

SOSC1200: Quantitative Social Analysis

Division of Social Science
Hong Kong University of Science and Technology
Fall 2021

[Draft Syllabus: Subject to Revision]

Instructor Information

Primary Instructor

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Overview

This course presents a broad introduction to standard practice in quantitative social analysis by introducing a series of concepts that will serve as the basis for greater understanding in later courses. The course also showcases how such techniques are applied in modern quantitative social analysis by having guest speakers from the Division of Social Science present their own original research. Throughout the lecture material, important classic and modern examples of published research will be used to illustrate applications of the topics. Where appropriate, differences in norms and practices between the major social science disciplines will be highlighted and discussed. Strengths and limitations of quantitative approaches to social analysis will be highlighted throughout the course.

Meeting Time and Place

Mondays and Wednesdays, 10:30am - 11:50am

G009B, CYT Building (70)

Intended Learning Outcomes

At the end of the course, students should be able to:

1. Understand the types of research questions and social phenomena that are able to be addressed using quantitative techniques.
2. Identify the differences in norms and practices between the major social science disciplines with respect to the application of quantitative techniques.
3. Identify exemplary studies that have advanced our current understanding of important social phenomena using quantitative techniques.
4. Apply their understanding of best practices in quantitative social analysis to new problems and questions.

Grading

20% Annotated Bibliography

On a topic of his or her choosing, each student will construct an annotated bibliography consisting of about 150-200 words on each of 10 different sources from the scholarly literature. The 150-200 words should briefly summarize the main findings of each citation and offer appropriate positive and negative critical commentary. The description should not be mere summary. More details will be provided in class. [ILOs 1, 2, and 3]

30% Research Design

In consultation with the instructor, students will develop an original research design on a topic of their choosing. Students should suggest a feasible research project that could be carried out in the future, using the course materials as guidance. Students are not expected to actually carry out the suggested empirical analysis. In a writeup of about 4000 words to be turned in after the last day of class, students will develop a literature review, suggest a theoretical framework, draw testable hypotheses, and suggest how they would use empirical data and quantitative techniques to address the phenomenon. More details will be provided in class. [ILOs 1, 2, 3, and 4]

10% Research Design Presentation

On one of the last two days of class, students will present their research design topics to the class. Students are expected to prepare standard visual material (e.g., slides) and conduct a several-minute presentation. When not presenting, students are expected to be present and engaged with the other students' presentations. More details will be provided in class. [ILOs 1, 2, 3, and 4]

10% Reflection on Faculty Research Presentation

In about 500 words, students will select one of the presentations from the guest speakers on which to write a critical reflection. In the essays, students should briefly introduce the guest's research focus, and then apply one or more of the topics covered in the lectures to the guest's material. More details will be provided in class.[ILO 2]

10% Attendance

Attendance is required. Students can miss two class sessions for any reason without penalty. Any additional absences will only be excused with a valid excuse backed up by documentation.

10% Class Participation

After each class, the instructor will assess student contributions. [ILOs 1, 2, 3, and 4]

Schedule

Week 1

- September 1
 - Introduction and Course Overview

Week 2

- September 6
 - Overview of Empirical Social Science
 - * Readings:
 - King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press. [pp. 7-19]
- September 8
 - Activity: The First Steps of the Research Process

Week 3

- September 13
 - Theory Development in the Social Sciences
 - * Readings:
 - King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press. [pp. 19-23]
 - Lave, Charles A., and James G. March. 1975. *Introduction to Models in the Social Sciences*. New York: University Press of America. [pp. 10-20, 29-34, 40-42]
- September 15
 - Activity: Speculation and Theory Building

Week 4

- September 20
 - Measurement: Conceptualization and Operationalization
 - * Readings:
 - Bhattacharjee, Anol. *Research Methods for the Social Sciences*. Open textbook. [Ch. 6, Available at: <https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-6-measurement-of-constructs/>]
- September 22 (No Class, Public Holiday)

Week 5

- September 27
 - Measurement: Reliability and Validity
 - * Readings:
 - Bhattacharjee, Anol. *Research Methods for the Social Sciences*. Open textbook. [Ch. 7, Available at: <https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-7-scale-reliability-and-validity/>]
- September 29
 - Activity: Measurement

Week 6

- October 4
 - Data Collection
 - * Readings:
 - King, Gary, Robert O. Keohane, and Sidney Verba. 1994. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton: Princeton University Press. [pp. 23-28]
 - Bhattacharjee, Anol. *Research Methods for the Social Sciences*. Open textbook. [Ch. 8, through section on “Non-Probability Sampling”, Available at: <https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-8-sampling/>]
- October 6
 - Activity: Sampling and Data Collection

Week 7

- October 11
 - Internal and External Validity of Research Designs
 - * Readings:
 - Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. New York: Houghton, Mifflin, and Co. [pp. 53-63, 83-93]
- October 13
 - Guest Speaker TBD

Week 8

- October 18
 - Statistical Modeling
 - * Readings:
 - Jones, Kelvyn. 2012. “Introduction to Statistical Modelling.” In Bridget Somekh and Cathy Lewin, eds., *Theory and Methods in Social Research*. New York: Sage. [pp. 241-247.]
- October 20
 - Guest Speaker TBD

Week 9

- October 25
 - Central Tendency and Variability
 - * Readings
 - Crump, Matthew J.C., Paul C. Price, Rajiv Jhangiani, I-Chant A. Chiang, and Dana C. Leighton. 2018. *Research Methods for Psychology*. Open Source Ebook. [Sections 13.1-13.9, Available at: <https://www.crumplab.com/ResearchMethods/descriptive-statistics.html>]
- October 27
 - Guest Speaker TBD

Week 10

- November 1
 - Hypothesis Testing
 - * Readings:
 - Crump, Matthew J.C., Paul C. Price, Rajiv Jhangiani, I-Chant A. Chiang, and Dana C. Leighton. 2018. *Research Methods for Psychology*. Open Source Ebook. [Sections 14.1.1-14.1.6, Available at: <https://www.crumplab.com/ResearchMethods/inferential-statistics.html>]
 - Navarro, Danielle. 2020. *Learning Statistics with R: A Tutorial for Psychology Students and Other Beginners*. LibreText Ebook. [Sections 17.2 and 17.5]
- November 3
 - Guest Speaker TBD

Week 11

- November 8
 - Correlation and Causation
 - * Readings:
 - Singh, Seema. 2018. “Why Correlation Does Not Imply Causation.” [Available at <https://towardsdatascience.com/why-correlation-does-not-imply-causation-5b99790df07e>]
 - Australian Bureau of Statistics. N.d. “Statistical Language - Correlation and Causation.” [Available at: <https://www.abs.gov.au/websitedbs/D3310114.nsf/home/statistical+language+-+correlation+and+causation>]
- November 10
 - Guest Speaker TBD

Week 12

- November 15
 - Data Presentation
 - * Readings:
 - None
- November 17
 - Guest Speaker TBD

Week 13

- November 22
 - Introduction to New Frontiers in Social Science Research
 - * Readings:
 - None
- November 24
 - Student Presentation of Research Designs Day 1

Week 14

- November 29
 - Student Presentations of Research Designs Day 2