In 2025 the department of Clinical Epidemiology of the Leiden University Medical Center is organising the 4 day-course

Advanced Epidemiological Methods

Date: Tuesday November 18 —Friday November 21, 2025

Location: Fletcher Wellness-Hotel, Bargelaan 80, 2333 CW LEIDEN, The Netherlands

Times: Tuesday : 12.30—20.30, Wednesday-Thursday 08.30-21.00. Friday 08.30-12.30

Number of participants: max. 30

Course committee : Prof.dr. S. le Cessie, Prof.dr. O.M Dekkers, Prof.dr. R.H.H. Groenwold

Course coördinator: Mw Y. Souverein, E-mail y.souverein@lumc.nl

Course information The course, which is taught in English, provides an overview of recent methodological developments in epidemiological research. Methods to correct for confounding will be discussed, including propensity scores, inverse probability weighting, and instrumentall variable analysis. We also look at graphical methods to illustrate causal relations through Directed Acyclic Graphs (DAGs). These DAGs are then used to understand other topics that will be discussed during the course including causality, mediation analysis, and estimating the effects of time-dependent variables. Recent developments in target trial emulation and estimands are discussed, Methods to handling measurement error and missing data are taught and practised, Also, recent developments in infectious disease epidemiology are reviewed,

Target audience The target audience of our course are PhD students in training for epidemiologist, epidemiologists who want to gain knowledge on modern epidemiological methods, and researchers who are involved in the design and analysis of epidemiological scientific research. Because of the intensive nature of the course only a limited number of participants (max. 30) can be admitted to the course.

Subjects

Causality

Directed acyclic graphs (DAGs)

Estimands & Target trial emulation

Data and models

Propensity scores

Mediation analysis

Instrumental variable & Mendelian randomisation

Immortal time bias

Measurement error

Missing data

Time-dependent variables

Infectious disease epidemiology

Teaching methods The course consists of interactive lectures, alternated with computer-assisted exercises, using STATA / R.

Course level To be able to attend this course, a basic knowledge of epidemiological research is required (as is for instance taught at our Dutch and International courses on Clinical Epidemiology). Also basic knowledge of regression models (e.g., linear regression, logistic regression, survival analysis) is advised.

Course material The course material (course reader, scientific papers, and hand-outs of presentations) will be provided in digital format.

Required Laptop, preferably with STATA or R. All analyses will be performed in STATA/R. A temporary course license for STATA will be provided.

Certificate A certificate of attendance will be provided.

Course fee € 950 incl. lunch/dinner.
Hotel accommodation is not included in the course fee. The course location will provide a discount rate for hotelrooms for course participants. All selected course participants will be informed about the booking procedure.

Registration Registration starts on April 1, 2025 via our website. Registration deadline: June 20, 2025

The confirmation of registration you receive, after submission of your registration, is your proof of registration.
As only a limited number of course participants can be admitted, a selection procedure will take place after the registration deadline. We will inform you about the outcome of the selection procedure within 2 weeks after the registration deadline. Because of the required selection procedure we ask you to complete all the required information on the registration form.

Payment Once you have been selected to participate in the course, you will receive an invoice for the course fee.

Cancellation policy In the event of cancellation of your participation before October 1, 2025, the course fee minus € 150 cancellation fee will be reimbursed. In the event of cancellation on or after October 1, 2025, the course fee will no longer be reimbursed. Your cancellation needs to be submitted through e-mail to our course coördinator: y.souverein@lumc.nl and is considered processed after receiving a confirmation of receipt.