

# Summer School on Heuristic Optimization Methods in Data Analysis

July 9–13, 2012 in Rauschholzhausen, Germany

## Organizer and lecturers

Organizer: Peter Winker, University of Giessen

Lecturers: Manfred Gilli, University of Geneva

Dietmar Maringer, University of Basel

Enrico Schumann, VIP Value Investment Professionals AG, Wilen (SZ)

## Date and venue

July 9–13, 2012 at *Schloss Rauschholzhausen*, ([www.uni-giessen.de/uni/einrichtungen/Rauschholzhausen/](http://www.uni-giessen.de/uni/einrichtungen/Rauschholzhausen/))

The castle is situated in the neighborhood of Giessen (30 minutes from Giessen ([www.giessen.de](http://www.giessen.de)), or 15 minutes from Marburg ([www.marburg.de](http://www.marburg.de))) and is the property of the University of Giessen.

## Topic and preliminary program

The Summer school focuses on computational methods for statistics and data analysis, with an emphasis on techniques for optimization and simulation. The content of the course is partly based on the textbook on “Numerical Methods and Optimization in Finance” (Elsevier, July 2011), which reflects research carried out as part of the Marie Curie Research-and-Training Network COMISEF (Computational Optimization in Statistics, Econometrics and Finance, MRPN-CT-2006-034270, <http://comisef.eu>). Course teaching and assistance during the practical sessions is performed by the authors of the textbook.

- Numerical methods in a nutshell
- Programming paradigms and tools
- Solving linear systems
- Classical optimization methods
- Overview of optimization heuristics
- Sessions on specific heuristics: Differential Evolution and Threshold Accepting
- Applications and case studies: model selection, robust regression, Maximum-Likelihood estimation
- Simulation: generating random numbers and applications
- Working with time series

Teaching will consist of a morning session of 3 lectures of 45 minutes; the afternoon will be dedicated to hands-on sessions and occasionally an extra lesson of 45 minutes. All examples in the hands-on sessions are based on MATLAB and R, but participants can use other languages as they prefer.

## Accommodation

Accommodation and board at the venue.

## Registration and fees

The number of participants is limited and registrations will be handled on a first-come, first-served basis. Fee is 250 Euro and includes full board at the castle. ([www.uni-giessen.de/uni/einrichtungen/Rauschholzhausen/](http://www.uni-giessen.de/uni/einrichtungen/Rauschholzhausen/))

**Contact:** ERS-IASC-SSR@unige.ch