SAMPLE course outline only
Course contents will vary if taught by different teachers.
Please refer to the course teacher for the actual course content offered in each term.

SOCI 2004: Social Statistics

2nd term, 2022-23
Monday 4:30 – 6:15 pm, Wong Foo Yuan Bldg LT4

Instructor: Ting Kwok-fai 丁國輝
Office: Sino Building 434
Tel: 3943 6626

Tutor: Niantao Jiang
Yujie Li
Raphael Duerr
Office: Sino Building 424

Course objectives. This course introduces the basic principles of statistical reasoning and its applications in social research. The objectives are to understand the basic assumptions of statistical methods and to interpret statistical findings in social surveys. Emphasis will be given to those descriptive and inferential methods that are frequently used for analysing causal relationships among social variables and for testing social theories and hypotheses.

Course assessment:
Assignments & Tutorial 30%, mid-term quiz 20%, final exam (open book & note) 50%

Grade descriptors

A	A thorough understanding of the course materials and an outstanding performance on all learning outcomes.
A-	A solid understanding of the course materials and an outstanding performance on almost all learning outcomes.
B	An adequate understanding of the course materials and a substantial performance, on average, on all learning outcomes.
C	A basic understanding of the course materials and a satisfactory performance on the majority of learning outcomes, possibly with a few weaknesses.
D	A partial understanding of the course materials and an inadequate performance on a number of learning outcomes
F	A poor understanding of the course materials and an unsatisfactory performance on a number of learning outcomes.

Course Outline

1. Introduction
- 1.1 Social data
- 1.2 Statistical analysis
- 1.3 Theory, concepts, & variables
- 1.4 Measurement and statistical analysis
- 1.5 Two branches of statistics

Introduction to statistics
Theory concepts & variables

2. Descriptive statistics
- 2.1 Frequency distribution
- 2.2 Measure of central tendency
- 2.3 Measure of dispersion
- 2.4 Summary

Illowsky & Dean - Chapters 1 & 2

3. **Inferential statistics**
   - 3.1 Normal distribution
   - 3.2 Sampling distribution
   - 3.3 Central limit theorem
   - 3.4 Interval estimation
   - 3.5 Hypothesis testing
   - 3.6 Type I & type II error

   Illowsky & Dean - Chapters 6 to 9

4. **Bivariate relationship**
   - 4.1 Comparison between 2 samples
   - 4.2 Analysis of variance (ANOVA)
   - 4.3 Covariance and Correlation

   Illowsky & Dean - Chapters 10 & 13

5. **Regression analysis**
   - 5.1 Causal models
   - 5.2 Simple regression analysis
   - 5.3 Multiple regression analysis

   Baddeley & Barrowcloughan - Introduction to ordinary least squares
   Thrane - Linear regression with a single independent variable
   Thrane - Linear regression with several independent variables

6. **Analysis of a discrete variable**
   - 6.1 Contingency table analysis
   - 6.2 Binary logistic regression
   - 6.3 Ordinal logistic regression

   Illowsky & Dean - Chapter 11
   Thrane - A categorical dependent variable
   Thrane - An ordered dependent variable

References

Baddeley, Michelle and Diana Barrowcloughan. 2009. Running Regressions. Cambridge University Press.

Illowsky, Barbara and Susan Dean, 2018. Introductory Statistics. Houston, TX: Openstax. (https://openstax.org/details/books/introductory-statistics)

Thrane, Christer. 2020. Applied Regression Analysis: Doing, Interpreting and Reporting. Routledge.

Class schedule

Date		Topics	Tutorial	Assignment due
January	9	1. Introduction		
	16	2. Descriptive statistics	Tutorial #1	
	23			
	30	3. Inferential statistics		
February	6	3. Inferential statistics		Exercise 1
	13	3. Inferential statistics	Tutorial #2	
	20	3. Inferential statistics		Exercise 2
	27	4. Bivariate relationship	Tutorial #3	
March	6	Reading Week		Exercise 3
	13	**Mid-term quiz** 4. Bivariate relationship	Tutorial #4	
	20	5. Regression analysis		Exercise 4
	27	5. Regression analysis	Tutorial #5	
April	3	5. Regression analysis 6. Analysis of a discrete variable		
	10			Exercise 5
	17	6. Analysis of a discrete variable	Tutorial #6	