

Course overview

Instructors

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Learning objectives

By the end of the course students will:

- Be comfortable executing basic commands in the R environment.
- Be able to load packages in R and make use of their added functionality.
- Be able to read in data files, manipulate data, and perform simple analyses in R.
- Be capable of plotting curves, scatter-plots, histograms, and other graphic outputs in R.
- Be able to write their own computer programs to simulate population models in discrete or continuous time.

What R is...



- “R is an integrated suite of software facilities for data manipulation, calculation and graphical display.”
- A free, open-source, community-built software package.
- Powerful, flexible computational tool with a broad array of add-on ‘packages’ that perform advanced analyses.
- A high-level “interpreted” programming language for scientific computing.
- A powerful platform for statistics.
- A major research tool in ecology and other fields.

What R isn't...

- A commercial package
- A drop-down menu environment
- Excel
- JMP, SPSS, SAS, etc.
- Matlab

Why we choose to teach the course using R

- It is a standard platform for much EEB research
- It is free.
- There is an ever-growing library of resources showing you how to tackle various research problems using R.
 - Many methodological books being re-published with 'in R' added to title
 - Springer series 'Use R!' is available free through UCLA library
- User-built packages are very powerful, always changing as the field progresses.
- Once you learn principles of programming in R, it is easy to apply them to programming in another high-level language (such as Python or Matlab).

Course schedule

Wednesday 14 September

- 9-9:45 Introduction to bootcamp and R **need to update for 2016** [slides](#) *Alfaro, Lohmueller, Pinter-Wollman*
- 10-10:45 Basic version control [slides](#) *Alfaro*
- 11-12:30 Flow control, scripts, functions [slides](#) *Alfaro*
- 12:30-1:30 Lunch
- 1:30-2:30 Introduction to plotting [slides](#) *Lohmueller*
- 2:30-5PM Work on assignments

(at least two commits to your github repo by 6:00 PM)

Thursday 15 September

- 9-10:00 Working with data [slides](#) *Lohmueller*
- 10:30-12:00 Using R for statistical analyses [slides](#) [R-code](#) *Pinter-Wollman*
- 12-1:00 Lunch
- 1-5:00 Work on assignments

(at least two commits to your github repo by 6:00 PM)

Thursday 22 September

All exercises must be completed and committed to your repo. This does **not** mean they should take a week. **Do them now.**

Grad students will hold limited office hours for people who need help.