

# Course overview

## *Instructors*

Mike Alfaro

Jamie Lloyd-Smith

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## *Grad student support*

Monique Ambrose

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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

## Friday 22 September

- 9-9:45 Introduction to bootcamp and R
- 10-10:45 Flow control, scripts, functions *Alfaro*
- 11-12:30 Introduction to plotting *Lohmueller*
- 12:30-1:30 Lunch
- 1:30-5PM Work on assignments

(looking for 2+ commits to your github repo by 6:00 PM)

## Wednesday 27 September

- 9-10:00 Working with data *Lloyd Smith*
- 10:30-12:00 Advanced plotting *Lohmueller*
- 12-1:00 Lunch
- 1-5:00 Work on assignments

looking for 2+ commits to your github repo by 6:00 PM)

## Wednesday 4 October

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

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