



## Methodological Approaches to System Experiments - June 23-28, 2019

# Programme

### Day 1 - Introduction to system experiments

- 🕒 **Introduction:**  
Presentation of the programme and its pedagogical objectives  
Brief presentation of lecturers and participants.
- 🕒 **Lectures:**  
What are system experiments?  
Typology of system experiments  
Decision rules  
Non statistical outputs of system experiments  
What is a scheme of hypotheses?
- 🕒 **Teamwork 1:**  
Building a scheme of hypotheses/conceptual scheme  
*Short projects conducted in small groups followed by presentations of results in a plenary session*

### Day 2 - Experimental designs

- 🕒 **Lectures:**  
Differences between experiments and observations  
General principles of experimental designs  
Domain of validity of experimental designs  
Optimisation of sampling strategies for data collection  
True or false replicates, that is the question!  
Landscape as an object or a context in experimental designs
- 🕒 **Teamwork 2:**  
Experimental design (based on the results of Teamwork 1)

### Day 3 - Inferential statistics/Field Trip/Visit of Volterra

- 🕒 **Lectures:**  
Overview of inferential statistics  
Application to system experiments
- 🕒 **Presentation of Teamwork 2 results**  
*Plenary session*
- 🕒 **Visit of Tuscan field experiments**
- 🕒 **Free time + social dinner in Volterra**

### Day 4 - Data mining

- 🕒 **Lectures:**  
Graphical analyses  
Overview of data mining approaches  
Examples of data mining methods based on case studies
- 🕒 **Teamwork 3:**  
Data analyses

### Day 5 - Conclusion

- 🕒 **Presentation of Teamwork 3 results**  
*Plenary session*
- 🕒 **Feedbacks on the training course from participants**
- 🕒 **Take home messages and perspectives**