

Summer school on Advanced Bayesian Methods

24-28 September 2018

1st announcement



The Interuniversity Institute for Biostatistics and statistical Bioinformatics organizes for the second time a summer school on Bayesian methods. During one week, two courses will be taught on specific topics in Bayesian methodology. The focus is on Bayesian methods that are relevant for the applied statistician. Special attention will be devoted to novel statistical methodology.

In the second edition of the summer school the following two courses will be organized in Leuven from **24 to 28 September 2018**:

- **Three-day course (24-26 September) on Bayesian Parametric and Nonparametric Methods for Missing Data and Causal Inference** by Dr. Michael Daniels (University Florida, US)
- **Two-day course (27-28 September) on Bayesian Methods in Health Economic Evaluation** by Dr. Gianluca Baio (University College London, UK)

The target audience of summer school are statisticians and/or epidemiologists with a sound background in statistics, but also with background in Bayesian methodology.

In both courses, practical sessions are organized, so participants are asked to bring along their laptop with the appropriate software (to be announced) pre-installed.

The registration costs for the courses are:

Three-day course

PhD student:	€ 150
Academic:	€ 300
ISBA member:	€ 300
Research institute:	€ 300
Industry:	€ 900

Two-day course

PhD student:	€ 100
Academic:	€ 200
ISBA member:	€ 200
Research institute:	€ 200
Industry:	€ 600

Note that one is registered to the course, **ONLY when the registration costs have been paid**. The **deadline for registration is August 31, 2018**.

More information about the courses and practicalities (registration, location, transportation, etc.) can be found in due time on <http://med.kuleuven.be/biostat/>.

Please reserve already this week in September 2018!

For registration to the courses, please contact Kirsten Verhaegen (kirsten.verhaegen@kuleuven.be).

Supported by



Société Adolphe Quetelet
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Bayesian Parametric and Nonparametric Methods for Missing Data and Causal Inference

By Dr. Michael Daniels (University of Florida, US)

We will explore Bayesian parametric and nonparametric methods and their use in both missing data and causal inference problems. Both types of problems fit well within the Bayesian paradigm due to the need to make uncheckable assumptions that can be parameterized, and uncertainty assessed via, informative priors. In the first day, the course will review the basics of missing data and potential outcomes and causal inference and then provide a targeted review of Bayesian inference and Bayesian nonparametric approaches that are particularly useful for these types of problems. The second day will explore Bayesian parametric and nonparametric approaches for missing data via applications in both monotone (e.g., dropout in clinical studies) and non-monotone missingness settings. A key aspect will be identification of the conditional distribution of the missing data via identifying restrictions with embedded sensitivity parameters. The third day will explore Bayesian parametric and nonparametric approaches to causal inference. The basic approach will be to specify models for the observed data and then to use assumptions/restrictions, again with embedded sensitivity parameters to identify and estimate causal estimands of interest. Various settings will be explored including point and dynamic 'treatments' as well as mediation. For both days 2 and 3, we will discuss software implementation using R. The R code and/or packages used to run the data examples will be provided to the attendees at a specific github site.

Bayesian Methods in Health Economic Evaluation

by Dr. Gianluca Baio (University College London, UK)

This short course is intended to provide an introduction to Bayesian modelling in economic evaluation of health care interventions. The theoretical aspects are complemented with practical examples using MCMC methods via R and MCMC sampling software (such as OpenBUGS and JAGS), as applied to cost-effectiveness analysis and typical models used in health economic evaluations. We will present a range of modelling strategies for cost-effectiveness analysis as well as recent methodological developments for the analysis of the value of information.

The course is intended for health economists, statisticians, and decision modellers interested in the practice of Bayesian modelling and will be based on a mixture of lectures and computer practicals, although the emphasis will be on examples of applied analysis: software and code to carry out the analyses will be provided. Participants are encouraged to bring their own laptops for the practicals.

Biosketches course instructors

Dr. Michael Daniels (University of Florida, US)

Michael Daniels, ScD is Professor, Andrew Banks Family Endowed Chair, and Chair in the Department of Statistics at the University of Florida. He received his doctoral degree from Harvard Biostatistics in 1995. He has been on the faculty at Iowa State University and the University of Texas at Austin (as chair) before returning to the University of Florida. His research interests focus on Bayesian approaches for missing data and causal inference. This research has been funded by the US National Institutes of Health with the most recent project entitled "Bayesian approaches for missing data and causal inference for cancer and behavior studies". Dr. Daniels has taught many short courses over the years on topics including Bayesian hierarchical models and Bayesian methods for missing and longitudinal data. He is currently co-editor of Biometrics. He is a fellow of the American Statistical Association and an elected member of the International Statistics Institute (ISI).

Dr. Gianluca Baio (University College London, UK)

Gianluca graduated in Statistics and Economics from the University of Florence (Italy). He then completed a PhD programme in Applied Statistics again at the University of Florence, after a period at the Program on the Pharmaceutical Industry, jointly run by Harvard University and the MIT Sloan School of Management, Cambridge (USA). He then worked as a Research Fellow and then Temporary Lecturer in the Department of Statistical Sciences at University College London (UK). Gianluca's main interests are in Bayesian statistical modelling for cost effectiveness analysis and decision-making problems in the health systems, hierarchical/multilevel models and causal inference using the decision-theoretic approach. Gianluca leads the Statistics for Health Economic Evaluation research group within the department of Statistical Science.