

**COURSE DATA****Data Subject**

<b>Code</b>	33731
<b>Name</b>	Data analysis in education
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	6.0
<b>Academic year</b>	2021 - 2022

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. Period</b>
1307 - Degree in Pedagogy	Faculty of Philosophy and Educational Sciences	2 Second term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1307 - Degree in Pedagogy	72 - Methods of educational research	Obligatory

**Coordination**

<b>Name</b>	<b>Department</b>
ALMERICH CERVERO, GONZALO	270 - Research Methodology, Educational Diagnosis and Assessment
DIAZ GARCIA, MARIA ISABEL	270 - Research Methodology, Educational Diagnosis and Assessment
SUAREZ RODRIGUEZ, JESUS MODESTO	270 - Research Methodology, Educational Diagnosis and Assessment

**SUMMARY**

Through this subject, the aim is to provide the student with basic information so that they can understand the fundamentals of the methods and techniques for Data Analysis, predominantly quantitative, and their application in the field of education. The approach to Data Analysis will occur in terms of one more component of any professional performance of the pedagogue, in the general process aimed at answering the questions that concern him. The main descriptive and explanatory techniques in accordance with the predominant research strategies in the educational field will be reviewed.



The approach will be based essentially on understanding, adjusting to the question to be answered (decision making) and interpretation of the information obtained. For this reason, learning within practice is considered fundamental to connect the different theoretical and methodological aspects with the reality that we are interested in addressing.

## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

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

### Other requirements

Those who check verifies.

## OUTCOMES

### 1307 - Degree in Pedagogy

- Be prepared for independent lifelong learning.
- Design educational plans, programmes, projects, actions and resources in different contexts.
- Apply and coordinate educational programmes and methodologies for personal, social and professional development.
- Prepare and interpret technical, research and evaluation reports on educational actions, processes and results.
- Conduct prospective and evaluative studies on educational characteristics, needs and demands.
- Design training plans for teachers, trainers and other professionals that are suited to new situations, needs and contexts.
- Design programmes, projects and innovative proposals for training and for developing educational resources in work, family and institutional contexts, in both face-to-face and virtual environments.
- Develop strategies and techniques to promote participation and lifelong learning.
- Be able to evaluate the teaching-learning processes and the educational agents.
- Organise and manage schools and educational institutions, services and resources.
- Develop quality management models and processes for education and training.
- Capacidad de resolución de problemas y toma de decisiones.
- Capacidad crítica y autocrítica.
- Gestión de la calidad.
- Diagnosticar necesidades, situaciones complejas y posibilidades de las personas para fundamentar las acciones educativas.



- Elaborar instrumentos para la recogida y análisis de información educativa.
- Supervisar y evaluar planes, programas, proyectos y centros.
- Capacidad de comunicación profesional oral y escrita en las lenguas propias de la Universitat de València.
- Capacidad de gestión de la información.
- Capacidad para integrarse y comunicarse con expertos de otras áreas y en distintos contextos.
- Capacidad para desarrollar, promover y dinamizar habilidades de comunicación interpersonal.
- Compromiso con la identidad, desarrollo y ética profesional.
- Develop the capacity for organisation and planning.
- Capacidad de utilización de las TIC en el ámbito de estudio y contexto profesional.
- Skills in analysis and synthesis.
- Capacidad de adaptación a situaciones nuevas.
- Desarrollo de la innovación y la creatividad en la práctica profesional.
- Capacidad para realizar investigación educativa en diferentes contextos.
- Compromiso ético activo con los derechos humanos y la sostenibilidad.

## LEARNING OUTCOMES

The aim is to achieve the following learning outcomes that we hope our students will develop as a basis for their training and future professional work:

- Understand the information: familiarization with the language and the techniques used in educational research.
- Create, produce information: prepare reports that meet the appropriate quality criteria and adjust them to the audience to which they are directed.
- Value a process: know the different research methodologies, taking into account those aspects that are unique and common to the various proposals.
- Know how to apply the appropriate data analysis techniques for the different types of data collected in a research process.
- Be able to critically review the results of different research reports and judge the adequacy of the techniques used.
- Collaborate with the group: teamwork.



## DESCRIPTION OF CONTENTS

### 1. DATA ANALYSIS IN THE GENERAL PROCESS OF INVESTIGATION IN EDUCATION

### 2. DESCRIPTION AND EXPLORATION OF UNIVARIATE DATA

### 3. ANALYSIS OF THE RELATIONSHIP BETWEEN VARIABLES

### 4. RELATIONSHIP AND EXPLANATION

### 5. THE CONTRAST OF HYPOTHESIS

### 6. THE CONTRAST OF HYPOTHESIS: MODELS

### 7. QUALITATIVE DATA ANALYSIS

### 8. QUALITY CRITERIA IN DATA ANALYSIS

## WORKLOAD

ACTIVITY	Hours	% To be attended
Computer classroom practice	45,00	100
Theory classes	15,00	100
Attendance at events and external activities	7,50	0
Development of group work	30,00	0
Study and independent work	12,50	0
Readings supplementary material	7,50	0
Preparation of evaluation activities	2,50	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	20,00	0
<b>TOTAL</b>	<b>150,00</b>	



## TEACHING METHODOLOGY

The subject we are dealing with is approached from an applied orientation since it is the best way to introduce students to the handling of different data analysis techniques to address research problems in their professional performance. The development of it is structured in:

### THE THEORETICAL SESSIONS

The theoretical sessions consist of explanations by the teacher, master class, where the basic concepts related to the data analysis process are introduced. As a support, the materials located in the virtual space and the different resources that are required with the dynamics of the group itself will be available. The theoretical principles will be imbricated to the maximum with the practical activities that are proposed and developed in the matter.

