

ABS25 (Applied Bayesian Statistics) summer school in Genova, Italy, 3-6/6/2025

We are pleased to inform you that the next Applied Bayesian Statistics summer school - ABS25 will be held from 3 to 6 June 2025 in the beautiful historic city of Genova, overlooking the Ligurian Sea in Italy.

Website: <https://abs25.imati.cnr.it/>

The school is organized by CNR IMATI (Institute of Applied Mathematics and Information Technologies at the Italian National Research Council in Milano), in cooperation with the Department of Mathematics of the University of Genova.

The topic will be SPATIO-TEMPORAL METHODS IN ENVIRONMENTAL EPIDEMIOLOGY

The lecturer will be Prof. ALEXANDRA SCHMIDT (McGill University, Department of Epidemiology, Biostatistics and Occupational Health, Canada), with the support of Dr. CARLO ZACCARDI (University G. d'Annunzio Chieti-Pescara, Department of Economics, Italy).

As in the past (since 2004), there will be a combination of theoretical and practical sessions, along with presentations by participants about their work (past, current and future) related to the topic of the school.

OUTLINE: This course aims to explore the interface between environmental epidemiology (EE) and spatio-temporal modelling (ST). The aim of EE is to understand the adverse health effects of environmental hazards and to estimate the risks associated with those hazards. Such risks have traditionally been assessed either over time at a fixed point in space or over space at a fixed point in time. ST modelling characterizes the distribution of those hazards and associated risks over both geographical locations and time. Understanding variation and exploiting dependencies over both space and time greatly increases the power to assess those relationships.

The course will cover a wide range of topics from an introduction to spatio-temporal and epidemiological principles along with the foundations of ST modeling, with specific focus on their application, to new directions for research.

Topics to be covered:

- Types of epidemiological studies: cohort, case-control, ecological
- Measures of risk: relative risks, odds ratios, absolute risk, sources of bias, assessing uncertainty
- Bayesian statistics and computational techniques: Markov Chain Monte Carlo (MCMC)
- Regression models in epidemiology: Logistic and Poisson generalized linear models, hierarchical models
- Dynamic linear models, temporal autocorrelation
- Spatial models: area and point referenced methods, mapping, geostatistical methods, spatial regression
- Spatial-temporal models: separable models, non-separable models, modelling exposures in space and time.

Reference:

Shaddick, G., Zidek, J.V., & Schmidt, A.M. (2023). Spatio-Temporal Methods in Environmental Epidemiology with R (2nd ed.). Chapman and Hall/CRC. <https://doi.org/10.1201/9781003352655>

We hope you will be interested in the school, and we would like to meet you in Genova.

We invite you also to share the information with people potentially interested.

Best regards

Elisa Varini and Fabrizio Ruggeri
Executive Director and Director of ABS25