

SOCI 2004: Social Statistics

2nd term, 2020-21

Wednesday 9:30 – 11:15 am

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Course overview

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 real-life data. Emphasis will be given to those descriptive and inferential methods that are frequently used for analysing relationships among social variables and for testing social theories and hypotheses.

Course objectives

Throughout this course, you will learn to:

- Calculate and interpret commonly used statistics.
- Use statistics to evaluate sociological questions and problems.
- Access sociologically relevant information from real-life data.
- Become proficient in performing calculations by hand and through the use of a commercially available statistical software package (SPSS).

When you have successfully completed this course you will be able to:

- Critically think about, discuss, and provide well-informed opinions on topics presented in this course.
- Use statistics in ways that are relevant to studying social phenomena.

Course assessment

Tutorials 25%, mid-term 25%, final exam 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 readings

Textbook

Healey, Joseph F. 2015. *Statistics: A Tool for Social Research*, 10th Edition. Belmont, CA: Wadsworth Cengage Learning. [UL: HA29.H39 2012]

References

- Ritchey, Ferris J. 2008. *The statistical Imagination: Elementary Statistics for the Social Sciences*. MA: Boston. McGraw Hill. [UL: HA29.R666 2008]
- Boslaugh, Sarah. 2012. *Statistics in a Nutshell: A Desktop Quick Reference*. O'Reilly Media. [UL: QA276.12.B67 2012]

All books are also available online through the University Library.

Course Outline

1. Introduction

- 1.1 The what and why of statistics
- 1.2 The research process
- 1.3 Two categories of statistics

Chapter 1: Introduction

2. Descriptive statistics

- 2.1 Frequency distribution
- 2.2 Graphic representation
- 2.3 Measure of central tendency
- 2.4 Measure of dispersion

Chapter 2: Basic Descriptive Statistics

Chapter 3: Measures of Central Tendency

Chapter 4: Measure of Dispersion

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 Compare 2 samples
- 3.7 Type I & type II error

Chapter 5: The Normal Curve

Chapter 6: Introduction to Inferential Statistics

Chapter 7: Estimation Procedures

Chapter 8: Hypothesis Testing I: The One-Sample Case

Chapter 9: Hypothesis Testing II: The Two-Sample Case

4. Association and Causation

- 4.1 Conditions of causation
- 4.2 Specification of a causal process
- 4.3 Controlling confounding factors

5. Analysis of a continuous variable

- 5.1 Analysis of variance (ANOVA)
- 5.2 Covariance and Correlation
- 5.3 Linear regression analysis

Chapter 10. Hypothesis Testing III: The Analysis of Variance

Chapter 14. Association between Variables Measured at the Interval-Ratio Level

6. Analysis of a discrete variable

- 6.1 Contingency tables
- 6.2 Measure of association for nominal and ordinal variables

Chapter 11. Hypothesis Testing IV: Chi Square

Class schedule

Month	Wednesday	Topics	Tutorial
January	13	1. Introduction	
	20	2. Descriptive statistics	
	27	3. Inferential statistics	1 st tutorial
February	3	3. Inferential statistics	
	10	3. Inferential statistics	2 nd tutorial
	17	Holiday	
	24	3. Inferential statistics	3 rd tutorial
March	3	4. Causal analysis	
	10	Mid-term	
	17	5. Analysis of a continuous variable	4 th tutorial
	24	5. Analysis of a continuous variable	5 th tutorial
	31	Reading week	
April	7	Reading week	
	14	5. Analysis of a continuous variable	
	21	6. Analysis of a discrete variable	6 th tutorial