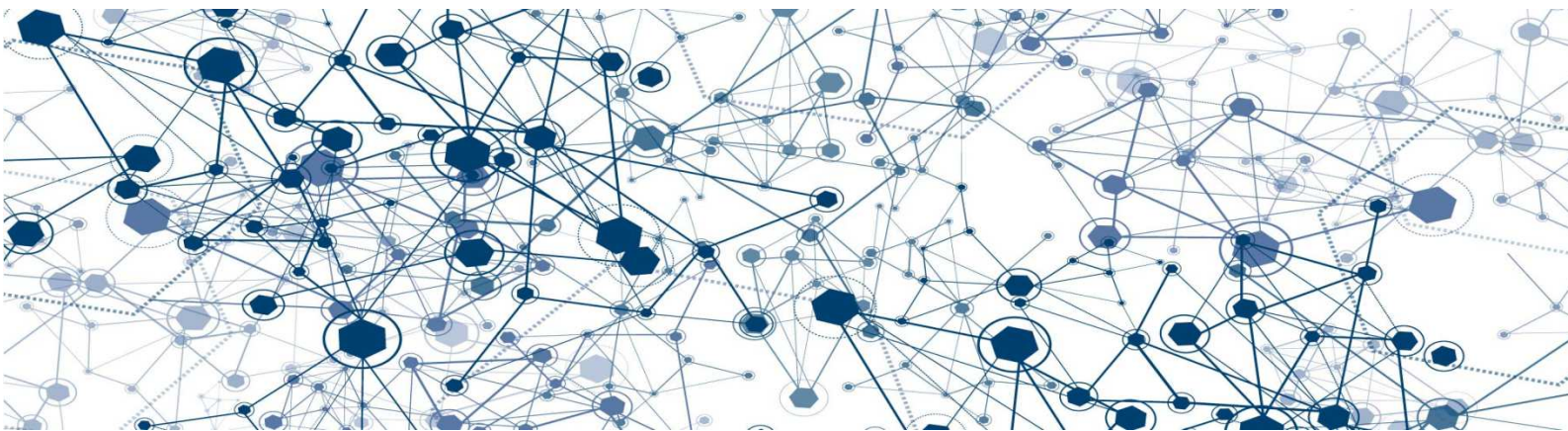


# 5th UK Causal Inference Meeting

4<sup>th</sup> – 7<sup>th</sup> April 2017

University of Essex

*Programme*



## **Welcome to the UK Causal Inference Meeting (UK-CIM)**

Welcome to the fifth UK Causal Inference Meeting! UK-CIM is the result of a collaborative effort by (at the time) UK-based researchers in the area to bring together the best methodological and applied work in which the aim is to make inferences about causal effects. The first UK-CIM was held in Manchester in May 2013, followed by annual meetings in Cambridge (April 2014), Bristol (April 2015) and London (April 2016).

The aim of UK-CIM is to provide a forum for workers (especially early-career researchers) in the area to showcase their work, and to offer opportunities for networking to foster ideas and future collaborations. While UK-CIM originated in the UK, it welcomes participation from researchers around the world as well as the UK, and this year boasts 20 presenters (workshops, oral presentations and poster presentations) from Australasia, Europe, North America and South America.

## **Sponsorship**

This year's meeting is sponsored by the ESRC Research Centre on Micro-Social Change (MiSoC) and Understanding Society: the UK Household Longitudinal Study based at the Institute for Social and Economic Research here at the University of Essex. We are also grateful to Taylor & Francis for providing sponsorship.

## **UK-CIM steering group**

Chair:

Richard Emsley, University of Manchester

Vanessa Didelez, Leibniz Institute for  
Prevention Research and Epidemiology  
Sara Geneletti, LSE

Members:

Mike Brewer, University of Essex  
Stephen Burgess, University of Cambridge  
Paul Clarke, University of Essex  
Nayia Constantinou, University of Warwick  
Rhian Daniel, LSHTM

Richard Grieve, LSHTM  
Sabine Landau, King's College London  
Nigel Rice, University of York  
Nuala Sheehan, University of Leicester  
Bianca De Stavola, LSHTM  
Kate Tilling, University of Bristol  
Ian White, MRC Clinical Trials Unit

## **Wi-fi access**

Network: Event Essex

Password Essex7109

## **Parking on campus**

If you are travelling by car, you may park free of charge on campus for the duration of the conference. Parking permits are available at the registration desk for you to display in your windscreen (see recommended car parks on the campus map included in your pack; cannot be used at the Multi-deck carpark).

