



Applied Bayesian Methods in Epidemiology and Public Health

Facilitators

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Description

This course aims to provide a general, application-oriented introduction to Bayesian data analysis. It offers an overview of the basic concepts of Bayesian modelling essential for common applications, with a specific focus on regression models. Through practical examples and hands-on exercises, the course builds on the foundations of simple and generalized Bayesian regression models.

The program is divided into three parts. The first part covers the theoretical concepts of Bayesian analysis. The second part focuses on the application of Bayesian methods in public health and epidemiological studies. The third part consists of practical sessions, enabling participants to perform Bayesian analyses using the freely available, open-source software R.

Objectives

Upon completing the course, the participants will have the knowledge and skills to:

- Describe the fundamental concepts of Bayesian analysis and explain the key differences between Bayesian and frequentist/classic approaches
- Explain the role of prior distributions in Bayesian inference
- Implement different forms of Bayesian statistical models using R/RStudio



- Interpret the results of Bayesian regression models and perform model evaluation
- Communicate the results and findings of their analyses effectively

Date

9 – 11 April 2025

Eligibility

SSPH+ PhD and MD students and external participants are eligible to participate.

Prerequisites

We expect participants to have a basic knowledge of statistical concepts like probability distributions, hypothesis testing, p-values, confidence intervals, and regression. Having some familiarity with core epidemiological outcome measures and study designs like randomized controlled trials and cohort studies would be an advantage.

**Course
Structure**

The course will feature a mixture of theoretical, face-to-face lessons combined with practical hands-on sessions.

Assessment

End-of-course practical assessment

Credits

1 ECTS

21 h contact (lessons and practicals), 4 h of preparatory work (software installation, pre-readings)

(1 ECTS corresponds to appr. 25-30 hours workload)

Location

Bern University of Applied Sciences, Bern

[Bern, Schwarztorstrasse | BFH](#); the definite room number will be displayed on the screen at the entrance to the building on the first day of the course



Course Fees

	1 ECTS
SSPH+ IGC PhD and MD Students	30 CHF
Postdocs from SSPH+ partner institutes	30 CHF
External PhD students, external MD Students and Swiss Public Health Doctors in training	300 CHF
Others	800 CHF

Registration

<https://www.conftool.com/ssph-phd-courses2025/>

**Deadline for
Registration**

9 March 2025