

Teaching Data Analysis Using Students' Own Data

Dmitry A. Kondrashov¹, Stefano Allesina²

¹*Biological Sciences Collegiate Division and* ²*Department of Ecology & Evolution, University of Chicago, Chicago, IL 60637*

dkon@uchicago.edu

We have developed and taught a new course called Fundamentals of Biological Data Analysis, with the main objective of helping fourth-year biology majors who have collected data to produce a thesis or publication. The course combines instruction in statistical concepts that are commonly used for data analysis, e.g. fitting data, model selection, and dimensionality reduction techniques, as well as practical tutorials using R. Students learn to use tidyverse packages to clean and wrangle data and ggplot to produce publication-quality graphics. We will illustrate our tutorials and other materials, and discuss the challenges of finding the balance between teaching fundamental concepts while enabling students to learn the specific techniques needed for their individual research questions. The materials under development are available in the github repository: https://github.com/StefanoAllesina/Fundamentals_Bio_Data_Analysis