Western Indian Ocean Regional Training workshop on '*Introduction to R Programming*'

27–29 October 2017, Dar es salaam, Republic of Tanzania

Call for application

Macquarie University in collaboration with the Wildlife Conservation Society are organizing a Regional Training Course on Introduction R programming, that will be held in Dar es Salaam, Republic of Tanzania from 27-29 October 2017. Applications are invited from the qualified applicants from all the countries in the Western Indian Ocean (WIO) region. The course is funded by WIOMSA.

Background

The '*Introduction to R Programming*' training workshop is a hands-on three-day event that will cover the core skills to help the attendees climb the steep learning curve by teaching them how to use R programming to explore data from a variety of sources and by building inferential models and generating publication quality charts, graphs, and other data representations. The 3-day training course will be for newcomers to R and will be aimed at postgraduate students and early career researchers from the WIO region.

Objectives of the workshop

The objectives of the workshop are:

- To help boost the caliber of research and publications in the region by introducing to young and early career researchers the modern methods of data analyses and presentation using R Software.
- To provide a basic understanding of programming in R for statistics and data manipulation and visualization.

Course description and schedule

The course will consist of short lectures interspersed with many hands-on exercises. We will provide examples from various articles that have used R for analyses and illustrations.

Introduction to R (day 1)

This session introduces the R statistical processing language, including how to install R. At this session, we will begin by interacting with the program at a very basic level to become familiar with the R programming environment. We will cover a few topics including how to import data into R, the various kinds of data that R is capable of handling, the syntax of the R programming language, how to manipulate these data using basic programming functions, and how to write functions. No programming skills will be assumed for this first day. Participants will also learn how R works with numeric vectors and special values, and how to deal with special values. They

will start working with R to handle text data, and learn about regular expressions, dates, classes and generic functions, as well as matrices, data frames and lists.

Graphing and data manipulation in R (day 2)

Day 2 continues the introduction to R programming. R is capable of producing publication-quality graphics from your data and can also be used to manipulate your data into a variety of useful forms. On this day, we will cover two topics. First, we will cover commonly used graphing procedures in R. Such procedures are helpful not only for producing graphs, but also for exploring data and for interpreting results of statistical procedures. Second, we will cover data manipulation, considering in some detail the issue of inputting data into R and then transforming data so that they are in a format suitable for statistical analysis. Attendance at the 'INTRODUCTION TO R' workshop (Day 1) is a prerequisite for attending the GRAPHING & DATA MANIPULATION IN R module unless the attendee has prior experience in R.

Statistics and spatial analysis in R (day 3)

At this session, we will introduce some of the most common statistical procedures including correlation, regression, generalized linear models, analysis of variance/covariance, and diagnostic statistics. Common non-parametric statistical procedures will also be discussed, along with bootstrap resampling procedures, which allow statistics to be calculated for data that do not uphold normality assumptions. We will also introduce Spatial Analyses (GIS) using R. Attendance at 'INTRODUCTION TO R' and the 'GRAPHING & DATA MANIPULATION IN R' workshop is a prerequisite for attending the STATISTICS AND SPATIAL ANALYSIS IN R module.

Targeted audience & Expected output

This course will introduce the basic concepts in computer programming via R - it is for those who have basic knowledge in applied statistics and have had little or no experience in R. The course is targeted for postgraduate students and early career researchers from the WIO. The assumption will be that participants would have completed some introductory statistics course at university level, but no previous programming experience is required. Considering that one cannot become expert in R from three days of training, it is expected that this training would provide a basis upon which one can build on to become intermediate or advanced user.

How to apply

If you would like to apply for this course, please fill out the attached application form and together with your CV, e-mail them to secretary@wiomsa.org and copy to jmaina@wcs.org. The application deadline is 30th June 2017. However, we encourage you to submit your application as soon as possible because we will be making some selection decisions early, well before the deadline.