UAB

Universitat Autònoma de Barcelona

Degree	Type	Year	Semester
2500262 Sociology	OB	3	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

Name: Pedro López Roldán

Email: Pedro.Lopez.Roldan@uab.cat

Use of Languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Teachers

Ancor Mesa Mendez

Prerequisites

In order to be able to take this course, it is advisable to have successfully followed up the Quantitative Methods of Social Research and Analysis Methods.

Objectives and Contextualisation

This is an introductory course to the techniques of multivariate statistical data analysis that is proposed as a continuation of the quantitative perspective of social research initiated in the degree. The procedures, methods and techniques already discussed so far will be expanded to consider what we can generally call the transition from bivariate analysis procedures to multivariate analysis procedures.

In the context of the itinerary of technical and methodological subjects, which seek to offer a complete overview of the different procedures of the sociological scientific activity, and given the extension and variety of the analysis procedures in the field of social sciences, it entails directing the teaching towards the selection of a few topics or instruments considered as some of the most fundamental and of greatest interest in the practice of sociological research.

Specifically, the subject aims to:

1) From the point of view of the students, the construction of their learning will be carried out from:

- Knowledge and understanding of the main concepts associated with the multivariate analysis of statistical data, exemplified by sociological concepts.
- The ability to apply technical instruments for the advanced analysis of statistical data considered in the course.
- Know how to use statistical software for statistical analysis bivariate and multivariable.
- Know how to interpret the statistical results of a data analysis from the technical and substantive point of view according to some knowledge and study objectives of the social reality.

2) From the general conditions of a subject of this type in relation to the use of students it is about:

- Facilitate the understanding, management and interpretation of a basic algebraic and statistical conceptual system to assimilate the use of techniques that involve the quantification and formalization of social phenomena.
- Framing in a balanced, comprehensive and integratingway the contents ofthis subject within the set of the usual methods in sociology.

Competences

- Applying the main quantitative and qualitative methods and techniques of social research to a specific topic.
- Describing social phenomena in a theoretically relevant way, bearing in mind the complexity of the involved factors, its causes and its effects.
- Designing a social research project by defining a comprehensive theoretical framework with clearly defined concepts, formulating consistent and significant hypothesis, choosing suitable investigation techniques for the adopted concepts, and analysing the empirical results obtained with those techniques.
- Developing critical thinking and reasoning and communicating them effectively both in your own and other languages.
- Developing self-learning strategies.
- Enumerating the methodology and investigation techniques that support the main hypothesis about social relationships, the positions and practices of individuals in a social structure and the social changes.
- Searching for documentary sources starting from concepts.
- Students must be capable of assessing the quality of their own work.
- Students must be capable of managing their own time, planning their own study, managing the relationship with their tutor or adviser, as well as setting and meeting deadlines for a work project.
- Working in teams and networking in different situations.

Learning Outcomes

1. Defining concepts of analysis.
2. Developing critical thinking and reasoning and communicating them effectively both in your own and other languages.
3. Developing self-learning strategies.
4. Explaining the methodological basis of these quantitative and qualitative methods and techniques.
5. Formulating a hypothesis with these concepts.
6. Identifying the main quantitative and qualitative methods and techniques.
7. Indicating their dimensions, their possible quantitative indicators and the significant qualitative evidence in order to empirically observe them.
8. Measuring a social phenomenon with these instruments on the basis of a theoretical framework of analysis.
9. Mentioning the main concepts of sociology.
10. Obtaining conclusions from the information obtained with this tool.
11. Preparing an analytical tool that is significant to this hypothesis.
12. Relating them with the different approaches of sociology.
13. Searching for documentary sources starting from concepts.
14. Students must be capable of assessing the quality of their own work.
15. Students must be capable of managing their own time, planning their own study, managing the relationship with their tutor or adviser, as well as setting and meeting deadlines for a work project.
16. Using the advanced multivariate statistical tools.
17. Using the appropriate software to the advanced multivariate statistical tools.
18. Using the appropriate software to the basic multivariate statistical tools.
19. Using the appropriate software to the univariate statistical tools.
20. Using the basic multivariate statistical tools.

