

# Bayesian Analyses Using SAS®

Kód kurzu: STBA42

The course focuses on Bayesian analyses using the PHREG, GENMOD, and MCMC procedures. The examples include logistic regression, Cox proportional hazards model, general linear mixed model, zero-inflated Poisson model, and data containing missing values. A Bayesian analysis of a crossover design and a meta-analysis are also shown.

## Pre koho je kurz určený

Biostatisticians, epidemiologists, and social scientists who are interested in the Bayesian analysis approach

## Čo vás naučíme

- Explain the concepts of Bayesian analysis
- Illustrate Bayesian analyses in PROC GENMOD, PROC PHREG, and PROC MCMC
- Incorporate prior distributions in a Bayesian analysis
- Illustrate a Bayesian analysis approach to a meta-analysis

## Požadované vstupné znalosti

Before attending this course, you should:

- Be able to create SAS data sets and manipulate data. You can gain this experience from the SAS Programming 2: Data Manipulation Techniques course
- Have completed a statistics course such as the Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression or Statistics 2: ANOVA and Regression course

## Osnova kurzu

### Introduction to Bayesian Analysis

- Introduce the basic concepts of Bayesian analysis
- Compute the diagnostic plots and diagnostic statistics for model assessment
- Discuss the advantages and disadvantages of Bayesian analysis
- Illustrate a Bayesian analysis in PROC GENMOD and PROC PHREG

### Fitting Models with the MCMC Procedure

- Show the essential statements in PROC MCMC
- Show the supported distributions in PROC MCMC
- Fit a logistic regression model in PROC MCMC
- Fit a general linear mixed model in PROC MCMC
- Fit a zero-inflated Poisson model in PROC MCMC
- Incorporate missing values in PROC MCMC

### Bayesian Approaches to Clinical Trials

- Use prior distributions in a Bayesian analysis
- Illustrate a Bayesian approach to clinical trials using PROC MCMC
- Illustrate the Bayesian approach to meta-analysis

#### GOPAS Praha

Kodaňská 1441/46  
101 00 Praha 10  
Tel.: +420 234 064 900-3  
[info@gopas.cz](mailto:info@gopas.cz)

#### GOPAS Brno

Nové sady 996/25  
602 00 Brno  
Tel.: +420 542 422 111  
[info@gopas.cz](mailto:info@gopas.cz)

#### GOPAS Bratislava

Dr. Vladimíra Clementisa 10  
Bratislava, 821 02  
Tel.: +421 248 282 701-2  
[info@gopas.sk](mailto:info@gopas.sk)



Copyright © 2020 GOPAS, a.s.,  
All rights reserved