



Ljubljana Doctoral Summer School

Online courses 2020

Quantitative Data Analysis: Issues & Applications**(ECTS: 4)**

20 – 24 July 2020

9.00 – 13.00

*Course leader:****Halkias Georgios***, University of Vienna, Austria**Aims of the course:**

Sound knowledge of quantitative analysis is an essential requirement in many disciplines – more than one would expect! This course seeks to equip students with a critical understanding of (a) key concepts of statistical inference (e.g., Type I and II error, statistical significance & NHST, effect size, statistical power) and (b) different methods of data analysis (e.g., analysis of (co)variance, linear and logistic regression, moderation, factor analysis).

The course integrates analytical theory with practical examples in a logical and straightforward manner in order to guide students through different techniques of quantitative data analysis. As such, it is targeted to doctoral students who either feel they lack a solid analytical background or simply want to refresh and improve their analytical and statistical inference skills.

After taking this course, students will be able to:

- Understand the logic and principles of quantitative data analysis.
- Improve statistical inference skills.
- Apply the appropriate analytical techniques to answer different research questions.
- Interpret and critically assess research results.
- Identify not-that-obvious information.
- Draw valid conclusions to improve decision-making.
- Familiarize themselves with the IBM SPSS interface.

Course syllabus:

Day 1	<ul style="list-style-type: none"> • What is statistics & how does it work? <i>Populations & samples</i> • Statistical inference I <i>Parameter estimation & hypothesis formulation</i> <i>NHST & everything you need to know about it</i> 	<p><i>Reading</i></p> <p>Field: Chapter 2</p> <p>D/S: Chapter 2, 6, 9</p>
--------------	--	---



Ljubljana Doctoral Summer School
Online courses 2020

Day 2	<ul style="list-style-type: none">• Statistical inference II <i>Effect size, Sample size, & statistical power</i> <i>Beyond statistical significance...</i>• Data quality & analysis bias <i>Measurement, centrality, & variability</i> <i>Statistical assumptions</i>	<i>Reading</i> Field: Chapter 2, 3, 5, 6 D/S: Chapter 1, 3, 8, 10
Day 3	<ul style="list-style-type: none">• Making comparisons I <i>Chi-square test</i> <i>Independent sample t-test</i> <i>Paired samples t-test</i> <i>One sample t-test</i>• Making comparisons II <i>ANOVA</i> <i>ANCOVA</i> <i>Factorial ANOVA</i> <i>(Theory & applications)</i>	<i>Reading</i> Field: Chapter 10, 12, 13, 14, 19 D/S: Chapter 11, 12
Day 4	<ul style="list-style-type: none">• Investigating relationships I <i>Correlation/Partial correlation</i> <i>Simple linear regression</i>• Investigating relationships II <i>Multiple regression/Moderation</i> <i>Logistic regression</i> <i>(Theory & applications)</i>	<i>Reading</i> Field: Chapter 8, 9, 11, 20 D/S: Chapter 13, 14
Day 5	<ul style="list-style-type: none">• Finding structures <i>Exploratory Factor Analysis</i> <i>Principal Component Analysis</i> <i>(Theory & applications)</i>• Overview & key issues	<i>Reading</i> Field: Chapter 18 D/S: Chapter 14

List of readings:

- Field, A. (2017), *Discovering Statistics Using IBM SPSS Statistics* (5th edition), Sage Publications: London. – Referred to as “Field” in course syllabus.
- Diamantopoulos, D. and Schlegelmilch, B. (2000), *Taking the Fear out of Data Analysis* (2nd edition), South-Western CENGAGE Learning: London. – Referred to as “D/S” in course syllabus.

Examination:

Sessions combine theory, real-life examples, and (interactive) visual material in a way that enables effective understanding of different concepts/approaches of



Ljubljana Doctoral Summer School

Online courses 2020

quantitative data analysis and statistics. Course evaluation is based on the following dimensions:

Class participation (20%)

Participation in class is highly encouraged. Students are rewarded for their contribution to the class discussion by engaging in the issues discussed and raising relevant issues/concerns and suggestions.

Individual assignment (40%)

The individual assignment refers to a project conducted by individual students and involves data analysis, interpretation, presentation, and reporting of results. Students are provided with a dataset and are asked to analyse it in order to address a series of managerial issues. The deliverable for the assignment is a brief written report of 8–10 pages submitted after the end of the course. More details will be provided in class.

Case study (40%)

The case study quiz consists of ~3 mini cases that describe a research problem, present the results of the analysis, and invite students to interpret the output and critically assess the findings.

Prerequisites:

This course covers all fundamental issues pertaining to quantitative data analysis. As such, it does not require prior knowledge of statistics. That said; having attended a general introductory course in research methods would benefit students in more effectively understanding the issues covered throughout.

Course leader's biographical note:

Georgios Halkias is Associate Professor (Priv.-Doz.) at the Chair of International Marketing. He holds a Habilitation degree in Business (BWL) from the University of Vienna, a PhD in Marketing from the Athens University of Economics and Business and an MSc in Marketing and Strategy from the University of Warwick, Warwick Business School. Georgios is also visiting Professor at the University of Economics and Business (WU Vienna) while, in the past, has worked at the Athens University of Economics and Business and has gained industry experience with multinational firms, such as Société Générale and Procter & Gamble, in Greece and the United Kingdom. Georgios' research has attracted multiple funds from national and EU sources and has received several international distinctions. Georgios serves as an ad-hoc reviewer for the Journal of International Business Studies, Journal of Advertising, British Journal of Management, Journal of International Marketing, Journal of Business Research, International Marketing Review, European Journal of Marketing, Journal of Product and Brand Management as well as for the ACR, AMA, and EMAC conferences.