21. Using the univariate statistical tools.
22. Working in teams and networking in different situations.

Content

General introduction
- Objectives of the subject, contents, course dynamics and evaluation
- Multivariate analysis: characteristics and classification of techniques
- Software for the analysis of statistical data

PART I. Analysis of interdependence with qualitative variables

Unit 1. Analysis of contingency tables
- Classic analysis of multidimensional contingency tables

Unit 2. Log-linear analysis
- General linear logarithmic analysis

PART II. The dependence analysis

Unit 3. Analysis of variance
- One-way analysis of variance
- Analysis of multivariate variance

Unit 4. Regression analysis
- Simple regression analysis
- Multiple regression analysis

PART III. The analysis of interdependence for the construction of typologies

Unit 5. Factor analysis
- Mathematical foundations of multivariate data analysis
- Factor analysis of principal components
- Factor analysis of correspondences

Unit 6. Cluster analysis
- Cluster analysis and the construction of typologies
- Automatic cluster analysis

Methodology

The course is presented with a continuous dynamic of teaching and learning, which implies tracking the rhythms of the course and the various contents that have been designed in accordance with the different scheduled activities. The contents of each unit have a thread linked to the research process and the continuity of the learning of concepts and instruments that are incorporated progressively, as well as the resolution of problems and questions, which are based in the assimilation and practice of each previous topic of each unit.

Since the objective of the training is that students learn to research sociology using advanced statistical techniques, the teaching methodology and the training activities of the subject result from the combination of expositive sessions with problem solving exercises and practices in the classroom that allow to apply the acquired concepts and explained techniques, as well as tutorials of follow-up and autonomous work.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Classroom practices	16	0.64	1, 11, 5, 8, 10, 18, 20, 16
Individual preparation of practical exercises	30	1.2	3, 4, 8, 10, 18, 20, 16
Master classes	30	1.2	1, 11, 9, 4, 5, 6, 7, 8, 18, 20, 16
Type: Supervised			
Programmed individual tutorials	2	0.08	14, 13, 1, 11, 5, 15, 8, 10, 22, 18, 20, 16
Type: Autonomous			
Individual work	30	1.2	13, 1, 11, 5, 15, 8, 10, 22, 18, 20, 16
Readings	30	1.2	4, 6, 8, 18, 20, 16

Assessment

The course is evaluated continuously. Regular attendance at class sessions is important to ensure proper learning and assessment.

A final weighted average score of assessment activities equal to or greater than 5 out of 10 is required.

In the evaluation, two aspects are combined:

1) The analysis works (88%). They will consist of 2 individual works of sociological analysis of quantitative data. A minimum score of 4 out of 10 for each work is required. The general contents are as follows:

1. Analysis of multidimensional and log-linear contingency tables (44%).
2. Typological analysis combining factor analysis and classification (44%).

2) The practical exercises (12%). There will be 6 practice sessions that will consist of carrying out in the computer room exercises to apply the techniques of data analysis treated:

Analysis of multidimensional contingency tables (2%)
Log-linear analysis (2%)
Analysis of variance (2%)
Regression analysis (2%)
Factorial analysis of principal components and multiple correspondences (2%)
Cluster analysis (2%)

The evaluation will consist of participation in the sessions.

Compensatory or recovery assessment

- Works with a score of less than 4 may beretrieved after arranging a tutorial to indicate the aspects that need to be corrected or improved. Job recovery will be scored on a maximum of 7.
- The practical classes are an activity of continuous training of the matter of the course and do not recover.
- The deadline for submitting recoveries will be January 31.

In accordance with article 117.2 of the UAB Academic Regulations, the assessment of repeat students may consist of a single synthesis test. Repeating students who want to take advantage of this possibility will need to contact the teachers at the beginning of the course. " If you want to consult the UAB Academic Regulations, you can find them [here](#).

