Course Guide
36244 Statistics I

COURSE DATA

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Study (s)

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<td>Faculty of Psychology and Speech Therapy</td>
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<td>First term</td>
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Subject-matter

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<td>1319 - Grado de Psicología</td>
<td>52 - Statistics I</td>
<td>Basic Training</td>
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Coordination

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<tr>
<td>PEREA LARA, MANUEL</td>
<td>267 - Behavioral Sciences Methodology</td>
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SUMMARY

Statistics I is a 6 credit course lectured in the 1st semester of the 1st course of the degree of Psychology. The overall aim of the course is to provide procedures to respond to issues of interest to psychologists using descriptive statistical analysis of data in situations contextualizing chords to different research methods. The descriptive data analysis techniques are prerequisite to other obligatory subjects of the curriculum, such as Statistics II, Psychometrics and Research Design, and other optional subjects. The statistical concepts are also required to carry out empirical research in different subjects and areas of expertise as well as theoretical understanding of the foundations of empirical knowledge of the behavior.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.
Other requirements
Relationship to other subjects of the same degree: There are no specified enrollment restrictions with other subjects of the curriculum.

RECOMMENDATIONS:
Computer user level: knowledge of basic computer use, Web surfing and office applications (word, excel, power point). Fundamentals of Mathematics: arithmetic and algebra.

OUTCOMES
1319 - Grado de Psicología
- 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.
- Students must be able to communicate information, ideas, problems and solutions to both expert and lay audiences.
- Be able to measure and obtain relevant data for the assessment of interventions.
- Know how to analyse and interpret the results of assessment.
- Be able to prepare oral and written reports.
- Know and comply with professional ethics of Psychology.
- Know the principles of the scientific method and the characteristics of the different methods used in psychology and its analytical techniques.
- 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.

LEARNING OUTCOMES
Students must be able:
a) To know and apply correctly descriptive statistical procedures of data analysis that are most commonly used in the process of obtaining scientific information in the field of psychology.
b) To Manage computerized data sets: organize, enter and process the data correctly.
c) To Select the most appropriate techniques for the description of both univariate and multivariate data.
d) To perform the calculations.
e) To Interpret results and draw conclusions.
f) To Express the results and conclusions in technical language understandable to nonprofessionals.
### 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, coefficient of variation). Definitions, calculations, characteristics and criteria of use.

#### 4. Measures of individual position
1. Introduction.
2. Quantile: Ranges Percentiles, Percentiles, Deciles and Quartiles.
4. Derived scales.

#### 5. Association
1. Introduction.
2. Bivariate tables and graphs.
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

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<th>ACTIVITY</th>
<th>Hours</th>
<th>% To be attended</th>
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<tr>
<td>Theoretical and practical classes</td>
<td>60.00</td>
<td>100</td>
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<tr>
<td>Development of group work</td>
<td>12.00</td>
<td></td>
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<tr>
<td>Development of individual work</td>
<td>13.00</td>
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<tr>
<td>Study and independent work</td>
<td>45.00</td>
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<tr>
<td>Preparation of evaluation activities</td>
<td>20.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>150.00</td>
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TEACHING METHODOLOGY

The teaching of the course combines the following strategies:

(1) Exhibitions and presentations (lectures) of the contents of the subject.

(2) Practical classes based on exercises, such as data introduction and processing, or case studies.

(3) Scheduled group tutoring if necessary. Preparation of the required work independently.
EVALUATION

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

**System of Evaluation 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 evaluation during the scheduled period of classes, with a maximum of 15% and, B) final evaluation, 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 Evaluation 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 reach the minimum required conditions.
2. If a student do not pass some of the compulsory sections in the first call, the points of the other sections will be save for the second call.
3. Dates of realisation of the tests of the Section A of the ES1 will be established by the teacher along the course. They can be individual or groupal evaluations 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 for strict order of numerical mark. In case of tie, the qualification will be assigned to the student with higher numerical mark in the Section B of the ES1. If it follows the tie, the higher of the ES2 and, finally the higher of the Section A of the ES1. If all of them are equal, teacher can add an aditional exam.

5. The copy or plagiarism of any task of the evaluation will suppose the impossibility to pass the course. The relevant disciplinary measures may be applied.
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 owe abstain in the utilisation or cooperation in fraudulent procedures in the tests of evaluation and works that he realise, or in official documents of the university.

