Introductory Statistics 2020 – Guidelines

Originally scheduled time: Friday, 13:00-14:30 (3rd period)

Note: ***The course schedule and grading scheme have been adapted to the modified COVID-19 calendar and online-learning limitations.***

Richard Veale
veale.ilas.statistics@gmail.com

1. Objectives

Statistical methods are used throughout science, but there is often a wide gap between basic statistics courses and how statistical methods are applied in the scientific literature. This course intends to narrow this gap by introducing students to basic statistical concepts and by providing insight into how these concepts are used in the "real" scientific world. This will entail descriptive statistics, inferential statistics, and data visualization. Real-world examples will be drawn from the behavioral and life sciences, medicine, and epidemiology. The language of instruction in this course is English which will help to understand the statistical terminology in the scientific literature.

2. Course structure

I will upload lecture slides and resource to PANDA. In the PDF slices, there will be a URL link to a video walk-through of the slides. In general, I will upload the slides on the date specified and the video a bit later. However, since I must re-create every lecture to account for the changed schedule, I tend to run a little bit behind. **There are 2 extra weeks at the end of the semester, so this will not be an issue.**

Date	Topic	Homework
8 May	Introduction	
15 May	Data collection: survey sampling	
22 May	Data collection: experiments and clinical trials	1
	Data editing and summary	
29 May	2x2 contingency tables, χ2 –test	2
5 June	Tests for independence: Fisher's exact test	
12 June	Risk ratios and odds ratios	3
19 June	Tests of difference between two proportions	
26 June	Random sampling, randomization and sample size calculation	

3 July	Probability distributions and limit theorems	
10 July	Tests of two means	4
17 July	Correlations and regressions	5
24 July	Feedback Period 1	
31 July	Feedback Period 2	
5 August	(Wednesday) All coursework is due	

3. Coursework and grading

This course's grading has been modified significantly due to the lack of in-class lectures. Since it is basically impossible to take attendance, I have added short quizzes and a short final statistics project. The breakdown is as follows:

60%: 5 Homework Assignments (half-page reports, submit as PDF on PANDA)
20%: 4 Short Quizzes (on PANDA)
20%: Final Project (apply statistics to your own data, submit as PDF on PANDA)

Homeworks (60% – 12% each)

You will apply what we learned to sample data I provide. You will write very short reports regarding what you found. Each homework will be about 1-2 A4 pages.
Please submit homeworks as a PDF attachment on PANDA.

Quizzes: (20% – 5% each)

Starting in July, we will cover more "theoretical" topics. I will post 4 short quizzes about these topics. You must finish them before the final day to submit grades (5 August).

Final Project: (20%)

Similar to the homeworks, you will apply what we have learned in statistics to data. However, this time, *you* will provide the question, and the data. You will perform an appropriate statistical analysis, and report the results in about 1-2 A4 pages.

4. Resources

Lecture notes will be provided via PandA (https://panda.ecs.kyoto-u.ac.jp/portal).
There is no required textbook.