# Research methodologies (quali quantitative methods) with lab

## Prof. Giancarlo Manzi; Prof. Maria Antonia Ventura Kleissl

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The main aim of this course is to provide students with the fundamentals of sociological research methods and the statistical foundations for studying sociological phenomena also in relation to political and economic contexts.

The qualitative and quantitative paradigms will be introduced and compared in the light of the epistemology and methodology they are built upon. The typical research process is presented in its main phases, starting from research questions to data collection and analysis, to final steps regarding the optimization of research outputs.

The course will tackle the main techniques of qualitative (presenting multiple specific studies and exercises in the field) and quantitative social research, including survey methodologies and the development of questionnaires for data collection.

With regard to the statistical part, the course will tackle descriptive univariate and bivariate statistics, focusing on the meaning and interpretation of basic statistical outputs, as well as on their visualization through graphical representations. Students will learn some theoretical statistics with the help of visualization tools in Python, a modern programming language which is particularly useful for the social sciences, allowing for data analysis and visualization, web scraping and text mining.

***Intended learning outcomes***

1) Knowledge and understanding

Students will master the specific terminology of social research. They will also be able to recognise qualitative and quantitative social research techniques and understand when to use them in conjunction or separately (the ethnographic approach, individual and group interviews, etc.), based on knowledge of their underlying paradigms.

Students will be able to interpret, communicate and critically comment on descriptive analyses of statistical data. They will also be able to calculate the main descriptive statistics through the use of Python. Students will learn how to turn numbers into useful information to generate business insights, and how to effectively and rigorously communicate the information contained in their data.

To apply the theory, students will be assisted in a laboratory where they will apply all the techniques and theories explained during classes. They will also learn how to commission a research, obtaining the necessary expertise to be part of a working team to support corporate strategies, communication plans and marketing solutions.

2) Ability to apply knowledge and understanding

Students will understand how to approach the study of a social phenomenon using qualitative and quantitative methods. By the end of the course, students will be able to plan a social research project based on questionnaires, and conduct all steps as far as collecting data in the field.

Moreover, starting from a set of data, students will be able to independently analyse descriptive statistics and to synthesize social phenomena through the calculation of adequate quantities, with the aid of IT tools. Students will be able to use the results of these analyses to answer research questions.

During the laboratory, students will learn how to analyze specific case studies. They will work both as a team and individually. The aim is to let them acquire analytical tools to develop a concrete research question. The laboratory will go through analysis paths, allowing students to practice with different methodologies.

3) Learning skills

Students will be able to use the knowledge and skills acquired in the course in any application that includes a phase of empirical research and data analysis.

***COURSE CONTENT***

*Part 1. Introduction to qualitative and quantitative research methodologies*

- Paradigms of social research: epistemology and methodology

- Research design: quantitative and qualitative methods, differences and usage;

- Characteristics of qualitative methods in research;

- Semi-structured interviews, non-directive interviews (life stories and life histories);

- Focus groups;

- Constructing the questionnaire;

- Sampling and detection.

*Part 2. Elements of statistics with exercises in Python*

- From measuring phenomena to building statistical variables;

- Data structure (units and variables);

- Frequency distribution and cumulative frequency distributions;

- Measures of position: mode, quantiles, mean;

- Measures of variability and heterogeneity;

- Exercise sessions: Introduction to Python;

- Exercise sessions: Python for univariate statistics and graphical representations;

- Bivariate statistics: joint distributions, conditional distributions, stochastic independence, conditional means, correlations, simple linear regression;

- Exercise sessions: Python for bi-variate statistics and bi-variate graphical representations.

*Laboratory (case studies)*

* Description of the client or the object of the research
* Analysis of research question(s)
* Analysis of data sources
* Selection of research design
* Data collection:
  + Desk (quantitive and qualitative) research
  + Quantitative research instruments (primary and secondary data)
  + Qualitative techniques (ethnography, focus groups, participant observation, etc.)
* Coding and data analysis (Excel, Python)
* Data interpretation
* Summary and conclusion
* Producing the research report

***READING LIST[[1]](#footnote-1)***

P. Corbetta, Social research: Theory, methods and techniques. Sage, London, 2003.

A. Agresti-B. Finlay, Statistical Methods for the Social Scientists. Fourth Edition, Pearson, 2008. [*Acquista da VP*](https://librerie.unicatt.it/scheda-libro/agresti/statistical-methods-for-the-social-sciences-9781292220314-700022.html)

P.D. Brooker, Programming with Python for Social Scientists, SAGE Publications Ltd; 1st edition, 2019.

L. Tagliaferri, How to code in Python 3, Online Book. Digital Ocean, New York City, New York, USA.

The NLTK Book: https://www.nltk.org/book.

***TEACHING METHOD***

Together with the theory, in part 1 and 2 teaching hours will include supervised practical examples. Students will be invited to autonomously practice on applied exercises to improve the learning of the theory.

The laboratory will include also learning general Python programming skills.

***ASSESSMENT METHOD AND CRITERIA***

The assessment of the theoretical part will be carried out through some tests, consisting of theoretical and practical questions, and exercises. These assignments will account for 40% of the final vote, while the remaining 60% of the evaluation will be carried out through a final assessment. The overall evaluation (40+60%) will be expressed out of 30; marks with honors will be given to those students obtaining 31 or 32 points.

The assessment of the Laboratory will be a group presentation (4-5 people per group) about a specific case study. Students will be evaluated on the basis of their ability to set up research, and their analysis and communication skills. The evaluation will be expressed out of 30 and marks with honours will be given to those students reaching 31 or 32 points.

The final vote will be a weighted average between marks for the theoretical part (which will account for 2/3 of the final vote) and the mark of the Laboratory (which will account for 1/3).

1. I testi indicati nella bibliografia sono acquistabili presso le librerie di Ateneo; è possibile acquistarli anche presso altri rivenditori. [↑](#footnote-ref-1)