



Universitat de Lleida

DEGREE CURRICULUM  
**BASIC STATISTICS**

Coordination: COMAS RODRIGUEZ, CARLOS

Academic year 2020-21

## Subject's general information

|                                                 |                                                         |               |                  |
|-------------------------------------------------|---------------------------------------------------------|---------------|------------------|
| <b>Subject name</b>                             | BASIC STATISTICS                                        |               |                  |
| <b>Code</b>                                     | 102908                                                  |               |                  |
| <b>Semester</b>                                 | 2nd Q(SEMESTER) CONTINUED EVALUATION                    |               |                  |
| <b>Typology</b>                                 | <b>Degree</b>                                           | <b>Course</b> | <b>Character</b> |
|                                                 | Bachelor's Degree in Psychology                         | 1             | COMMON           |
| <b>Modality</b>                                 | Attendance-based                                        |               |                  |
| <b>Course number of credits (ECTS)</b>          | 6                                                       |               |                  |
| <b>Type of activity, credits, and groups</b>    | <b>Activity type</b>                                    | PRAULA        | TEORIA           |
|                                                 | <b>Number of credits</b>                                | 2.4           | 3.6              |
|                                                 | <b>Number of groups</b>                                 | 2             | 1                |
| <b>Coordination</b>                             | COMAS RODRIGUEZ, CARLOS                                 |               |                  |
| <b>Department</b>                               | MATHEMATICS                                             |               |                  |
| <b>Important information on data processing</b> | Consult <a href="#">this link</a> for more information. |               |                  |
| <b>Language</b>                                 | Catalan                                                 |               |                  |

| Teaching staff                | E-mail addresses           | Credits taught by teacher | Office and hour of attention |
|-------------------------------|----------------------------|---------------------------|------------------------------|
| COLOMER CUGAT, MA.<br>ANGELES | mariangels.colomer@udl.cat | 4,8                       |                              |
| COMAS RODRIGUEZ, CARLOS       | carles.comas@udl.cat       | 3,6                       |                              |

## Learning objectives

- Know the fundamentals of statistics
- Choose and apply the most appropriate procedure to represent a variable using tables and graphs.
- Choose and correctly calculate the most suitable measures of central tendency and dispersion for each variable type.
- Choose and correctly calculate the most suitable position measurements to represent each type of variable.
- Know the main statistical techniques for the analysis of discrete univariate and bivariate variables. and continue
- Know the foundations of probability theory.
- Calculate mathematical expectation and variance for continuous and discrete random variables.
- Know the main models of distribution of discrete random variables including the model Binomial and the Poisson.
- Know and work with the Normal model and its typification.

## Competences

### Basic skills:

CB1 Possess and understand knowledge in a study area that starts at the base of secondary education general, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.

CB2 Apply their knowledge to their job or vocation in a professional way and possess the competences that They are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within your study area.

CB3 Ability to collect and interpret relevant data (usually within your study area) to issue judgments that include a reflection on relevant issues of a social, scientific or ethical nature. CB4 Being able to transmit information, ideas, problems and solutions to a specialized audience as unspecialized.

### General Competences:

CG1 Develop the ability to adapt to new situations and solve problems effectively.

CG2 Develop the ability to work in multidisciplinary teams and collaborate efficiently with other professionals.

CG3 Show skills for interpersonal relationships.

CG5 Demonstrate critical capacity to make relevant decisions.

CG6 Reflect on your own limitations in a self-critical way, considering the possibility of requesting interdisciplinary collaborations.

CG7 Act with creativity, research culture and professional communication.

CG9 Recognize diversity and difference as a structural element of the human being, while recognize, understand and respect the cultural complexity of today's society.

CG10 Respect the fundamental rights of equality between men and women, the promotion of Human Rights and the values proper to a culture of peace and democratic values.

## **Specific Competences:**

CE1 Identify and analyze the characteristics and needs of individuals, groups and organizations, as well as well as the relevant contexts for the requested service.

CE2 Plan the evaluation of psychological programs and / or interventions, selecting indicators and proper techniques.

CE4 Analyze and interpret the results of the psychological evaluation.

CE6 Respond and act appropriately and professionally, taking into account the attitudes and values of the profession, as well as its ethical and deontological code, in each and every one of the intervention processes.

