

LIFS3150 Biostatistics (Spring 2017-2018)

Time: Mon 1:30PM - 2:50PM, Fri 9:00AM - 10:20AM

Place: Rm 2306, Lift 17-18

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:

	PART I Exploring Data
	Exploring Data: Variables and Distributions
2 Feb	Picturing Distributions with Graphs
5 Feb	Describing Distributions with Numbers
	Exploring Data: Relationships
9 Feb	Scatterplots and Correlation
12 Feb	Regression
23 Feb	Two-Way Tables
	PART II From Exploration to Inference
	Producing Data
26 Feb	Samples and Observational Studies

2 March	Designing Experiments
	Probability and Sampling Distributions
5 March	Introducing Probability/General Rules of Probability
9 March	Discrete Probability Distributions
12 March	The Normal Distributions
16 March	Sampling Distributions
	The Idea of Inference
19 March	Introduction to Inference
23 March	Review Session
26 March	Midterm exam
6 April	Inference in Practice
	PART III Statistical Inference
	Inference about Variables
9 April	Inference about a Population Mean
13 April	Comparing Two Means
16 April	Inference about a Population Proportion/Comparing Two Proportions
20 April	The Chi-Square Test for Goodness of Fit
	Inference about Relationships
23 April	The Chi-Square Test for Two-Way Tables
27 April	Inference for Regression
30 April	One-Way Analysis of Variance (ANOVA)
4 May	Follow-up Tests/Two-Way ANOVA
7 May	Review Session
	Final Exam