

Lecturers: Carlo Albert (CA), Peter Reichert (PR), Andreas Scheidegger (AS) [Eawag],
Dmitri Kavetski (DK) [Univ of Adelaide, Australia].

Practice sessions and support in R: Lorenz Ammann (LA), Thomas Coutandin (TC), Sanda Dejanic (SD),
Jenny Held (JH) and Omar Wani (OW).

Sunday, June 11: Optional Preparatory Course

10:30 - 11:30	lecture	AS	Review of probability theory
13:00 - 14:00	lecture	LA	Review of the R programming language
14:30 - 16:00	practice	LA	Exercises

Monday, June 12: Probabilistic Models

08:45 - 09:15	lecture	CA	Introduction to the Course
09:30 - 10:30	lecture	PR	Representation of models, likelihood function
11:00 - 11:30	lecture	AS	Sensitivity analysis
11:45 - 12:30	lecture	CA	Monte Carlo simulation
14:00 - 17:00	practice	JH, all	Practice of likelihood functions and sensitivity analysis, ex.1
17:00 - 17:30	discussion	JH	Discussion of exercises
18:00 - 21:00	<i>barbecue</i>	<i>all</i>	<i>At the small river close to Eawag; only if the weather is nice</i>

Tuesday, June 13: Introduction to Bayesian Analysis

08:30 - 09:15	lecture	PR	Concepts of Bayesian analysis
09:30 - 10:15	lecture	DK	Simple Bayesian schemes
10:45 - 11:30	lecture	CA	Bayesian computation with Monte Carlo methods
11:45 - 12:30	lecture	DK	Identifiability analysis and posterior diagnostics
13:45 - 14:00	<i>course picture</i>		<i>Outside or in the atrium, depending on the weather</i>
14:00 - 17:00	practice	TC, all	Practice of elementary Bayesian inference, ex. 2
17:00 - 17:30	discussion	TC	Discussion of exercises

Wednesday, June 14: Bayesian Computation and Alternative Techniques

08:30 - 09:15	lecture	DK	Optimization techniques
09:30 - 10:15	lecture	CA	Ensemble methods and filters
10:45 - 11:30	lecture	AS	Inference with hierarchical models
11:45 - 12:30	lecture	DK	Alternative methods of model calibration
13:30 - 14:30	<i>guided tour</i>	<i>TBA</i>	<i>Guided tour through the building and to the river (optional)</i>
14:30 - 17:00	practice	SD, all	Practice of Bayesian inference / advanced methods, ex. 3
17:00 - 17:30	discussion	SD	Discussion of exercises

Thursday, June 15: Advanced Topics

08:30 - 09:15	lecture	PR	Considering input and structural uncertainty
09:30 - 10:15	lecture	CA	Approximate Bayes computation; emulators
10:45 - 11:30	lecture	PR	Hierarchical statistical modeling in ecology
11:45 - 12:30	lecture	DK	Hydrological modeling, uncertainty and hypothesis testing
14:00 - 17:00	practice	all	Practice of Bayesian inference / problems of participants
14:00 - 15:00	(topics parallel to	PR	Exercise 4: Inference with hierarchical models
15:00 - 16:00	general practice	LA	Exercise 5: Approximate Bayes Computation (ABC)
16:00 - 17:00	session, FC-D24)	OW	Exercise 6: Emulation
17:00 - 17:30	discussion	DK	Discussion of exercises

Friday, June 16: Discussion of Problems of the Participants

08:30 - 9:30	discussion	all	Discussion of problems of the participants
09:45 - 11:30	discussion	AS	Summary of the course
11:45 - 12:30	discussion	all	Feedback to the course
14:00 - 16:30	practice	all	Practice of Bayesian inference and exercises (cont.) Discussion of problems of the participants

Lectures and practice sessions will take place in FC-C20, lunch will be provided in the restaurant downstairs