**MSc in Water and Sustainable Development**

**MODULE**

*Water resources assessment and allocation using spatio-temporal data*

To manage water resources effectively and to draft sensible water allocation plans there is a need for water managers to appraise how much water is available in a river basin, how much is being used and how much water each sector requires to function well. This module teaches students basic methods to quantify water availability and water demands in river basins using various types of data (remote sensing (RS), in-situ data, open access databases and model outputs). In particular, students will learn how to prepare, interpret and evaluate water resources assessments and learn to apply basic skills of GIS and Python programming to map and analyse hydrological processes. Moreover, students will discuss concepts of water resources management to analyze problems of water demand and allocation and apply water allocation models to develop river basin plans. Students will learn how to include RS data in a water assessment study. The use of RS data in combination with in-situ or secondary data to retrieve information on water resources in a basin will be covered. Students will learn where to obtain RS datasets and work with GIS and python to perform spatio-temporal analysis of datasets to produce information relevant to water resources assessments.