SUMMER
SCHOOL

22 - 26 July 2013 in Germany,

University Campus of Bayreuth

Management Science Modelling and Simulation for Decision Support

UNIVERSITÄT BAYREUTH

CAMPUS AKADEMIE

elsa
The European Law Students' Association
BAYREUTH

ECTS achievable

21.7. **Arrival of Participants – Informal Welcome**

22.7. **Introduction to Modelling and Simulation**

Theory:
- Introduction to the simulation modelling process
- Introduction to the simulation paradigms (system dynamics; discrete event; agent based)

Practice:
- Introduction to the AnyLogic IDE and Java basics for AnyLogic users

23.7. **Conceptual Modelling**

Theory:
- Conceptual modelling concepts and techniques
- Conceptual model representation using the Unified Modelling Language (UML)

Practice:
- Conceptual modelling case study [group work]

24.7. **Application of Modelling and Simulation Methods**

Theory:
- Systems Thinking and System Dynamics Modelling and Simulation
- Discrete Event Modelling and Simulation

Practice:
- System Dynamics Modelling and Simulation in AnyLogic [tutorial]
- Discrete Event Modelling and Simulation in AnyLogic [tutorial + group work]

25.7. **Application of Modelling and Simulation Methods**

Theory:
- Agent-Based Modelling and Simulation
- Hybrid Modelling and Simulation

Practice:
- Agent-Based Modelling and Simulation in AnyLogic [tutorial + group work]
- Hybrid Modelling and Simulation [tutorial
- Discussion of own project

26.7. Knowledge Gathering

Theory:
- Data collection and input modelling
- Model verification and validation
- Experimental design and experimentation
- Output analysis

Practice:
- Work on your own project

Course Outline:
Systems simulation is becoming increasingly popular as a decision support tool in Operations Research and Management Science. This can be accounted to the recent increase in data availability and improvements of speed in computer hardware. Systems simulation helps to better understand the processes currently in place and shows the consequences of changes to these processes over time. Besides its standard application of studying the operations of a system it has more recently also gained attention as a useful tool for studying the behaviour of people in human centred service systems.

Lecturers:

Dr Peer-Olaf Siebers (School of Computer Science, Nottingham University, UK)

Dr Stephan Onggo (Management School, Lancaster University, UK)

Bayreuth is a large town in Northern Bavaria on the Red Main river in a valley between the Franconian Jura and the Fichtel-gebirge mountains.

The town's roots date back to the year 1194 and Bayreuth now has a population of about 72,000 citizens and about 11,000 students at its university. The town is world-famous for its annual festival "die Bayreuther Festspiele" at which operas by the 19th century German composer Richard Wagner are performed. Located in the heart of nature, Bayreuth is renowned for its variety of sports and cultural activities throughout the year.

Bayreuther Festspiele

A specialty the region further has to offer is its art of beer-brewing – nowhere in the world can one find such a regional proximity to breweries where the famous Bavarian beer is produced.

The University Campus – often refered to as a Campus within nature – is built similarly to campuses of American Universi-ties. Every building is within a few minutes walking distance. Students can easily engage with each other – through summer schools and their regular studies.

SUMMER
SCHOOL

22 - 26 July 2013 in Germany,
University Campus of Bayreuth

Your Bayreuth International Summer School Organization Team

For your application or questions, please contact us at:

summerschool@uni-bayreuth.de
www.summerschool.uni-bayreuth.de

UNIVERSITÄT BAYREUTH

CAMPUS AKADEMIE
BAYREUTH