ACCE Quantitative skills

12 - 13 April 2016

Facilitator: Dr Colin Beale, University of York (colin.beale@york.ac.uk)

The increasing availability of large datasets covering a wide range of environmental data, from climate and satellite data to bioinformatics databases with Terabytes of valuable information present researchers within the ACCE programme with some amazing opportunities to tackle new questions of great importance to the study of environmental change.

However, to make the most of these data and the datasets we generate ourselves increasingly requires expertise in handling and manipulating datasets. All three ACCE institutions offer courses in the R statistical environment, focussing on data analysis. In reality, however, we often spend more time on data preparation, manipulation or tedious basic analyses than the statistical analyses we want to achieve. Moreover, empirical studies are increasingly supported by sophisticated simulation studies. Both these activities are greatly facilitated by a familiarity with basic programming. In this two-day course, we will learn how to automate tedious, repetitive tasks in R by making use of basic programming. As well as generic programming skills (e.g. data structures, the use of loops and conditionals, etc.) we will learn some specific R tools to make your analyses so much more productive (e.g. writing functions, system calls, string manipulations and low-level data input / output). The first day will consist of a series of short lectures/demonstrations and extended practicals, whilst the second day will see participants divided into groups to undertake a small research project that involves accessing, formatting and manipulating real datasets to answer genuine research questions of relevance across the ACCE programme.

Programme
Location: **Department of Biology, room R012**, **map**
12 April 2016: QUANTITATIVE SKILLS EVENT DAY 1
10:00 – 10:30 Registration + tea/coffee (Biology Department Reception and Atrium)
10:30 – 12:30 Session 1: Basic programming in R
12:30 – 13:30 Lunch
13:30 – 15:00 Session 2: Basic programming in R
15:00 – 15:30 Tea/Coffee

15:30 – 17:00 Session 3: Basic programming in R	
13 April 2016: QUANTITATIVE SKILLS EVENT DAY 2	
09:30 – 11:00 Session 1: Group project	
11:00 – 11:30 Tea/Coffee	
11:30 – 12:30 Session 2: Group project	
12:30 – 13:30 Lunch	
13:30 – 15:00 Session 3: Group project	
15:00 – 15:30 Tea/Coffee	
15:30 – 16:00 Session 4: Group project	
16:00 – 17:00 Group presentations	

Data Management Workshop

14 April 2016

Facilitator: Anna Krystalli (annakrystalli@googlemail.com)

In order to maximise the benefits of ACCE research to future researchers and to society more generally, the data generated must be adequately described, archived, and made discoverable. Existing NERC data centres facilitate this, but a prompt delivery of data in the optimal format for sharing and reuse is hindered by a lack of awareness among PIs and students and lack of adequate tools for easily turning individual datasets into sharable resources. This course will introduce students to best practice in research data management, including tips and tools that help to make data more useful. This is of direct benefit to the students themselves, as properly formatted, well-documented data make revising and reproducing previous analyses (an inevitable part of publishing research) a simple process. It also makes it easier to share data with other users, including researchers and stakeholders, and to combine individual datasets to provide new insights into our changing environment. The workshop is designed to be relevant to students with a wide range of backgrounds, working with anything from relatively small sets of data collected from a field or experimental observations to those taking a more computational approach and harnessing the power of big data.

Location: Department of Biology, room R012, map

14 April 2016: DATA MANAGEMENT
10:00 – 10:30 Feedback on Quantitative Skills Workshop
10:30 – 11:00 Introduction: Why make the effort to manage data effectively?
11:00 – 12:30 Session 1: Principles of tidy data
12:30 – 13:30 Lunch
13:30 – 15:00 Session 2: Principles of data documentation
15:00 – 15:30 Tea/Coffee
15:30 – 17:00 Session 3: Principles of open data

Information for students and staff

The event forms part of the mandatory training portfolio for all ACCE- NERC funded students.

Accommodation

On-campus accommodation at the University of York can be booked by visiting: http://www.yorkconferences.com/events/venue/bed-and-breakfast-14.aspx

As York is a popular tourist destination there is a lot of accommodation available to suit all budgets, much of it in the picturesque heart of the city. More details of the accommodation available can be found on the Visit York website. Early booking is recommended.

Directions for getting to the Department of Biology can be found here:
http://www.york.ac.uk/biology/contact/how-to-locate-us/
http://www.york.ac.uk/about/maps/