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Analysis works	88,0%	0	0	14, 13, 1, 3, 2, 11, 9, 4, 5, 15, 6, 7, 8, 10, 12, 22, 17, 18, 19, 20, 16, 21
Practical exercices	12,0%	12	0.48	14, 13, 1, 3, 2, 11, 9, 4, 5, 15, 6, 7, 8, 10, 12, 22, 17, 18, 19, 20, 16, 21

Bibliography

Basic bibliography

López-Roldán, P.; Fachelli, S. (2015). *Metodología de la investigación social cuantitativa*. Bellaterra (Barcelona): Dipòsit Digital de Documents, Universitat Autònoma de Barcelona. 1a. edición.
http://ddd.uab.cat/record/129382 | http://pagines.uab.cat/plopez/content/misc

López-Roldán, P. (2015). *Recursos para la investigación social*. Dipòsit Digital de Documents. Bellaterra (Barcelona): Universitat Autònoma de Barcelona.
http://ddd.uab.cat/record/89349 | http://pagines.uab.cat/plopez

Further reading

The manual *Metodología de la investigación social cuantitativa* (MISC) contains in each chapter a list of specific bibliographic references that complement the basic bibliography..

Selected bibliographical references:

Aldás, J.; Uriel, E. (2017). *Análisis multivariante aplicado con R*. Madrid: Paraninfo.

Ato García, M.; López García, J. J. (1996). *Análisis estadístico para datos categóricos*. Madrid: Síntesis.

Bailey, K. D. (1994). *Typologies and Taxonomies. An Introduction to Classification Techniques*. Thousand Oaks (California): Sage.

Bouso, J. (2013). *El paquete estadístico R*. Madrd: CIS.

Cea d'Ancona, M. A. (2002). *Anàlisis multivariable. Teoría y pràctica en la investigación social*. Madrid: Sintesis.

Christensen, R. R. (1997). *Log-linear models and logistic regression.* New York: Springer-Verlag.

Correa Piñero, A. D. (2002). *Análisis logarítmico lineal*. Madrid: La Muralla.

Greenacre, M. J. (2008). *La práctica del análisis de correspondencias*. Madrid: Fundación BBVA.
http://www.fbbva.es/TLFU/tlfu/esp/publicaciones/libros/fichalibro/index.jsp?codigo=300

García Ferrando, M. (1987). *Socioestadística. Introducción a la estadística en sociología*. 2a edició amp. Madrid: Alianza. Alianza Universidad Textos, 96.

Guillén, M. F. (1992). *Análisis de regresión múltiple*. Madrid: Centro de Investigaciones Sociológicas.

Hernández Encinas, L. (2001). *Técnicas de taxonomía numérica*. Madrid: La Muralla.

Joaristi Olariaga, L.; Lizasoain Hernandez, L. (1999). *Análisis de correspondencias*. Madrid: La Muralla.

López-Roldán, P.; Fachelli, S. (2018). *Metodología de construcción de tipologías para el análisis de la realidad social*. Bellaterra (Cerdanyola del Vallès): Dipòsit Digital de Documents, Universitat Autònoma de Barcelona. 2a. edición.

Marradi, A. (1990). Classification, typology, taxonomy. *Quality & Quantity*, 24, 129-157.

MacFarland, T. W. (2012). *Two-Way Analysis of Variance: Statistical Tests and Graphics Using R*. New York: Springer.

Pardo, A; Ruiz, M. A.; San Martín, R. (2015). *Análisis de datos en ciencias sociales y de la salud*. Madrid: Síntesis.

Powers, D. A.; Xie, Y. (2008). *Statistical Methods for Categorical Data Analysis*. Bingley, U.K.: Emerald. 2a. edició.

Sánchez Carrión, J.J. (1999). *Manual de análisis estadístico de los datos*. Madrid: Alianza. Manuales, 055.

Sánchez Carrión, J. J. (Ed.) (1984). *Introducción a las técnicas de multivariable aplicadas a las ciencias sociales*. Madrid: Centro de Investigaciones Sociológicas.

Sánchez Carrión, J. J. (1989). *Análisis de tablas de contingencia. El uso de los porcentajes en ciencias sociales*. Madrid: Centro de Investigaciones Sociológicas-Siglo XXI.

Tejedor, F. J. (1999). *Análisis de varianza: introducción conceptual y diseños básicos.* Madrid: La Muralla.

VV.AA. (1996). La construcció de tipologies. Exemples. Monogràfic de *Papers. Revista de Sociologia*, 48. http://ddd.uab.cat/search?cc=papers&f=issue&p=02102862n48&rg=100&sf=fpage&so=a&ln=en

Software

The course will use the IBM SPSS Statistics software for statistical data analysis.

In addition, Moodle, MS-Office (Word, Excel) and Adobe Acrobat will be used.