

- Faculté des sciences
- www.unine.ch/sciences

Environmental data analysis (3BL2289)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie	Cours: 28 pg	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante

Emmanuel Defossez

Contenu

This course is primarily designed to learn how to manipulate and analyze ecological, spatial and temporal data (biodiversity data). This is an R course for both participants with no programming experience and those who wish to improve their skills. It begins with basic information about R syntax, object types, the RStudio interface, and then moves on to importing CSV files, structuring and manipulating data frames (filtering, slicing, merging...), and computing simple summary statistics from formatted data. This is followed by the manipulation of specific environmental objects, including raster (spatial data format) and time series, coupled with modeling (including a brief presentation of the machine learning approach). The second major part of the course is mainly devoted to data visualization and graph design, ranging from simple plots (using ggplot) to advanced 3D interactive visualization. The overall goal of this course is to develop the skills necessary to manipulate and structure large data sets to identify patterns and trends related to a specific issue.

Forme de l'évaluation

Continuous assessment: A data analysis project in the form of an annotated R-Script.

Ratings will be based on: diversity of data used, diversity and complexity of functions used, reproducibility of the R-Script, types of plots, clarity and aesthetics of figures, annotation of the R-Script

Modalités de rattrapage

improve the script of the original project

Pré-requis

Basic computer skills and motivation

Forme de l'enseignement

practical courses in the computer room

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Analyse ecological, spatial and temporal biodiversity data
- Structure large data sets
- Produce publication ready plots
- Develop a reproducible R script