COURSE DATA

DATA SUBJECT

Code: 36244
Name: Statistics I
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1319 - Degree in Psychology	Facultat de Psicologia i Logopèdia	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1319 - Degree in Psychology	Statistics I	BASIC

COORDINATION

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SUMMARY

The subject Statistics I consists of 6 credits that are taught in the first term of the first year of the degree in Psychology. The general aim of the course is to provide students with procedures to answer questions of interest to psychologists by means of descriptive statistical analyses, according to different research methods. Descriptive data analysis techniques are a requirement for other subjects in the degree such as Statistics II, Psychometrics, Research Designs and several optional subjects. They are also a requirement for technical reports and empirical research in other subjects and areas of psychological knowledge, as well as for understanding the bases of empirical knowledge of behaviour.

This subject takes into account the Sustainable Development Goals, especially number 3: *Health and well-being*, number 4: *Quality education*, number 5: *Gender equality*, and number 10: *Reduced inequalities*.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

RECOMMENDATIONS:

Computer skills at user level: knowledge of basic computer use, internet use and office IT use (word, excel, power-point). Basic notions of mathematics: arithmetic and algebra.

This subject is the basis for working on the concepts and procedures of the subject Statistics II. Successful completion of Statistics I and II is required for enrollment in Psychometrics, a second-year course.

COMPETENCES / LEARNING OUTCOMES

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Be able to apply methodological knowledge to solve the problems arising in professional practice.

Be able to describe psychological data through statistical software and other information technologies.

Be able to measure and obtain relevant data for the assessment of interventions.

Be able to prepare oral and written reports.

Know and comply with professional ethics of Psychology.

Know how to analyse and interpret the results of assessment.

Know the principles of the scientific method and the characteristics of the different methods used in psychology and its analytical techniques.

Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.

Students must have acquired knowledge and understanding in a specific field of study, on the basis of general secondary education and at a level that includes mainly knowledge drawn from advanced textbooks, but also some cutting-edge knowledge in their field of study.

Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.

DESCRIPTION OF CONTENTS

1. The process of scientific research.

1. Research, knowledge generation, science in psychology.
2. Role of Statistics in Psychology.
3. Basic statistical concepts (sample, population, sampling, etc).
4. Theories, Models, Questions / problems, hypotheses.

5. Variables: Definition, types and scales of measurement.
6. Research methods and designs.
7. Data analysis, interpretation and evaluation of results.
8. The research report.

2. Data Organization

1. Introduction.
2. Coding, data entry, cleaning, processing and file processing. 3. Outliers.
4. Missing values.
5. Frequency distribution.
6. Introduction to the quantiles.
7. Charts for qualitative and quantitative variables.

3.Group description

1. Introduction.
2. Central tendency: mode, median, arithmetic mean and other measures. Definitions, calculations, characteristics and criteria of use.
3. Variability: Range, Variance, Standard Deviation (sample and population) and other measures (interquartile range, and coefficient of variation). Definitions, calculations, characteristics and criteria of use.
4. Asymmetry: Definition, calculation and interpretation.
5. Kurtosis: Definition, calculation and interpretation.
6. Graphical representation: box plots and error bars.

4. Measures of individual position

1. Introduction.
2. Quantile: Ranges Percentiles, Percentiles, Deciles and Quartiles.
3. Standard Scores: Introduction, calculation and main features.
4. Derived scales.

5. Association

1. Introduction.
2. Bivariate tables and graphs.
3. Quantitative variables: covariance, Pearson correlation coefficient, variance-covariance matrix and correlation matrix.
4. Semiquantitative variables: Spearman coefficient.
5. Qualitative variables: Indices Chi Square and Cramer's V.
6. Association between variables of different scales.
7. Concept of nonlinear relationships.

6. Linear regression

1. Introduction.
2. The equation of the line.
3. The least squares criterion.
4. Graphical representation.
5. Standardized regression coefficients.
6. The coefficient of determination.
7. Introduction to multiple regression multiple correlation and partial.

