WINTER SCHOOL

Causal Inference in Epidemiology 2026

14-16|12|2026

Aula Marotta,
Italian National Institute of Health (Istituto Superiore di Sanità)

ROME | ITALY



SCIENTIFIC COORDINATORS

Giovanni Capelli
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SISMEC; University of Milano-Bicocca and Karolinska Institute

SCIENTIFIC SECRETARIAT

Luigi Palla
SISMEC; University of Rome and London School of Hygiene and Tropical Medicine

Daniela Zugna
SISMEC; University of Turin

Aim and objectives

This training event addresses the need to strengthen the methodological skills of epidemiologists, statisticians, and data scientists in the field of causal inference. It provides an introduction to key concepts and methods for evaluating cause-and-effect relationships within biomedical/healthcare observational data.
The course aims to promote a more informed and rigorous use of quantitative causal inference methods in the design and conduct of epidemiological studies, data analysis, and the interpretation of research findings, with the goal of improving the quality and reliability of evidence supporting healthcare and public health decisions.

Specific objectives

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

1. Draw (Represent) and make explicit causal relationships using directed acyclic graphs (DAGs), through qualitative analysis of the relationships between variables.
2. Understand and articulate counterfactual reasoning to define and interpret causal effects.
3. Apply the quantitative causal inference methods introduced during the course.
4. Identify and discuss the key assumptions and conditions required for the application and correct interpretation of causal inference methods.

Teaching Methodology

Lectures and group exercises. The course will be delivered in English.

FACULTY

Rino Bellocco *University of Milan-Bicocca and Karolinska Institute*

Luigi Palla *University of Rome and London School of Hygiene and Tropical Medicine*

Lorenzo Richiardi *University of Turin*

Michele Santacatterina *NYU Grossman School of Medicine*

Mats J. Stensrud *Institute of Mathematics, EPFL*

Daniela Zugna *University of Turin*

PROGRAMMA SCIENTIFICO

Monday December 14th

08:30 Registration

Foundations of causal inference

09:00 Why causal inference? Road map to causal inference
Michele Santacatterina

10.00 Directed acyclic graphs (DAGs), D-separation, Backdoor criterion
Michele Santacatterina

11.00 Coffee break

11.30 Practical: drawing DAGs and identifying adjustment sets
All teachers

13.00 Lunch

14.00 Structural causal models, counterfactuals and causal parameters, identification assumptions
Michele Santacatterina

16.00 Coffee break

16.30 Identification of the average treatment effect/ Identification of other estimands
Michele Santacatterina

Tuesday December 15th

Estimation of causal effects

09.00 Estimation of causal parameters, outcome regression, inverse probability weighting
Michele Santacatterina

11.00 Coffee break

11.30 Practical implementation in R/Stata
All teachers

13.00 Lunch

14.00 Doubly robust estimation
Michele Santacatterina

15.30 Coffee break

16.00 Practical implementation in R/Stata
All teachers

17.00 Lecture: Applications of causal inference in data science
Mats J. Stensrud

Wednesday December 16th

Advanced topics

09.00 Instrumental variables
Luigi Palla

10.30 Coffee break

11.00 Practical implementation in R/Stata
All teachers

12.00 Causal mediation analysis
Daniela Zugna

13.00 Lunch

14.00 Causal mediation analysis/practical implementation in R/Stata
Daniela Zugna

15.30 Coffee break

16.00 Target Trial Emulation
Lorenzo Richiardi

17:30 Final test

VENUE

Italian National Institute of Health (Istituto Superiore di Sanità), Aula Marotta, Viale del Castro Laurenziano, 10 – **Rome, Italy**.

TARGET AUDIENCE

The course is intended for staff working in healthcare organisations and research institutions who are interested in acquiring fundamental knowledge and skills in causal inference.
A maximum of **30** participants will be admitted.

REGISTRATION AND PARTICIPATION

To register, please complete and submit the application form available until 13 December 2026 at the following link:
https://registration.infocongress.it/Login.asp?IDcommessa=2026IVDJ010&Lang=IT
Attendance will be monitored by recording participants' arrival and departure times in the designated attendance register.
Participation in the course is subject to payment of a registration fee, according to the following rates:

CATEGORY	REGISTRATION FEE
SISMEC Member (over 35 years of age)	**€ 250,00**
Non-SISMEC Member (over 35 years of age)	**€ 350,00**
Young SISMEC Member (35 years of age or under)	**€ 220,00**
Young Non-SISMEC Member (35 years of age or under)	**€ 310,00**

PARTICIPANT SELECTION CRITERIA

Should the number of applications exceed the maximum number of places available, participants will be selected on a first-come, first-served basis, according to the chronological order of registration.

ASSESSMENT OF LEARNING OUTCOMES

At the end of the course, all participants will be required to complete a mandatory assessment test consisting of a multiple-choice questionnaire.
In addition, participants will be asked to complete an event evaluation questionnaire to provide feedback on the course.

CERTIFICATES

At the end of the course, a certificate of attendance will be issued upon request.
A certificate of participation, specifying the total number of training hours, will be sent to participants who have attended at least 80% of the course and successfully passed the final assessment test, achieving a minimum score of 75%.

For further information, please contact the Organising Secretariat using the telephone numbers provided above.

Electronic Signature of the Legal Representative

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Organised by:

ITALIAN NATIONAL INSTITUTE OF HEALTH
National Centre for Disease Prevention and Health Promotion
(CNaPPS)

and

ITALIAN SOCIETY OF MEDICAL STATISTICS AND CLINICAL EPIDEMIOLOGY
(SISMEC)

ORGANIZING SECRETARIAT

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