### PRACTICAL SESSIONS

The practical sessions are held in the computer room and they use different situations that students must solve (in these sessions and outside of them). The practical sessions will attend to three components:

1. Introduction of the different nuclei of activity. Explicit connection of the same with the theoretical principles that have been presented and with the analysis tools that are used in the program. Joint resolution of examples about the problems-questions of each area. Detailed explanation of the bases of the proposed practice and its components.
2. Development of the proposed practice in the group. Support to the dynamics of the different groups and incorporation of reflection elements that are generated. Specific guidelines on the preparation of the activity report.
3. Joint dynamics for reflection and debate on the pre-reports prepared by each group. Detection of gaps and key contributions.

### THE COMPLEMENTARY ACTIVITIES

Students will receive information about different complementary activities proposed by the Academic Committee of the degree and about deepening seminars in different aspects. The activities corresponding to the seminars and other voluntary activities proposed by the students will be assessed and collected in the general evaluation plan of the subject.

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## EVALUATION





The evaluation of the subject must integrate several components within the evaluation plan and determine their relative importance:

- A test of the theoretical elements and their application to specific situations of data analysis.
- Practical activities developed.
- Complementary activities developed.
- Other elements, such as those derived from continuous evaluation, participation, initiatives, ... (initiatives aimed at joint actions with respect to various subjects will be particularly valued).

## REFERENCES

### Basic

- Etxeberría Murgiondo, J. y Tejedor Tejedor, F. J. (2005). Análisis descriptivo de datos en educación. Madrid: La Muralla.
- Gil, J.A. (2000). Estadística e informática (SPSS) en la investigación descriptiva e inferencial. Madrid: UNED.
- Goetz, J. P. y Lecompte, M. D. (1988). Etnografía y diseño cualitativo en investigación educativa. Madrid: Morata
- Lizasoain, L. y Joaristi, L. (2003). Gestión y análisis de datos con SPSS. Madrid: Thomson Paraninfo.
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- Pardo, A., Ruiz, M.A. y San Martín, R. (2009). Análisis de datos en ciencias sociales y de la salud. Vol. I. Madrid: Síntesis.
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- Pérez Juste, R., García Llamas, J. L., Gil Pascual, J. A. y Galán González, A. (2009). Estadística aplicada a la educación. Madrid: Pearson-UNED.
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### Additional

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- Delgado, J. M. y Gutiérrez, J. (1994) Métodos y técnicas cualitativas de investigación en ciencias sociales. Madrid: Síntesis Psicología.
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- Gil Flores, J.; Perera Rodríguez, V (2001): Análisis informatizado de datos cualitativos. Sevilla: Kronos
- Gil, J. (1994). Análisis de datos cualitativos. Aplicaciones a la investigación educativa. Barcelona: PPU.
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- Tejedor, F.J. (1999). Análisis de Varianza. (Colección: Cuadernos de Estadística nº 3). Madrid: La Muralla.
- Tejedor Tejedor, F. J. y Etxeberria Murgiondo, J. (2006). Análisis inferencial de datos en educación. Madrid: La Muralla.

## **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 essential contents are maintained, in any case, since they are necessary to master the competences linked to this subject, although the length and emphasis can be adapted to the circumstances of each moment.

### **2.- Volume of work and temporary planning of teaching**

The volume of work required to pass this subject is maintained, trying to adapt the procedures and activities to that end.

### **3.- Teaching methodology**

In this subject teaching combines face-to-face with non-attendance, synchronous or asynchronous. The level of attendance will be adapted to the social and health conditions of each moment and to the specific conditions of the subject. It will be a hybrid model, so that the classes will be taught with the possible presence and the rest will be carried out in person. In any case, this hybrid model must necessarily be flexible in order to adapt to the circumstances.

In non-face-to-face teaching, synchronous modalities will be prioritized, which favor direct interaction with students

- Uploading materials to the virtual classroom
- Proposal of activities by virtual classroom
- BBC synchronous and asynchronous videoconferencing
- Videos and support materials (transparencies spoken).
- Discussions in the forum
- Cases and exercises done in class and at home.
- Work with simulators or calculation packages (classes in computer room)
- Tutorials via videoconference
- Forums in Virtual Classroom
- Tutorials for theory and practice



#### **4.- Evaluation**

Continuous assessment activities will be promoted, which, on the other hand, can be combined with the requirement to pass specific activities, including a final global assessment. The details of the process will be specified in the classroom guide, taking into account the circumstances.

- Assessment tests through academic works
- Objective tests in person or in the Virtual Classroom, depending on the guidelines of the moment.
- Open written tests, in person or in the Virtual Classroom, depending on the guidelines of the moment.

Students are guaranteed that, if necessary, the teaching method (online, hybrid or face-to-face), as well as the assessment method, will be adapted to the health requirements formulated by the competent authorities. Maintaining the usual assessment parameters provided in the guides and without this entailing an additional burden on the work of students.