

BIostatISTICS SPRING 2016

Instructor: Ruibin Xi
Office: 全斋 23 (Ruibin Xi)
TA: 陈冲 (15210624427)
Website: <http://www.math.pku.edu.cn/teachers/xirb/Courses/biostatistics/Biostatistics2016.html>
Email: ruibinxi AT math DOT pku DOT edu DOT cn
cheung1990 AT 126 DOT com

Office hour: TBA

Lecture: 周二: 3-4 节 (二教 404)
周四: 3-4 节 (双周) (二教 404)

Prerequisite: Calculus, Linear algebra

Homework: One homework every other week

Exams: Research Project + Oral Presentation

Final Score: Homework 40%; Final 60%

Course Description: Thanks to the breath-taking technology development, current biological investigators can generate huge amount of data in a short time. This ever-increasing data generation capability has driven statistical analysis of these high-throughput data becoming more and more important in biological researches. In this class, we aim to expose students with classical statistical methods as well as recently developed methods for analyzing modern high-throughput biological data. The major topics of the class are listed below.

1. Classical statistical methods including hypothesis testing, regression analysis, clustering/classification analysis, survival analysis and Bayesian analysis
2. High-dimensional biological data analysis including multiple testing, model selection and dimension reduction
3. High-throughput sequencing (HTS) data analysis including sequence alignment, genomic variation detection with HTS data, ChIP-seq data analysis and RNA-seq data analysis