

LIFS3150 Biostatistics (Spring 2018-2019)

Time: Tue Thur 09:00AM - 10:20AM

Place: Rm 1104, Acad Concourse

Intended Learning Outcome:

On successful completion of this course, students are expected to be able to:

1. Apply the basic methods of statistical analysis, particularly those commonly used in biological and medical studies.
2. Determine the extent to which it is appropriate to include statistical analysis in experimental design.
3. Critically analyze experimental results and interpret them to draw conclusions.
4. Design and carry out independent research and apply creativity to results analysis through problem solving of given datasets.

Course Format:

There will be two 80-minute sessions per week. **Grades will be based on course attendance (5%), assignments (5%) midterm exam (40%) and final exam (50%).**

Course Instructors:

Prof Kai Liu (Email:kailiu@ust.hk, Tel: 2358-7277, Office: 5445)

Office hour: Tuesday: 12:00-2:00pm

Textbook:

Brigitte Baldi & David S. Moore (2013) The Practice of Statistics in the Life Science, The Third Edition, W. H. Freeman and Company New York

Tentative Lecture Outline and Schedule:

31 Jan	Introduction
	PART I Exploring Data
	Exploring Data: Variables and Distributions
12 Feb	Picturing Distributions with Graphs
14 Feb	Describing Distributions with Numbers
	Exploring Data: Relationships
19 Feb	Scatterplots and Correlation
21 Feb	Regression
26 Feb	Two-Way Tables
	PART II From Exploration to Inference
	Producing Data
28 Feb	Samples and Observational Studies
5 March	Designing Experiments
	Probability and Sampling Distributions
7 March	Introducing Probability/General Rules of Probability
12 March	Discrete Probability Distributions
14 March	The Normal Distributions
19 March	Sampling Distributions
	The Idea of Inference
19 March	Introduction to Inference
21 March	Review Session
26 March	Midterm exam
28 March	Inference in Practice
	PART III Statistical Inference
	Inference about Variables
2 April	Inference about a Population Mean
9 April	Comparing Two Means
11 April	Inference about a Population Proportion/Comparing Two Proportions
16 April	The Chi-Square Test for Goodness of Fit
	Inference about Relationships
18 April	The Chi-Square Test for Two-Way Tables
23 April	Inference for Regression
25 April	One-Way Analysis of Variance (ANOVA)
30 April	Follow-up Tests
2 May	Two-Way ANOVA
7 May	Review Session
	Final Exam