

First Announcement and Call for Papers:

Workshop of the Working Group

„Bayes Methods“ (International Biometric Society, German Region)

<http://www.biometrische-gesellschaft.de/arbeitsgruppen/bayes-methodik.html>

Ingelheim am Rhein or online, 26-27/11/2026

“Bayesian statistics in medical research”

Workshop Objectives

The aim of this workshop is to showcase the breadth of applications and the practical strengths of Bayesian statistical methods in medical research.

Presentations on the following topics are particularly welcome:

- Foundations of Bayesian methods, including borrowing of information, model averaging and Bayesian networks
- Software for Bayesian analysis, especially in machine learning, meta-analysis and applied workflows
- Current applications of Bayesian statistics in medicine, including pre-clinical and clinical research as well as pharmaceutical development.

Contributions by students are explicitly encouraged, particularly work conducted as part of Bachelor's, Master's, or PhD theses.

Invited Tutorial

Dr. Marco Scutari (University of Lugano):

Bayesian and Causal Networks in Medicine: Concepts, Implementation and Interpretation in R

Clinical and epidemiological data have become increasingly complex as we try to model the interplay between risk factors and comorbidities with better detail and precision. Bayesian networks are a powerful tool for modelling these relationships. They offer greater flexibility and interpretability than most machine learning approaches. Causal networks extend Bayesian networks by expressing cause-effect relationships, enabling interventions, counterfactuals, and the modelling of confounding. However, they present unique challenges and require thoughtful design and careful use of expert information.

This tutorial explores the practical challenges in using these models and offers practical solutions using the bnlearn R package (<https://www.bnlearn.com/>).

PART I: Bayesian Networks: A Statistical Perspective

We will first introduce Bayesian networks as a hierarchical statistical model. Computer science and ML view them as prototypical artificial intelligence models that learn a working representation of a clinical phenomenon and can then answer arbitrary queries. However, Bayesian networks also build heavily on Bayesian and likelihood-based statistics: we will use this connection to define their properties, model selection and estimation, and posterior inference.

PART II: Causality and Experimental Design

We will then extend Bayesian networks to causal networks. We will discuss their interpretation and use for causal reasoning, including interventions and counterfactuals. We will also explain how these models address identifiability issues and how they relate to key concepts in experimental design, such as randomisation.

PART III: Two Published Case Studies

These concepts will be explained hands-on using bnlearn and two fully reproducible analyses developed with Pfizer (electronic health record data) and La Roche-Posay/L'Oréal (epidemiology). Participants will have the opportunity to work through all steps, including data preparation, network structure learning, parameter learning, model evaluation/validation and answering clinically relevant queries. They will also explore the impact of different design decisions, gaining insights into the trade-offs of various options.

Further Information

Please visit the website of the working group:

<http://www.biometrische-gesellschaft.de/arbeitsgruppen/bayes-methodik.html>

Instructions for Authors

Please send **abstracts** (max. one A4 page including references, 12pt) of presentations to the organiser (below) by e-mail.

The expected length for each presentation is 30 minutes plus discussion. The workshop language will be English, but presentations in German will also be possible. Presentation files should be made available for publication on the website of the working group.

Important Dates

02/11/2026	Submission deadline for abstracts
09/11/2026	Notification of acceptance of abstracts; publication of the programme shortly thereafter
15/11/2026	Deadline for registration (late registration only as long as places available)

Registration

For registration for this workshop please send an email with your name and affiliation christian.roever@med.uni-goettingen.de. There is no registration fee, but IBS membership is encouraged. Please indicate, if you will

- need to attend online,
- have dinner at the Winzerkeller,
- allow us to publish your presentation.

The organiser may cancel, postpone or change the programme for a lack of participants or good reasons. Registered participants would be informed. Other liabilities like costs of travel or time are excluded.

Organiser

Dr. Reinhard Vonthein (University of Lübeck) reinhard.vonthein@uni-luebeck.de

The Working Group thanks Boehringer Ingelheim Pharma GmbH & Co. KG for kind support with the facilities.