# Introduction: Advanced Epidemiology: Introduction, Session 1

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# Aim

This course will introduce students to more complex epidemiological concepts and advanced methods employed in modern epidemiological research.

# Objectives

1. To develop a stronger understanding of causation in epidemiology
2. To recognise important biases and understand how these affect interpretation of findings, as well as how such biases can be dealt with through study design and/or statistical analysis
3. To develop a critical understanding of how quantitative methods can be used to apply effect measures to target populations
4. To develop a critical understanding of the principles underpinning specialist areas of epidemiology, such as life-course epidemiology

# Learning outcomes

1. Both critique and design epidemiological research informed by an understanding of counterfactual thinking and causal diagrams, including a critical understanding of the limits of these approaches.

2. Recognise important biases and understand how these affect interpretation of findings, understand how such biases can be dealt with through study design and/or statistical analysis and have a critical understanding of the relative strengths and limitations of different methodological approaches.

3. Critically understand how quantitative methods can be used to apply effect measures to target populations, as well as the assumptions such approaches require.

4. Critically understand the major methodological issues in natural experiment studies, administrative data analyses and life-course epidemiology and relate these to major theories across the wider field (i.e. collider bias, confounding etc).

# Less formally


# About you and about me

# Emphasis of course

- Understanding assumptions
- Making connections
  - *Different statistical approaches*
  - *Different terminologies within epidemiology*
- Interpretation and partnership
- Get a feel for magnitude and importance of biases

# Information about the course

https://github.com/dmcalli2/Advanced_epidemiology_course

- Where and when
- Lectures
- Lecturers
- Materials, reading lists
- Feedback

# Structure of the course

- Chalk and talk
- Interactive sessions
- Web-based apps
- No coding

# Assessment

- Guided critical review in the form of short notes - emphasis on methods
  - *Formative - one short note question*
  - *Summative - several short note questions (2000-2500 words)*

# Questions