Course Code
Business Math (Statistics in Social Research)
Module 2, 2023

Course Information

Instructor: Zhuo Chen
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Office Hour: 14:30 – 16:30 (Wed)

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Classes:
Lectures: Tue & Fri, 15:30-17:20
Venue: PHBS Building

Course Website:
If any.

1. Course Description

1.1 Context

Course overview: This is an introductory course in elementary statistical analysis. Its objective is to introduce social research analysis with an emphasis on the practical use of various statistical tools, such as t-test, linear regression, and chi-square analysis. This course can serve as a supplement for related courses with a quantitative orientation. "Learning by doing" is the motto of this course—the most effective approach to learn statistical techniques is to deal with real-world data. Apart from teaching fundamental statistics, this course will use R to further explore various statistical techniques. Students will be given instructions necessary to perform a variety of statistical tests and interpret the output results.

Prerequisites: No.

1.2 Textbooks and Reading Materials

Levin J., Fox, J., & Ford, D. (2012). *Elementary Statistics in Social Research (twelfth edition).* ISBN 13: 9780205459582

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or NO)
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	Yes, students are required to produce analytical reports.
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	Yes, students are expected to actively participate in the class discussion.
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	Yes, students will participate in group discussion.
	2.2. Students will be able to apply leadership theories and related skills.	Yes, with insight into business data.
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	Yes, particularly quantitative analysis techniques.
	3.2. Our students will practice ethics in the duration of the program.	Yes.
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	Yes, will include cases around the globe.
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	Yes.
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	Yes.
	5.3. Our students will demonstrate competency in critical thinking.	Yes.

2.2 Course specific objectives

The representative learning objectives of this course are as follows:

1. An understanding of the concepts and techniques of statistical analyses
2. Determine which statistical technique is appropriate for a specific research problem
3. Use R to perform various statistical analyses
4. Interpret various statistical test results

2.3 Assessment/Grading Details

Subject	Percent of Grade
Attendance and participation	10%
Assignments	25%
Group project	25%
Final exam	40%

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work;

taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule

Date	Topic	Recommended reading
Nov.14	Introduction to the statistical world I	Chapter 1&2, Textbook (Levin et al., 2012)
Nov.17	Introduction to the statistical world II	Chapter 3, Textbook (Levin et al., 2012)
Nov.21	Statistical inference I	Chapter 5&6, Textbook (Levin et al., 2012)
Nov.24	Statistical inference II	Chapter 5&6, Textbook (Levin et al., 2012)
Nov.28	R workshop I	
Dec.1	t-test & ANOVA I	Chapter 7&8, Textbook (Levin et al., 2012)
Dec.5	t-test & ANOVA II	Chapter 7&8, Textbook (Levin et al., 2012)
Dec.8	R workshop II	
Dec.12	Regression I	Chapter 10&11, Textbook (Levin et al., 2012)
Dec.15	Regression II	Chapter 10&11, Textbook (Levin et al., 2012)
Dec.19	Path & SEM I	Chapter 1, Textbook (Kline, 2015)
Dec.22	Path & SEM II	Chapter 6, Textbook (Kline, 2015)
Dec.26	Path & SEM III	Chapter 10, Textbook (Kline, 2015)
Dec.29	R workshop III	
Jan.2	Logistic regression I	Articles
Jan.5	Logistic regression II	Articles
Jan.9	Recap (theory & concept)	
Jan.12	Recap (method)	

*Note: The final exam will be held on either Jan.15.

4. Miscellaneous

The syllabus is subject to change with prior notice to students either in class or via email.