

Introduction to Biological Statistics Course

This space will be used to communicate with students in the Introduction to Biological Statistics Course. Here, you will find copies of lecture materials, exercises and other relevant resources. For more information, contact Nathaniel Pope at npope@coa.edu, Spencer Fox at spncrfx@gmail.com, or Nichole Bennett at nichole.lynn.bennett@gmail.com. If you want to get weekly announcements about the course (weekly topics, software requirements, etc.) please sign up for the listserv [here](#).

The goal of this workshop is to provide graduate students early in their studies with a broad set of practical statistical knowledge and tools for their research projects. The workshop focuses on statistical analysis in R, and we provide basic R instruction that assumes no prior familiarity with R. Past workshops have included broad overviews and workable examples of the following types of analysis: linear models and model fitting, time series analysis, spatial statistics, phylogenetics, population genetics, population dynamics and principal components analysis. This workshop is not meant to replace formal course work in statistics. Instead, it provides participants with a foundation of knowledge that can be built upon by future study.

The course has a [GitHub repository](#) which will periodically be updated with scripts and other materials that are used in the class. An annotated list of [Statistics Resources](#) is available on Google Drive.

This course meets Fridays 2-3:30 pm in GDC 7.514 .

Please take the [course survey](#) to help us better meet your needs! Also, we are actively looking for post-docs and graduate students to lead individual sessions. You don't have to be an expert, just willing to share what you know.

Prerequisite R knowledge assumed for statistics topics lectures:

If you're attending any of the specific statistics topic lectures, we expect that you have a reasonable understanding of the material presented in the first few weeks of class. We also expect that you can do the following in R: access help files for functions, load data, and install R packages. If you need extra practice/instruction in loading data or installing packages, we have the following cheat sheets for you.

[Install and Load R Packages](#)

[Load Data](#)

Week	Date	R Topic	Statistical Topic	Instructor
1	9/4	Introduction to R	Did we mention R?	Nate Pope/Spencer Fox/Nichole Bennett
2	9/11	Probability Distributions, Simulation	Probability and Likelihood	Nate Pope/Spencer Fox/Nichole Bennett
3	9/18	Functions, Flow Control	Hypothesis Testing	Nate Pope/Spencer Fox/Nichole Bennett
4	9/25	Model Fitting, Debugging	Linear Models	Nate Pope/Spencer Fox/Nichole Bennett
5	10/2		Model Building	Andrius Dagilis
6	10/9	Package lme4, parametric bootstrap	Mixed/Hierarchical Models	Nate Pope
7	10/16		Spatial/Temporal statistics	Emlyn Resetarits
8	10/23	Bayesian inference in JAGS	Bayesian Inference	Spencer Fox
9	10/30	Best programming practices in R	R, R, R, R, R, R, R...	Nichole Bennett
10	11/6	Package igraph	Networks	Amanda Perofsky
11	11/13	Package lme4, parametric bootstrap	Mixed/Hierarchical Models	Nate Pope
12	11/20	Parallelization in R, R on TACC	R, TACC	Dennis Wylie
13	12/4	Best programming practices in R	R!	Nichole Bennett

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