7. Use of probability in psychological research

1. Introduction.
2. Random variables.
3. Probability function and distribution function.

8. Major probability distributions

1. Discrete random variables: binomial distribution.
2. Continuous random variables: normal distribution.
3. Continuous random variables: t distribution.
4. Continuous random variables: Chi Square distribution.
5. Continuous random variables: F distribution.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theoretical and practical classes	60,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	25,00
Independent study and work	45,00
Preparation of lessons	0,00
Preparation for assessment activities	20,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

The teaching of the subject will combine the following strategies:

- Theoretical-practical classes with the support of audiovisual media, links to different websites with content related to the subject, manuals and scientific articles, and other readings and materials.
- Practical sessions in a computerized classroom, seminars and workshops aimed at applied aspects, in which students work individually or in groups with the material provided (tests, articles, computers, software and databases) to achieve an objective. An important feature is that, after the activity, there is shared discussion around the learning objective in question. Here the student takes a very active part in the learning process.
- Exercises on theoretical and applied aspects with self-contained materials.

EVALUATION

The result of the student assessment is a qualification that will oscillate between 0 and 10 points. This qualification depends of the following parts:

System of Assessment 1 (ES1): ESTIMATION OF THEORETICAL AND PRACTICAL CONTENTS BY MEANS OF ORAL OR WRITTEN TESTS, AND SKILL PERFORMANCE. It will represent **85% of the final qualification**. It will consist of two sections: A) continuous assessment during the scheduled period of classes, with a maximum of 15% (it cannot be retaken in the second call) and, B) final assessment, with a maximum qualification of 70%, in which it will be necessary to achieve a minimum of 50% to pass the course. Section B is recoverable in second call.

System of Assessment 2 (ES2): ORAL OR WRITTEN PRESENTATION OF REPORTS ABOUT INDIVIDUAL OR GROUP WORKS, CLINICAL CASES, RESOLUTION OF PROBLEMS OR MANAGEMENT OF DIAGNOSTIC TESTS. It will add a maximum of **15% of the final qualification**. It is necessary to achieve a minimum of 50% in this section to pass the course. This section is recoverable in second call.

Additional considerations:

1. The described sections will be summed only when a student reaches the minimum required conditions.

2. If a student does not pass some of the compulsory sections in the first call, the points of the other sections will be saved for the second call.

3. Dates of realization of the tests of the Section A of the ES1 will be established by the teacher along the course. They can be individual or group assessments about the topics listed in the Course Guide.

4. The qualification of the course follow the Normative of Qualifications of the University of Valencia (ACGUV 108/2017). In accordance with it, the following scale of qualification will be used:

-Of 0 to 4.9: fail

-Of 5 to 6.9: pass

-Of 7 to 8.9: remarkable

-Of 9 to 10: excellent or excellent with honors

As stated in the normative about the assignment of "Excellent with honors" qualification, it will be according to strict order of numerical mark. In case of a tie, the qualification will be assigned to the student with higher numerical mark in the Section B of the ES1. If the tie continues, the higher of the ES2 and, finally, the higher of the Section A of the ES1, will be considered. If all of them are equal, the teacher can add an additional exam.

5. The copy or plagiarism of any task of the assessment will suppose the impossibility to pass the course. Relevant disciplinary measures may be applied. In the event of fraudulent practices, the Action Protocol for fraudulent practices at the University of Valencia will be applied (ACGUV 123/2020): https://www.uv.es/sgeneral/Protocols/C83sp.pdf

6. Take into account that, in accordance with the article 13.d) of the Statute of the University Student (RD 1791/2010, of 30 of December), a student is to abstain in the utilization or cooperation in fraudulent procedures in the tests of assessment and works that he does, or in official documents of the university.