## Buses to / from Colchester town to the University of Essex

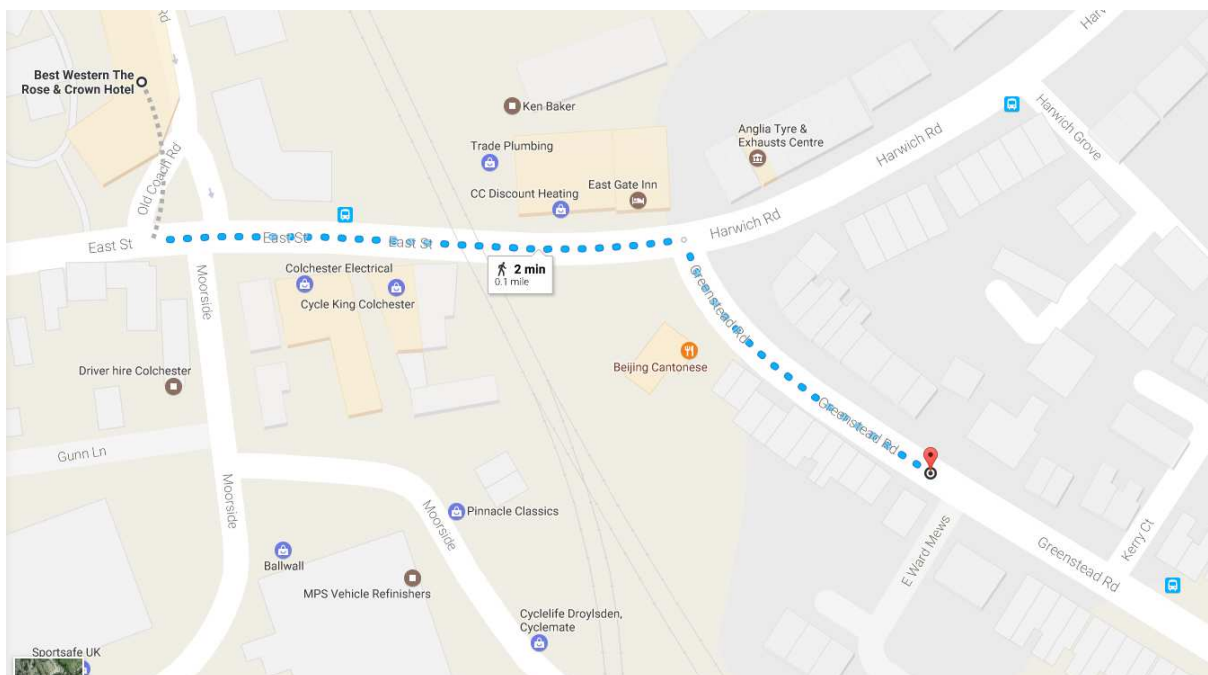
Bus numbers 62, 62A, 62B, 74, 74A, 74B, 76, 78 and 87 all leave frequently from various stops throughout Colchester town and arrive at the Valley Road bus stop opposite the Essex Business School approximately 15 minutes later. Please ask us if you would like to view particular timetables or other routes.

## Displays

Taylor & Francis will be displaying books in the foyer area of the Essex Business School (where tea, coffee and lunch will be served during the meeting).

## Conference dinner

The conference dinner will take place at the Best Western Rose & Crown Hotel, East St, Colchester CO1 2TZ at 7pm on Thursday 6<sup>th</sup> April. Bus numbers 62, 62A, 62B, 74, 74A, 74B, 76,78 and 87 all depart frequently from the Valley Road stop directly in front of the Essex Business School (on the opposite side) and in 10 minutes reach the Kerry Court stop, which is a two minute walk from the hotel:



## Discover Colchester culture, Friday 7<sup>th</sup> April from 2pm

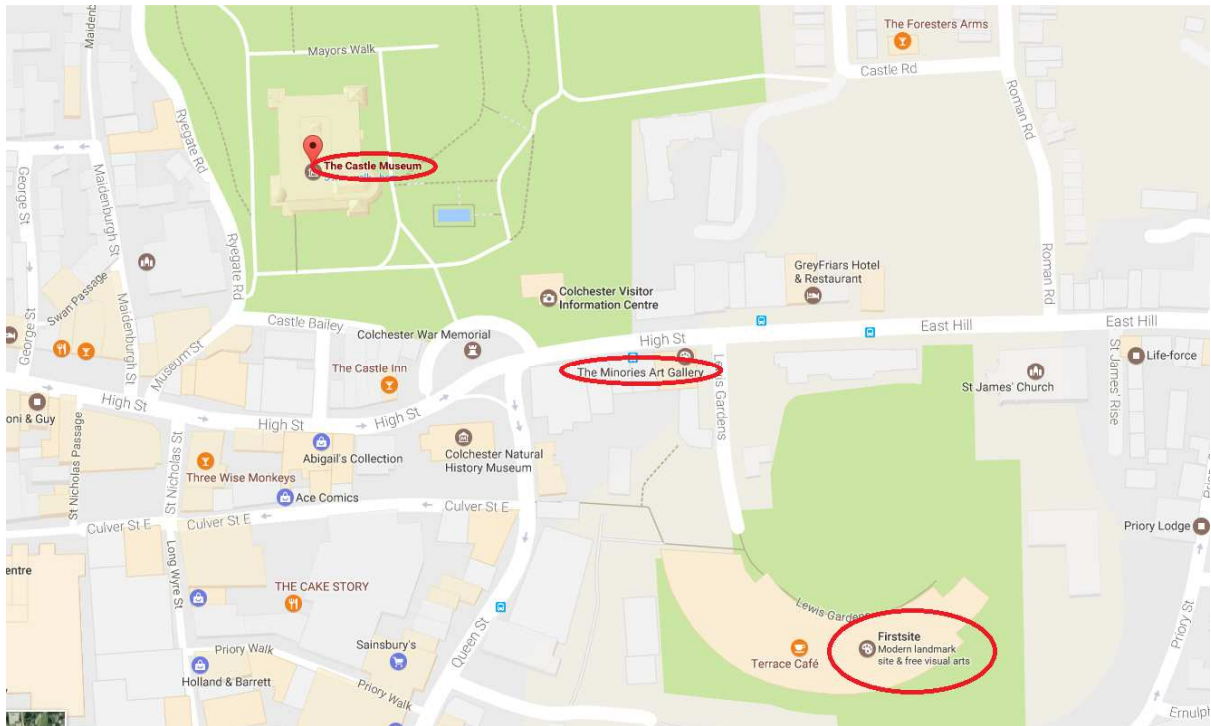
Colchester is Britain's oldest recorded town and used to be its capital. The following tourist highlights in Colchester are all in close proximity to each other:

- ⇒ **Colchester Castle**, the town's leading heritage attraction, the biggest Norman keep in Britain, packed with new features and interactive exhibits.  
( <https://cimuseums.org.uk/visit/venues/colchester-castle> )

- ⇒ **FirstSite Contemporary Art Gallery.** In addition to its rolling programme of exhibitions currently showing, features the new Wunderkammer, a “Cabinet of Curiosities”, treasures selected for their relationship to Colchester and in context to the town’s historical importance and contemporary culture, which will become permanent over time.  
( <http://firstsite.uk> )
- ⇒ **The Minories Galleries,** which house a contemporary art gallery run by Colchester School of Art. The site is also home to a shop selling some of the best art and crafts to be found across the region, and the Batte-Lay Tea Rooms (run by Tiptree) offering a varied menu (including cream teas) and selling local produce.  
( <http://art.colchester.ac.uk/about/the-minories> )

FirstSite and the Minories are free to visit. The castle entrance fee is £7.75 per person, however if 12 or more participants would like to visit in a group, the rate is £6.70. In addition, if the group number is reached, we can organise a guided tour, which includes a visit to the roof of the castle as well and Roman vaults, for an additional £3 per person.

**PLEASE ADD YOUR NAME TO THE CASTLE VISIT SIGN-UP SHEET BY 2pm ON WEDNESDAY 5<sup>TH</sup> APRIL IF YOU ARE INTERESTED IN PARTICIPATING.**  
(all fees are payable directly to Castle Museum on arrival).





