Eawag Summer School in Environmental Systems Analysis 2011 PR/31.05.2011

Lecturers: Peter Reichert (PR), Carlo Albert (CA), Dmitri Kavetski (DK)
Support of practice sessions: Anne Dietzel and Simon-Lukas Rinderknecht

Course Program

Monday, June 6

08:30 - 09:00		PR	Introduction to the course
09:00 - 09:30	lecture	PR	**Importance of models** **Causes of uncertainty in model predictions**
09:30 - 10:00	break		
10:00 - 11:00	lecture	PR	**Description of uncertainty** **Mathematical representation of models**
11:00 - 11:30	break		
11:30 - 12:30	lecture	PR	**Construction of models** **Preliminary analysis** **Sensitivity analysis**
12:30 - 14:00	lunch		
14:00 - 17:30	practice	all	Practice of sensitivity analysis

Tuesday, June 7

08:30 - 09:30	lecture	PR	**Frequentist inference: tests, confidence regions**
09:30 - 10:00	break		
10:00 - 11:00	lecture	CA	**Frequentist inference: identifiability, model structure selection**
11:00 - 11:30	break		
11:30 - 12:30	lecture	DK	**Computational issues: Local and global optimization, numerical model design and implementation**
12:30 - 14:00	lunch		
14:00 - 17:30	practice	all	Practice of frequentist inference and identifiability analysis

Wednesday, June 8

08:30 - 09:30	lecture	PR	**Bayesian inference: priors, updating, prediction**
09:30 - 10:00	break		
10:00 - 11:00	lecture	CA	**Bayesian inference: numerics** **(Markov chains, Population methods)**
11:00 - 11:30	break		
11:30 - 12:30	lecture	DK	**Bayesian inference: hierarchical models, posterior diagnostics, identifiability, numerics**
12:30 - 14:00	lunch		
14:00 - 17:30	practice	all	Practice of Bayesian inference

Thursday, June 9

08:30 - 09:30	lecture	DK	**Input and structural uncertainty, outlook**
09:30 - 10:00	break		
10:00 - 11:00	lecture	CA	**Bayesian experimental design, outlook**
11:00 - 11:30	break		
11:30 - 12:30	lecture	PR	**Model bias, outlook**
12:30 - 14:00	lunch		
14:00 - 17:30	practice	all	Practice of Bayesian inference / own problems

Friday, June 10

08:30 - 09:30	discussion	all	**Discussion of problems of the participants**
09:30 - 10:00	break		
10:00 - 11:00	discussion	all	**Discussion of problems of the participants**
11:00 - 11:30	break		
11:30 - 12:30	discussion	all	**Feedback of participants to the course**
12:30 - 14:00	lunch		
14:00 - 16:30	practice	all	Practice on subject chosen by the participants