

Event Schedule

(tentative)

Chair of Structural Mechanics, ETH Zurich
(18 hours)

- SM1. Overview – Mathematical background
- SM2. Time series analysis I – Basic concepts and parametric modelling
- SM3. Time series analysis II – Output-only subspace identification
- SM4. MATLAB Tutorial I (system identification)
- SM5. Linear State estimation – Luenberger observer/Kalman filter
- SM6. MATLAB Tutorial II (Bayesian Estimators)
- SM7. Nonlinear State estimation – The Unscented and Particle Filters
- SM8. SIMULINK Tutorial I (Nonlinear & Non-stationary systems)
- SM9. Advanced topics – Surrogates for Nonlinear & Time Varying Systems

CSZ Block Course Series

CSZ Block Course

UQ & Data Analysis in Applied Sciences

March 19-19, 2018 (HG G 26.1)

visit <http://www.zhcs.ch/> for more information



Event Schedule

(tentative)

Chair of Risk, Safety and Uncertainty
Quantification, ETH Zurich

(18 hours)

- UQ1. Introduction to uncertainty quantification
- UQ2. Modelling sources of uncertainty
- UQ3. Uncertainty propagation by Monte Carlo simulation
- UQ4. Polynomial chaos expansions (1)
- UQ5. Polynomial chaos expansions (2)
- UQ6. Sensitivity analysis
- UQ7. Structural reliability and rare events simulation (1)
- UQ8. Structural reliability and rare events simulation (2)
- UQ9. Tutorial: UQLab (for participants with laptops)

CSZ Block Course Series

Event Schedule

(tentative)

System Dynamics Laboratory, University of
Thessaly/Chair of Computational Science,
ETH Zurich

(18 hours)

- CS1. Overview, Probability Fundamentals
- CS2. Bayesian Inference
- CS3. Stochastic Optimization
- CS4. Tutorial I: $\Pi4U$ software for Bayesian UQ using Python
- CS5. Bayesian Model Selection and Uncertainty Propagation
- CS6. Sampling Algorithms
- CS7. Model Reduction and Surrogates Using Machine Learning
- CS8. Tutorial II: $\Pi4U$ software for Bayesian UQ using C++
- CS9. Decision Theory and Optimal Experimental

CSZ Block Course Series