## **Tuesday 4<sup>th</sup> April**

*(Registration and refreshments from 09.00 in the ISER large seminar room, SSRC 2N2.4.16)*

### **Half-Day Workshops (take place in the ISER large seminar room, SSRC 2N2.4.16):**

*Morning*

**09.30-13.00** *(refreshments from 11.00 – 11.30)*

**Workshop B: Flexible models for causal mediation analysis: an introduction to the R package medflex**

by Johan Steen (Ghent University)

*Afternoon*

**14.00-17.30** *(refreshments from 15.30 – 16.00)*

**Workshop A: Optimal matching methods for causal inference**

by Jose Zubizarreta (Columbia University) via Skype

### **Full-Day Workshop (takes place in North Teaching Centre room NTC1.02):**

**09.30-17.00** *(refreshments from 11.00 – 11.30 and from 15.30 – 16.00, served in the foyer of the ISER large seminar room, SSRC 2N2.4.16)*

**Workshop C: Introduction to causal inference**

by Rhian Daniel (London School of Hygiene)

***Lunch for all workshops will be served from 13.00 – 14.00 in the foyer of the ISER large seminar room, SSRC 2N2.4.16)***



***All main meetings take place in EBS room 2.2 (to the left as you enter the building)***

## **Wednesday 5<sup>th</sup> April**

(Registration desk open from 09.30)

**10.00-10.30** Refreshments (EBS Foyer)

**10.30-10.45** Welcome

**10.45-12.25** Multiple instrumental variables

Chair: Sabine Landau (Institute of Psychiatry, King's College London)

10.45-11.15 *Invited Talk:* Stephen Burgess (University of Cambridge)  
**Mendelian randomization with fine-mapping genetic data: an embarrassment of candidate instruments**

11.15-11.35 Yanchun Bao (University of Essex) **Combining multiple SNPs in Mendelian randomization studies with continuous outcome**

11.35-11.55 Fernando Pires Hartwig (Federal University of Pelotas) **A mode estimator for causal inference in two-sample Mendelian randomisation**

11.55-12.25 Carlo Berzuini (University of Manchester) **Bayesian Mendelian Randomization**

**12.25-13.20** Lunch (EBS Foyer)

**13.20-14.00** Short presentations

Chair: Paul Clarke (University of Essex)

Emilie Lanoy (Université Paris-Saclay and INSERM) **Extension of missingness graph to repeated measurements of multi-dimensional markers**

Erik Cobo (BarcelonaTech) **Mediation analysis in randomized trials: the direction of bias**

Janine Witte (BIPS, Bremen) **A taxonomy of covariate selection strategies for causal inference from observational data**

Jessica Rees (University of Cambridge) **Extending the MR-Egger method for multivariable Mendelian randomization to correct for both measured and unmeasured pleiotropy**

Karl Ferguson (University of Glasgow) **Pilot Protocol for Graphical Evidence Synthesis: Diagram Based Analysis of Causal Systems (DACS) as an Approach to Alcohol Harm**

Lazaro Mwandigha (University of York) **The mediating effect of pre-medical school education attainment on undergraduate medical school performance in the UK: A multilevel structural equation modelling cohort study**

Michele Santacatterina (Karolinska Institutet) **Estimating treatment effects with optimal inverse probability weighting**

Tim Watkins (University of Sydney) **The use of causal inference methods and strength of causal language in 288 observational health intervention studies**

**14.00-15.30** General methodology

Chair: Rhian Daniel (London School of Hygiene & Tropical Medicine)

14.00-14.30 *Invited Talk:* Phil Dawid (University of Cambridge) **Improved Bounds for the Probability of Causation**

14.30-14.50 Laura Forastiere (University of Florence) **Describing and Analyzing Longitudinal Regression Discontinuity Designs as Local Randomized Experiments over Time**

14.50-15.10 Anders Huitfeldt (Stanford University) **A New Approach to Effect Heterogeneity for Binary Outcomes**

15.10-15.30 Cristian Crespo (London School of Economics) **Reassessing Threats to Internal Validity in Regression Discontinuity Designs. Evidence from Conditional Cash Transfers in Chile**

**15.30-16.00** Refreshments (EBS Foyer)

**16.00-17.00** Keynote Lecture: Fabrizia Mealli (University of Florence)  
**Beyond noncompliance: assessing causal effect heterogeneity with respect to intermediate variables using principal stratification**

Chair: Bianca De Stavola (London School of Hygiene & Tropical Medicine)

**17.00-18.30** Poster presentation and wine reception (EBS Foyer)

Posters by Erik Cobo, Karl Ferguson, Cedric Ginestet (Institute of Psychiatry, King's College London), Emilie Lanoy, Jessica Rees, Lazaro Mwandigha, Michele Santacatterina, and Tim Watkins

(continues...)

