

Strengthening Causal Inference in Behavioral Obesity Research

Mon 7/20/2015		
8:00 – 8:30	Registration	
8:30 - 9:00	Welcoming & Introductory remarks – Allison & Fontaine	
Module 1: Split Session – Introduction to Obesity OR Introduction to Basic Language, Terms, and Concepts in Statistics and Design.		
	<i>Intro to Obesity</i>	<i>Intro to Statistics & Design</i>
9:00 – 9:45	Intro to Terms and Measurement – W. T. Garvey	Intro to Statistical Inference (mainly frequentist, with a little Bayesian; covariate and propensity score adjustment, etc.) – David Redden
9:45-10:00	BREAK	
10:00 – 10:45	Intro to Energy Balance and Laws of Thermodynamics – Diana Thomas & Emily Dhurandhar	Quantifying Effect and Association Size – Christopher K Haddock
10:45 – 11:30	Some Key Answered and Unanswered Questions – Olivia Affuso	Study Designs and Causal Inference – Chanelle Howe
LUNCH		
Module 2: Conventional Observational Studies: Advantages, Limits, and Best Practices		
12:30 - 1:15	Advantages – Emily Levitan	
1:15 - 2:00	Limits I – Theory: Bias and Confounding - Dominik D. Alexander PhD, MSPH	
2:00 - 2:15	BREAK	
2:15 - 3:00	Limits II – Empirical: Evidence & Cases Studies of Confirmation and Non-Confirmation of Observational Study-Generated Hypotheses – Andrew Brown.	
3:00 - 4:00	Best Practices – Ethical Use , Hill's Guidelines, Negative Controls, Meta-Analysis, Public Data Availability, etc. – Douglas Weed	
4:00 - 5:00	Moderated Discussion and Wrap-up	
Tue 7/21/2015		
Module 3: Randomized Controlled Experiments – I		
9:00 – 10:00	Theory: Potential Outcomes	- Dylan Small
10:00 – 10:45	Methods for Randomization (including cluster randomization, stratified, choice of allocation ratios, adaptive, etc.)	- Scarlett L. Bellamy
10:45 -11:15	Choice of Control Condition based on Hypothesis and Anticipated Claims	- Kevin Fontaine
11:15 -11:30	BREAK	
11:30 – 12:00	Controlling for Expectancy and Non-Specific Effects	- Bret Rutherford
LUNCH		
Module 4: Randomized Controlled Experiments – II		
1:00 -1:45	Power & Sample Size Calculation	- David Todem
1:45 - 2:30	Practical Challenges: Measurement Error, Missing Data, Assumption Violations, etc.	- Diane J. Catellier
2:30 - 2:45	BREAK	
2:45 - 3:45	Ethical Issues in RCEs	- Jonathan Kimmelman
3:45 - 4:15	Procedural Elements: Trial Registration, Reporting Guidelines	- Evan Mayo-Wilson
4:15 – 4:45	Large Simple Trials & Cluster Randomized Trials	- J Michael Oakes PhD
4:45 - 5:30	Moderated Discussion and Wrap-up	
Wed 7/22/2015		
Module 5: Quasi Experiments		
9:00 - 9:15	Quasi-experiments – Their Importance in Evaluating Changes That Occur	- Brian Elbel
9:15 – 10:25	Design & Analysis	- William R. Shadish
10:25-10:40	BREAK	
10:40 – 11:15	Ethical Issues	- May Wang
11:15 -12:00	Real World Case Studies	- Brian Elbel
LUNCH		

Wed 7/22/2015		
Module 6: Natural Experiments		
1:00 -1:45	Theory & Concepts	- Kelli Komro
1:45 - 2:15	Packet Randomized Experiments	- David Allison & Greg Pavela
2:15 - 3:00	Analysis	- Dr Luke J. Keele
3:00 - 3:15	BREAK	
3:15 - 4:00	Practical and Ethical Issues in Accessing Natural Randomization	- Dr Luke J. Keele
4:00 - 4:45	Real World Case Studies	- Bisakha Sen
4:45 - 5:30	Moderated Discussion and Wrap-up	
Thu 7/23/2015		
Module 7: Genetically Informed Designs – Unmeasured Genotype Approaches		
9:00 – 9:30	Adoption as Pseudo-Random Assignment to Homes and a Special Case of Packet Randomization	- Kevin Fontaine & Greg Pavela
9:30 – 10:15	Co-Twin and Sibling Control Designs	- Matt McGue
10:15 -10:30	BREAK	
10:30 – 11:30	Structural Equation Modeling of Twin and Family Data to Assess Causal Effects.	- Michael C. Neale
11:30 – 12:00	Study of Behavioral Phenotypes of Obesity in Children: Ethical Considerations	- Tanja V. Kral
LUNCH		
Module 8: Genetically Informed Designs – Measured Genotype Approaches		
1:00-1:30	Linkage and TDT Methods: Special Cases of Packet Randomization and Utility in Testing Fetal Sire Effects	- David Allison
1:30-2:30	Mendelian Randomization	- James Dai
2:30-3:15	Methodological issues in Testing for Gene by Environment or Gene by Behavior Interaction	- Hemant Tiwari
3:15-3:30	BREAK	
3:30-4:15	Social, behavioral, and ethical issues	- Susan J. Persky
4:15-4:45	Real World Case Studies - Causal Inference and Counterfactuals in Obesity Research: Obesity and the Gut Microbiome.	- Andrew C Heath
4:45-5:30	Moderated Discussion and Wrap-up	
Fri 7/24/2015		
Module 9: Mediating and Moderating Variables		
9:00 – 09:45	Conceptual Models (the mediator moderator distinction, environmental, behavioral, psychological, physiological, and molecular mediators and moderators)	- Francesca Filbey
9:45 – 10:30	Testing in General Linear Models	- Amanda Fairchild
10:30-10:45	BREAK	
10:45 – 11:30	Testing in Structural Equation Models	- Michael C. Neale
11:30 – 12:00	Real Life Examples & Ethical Issues	- Jose R. Fernandez
LUNCH		
Module 10: Group Roundtable Preparation, Presentation & Discussion		
1:00-3:00	Group Roundtable Preparation	
3:00-5:00	5 Roundtable Groups Presentations (10 minutes each) Followed by Discussion	
5:00-5:10	Closing Remarks	- David Allison & Kevin Fontaine

Course Website: http://www.soph.uab.edu/energetics/causal_inference_shortcourse/first
http://www.soph.uab.edu/energetics/causal_inference_shortcourse/first/application

We would like to thank our sponsors for their support:



National Heart, Lung, and Blood Institute



The University of Alabama at Birmingham
 1700 University Boulevard, LHL 434
 Birmingham AL 35294-0022
 +01 205 975 9169