The Hong Kong University of Science and Technology
SOSC 1100 - Quantitative Data Analysis for Social Research I

Quantitative Data Analysis for Social Research I
SOSC 1100
3 Credits

Professor KANG Suji
Email: sujikang@ust.hk
Class: Tuesday and Thursday 4:30-5:50pm
Office Hours: Tuesday 2:00-3:00pm or by appointment at Room 3338

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Course Description

This course focuses on practical aspects and implementation of social data analysis by introducing basic yet hands-on techniques for presenting, analyzing, and interpreting quantitative data, many of which are rarely taught in a regular statistics course. It is deliberately designed as complementary to a formal and theoretically-oriented introductory statistics course. This course introduces basic knowledge about quantitative data analysis from a social scientific perspective, from data generating processes to causal inference. Devoted computing sessions, a signature feature of the course, demonstrate hands-on techniques, such as data extraction, data management, variable manipulation, and descriptive analysis. Students will have the chance to implement ideas and methods from the lectures through in-class exercises, as well as a project, by applying what they learn to real-world data. Upon completion of the course, students should have acquired useful skills for social data analysis as well as a better understanding of quantitative social scientific research. Not to be taken by students admitted to BSc Quantitative Social Analysis from 2022-23 and onwards.

Intended Learning Outcomes (ILOs)

On successful completion of the course, students will be able to:

1. Learn how to design and conduct a statistical analysis to explore a social issue by connecting between theory, survey, and data analysis
2. Develop more confidence and appreciation in using statistics to describe and clarify apparently unclear relationships among socioeconomic factors
3. Use R effectively for managing and analyzing socioeconomic data and presenting outcomes in a reader friendly way

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Details are provided below.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Date/due date
In-class exam 1	20%	March 12
In-class exam 2	20%	April 16
In-class exam 3 (final exam)	25%	May 19
Four take-home problem sets	20%	To be announced via Canvas
Participation	10%	
Attendance	5%	

Grading Policy

Your final grade will be based on the following:

- Take-home problem sets (20%): Details about the four take-home problem sets will be announced during the class/via Canvas.
- In-class exam 1 (20%) & In-class exam 2 (20%): The exams will be no longer than one hour and be a mix of multiple choice and short answers.
- Final exam (25%): The closed-book final exam will cover the content learned throughout the semester.
- Participation (10%): Students are expected to attend all classes and actively participate. At a minimum, this includes remaining attentive during class (e.g., refraining from using digital devices for non-course purposes), coming prepared to discuss assigned readings or materials, and engaging constructively in class activities and discussions. Participation is evaluated based on both the quality of engagement and the quantity of contributions.
- Attendance (5%)

Submission of Problem Sets

All problem sets must be submitted electronically through Canvas by the stated deadline (11:59pm). Assignments submitted via email will not be accepted.

Late Work Policy

Late assignments will not be accepted. Exceptions will be granted only in cases of documented illness, verified by a note from a health care provider. Assignments submitted late without an approved excuse will receive a score of zero. Please do not request extensions without a legitimate and documented reason.

Grade Review Policy

Requests for grade reviews must be submitted within one week of the grade being released. Appeals must include a *written* explanation outlining the basis for the request and must be accompanied by a hard copy of the original assignment. A grade review might lead to a lower grade being assigned. Appeals submitted after the deadline or without the required materials will not be considered.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Problem sets	ILO 1, ILO 2, ILO 3	Problem sets assess students' ability to design and conduct basic statistical analyses to investigate social questions by linking theory, data, and analytical decisions (ILO 1). Students apply R to manage, analyze, and visualize data (ILO 3), and interpret results to clarify relationships among socioeconomic variables (ILO 2).
In-class exams	ILO 1, ILO 2	In-class exams assess students' understanding of quantitative reasoning, data generation, and statistical interpretation in social research (ILO 1). Students analyze tables, graphs, and scenarios to draw substantively meaningful conclusions and evaluate empirical relationships (ILO 2).

Course AI Policy

Students are strongly discouraged from using AI, except in a limited capacity such as basic proofreading. AI tools are not a reliable substitute for reading and engaging with the academic literature related to your project and frequently produce inaccurate or fabricated citations and summaries. Submissions that misrepresent or inaccurately describe the relevant literature will receive a very poor grade. Please note that the instructor and teaching assistants are familiar with the literature in this field.

Required Textbook

Llaudet, Elena and Kosuke Imai. 2022. *Data Analysis for Social Science: A Friendly and Practical Introduction*. Princeton: Princeton University Press.

Software

This course uses R, an open-source statistical programming language widely used in both academia and industry for data analysis and visualization. Students can download R and access documentation at http://www.r-project.org/. To facilitate ease of use, students are strongly encouraged to install RStudio (https://posit.co/downloads/), a free integrated development environment that simplifies coding and workflow management.

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity | HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.