## **Thursday 6<sup>th</sup> April**

(Sign-in and refreshments from 09.00)

### **09.30-11.00** Mediation analysis

Chair: Johan Steen (Ghent University)

- 09.30-09.50 Govert Bijwaard (Netherlands Interdisciplinary Demographic Institute) **Cognitive Ability and the Mortality Gradient by Education: Selection or mediation?**
- 09.50-10.10 Muthy Mittinty (University of Adelaide, Australia) **Measurement error in longitudinal mediation analysis**
- 10.10-10.30 Bianca De Stavola (London School of Hygiene) **Multiple questions for multiple mediators**
- 10.30-11.00 *Invited Talk:* Rhian Daniel (London School of Hygiene) **Small steps towards big mediation**

### **11.00-11.30** Refreshments (EBS foyer)

### **11.30-13.00** Causal modelling in social and economic research

Chair: Luke Keele (Georgetown University)

- 11.30-12.00 *Invited Talk:* Peter Davis (University of Auckland) **Assessing Policy Counterfactuals with Micro-Simulation. Some Case Studies**
- 12.00-12.20 Seán Roberts (University of Bristol) **Inferring causal links in the lexicon**
- 12.20-12.40 Dimitra Liotsiou (University of Southampton) **Social Influence: from Contagion to a Richer Causal Understanding**
- 12.40-13.00 Silvia Mandico (Erasmus University) **Spousal Labor Supply Responses to Disability Benefit Cuts**

### **13.00-14.30** Lunch (EBS Foyer)

### **14.30-16.00** Matching and propensity scores

Chair: Phil Dawid (University of Cambridge)

- 14.30-14.50 Emily Granger (University of Manchester) **A review of balance diagnostics in the propensity score literature**
- 14.50-15.10 Sean Yiu (University of Cambridge) **Covariate association eliminating weights: a unified weighting framework for causal effect estimation with general treatment regimes**
- 15.10-15.30 David Hirshberg (Columbia University) **Nonparametric Residual Balancing for Doubly Robust Estimation of Average Treatment Effects**
- 15.30-16.00 *Invited Talk:* Karel Vermeulen (Ghent University) **A Double Robust Extension of the Mann-Whitney Test to Observational Studies**



(continues...)

**16.00-16.30** Refreshments (EBS foyer)

**16.30-17.30** Keynote Lecture: Elizabeth Stuart (Johns Hopkins Bloomberg School of Public Health)

**Estimating population effects: Assessing and enhancing the generalizability of randomized trials to target populations**

Chair: Stijn Vansteelandt (Ghent University)

**From 19.00** Conference dinner (Rose & Crown, Colchester)

## **Friday 7<sup>th</sup> April**

(Sign-in and refreshments from 09.00)

**09.30-10.50** Medical statistics and epidemiology

Chair: Stephen Burgess (University of Cambridge)

09.30-09.50 Manuel Gomes (London School of Hygiene) **Estimating causal effects under untestable assumptions with non-ignorable missing data**

09.50-10.10 Simon Newsome (London School of Hygiene) **Performance of methods for handling time-dependent confounding under real-world uncertainty**

10.10-10.30 Matthias Pierce (University of Manchester) **Prognostic-score matching for predicting patient response strata from randomised controlled trials**

10.30-10.50 Peter Tennant (University of Leeds) **Daggity and directed acyclic graphs in observational research: a critical review**

**10.50-11.10** Refreshments (EBS foyer)

**11.10-12.20** Unobserved confounding

Chair: Paul Clarke (University of Essex)

11.10-11.40 *Invited Talk:* Luke Keele (Georgetown University) **Survivor-complier causal effects in a study of prompt ICU admission with selection on treatment**

11.40-12.00 Michael Wallace (University of Waterloo) **Generalized g-estimation and model selection**

12.00-12.20 Xavier de Luna (Umeå University) **Bias, bounds and sensitivity analysis for unobserved confounding when using regression imputation and double robust estimators**

**12.20-12.40** Closing Remarks and Prizes awarded

**12.40-14.00** Lunch (EBS Foyer)

**14.00** Discover Colchester culture