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Spring School in Causal Inference with Observational Data

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DAY 1 - TUESDAY 26<sup>TH</sup> APRIL 2022

09:00-09:30 Registration  
09:30-10:00 Welcome & speaker introductions  
**10:00-10:30 Lecture 1.1: The Need for a causal framework (Peter)**  
10:30-11:00 Delegate introductions  
11:00-11:30 Tea & coffee  
11:30-12:00 Delegate introductions  
**12:00-12:45 Lecture 1.2: Prediction vs inference (Mark)**  
12:45-13:00 Questions & discussion  
13:00-14:00 Lunch  
**14:00-15:15 Lecture 1.3: Counterfactuals & potential outcomes (Peter)**  
15:15-15:30 Questions & discussion  
15:30-16:00 Tea & coffee  
**16:00-17:00 Lecture 1.4: Causal DAGs and covariate roles (Georgia)**  
**17:00-17:45 Activity 1-A: DAGs and the table 2 fallacy**  
17:45-18:00 Questions & discussion

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DAY 2 - WEDNESDAY 27<sup>TH</sup> APRIL 2022

**09:30-10:15 Lecture 2.1: Target trial framework (Peter)**  
**10:15-11:00 Activity 2-A: The identifiability conditions**  
11:00-11:30 Tea & coffee  
**11:30-12:45 Lecture 2.2: Drawing & evaluating DAGs for applied research (Peter)**  
12:45-13:00 Questions & discussion  
13:00-14:00 Lunch  
**14:00-15:00 Activity 2-B: Drawing a DAG (1)**  
**15:00-15:30 Lecture 2.3: Wright's path rules & parametric considerations (Mark)**  
15:30-16:00 Tea & coffee  
**16:00-17:00 Lecture 2.4: Propensity score approaches (Georgia)**  
**17:00-17:45 Activity 2-C: Propensity score approaches**  
17:30-18:00 Questions & discussion

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DAY 3 - THURSDAY 28<sup>TH</sup> APRIL 2022

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- 09:30-10:15 **Activity 3-A:** Introduction to conditional dependencies  
10:15-11:00 **Lecture 3.1:** Introduction to collider bias (Peter)  
11:00-11:30 Tea & coffee  
11:30-12:45 **Lecture 3.2:** Selection bias (Peter)  
12:45-13:00 Questions & discussion  
13:00-14:00 Lunch  
14:00-14:45 **Lecture 3.3:** RTM and conditioning-on-the-outcome (Peter)  
14:45-15:30 **Activity 3-B:** Collider selection bias  
15:30-16:00 Tea & coffee  
16:00-17:00 **Lecture 3.4:** Natural experiment approaches (Peter)  
17:00-17:45 **Activity 3-C:** Natural experiment approaches  
17:45-18:00 Questions & discussion

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DAY 4 - FRIDAY 29<sup>TH</sup> APRIL 2022

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- 09:30-10:45 **Lecture 4.1:** Exposure regimes, mediation, and interactions (Peter)  
10:45-11:00 Questions & discussion  
11:00-11:30 Tea & coffee  
11:30-12:15 **Lecture 4.2:** Introduction to G-Methods (Mark)  
12:15-13:00 **Activity 4-A:** Practicing mediation analysis  
13:00-14:00 Lunch  
14:00-14:45 **Lecture 4.3:** Deterministic relationships & tautology (Georgia)  
14:45-15:30 **Activity 4-B:** Analysing ratio variables  
15:30-16:00 Tea & coffee  
16:00-16:45 **Activity 4-C:** Simulating data with DAGitty R  
16:45-17:45 **Activity 4-D:** Drawing a DAG (2)  
17:45-18:00 Questions & discussion

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DAY 5 - SATURDAY 30<sup>TH</sup> APRIL 2022

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- 09:30-10:15 **Lecture 5.1:** Compositional data (Georgia)  
10:15-11:00 **Activity 5-A:** Compositional data  
11:00-11:30 Tea & coffee  
11:30-12:30 **Lecture 5.2:** Composite variable bias (Peter)  
12:30-13:00 Questions & discussion  
13:00-13:30 Lunch  
13:30-14:30 **Lecture 5.3:** Incorporating causal inference into your workflow (Peter)  
14:30-15:00 Questions & discussion