Overview: Environmental modellers increasingly require robust and practical approaches for model development and evaluation. With the support of the European Geosciences Union (EGU), the University of Salento jointly with the University of Adelaide (Australia) and the Eawag (Switzerland) are presenting a short course on catchment-scale hydrological modelling. The following topics are included:

- Hydrological model development using mass balance and constitutive functions
- Numerical methods for hydrological models
- Bayesian methods for model calibration and prediction
- Lumped and distributed hydrological models
- Hypothesis-testing in catchment scale hydrology
- Hydrogeology and hydroclimatology of South Italy and the Mediterranean region

The course will include a 1-day field trip showing the hydrogeological and hydrological characteristics of the Salento peninsula.

The course is suitable for researchers (PhD students, Masters students and postdocs) in the field of hydrology and broader environmental sciences with an interest in the workshop themes.
## Prerequisites
- Interest in and basic knowledge of catchment scale hydrology
- Good programming skills (ability to write scripts, use functions, loops, etc)
- Good mathematical and statistical skills (able to carry out basic derivations, work with Gaussian pdf, etc)
- Participants are expected to bring their own laptops, with a programming language installed
- The course will be delivered in English; Exercise solutions will be demonstrated in Matlab

## Outcomes
- Learn how to build a simple hydrological model (conceptual design and numerical implementation)
- Learn how to calibrate the hydrological model using basic Bayesian methods
- Learn how to estimate uncertainties in model parameters and predictions under basic assumptions
- Gain an appreciation of the utility of field knowledge in environmental modelling (e.g. inference of dominant processes, diagnostic appraisal of model "realism")
- Gain an understanding of the hydrogeology and hydroclimatology of South Italy and Mediterranean region
- Preparatory material such as research articles and tutorials related to the workshop are available on request

## Venue
University of Salento, Rettorato - Sala Conferenze, Piazzetta Tancredi, 7 - 73100 Lecce (Italy)

Lecce is a historic city in the Apulia region of Italy, characterized by rich Baroque architectural monuments.

The closest airports are in Brindisi (BDS) and Bari (BRI), from which Lecce can be reached by bus or train. Lecce is also connected by direct trains to several major Italian cities, including Rome and Milano.

The school will be held in the historical building of the University of Salento, in the city centre.