

# Data analysis with SPSS

**Lecturer: Maria Chiara Debernardi**

## Language

English

## Course description and objectives

SPSS (Statistical Package for Social Science), now IBM SPSS Statistics, allows performing a wide variety of statistical procedures in a quick and easy way, without the need to know any programming language (even its own). It covers all the steps for a statistical pipeline, from reading and cleaning/pre-processing a dataset, to modelling data and shaping outputs.

Main objective of the course is to provide participants a good understanding of SPSS, by acquiring enough operational skills to use it in a socio-economic context and in the exploration of corporate data.

Upon successful completion of this course, the student will be able to:

- Understand the key features of SPSS and use the SPSS GUI effectively
- Produce descriptive analyses by means of simple statistical tables, measures, and graphs
- Perform and comment parametric tests and simple regressions
- Carry out some of the most common multivariate analyses
- Know where to find help for advanced usage

**Important notice:** the course's aim is to present the software SPSS with its features, it does not want to be a “substitute” of a formal course in Statistics, thus details of statistical methodologies used will not be explained.

## Audience

The course is open to all Bocconi students. In particular, it is meant for last year Undergraduate and Master of Science students interested in learning how to do statistical data analysis without writing code, both for their final work and for use in the future workplace.

## Prerequisites

No prior coding experience or knowledge of SPSS is assumed.

It is advisable to have a good familiarity with PC operations and a working knowledge of some basic application software (e.g. Excel).

A basic knowledge and understanding of statistics is highly recommended.

## Duration

16 hours

## Teaching mode

This course will be only taught in person. Online mode will not be provided.

## Calendar

| Lecture | Date           | Time          | Room |
|---------|----------------|---------------|------|
| 1       | Fri 10/02/2023 | 14.45 – 16.15 | N26  |
| 2       | Fri 10/02/2023 | 16.30 – 18.00 | N26  |
| 3       | Fri 17/02/2023 | 14.45 – 16.15 | N26  |
| 4       | Fri 17/02/2023 | 16.30 – 18.00 | N26  |
| 5       | Fri 24/02/2023 | 14.45 – 16.15 | N26  |
| 6       | Fri 24/02/2023 | 16.30 – 18.00 | N26  |
| 7       | Fri 03/03/2023 | 14.45 – 16.15 | N26  |
| 8       | Fri 03/03/2023 | 16.30 – 18.00 | N26  |

**Note:** lessons will be held in the traditional room and **all the students have to bring their own device.**

## Syllabus of the course

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| Lecture  | Topics   |
|----------|--|
| <b>1</b> | <b>Introduction</b> <ul style="list-style-type: none"><li>- SPSS overview</li><li>- Data analysis: workflow and critical issues</li><li>- SPSS GUI: windows, menus, commands</li><li>- File management: SPSS native formats</li></ul> <i>Exercises</i> |
| <b>2</b> | <b>Preliminary data analysis</b> <ul style="list-style-type: none"><li>- Frequencies</li><li>- Descriptives</li><li>- Explore</li><li>- Crosstabs</li></ul> <i>Exercises</i>   |
| <b>3</b> | <b>Data pre-processing</b> <ul style="list-style-type: none"><li>- Creating new variables</li><li>- Labelling variables and their values</li><li>- Missing values</li><li>- Outliers</li></ul> <i>Exercises</i>  |
| <b>4</b> | <b>Graphical data analysis</b> <ul style="list-style-type: none"><li>- Creating charts with SPSS</li><li>- Histograms</li><li>- Bars</li><li>- Boxplots</li><li>- Scatter plots</li></ul> <i>Exercises</i>   |
| <b>5</b> | <b>Regression and ANOVA</b> <ul style="list-style-type: none"><li>- Linear correlation</li><li>- Simple and multiple linear regression</li><li>- Means</li><li>- One-way ANOVA</li></ul> <i>Exercises</i>  |
| <b>6</b> | <b>Classification</b> <ul style="list-style-type: none"><li>- Logistic regression</li><li>- Discriminant analysis</li></ul> <i>Exercises</i>   |

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| Lecture | Topics   |
|---------|--|
| 7       | <b>Feature reduction</b> <ul style="list-style-type: none"><li>- Principal component analysis</li><li>- Factor analysis</li></ul> <i>Exercises</i> |
| 8       | <b>Clustering</b> <ul style="list-style-type: none"><li>- Hierarchical cluster</li><li>- K-means cluster</li></ul> <i>Exercises</i>                |

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### Software used

IBM SPSS Statistics 28 (or higher release)

### Suggested bibliography

Field A., *Discovering Statistics Using IBM SPSS Statistics, Fifth Edition*, SAGE, 2018

### Available seats

This activity is limited to **110** participants. Registrations cannot be carried out once this number has been reached or after closing of the registration period.

Please remember that you can unsubscribe from ITEC courses only before the registration deadline.