LIFS3150 Biostatistics (Spring 2016-2017)

Time/ Place: Tue, Thr 09:00-10:20AM
Room 1104 Academic 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:

	PART I Exploring Data
	Exploring Data: Variables and Distributions
2 Feb	1 Picturing Distributions with Graphs 2 Describing Distributions with Numbers
	Exploring Data: Relationships
7 Feb	3 Scatterplots and Correlation
9 Feb	4 Regression
14 Feb	5 Two-Way Tables
	PART II From Exploration to Inference
	Producing Data

16 Feb	7 Samples and Observational Studies
21 Feb	8 Designing Experiments
	Probability and Sampling Distributions
23 Feb	9 Introducing Probability/10 General Rules of Probability
28 Feb	12 Discrete Probability Distributions
2 March	11 The Normal Distributions
7 March	13 Sampling Distributions
	The Idea of Inference
9 March	14 Introduction to Inference
14 March	15 Inference in Practice
16 March	Review Session
21 March	Midterm exam
	PART III Statistical Inference
	Inference about Variables
23 March	17 Inference about a Population Mean
28 March	18 Comparing Two Means
30 March	19 Inference about a Population Proportion
6 April	20 Comparing Two Proportions
11 April	21 The Chi-Square Test for Goodness of Fit
	Inference about Relationships
20 April	22 The Chi-Square Test for Two-Way Tables
25 April	23 Inference for Regression
27 April	24 One-Way Analysis of Variance
2 May	25 Follow-up Tests/Two-Way ANOVA
4 May	26 Nonparametric Tests
9 May	Review Session
	Final Exam