7. In the individual or colective tutorials, the professor can to ask a student for questions in order to verify the degree of participation and acompliance 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 in the minutes of the subject according to the following rules:
   - If there is no qualification evaluation section with greater weight, the rating will not be presented, regardless of the rest.
   - If there’s rating in the evaluation section with greater weight and does not reach the minimum requirements shall be entered SUSPENSE and base 10 numerical grade qualification of this section.
   - If there’s rating in the evaluation section with greater weight, and this exceeds the minimum requirements, but those requirements are met in any of the remaining sections consist SUSPENSE and numerical note will be based 10 qualifying paragraph by which does not exceed the subject.

9. SECOND CALL, proceed according to the following rules:
   - Only fit the PRESENTED NO option when has not been presented to more than one of the sections of assessment, including among these the highest weighting.
   - If scores in all sections of assessment and no minimum requirements are met in any of them, and the note will consist SUSPENSE base 10 corresponding to the section that has not been surpassed. If more than one section, the unsurpassed, consist the maximum score within the suspense in base 10.
   - If you do not exceed one or more of the minimum requirements and lack a section evaluation shall be recorded SUSPENSE and numerical note SUSPENSE base 10 of qualification paragraph not exceeded.
   - If two evaluation points are exceeded and there is a third party that has not presented evidence evaluation shall be recorded SUSPENSE and as rating, the average score being 0.0 part not presented (maximum possible 4.9).
   - If the test higher weight is exceeded, but evidence is lacking in one or more of the other sections, consist SUSPENSE. Parts are added together and: a) if the sum is less than 5, it will be recorded as a result; b) if the sum is greater than 5, shall be recorded 4.9.

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

11. The consultation and appeal of the qualification obtained 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)".
# REFERENCES

## Basic

## Additional

## ADDENDUM COVID-19

This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council

1. **Contents**
   The contents are the same as those indicated in the teaching’s guide.

2. **Volume of work and temporary planning of teaching**
   The volume of work would only be affected in the classroom hours (in a strict, physical, classroom setting, since online classes can continue to be taught). From 100% of face-to-face theoretical-practical teaching hours, the percentage would be (in this scenario) 25% (i.e., the sessions of classes physically taught in the classroom).

3. **Teaching methodology**
   In addition to the methodology used in the classes physically taught in the classroom, the tools in use with more or less frequency for communication, teaching and tutoring in the blended (not face-to-face) scenario are the following:
1. Upload of materials to the Virtual Classroom or a UV teacher’s website
2. Proposal for activities by virtual classroom or a UV teacher’s website
3. Synchronous Video Conference (Blackboard Communicate)
4. Asynchronous Video Conference (Blackboard Communicate)
5. Recorded slides
6. Discussions on the forum
7. Problems / exercises solved (practical classes / laboratories)
8. Videos recorded in the laboratory (practical classes / laboratories)
9. Work with simulators or calculation / statistical packages (practical classes / laboratories).
10. Project development
11. Presentation of projects
12. Tutoring by videoconference
13. Forum or chat in Virtual Classroom
14. Others (activation of social networks, student representatives would encourage virtual classroom messages by WhatsApp and alert students with connection problems or problems of any kind).

In case of non-face-to-face classes, the schedule will be that indicated by the School of Psychology. Synchronous methodologies (e.g., via videoconferences or chats) that promote interaction will be prioritized. Depending on the characteristics of each theme, various tools may be implemented, including from materials with explanations and image captures, demonstrations, recordings and / or PowerPoint locutions.

The tools most used for tutorials are synchronous communication tools or videoconferencing. Both these and the other methodologies included in the list will be used with sufficient flexibility to respond to the different situations in which it is found and the means available to the students. Through email, even from their mobile/cell phones, students/professors can alert of a problematic situation to establish alternative means and schedules.

For the autonomous work of the students, these and other methodologies will be used, such as the development of projects or participation in the forum.

4. Evaluation
1. NORMAL SCENARIO (ON-SITE FINAL TEST)
The teaching guide includes evaluation based on:
Assessment System 1 (SE1): ASSESSMENT OF THEORETICAL AND PRACTICAL CONTENTS THROUGH ORAL, WRITTEN OR SKILL PERFORMANCE TESTS. It will be 85% of the final grade. It will consist of two sections: A) continuous evaluation during the teaching period of the course—this will represent 15% of the final grade; and, B) final evaluation—this will represent 70% of the final grade—it will be necessary to achieve a minimum score of 50% in Section B to pass the course. This section B is recoverable on the second call.