CE7 Provide information to users and establish an appropriate interpersonal relationship, taking into account account the different contexts of professional relationship.

CE8 Prepare technical reports, oral and written, on the results of the evaluation process, of the research or the services requested, respecting the ethical commitment required by the dissemination of psychological knowledge.

CE9 Use the different documentary sources in psychology, show a command of the necessary strategies to access information and assess the need for document updating.

CE10 Manage, analyze and interpret data within the framework of disciplinary knowledge of the different areas of psychology.

CE11 Make critical decisions about the choice, application and interpretation of results derived from the different methods of psychological research.

CE12 Disseminate knowledge derived from theoretical reviews and research results psychological.

## **Transversal Competences:**

CT1 Acquire adequate oral and written comprehension and expression of Catalan and Spanish.

CT2 Acquire significant command of a foreign language, especially English.

CT3 Acquire training in the use of new technologies and information technologies and the communication.

CT5 Acquire essential notions of scientific thought.

## **Subject contents**

- Introduction to statistics. Basic concepts: population, sample and variable. Exploratory analysis e inferential data.

- Quantitative random variables (v.a.): data collection, organization (tabulation) and representation graph.
- Parameters associated with the distribution of a v.a. quantitative. Measures of central tendency, dispersion, shape and position.
- Qualitative (categorical) random variables: data collection, tabulation, graphical representation and parameters linked to the distribution of a v.a. categorical.
- Relationship between two v.a. Quantitative: scatter diagrams and association measures.
- Relationship between two v.a. qualitative: contingency tables, and measures of association and agreement.
- Introduction to the calculation of probabilities and combinatorics.
- From the histogram to the density function of a v.a. continuous: the distribution function, hope mathematics and variance.
- Probability function and cumulative probability function of a v.a. discreet.
- Distribution models of v.a. discrete and continuous: the Binomial, Poisson and Normal model.

## Methodology

1. Master classes
2. practical classes
3. Problem Based Learning (PBL)

## Development plan

The course is developed based on master classes (Large Groups) where the theoretical foundations will be given and practical classes (Medium Groups) where this knowledge will be applied to practical cases and exercises. The student must attend both types of classes. For more information see schedule

## Evaluation

| Assessment activities                | % in final qualification | C / V (1) | minimum qualification to weigh |
|--------------------------------------|--------------------------|-----------|--------------------------------|
| Acedemic exam of subjects 1, 2 and 3 | 28%                      | C         | 0 out of 10                    |
| Acedemic exam of subjects 4 and 5    | 29%                      | C         | 0 out of 10                    |
| Acedemic exam of subjects 6, 7 and 8 | 43%                      | C         | 2 out of 10                    |

(1) Compulsory / Voluntary The final grade for the course is the result of the weighted average of the activities evaluated according to criteria listed in the table. To pass, this grade must be 5 points out of 10. The topics to be assessed in each exam are indicative and may vary. The exams will be theoretical, problem-based and test-type. There will be a recovery exam only for the exam that exceeds the total of the final grade by 30%. The exams with a content percentage of less than 30% cannot be recovered, nor the grade of attendance to the classroom. In order to weigh (consider the grade to obtain the overall grade for the course) the grade for the exam of the theoretical contents of topics 6, 7 and 8 must be greater than or equal to 2 out of 10, on the contrary, the student must retrieve this partial. For the rest of the partials there is no minimum grade to be able to grade the grade with the rest of the

evidence. The final (global) grade of the subject cannot exceed the qualification of 6 out of 10 if you have had or wanted to recover the exam of the theoretical contents 6, 7 and 8.

**Alternative evaluation.** It will consist of a content test (exam) at the end of the course where all the topics presented in class will be evaluated.

