highlight and describe the key activities of the systematic review process using hands-on learning sessions. Participants will learn how to develop a review question; conduct a comprehensive search and identify studies; assess study quality and risk of bias; abstract data; and interpret and present results. The workshop will also briefly introduce methods to quantitatively synthesize data (meta-analysis). No prior experience with systematic reviews is required. Having a systematic review question may be beneficial, but is not required for this workshop.

Presenter:
Karla Solo, MSc
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Cost: $39.82 + tx = $45

Wednesday, May 9 at 1 p.m. – 4 p.m.
Using Health Administrative Data for Research Purposes: Design Considerations and Common Pitfalls

Workshop Description:

This workshop will provide an introduction to the use of health administrative data for research purposes, including key design considerations, factors that impact data quality, and common sources of error in study design and interpretation. Students will participate in small group exercises throughout the workshop that will highlight challenges and common pitfalls when conducting a study using health administrative data. The content will primarily focus on the data holdings at the Institute for Clinical Evaluative Sciences, but will also be highly relevant for students using health administrative data from the Statistics Canada Research Data Centre (RDC) and the Canadian Institute for Health Information (CIHI).

Presenters:

Dr. Salimah Shariff
Adjunct Professor
Arthur Labatt Family School of Nursing
Western University
Staff Scientist
Institute for Clinical Evaluative Sciences

Dr. Kelly Anderson
Assistant Professor
Departments of Epidemiology & Biostatistics and Pyschiatry
Schulich School of Medicine & Dentistry
Western University
Adjunct Scientist
Institute for Clinical Evaluative Sciences

Cost: $39.82 + tx = $45

Friday, May 11 at 9 a.m. – 12 p.m.
Part 1: The reproducibility crisis in science: More than a p-value problem
Part 2: Applying propensity scores in SAS

Workshop Description:

Part 1:

It has become increasingly clear that results of scientific studies are at times difficult if not impossible to replicate. This reproducibility crisis raises important methodological and ethical questions for scientists and may have consequences for future funding of scientific research.

Learning Objectives:

- To recognize key challenges posed by the reproducibility crisis in science with a special focus on epidemiology
- To distinguish aspects of the reproducibility crisis posed by study design and those due to data analysis
- To propose practical solutions which may be used as part of dissertation research in particular

Pre-requisite: At least one course in statistics or biostatistics at the undergraduate level

Part 2:

Propensity scoring is a statistical method for controlling multiple confounders with a single score, developed with the intent of allowing observational studies to mimic (to an extent) the exchangeability of a randomized control trial. This workshop will provide a brief introduction to the potential outcomes framework and propensity score analysis, followed by an applied tutorial on estimating and applying propensity scores in practice. Using RAND Corporation's "TWANG" macro for SAS, participants will learn how to generate propensity scores by traditional logistic regression, as well as by an application of machine learning for propensity score analysis: Generalized Boosted Modeling. Following generation of propensity scores, participants will learn how to assess balance criteria, and apply the scores by inverse probability of treatment weighting to estimate the Average Treatment Effect for the sample (ATE) as well as the Average Treatment Effect among the Treated (ATT). Time allowing, other applications of propensity scores (matching, stratification, covariate adjustment) will be discussed. Prior knowledge of propensity score methods is recommended, but applied experience is not required.

Optional reading:

Introduction to propensity scores: Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. Multivariate Behavioral Research, 46(3), 399–424. https://doi.org/10.1080/00273171.2011.568786

Generalized Boosted Modeling for propensity score analysis: McCaffrey, D. F., Ridgeway, G., & Morral, A. R. (2004). Propensity Score Estimation With Boosted Regression for Evaluating Causal Effects in Observational Studies. Psychological Methods, 9(4), 403–425. https://doi.org/10.1037/1082-989X.9.4.403

Presenters:

Part 1:

Dr. Neil Klar
Associate Professor and Undergraduate Chair
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Part 2:

Siobhan Churchill
MSc Candidate
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Cost: $39.82 + tx = $45

Friday, May 11 at 1 p.m. – 4 p.m.
Introduction to analyzing and visualizing interactions in SAS

Workshop Description:

Statistical interactions occur when the effect of one variable on the outcome is dependent on another variable. Examining the interaction regression coefficient is not usually sufficient to understand, deconstruct, and fully interpret the interaction between variables. This workshop will provide an applied introduction to interpreting statistical interactions using SAS. We will focus on applying SAS procedures on real data to estimate, test, and graph the effects within an interaction. Using the PLM procedure in SAS, examples will focus on linear regressions with continuous-by-continuous, categorical-by-continuous, and categorical-by-categorical interactions. We will also briefly discuss interactions in logistic regressions and three-way interactions. Prior knowledge of SAS and linear regressions is an asset as these will not be focused during the workshop.

Presenter:

Klajdi Puka
PhD Candidate
Department of Epidemiology & Biostatistics
Schulich School of Medicine & Dentistry
Western University

Cost: $39.82 + tx = $45