Assessment System 2 (SE2): ORAL OR WRITTEN PRESENTATION OF REPORTS, INDIVIDUAL OR GROUP WORKS, CLINICAL CASES, PROBLEM SOLVING OR MANAGEMENT OF DIAGNOSTIC TESTS. It will represent 15% of the final grade. It is necessary to achieve a minimum score of 50% in this section to pass the subject. This section is recoverable on second call.

Therefore, in this scenario, the final evaluation (section B of Evaluation System 1 [SE1]) is an on-site test.

2. SCENARIO THAT MAKES IMPOSSIBLE THE ON-SITE FINAL TEST DUE TO THE COVID-19

In the scenario in which the final test could not be carried out on site as a consequence of COVID-19, the percentages relative to the evaluation sections would be modified:

Non-face-to-face exam scenario

Assessment System 1 (SE1): ASSESSMENT OF THEORETICAL AND PRACTICAL CONTENTS THROUGH ORAL, WRITTEN OR SKILL PERFORMANCE TESTS. It will be 75% of the final grade. It will consist of two sections: A) continuous evaluation during the teaching period of the course—this will represent 25% of the final grade; and, B) final evaluation—this will represent 70% of the final grade—it will be necessary to achieve a minimum score of 50% in Section B to pass the course. This section B is recoverable on the second call.

Assessment System 2 (SE2): ORAL OR WRITTEN PRESENTATION OF REPORTS, INDIVIDUAL OR GROUP WORKS, CLINICAL CASES, PROBLEM SOLVING OR MANAGEMENT OF DIAGNOSTIC TESTS. It will represent 25% of the final grade. It is necessary to achieve a minimum score of 50% in this section to pass the subject. This section is recoverable on second call.

NON-PRESENTIAL EXAM FORMAT. The final test (SE1; section B) will continue to be made up of an exam (that is, a test with choice questions and / or open questions), except that it will be non-face-to-face, with the Virtual Classroom being the most appropriate tool for this scenario. Additionally, for the presentation of WRITTEN REPORTS (Assessment System 2; SE2), the written report will be sent electronically to the teacher of the subject on the day of the exam using the account @ alumni.uv.es.

METHODOLOGY OF THE NON-FACE-TO-FACE EXAMINATION. For the final test, the Virtual Classroom of the UV will be used as a means. It will take place on the day and time officially indicated by the Faculty of Psychology. The professor will request the identification of the student in order to verify her/his identity at the beginning of the test. The student may, as in face-to-face exams, make use of tables or calculators.
CONTINGENCIES FOR THE NON-FACE-TO-FACE EXAMINATION. If a student does not have the necessary equipment to develop an assessment test according to the proposed means and has previously communicated it to the teaching staff at least two weeks before the exam, or there are difficulties that have been documented at the time of the test that have been documented (screenshot, photo ...), there is possibility of re-scheduling the final test in person or orally if the guidelines of the health authorities and the contingency plans of the UV allow so.

FINAL CONSIDERATIONS

In either of the two scenarios, the percentages relative to the evaluation sections would be the same in the first and second calls.

The instructors will use the plagiarism detection systems from the UVEG in the evaluation. Any noticeable “plagiarism” of a test, task, activity or report, whether individual or in group, that serves the purpose of evaluation in the course, will make it impossible to pass the course.

Instructors may require individual or small group interviews via videoconference to verify the degree of participation and the achievement of the objectives pursued in any task. A decline this verification by the student will mean not passing the task / activity in question.

5. Bibliography

The existing bibliography of the teaching guide is kept. The library VPN resources allow access to the necessary information for aspects of the guide such as the preparation of the report. As an alternative to the manuals not available online and to support teaching, various updates may be included with adaptations and materials prepared by the teachers of the subject. All with the premises implied by its dissemination as the property of the University of Valencia and shared under a Creative Commons license for use mentioning authorship and without commercial purpose — this includes from explanatory texts to recordings with demonstrations and execution of procedures to which the student agrees to through the Virtual Classroom.