7. In the individual or collective tutorials, the professor can ask a student for questions in order to verify the degree of participation and accomplishment of the objectives of a task of the course. If not accepting this verification, the student will not pass the task or activity in question.

8. The marks obtained in the first call will be incorporated according to the following rules:

· If there is no qualification assessment section with greater weight, the rating will not be presented, regardless of the rest.

· If there is a rating in the assessment section with greater weight and it does not reach the minimum requirements, FAIL will be entered with the base 10 numerical grade qualification of this section.

· If there is a rating in the assessment section with greater weight, and this exceeds the minimum requirements, but these requirements are not met in any of the remaining sections, FAIL will be entered with the base 10 numerical grade qualification of the section of the subject that was not passed.

9. SECOND CALL, proceed according to the following rules:

· The NOT PRESENTED option will only be possible when the student has not been presented to more than one of the sections of assessment, including among these the one with the highest weighting.

· If there are scores in all sections of assessment and minimum requirements are not met in any of them, FAIL will be entered with base 10 numerical qualification of the section that has not been passed. If there was more than one section, the base 10 numerical qualification will be the highest among the assessment sections¿ fail qualifications.

· If one or more of the minimum requirements are not met and there is one absent assessment section, FAIL will be entered with base 10 numerical qualification of the failed assessment section.

· If two assessment sections are passed and there is a third one for which evidence of assessment has not been presented, FAIL will be entered with numerical qualification of the average score, being the part not presented 0.0 (maximum possible 4.9).

· If the assessment section of highest weight is passed, but evidence is lacking on one or more of the other sections, FAIL will be entered. Parts will be added together and: a) if the sum is less than 5, it will be recorded as the result; b) if the sum is greater than 5, 4.9 will be recorded.

10. If the subject is passed in the first call, the student will not be able to examine in second call with the purpose to improve their qualification.

11.The consultation and appeal of the obtained qualification shall be subject to the provisions of "Reglament d'avaluació i qualificació de la Universitat de València per a títols de grau i màster (ACGUV de 30 de maig de 2017)".

12. The assignments, activities, or exercises submitted by students in this subject must be their own and original work. In case of using artificial intelligence (ChatGPT or others), the student must provide a statement of responsible use.

REFERENCES

BASIC REFERENCES

- Pardo, A., Ruiz, M. A. y San Martín, R. (2009). Análisis de datos en ciencias sociales y de la salud I. Madrid: Síntesis
- Botella, J., Suero, M., Ximénez, C. (2012). Análisis de datos en Psicología I. Madrid: Pirámide
- Molina, J. G. y Rodrigo, M. F. (2012). Estadística I. Valencia: Open Course Ware de la Universitat de Valencia. Disponible en: http://ocw.uv.es/ ciencias-sociales-y-juridicas/estadistica-i/

- Bock, Velleman y de Veaux (2010, 3rd ed.). Stats: Modeling the World. Pearson Education.
- León, O.G. y Montero, I. (2015). Métodos de investigación en psicología y educación (4ª ed.). Madrid: McGraw-Hill.

SUPPLEMENTARY REFERENCES

- Pardo, A. y Ruiz, M. A. (2009). Gestión de datos con SPSS Statistics. Madrid: Síntesis.
- Solanas, A.; Salafranca, L.; Fauquet, J. y Núñez, M.A. (2005). Estadística descriptiva en Ciencias del Comportamiento. Madrid: Thomson.
- Frias-Navarro, D. (Ed.) (2011). Técnica estadística y diseño de investigación. Valencia: Palmero Ediciones.
- Navarro, D. J., Foxcroft, D. R. y Faulkenberry, T.J. (2019). Learning Statistics with JASP: A Tutorial for Psychology Students and Other Beginners. https://tomfaulkenberry.github.io/JASPbook/index.html
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- Goss-Sampson, M. A. (2019). Análisis estadístico con JASP: una guía para estudiantes. FUOC. http: //static.jasp-stats.org/JASPGuideEspanol.pdf
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