

Future challenges in Hydrology education

- Environment, society and economy are sharply interlinked and characterized by continuous changes. These changes affect hydrological systems and their dominant processes, modify hydrological balances and many have strong impacts on the management of water resources.
- Methods for data collection (field and remote sensing), in the laboratory and for data analysis (e.g. environmental models) develop rapidly.
- Hydrologists should be aware of global changes and their impacts.
- They must apply state-of-the-art tools and methods.

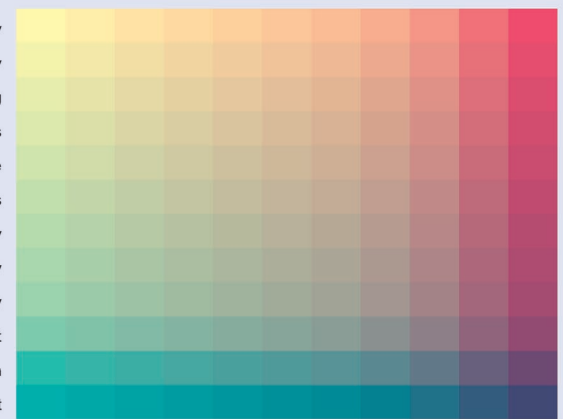


Skills

- Collecting Field data (Experiments, Sensors and Dataloggers)
- Laboratory Techniques
- Statistical and empirical data analysis
- Developing and applying environmental models
- Applying software to solve problems
- Interpreting scientific papers
- Preparing and presenting oral talks
- Making a compelling poster
- Writing (scientific) papers and reports
- Working with practitioners and the public
- Ability to work in a team

Topics

- Ecohydrology
- Hydrogeology
- Hydr. Extremes and Forecasting
- Hydrological Processes
- Hydrology and Global Change
- Hydrology of different climates
- River Processes and Ecology
- Tracer and Isotope Hydrology
- Urban Hydrology
- Water Policy and Management
- Water Quality and Pollution
- Water Resources Assessment



The schedule shows the modules of the master program at the University of Freiburg. The background colors highlight the topics and skills that are taught in each module.

Education principles of the Hydrology Program in Freiburg

- Close links between research and education: Students learn up-to-date research methods and take an active part in ongoing research projects.
- Feedbacks between research and practice: Besides an internship, practitioners teach modules and modules are open to practitioners.
- Flexibility in methods: Students practise up-to-date methods but also learn how to develop their own models and their own data analysis tools that can be modified incessantly.
- Freeware software: To guarantee sustainability of methods we build our education largely on freeware software ("R", "SAGA", etc.).

Program structure

- Topics are taught in individual 3-week modules adapted to the European Credit Transfer System (ECTS).
- The program builds on a broad knowledge in natural and environmental sciences.
- Field trips are included in many modules.
- English is used as a scientific language, however most modules are taught in German.
- For professional experience a 10 ECTS internship is a compulsory part of the program.
- The master thesis (30 ECTS) at the end of the program provides a way to synthesise the knowledge and to develop ties with researchers and practitioners.

