

## **FOMT 1.1: Tropical Climate and Ecology**

### Contents:

Contents of the module are abiotic factors with relevance for climate, and the feedbacks of ecosystems, atmosphere and hydrosphere, climate systems, carbon stocks, fluxes of matter and land-use with examples from the tropics, general circulation, micro and macro-climate, forests and water, and basic concepts of the soil-vegetation-atmosphere transfer, key concepts of ecology on the level of individual organisms, (meta-) populations, species communities and ecosystems as a part of landscapes, forms of biodiversity in consideration of species and functional diversity in various spatial and temporal scales as well as drivers for change, ecosystem functions and ecosystem services in the context of sustainability.

### Qualification goals:

The students understand tropical ecosystem structure and functioning. They recognize causalities and effects of drivers for changing of the dynamic equilibrium within populations, communities and the entire biosphere with the inclusion of the interfaces to the atmosphere and hydrosphere. They are able to analyse and evaluate the possibilities and limits of control, sustainable utilization as well as regeneration of tropical (forest) ecosystems. They are capable of identifying causal-analytical problems for the protection, sustainable use and regeneration of tropical forest ecosystems and landscapes as well as to orientate their actions accordingly. They possess the knowledge of planning their actions and developing management competence for ecosystems and forest-related land use.