

8th SPINE Summer School 2022

Causal Inference for Health Research

Basel, August 16-19 (Tuesday-Friday), 2022

Not only since Bradford-Hill formulated his criteria to determine when to conclude causal relationships from observational data have health researchers been trying to identify robust methods for causal inference. In recent years the interest in causal inference has increased in diverse fields from epidemiology to artificial intelligence, from economics to biostatistics.

Understanding and predicting the effect of interventions is a fundamental component of effective policy and decision making. The ultimate goal of the majority of studies in health services (and public health more generally) is to establish if and how changing policies, practices and behaviours will affect health outcomes.

Questions about the consequences of an action are of a causal nature and are therefore best tackled within a causal inference framework. Where appropriate, explicitly framing study questions with causal language has several advantages over common analytical approaches: adding to the transparency of the objectives and the underlying structural assumptions, clarifying the interpretation and the potential limitations of any analysis.

Reasoning about causality with directed acyclic graphs, by describing data-generating mechanisms with causal diagrams, we can further enhance/improve the communications between scientific investigators, analysts and other stakeholders.

Especially in the context of real-world data analysis causal inference offers a coherent framework to strengthen the quality of the conclusions we can draw from quantitative analyses of empirical evidence in order to inform and guide decisions which carry the potential to impact public health and society.

The **2022 SPINE Summer School** will bring international scholars and PhD students together to introduce key principles for causal inference from observational data including specifying a precise research question, working with directed acyclic graphs and structural causal models, designing observational studies with the help of trial emulation. Participants will have the opportunity to discuss how these principles can be applied to their own research projects. The Summer School 2022 will be on-site at the University of Basel and offers a mix of lectures on methodological key challenges, active group work led by senior researchers, and formative feedback from peers and experienced researchers to foster interaction and critical thinking.

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Organizers

SPINE is an educational platform for doctoral students working towards a PhD in Nursing Science at the Universities of Lausanne and Basel. SPINE provides educational courses and Summer schools for doctoral students in nursing and other health-related disciplines, along with other events, such as the Doctoral Research Day.

SPINE Directors

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Learning objectives

By the end of this course, participants will be able to:

- Specify a precise research question in the language of causal inference
- Describe causal mechanisms with directed acyclic graphs
- Apply graphical criteria to identify potential sources of bias and inform the analysis and data collection
- Choose the study design and statistical methods of an observational study using the trial emulation approach

The 2022 Summer School is a 4-day intensive course combining lectures and group work, followed by optional personal guidance on participants' individual projects (26 August, 2 and 16 September, 14h-16h). The course will be taught in English.

Registration Deadline: June 20th 2022

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Faculty

Professor Giusi Moffa

Giusi Moffa is an assistant professor of statistics at the Department of Mathematics and Computer Science of the University of Basel and is also affiliated with the University College London. Giusi works on statistical methods for causal discovery and estimation of intervention effects from observational data. Her methodological work is motivated by real-life applications in health care, clinical research and epidemiology.

Professor Michael Simon

Michael is associate professor at the Institute of Nursing Science at the University of Basel. Michael's research aims to improve healthcare quality by developing structures and processes of nursing care. Using health services research methodology, causal inference and routine data to make quality of nursing care visible and more effective.

Professor Sara Lodi

Sara Lodi is an Assistant Professor in Biostatistics at Boston University School of Public Health. She obtained her PhD in Medical Statistics at the London School of Hygiene and Tropical Medicine in 2009, UK. Her research focuses on clinical epidemiology and comparative effectiveness research using routinely collected health data. Methodologically, she focuses on statistical techniques for causal inference to estimate effects of interventions in the areas of infectious disease and substance use disorders.

8th SPINE Summer School 2022 - Course Schedule 16.-19.08.2022

(A more detailed schedule will follow)

Day 1	Tuesday 16 August 2022	Introduction to causal inference
Day 2	Wednesday, 17 August 2022	How causal diagrams in the form of directed acyclic graphs (DAGs) capture the mechanism generating the observed data
Day 3	Thursday, 18 August 2022	How to draw causal inference from observational data with DAGs Common methodological and analytical approaches for 'deconfounding'
Day 4	Friday, 19 August 2022	Trial Emulation

Preparation work

Readings will be provided prior to the summer school.

Dates

Tuesday 16th to Thursday 19th August 2022

Venue

University of Basel

Commitment and Credits

2 ECTS

Target Group and Eligibility

Doctoral students and post-doctoral fellows, faculty members and researchers from Nursing Science and healthcare disciplines. Participants should have successfully completed graduate level courses in research methodology/statistics and be familiar with health research concepts.

Registration – Deadline June 20th 2022

Please register using this link:

<https://nursing.wufoo.com/forms/8th-spine-summer-school-2022/>

For external PhD students/participants:

- Recent CV (2 pages max)
- Confirmation of enrolment in a PhD program (if applicable)

Course Fees*

- PhD students affiliated with SPINE (INS, UNIL) and PPHS: Free
- PhD students not affiliated with SPINE or PPHS**: CHF 720
- External Post-doctoral fellows: CHF 720
- INS- and UNIL Alumni: CHF 720
- Other participants: CHF 1120

*The course fee includes course materials. Registration is conditional upon full payment of fees.

**To qualify for the PhD fee, applicants not affiliated with SPINE are required to submit a confirmation of enrolment in a PhD program.

Payment

Through invoice

Payment of fees is due within 3 weeks of notification of acceptance and should be received at the latest by July 2nd 2022.

Terms, Conditions, and Cancellation Policy

- Seating is limited to 40 participants. All participants must commit to attending the full 4-day course. Applicants are selected on a first come first serve basis. Only complete applications are considered. Notification of acceptance will be emailed within 3 weeks of the closing date.
- In case of cancellation, a written notification must be sent. A service fee of CHF 50 will be charged. Refund will no longer be possible after July 18th 2022.
- The organization reserves the right to make minor program modifications, decline applications, or cancel the course in case of insufficient registrations at the closing date.

Contacts and Questions

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