

BIOL-GA 2030 Sec 001 - Statistics in Biology

Instructor:

Manpreet Katari

Course Description:

This course will cover classical and modern statistical methods, including frequentist, Bayesian, and resampling methods. Data sets and problems encountered in Bioinformatics and Genomics will be used as examples. This is a hands-on course. R will be used as a tool to perform statistical tests. Prior knowledge of programming in R is not required.

Pre-requisite:

There are no pre-requisites for the course. Calculus and Linear Algebra review material will be provided where appropriate

Textbook and Required Materials:

Foundational and Applied Statistics for Biologists Using R, Ken A. Ho, CRC Press (of Taylor and Francis Group), Boca Raton, FL, 2014. ISBN 978-14398-7338-0.

Grading:

Lab/Homework	60%
Midterm	20%
Final	20%

Topics:

Introduction to R
Discrete and Continuous Distributions
Parameters and Statistics
Bootstrapping
Hypothesis Testing
Multiple Hypothesis Testing
Regression
ANOVA
PCA
Correlation and Clustering
Tabular Analyses