## Bibliography

### Bibliografía básica

- Aron, A. y Aron, E. N. (2001). *Estadística para psicología*. Buenos Aires: Pearson Education.
- Botella, J., León, O. G., San Martín, R. y Barriopedro, M. I. (2001). *Análisis de datos en psicología I: teoría y ejercicios*. Pirámide, Madrid.
- Gravetter, F.J. and Wallnau, L.B. (2010). *Essentials of Statistics for the Behavioral Science*. Wadsworth Pub Co. Belmont, California, United States.
- Howitt, D. and Cramer, D. (2008). *Introduction to SPSS in Psychology: For Version 16 and Earlier*. Pearson. Prentice Hall, Edinburgh.
- Howitt, D. and Cramer, D. (2005). *Introduction to Statistics in Psychology*. Pearson. Prentice Hall, Edinburgh.
- Navas, M. J. (Ed.) (2001). *Métodos, diseños y técnicas de investigación psicológica*. Madrid: UNED.
- Pardo A y Ruiz M. A. (2005). *Análisis de datos con SPSS 13 Base*. Madrid: McGraw-Hill.
- Peña, D. y Romo, J. (1997). *Introducción a la estadística para las ciencias sociales*. Madrid: McGraw-Hill.
- Solanas, A., Salafranca, L., Fauquet, J. y Núñez, M. A. (2005). *Estadística descriptiva en Ciencias del Comportamiento*. Madrid: Thomson.

### Bibliografía ampliada/complementaria

- Amón, J.: *Estadística para psicólogos*. Madrid: Pirámide. Primer volumen: 1978. Segundovolumen: 1986.
- Ato, M. y López, J.J. (1996). *Análisis estadístico para datos categóricos*. Madrid: Síntesis.
- Botella, J., y Barriopedro, M. I. (1991). *Problemas y ejercicios de Psicoestadística*. Madrid: Pirámide.
- Cuadras, C.M., Echeverría, B., Mateo, J. y Sánchez, P. (1984): *Fundamentos de Estadística. Aplicación a las Ciencias Humanas*. PPU. Barcelona.
- Dasí, C., y Selva, J. (1995). *Análisis de datos en Psicología*. Valencia: Albatros.
- Delgado, A.R y Prieto, G (1997). *Introducción a los métodos de Investigación en Psicología*. Madrid: Pirámide.
- Fernández Díaz, M.J., García, J.M., Fuentes, A. y Asensio, I. (1990): *Resolución de problemas de Estadística aplicada a la Ciencias Sociales*. Síntesis. Madrid.
- Field A (2005). *Discovering statistics using SPSS (2ª ed.)*. Thousand Oaks, CA: Sage.
- Glass, G. y Stanley, J. (1974): *Métodos estadísticos aplicados a las ciencias sociales*. Madrid: Prentice-Hall.
- Gravetter & Wallnau (2004). *Statistics for the Behavioral Sciences*, Sixth Edition. New York: Thomson Wadsworth.

- Greenacre, M.J. (1998). *Estadística aplicada a les ciències socials i humanes*. Edicions de la Universitat Oberta de Catalunya.
- Howell DC (2002). *Statistical methods for psychology* (5ª ed.). Belmont, CA: Thomson Wadsworth.
- Keppel G y Wickens ThD (2004). *Design and analysis: A researcher's handbook* (4ª ed.). Englewood Cliffs, NJ: Prentice-Hall.
- León, O. G., y Montero, I. (2003). *Métodos de investigación en Psicología y Educación*. Madrid: Mc Graw-Hill.
- Llopis, J. (1996): *La Estadística: una orquesta hecha instrumento*. Barcelona: editorial Ariel.
- Lubín, P., Maciá, M.A. y Rubio, P. (2005). *Psicología Matemática Volúmenes I, II y III*. Madrid: UNED .
- Maxwell SE y Delaney HD (2004). *Designing experiments and analyzing data. A model comparison perspective* (2ª ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- McRae, S. (1995). *Modelos y métodos para las ciencias del comportamiento*. Ariel Psicología. Barcelona.
- Merino, Moreno, Padilla, Rodríguez-Miñón y Villarino (2000). *Análisis de datos en Psicología I: Formulario y tablas*. Madrid: UNED.
- Merino, Moreno, Padilla, Rodríguez-Miñón y Villarino (2004). *Análisis de datos en Psicología I*. Madrid: UNED.
- Mures Quintana, M. J. (2006). *Problemas de Estadística Descriptiva Aplicada a las Ciencias Sociales*. Madrid: Pearson Educación.
- Pardo, A. y San Martín, R. (1994): *Análisis de datos II*. Pirámide, Madrid.
- Pérez López, C. (2001). *Técnicas estadísticas con SPSS*. Prentice Hall, Madrid.
- Pérez Santamaría, F. J., Manzano Arrondo, V. y Fazeli Khalili, H. (1998). *Problemas resueltos de análisis de datos*. Madrid, Pirámide.