Universidad Zaragoza

Year : 2019/20

25906 - Research Methodology I

Syllabus Information

Academic Year: 2019/20
Subject: 25906 - Research Methodology I
Faculty / School: 301 -

Degree: 270 - Degree in Psychology

ECTS: 6.0
Year: 1
Semester: First Four-month period
Subject Type: Basic Education
Module:

1.General information

1.1.Aims of the course

The main objective of this subject is to introduce the student to scientific research:
- descriptive analysis
- research methods
- scientific reports (APA style)

1.2.Context and importance of this course in the degree

It is a key subject for:
- Acquire scientific knowledge correctly in other subjects
- learn to be autonomous searching updated scientific information
- communicate with other professionals through scientific reports

1.3.Recommendations to take this course

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2.Learning goals

2.1.Competences

The student will be more competent to:
- apply different research designs
- formulate and test hypotheses according to the scientific method
- interpret scientific results
- know the statistical bases and computer apps for professional practice
- understand and prepare scientific reports
- search and evaluate scientific literature
- be updated in psychological knowledge and skills

2.2.Learning goals

2.3.Importance of learning goals

Statistics is a mathematical discipline that is used in Psychology and other social sciences.
Thanks to this discipline and research methodology, Psychology is a scientific area of knowledge.

A good training in statistics allows the the student to understand scientific reports, i.e., the degree of validity or to decide whether to apply their information in professional practice.

Psychologists use current scientific or professional knowledge for test design, standardization, validation, reduction or elimination of bias, and recommendations for use.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

Five types of evaluation are considered in this subject:

- Weekly-practices (10%)
- Partial test (20%)
- Final test (50%)
- Research report (20%)
- Reading of "extra" books (10%)

To pass the subject it is necessary:
(a) a final grade in the whole subject equal to or greater than 5 points,
(b) and a grade on the final test above X (out of 10) in both parts of the exam.
- X being equal to 5 minus 0'05 ??for the number of completed weekly-practices.
- Who does not deliver any practice will have to get at least a 5 in both parts, and for each practice delivered lowers the bar of the filter.

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The subject includes theoretical and practical classes.
Theoretical classes: technical knowledge of methodology and descriptive statistics.
Practical classes: procedural exercises of descriptive analyzes with SPSS software and scientific reports.

4.2.Learning tasks

The activities requires (individually, small-groups max 5) procedural exercises of descriptive analyzes with SPSS software, Excel, and a word processor.

4.3.Syllabus

A. RESEARCH METHODS AND DESIGNS IN PSYCHOLOGY

1. Psychology, science and scientific method
2. The problem
3. The hypothesis
4. The variables
5. Participant, sampling and randomization
6. Research design
7. Essential aspects of experimental methodology

1. Concept of experiment
2. Targets of experiment
3. MAX-MIN-CON principle
4. Causal inference as object
5. The problem of confounding

8. Concept and categorization of validity

1. The concept of validity
2. Categorization of validity from different perspectives
3. Internal validity
4. External validity
5. Construct validity
6. Statistical validity

9. Scientific report

B. STATISTIC APPLIED TO PSYCHOLOGY

1. Univariate descriptive statistics

1. Organization y representation of data
1. Frequency distribution
2. Graphical representations

    1. Graphic representations of common use
    2. Stem and leaf plot

2. Measures of position

    1. Centiles o percentiles
    2. Deciles
    3. Other quantiles

        1. Deciles
        2. Quartiles
        3. Equivalence between quantiles

3. Measures of central tendency

    1. Arithmetic mean

        1. frecuency, distribution

        2. Properties of arithmetic mean
    2. Median
    3. Mode
    4. Comparison between measures of central tendency
4. Measures of variation
    1. Measures of variation
        1. Variance and standard deviation
        2. Calculation and properties of variance
        3. Other measures of variation
    2. Graphical representations of variation
5. Standard punctuation and derivative scales
    1. Standard punctuation
    2. Derivative scales
6. Measures of asymmetry and kurtosis
    1. Measures of asymmetry
    2. Measures of kurtosis

2. Multivariate descriptive statistics

1. Lineal correlation
    1. Graphical representations of a relation
    2. Quantification of a relation
        1. Properties of Pearson's correlation coefficient
        2. Assessment and interpretation of a correlation
2. Lineal regression
    1. Lineal functions
    2. Simple regression
        1. Identification of a model: equations
        2. Assessment of the model: regression coefficient
        3. Application of the model
        4. Some considerations about regression

4.4.Course planning and calendar

Please, consult at the beginning of the subject:
- schedules and dates of examination in http://fcsh.unizar.es/.
- calendar of activities in Moodle.
- tutorial hours at https://directorio.unizar.es/

4.5.Bibliography and recommended resources

- Balluerka Lasa, Nekane. Planificación de la investigación : la validez del diseño / Nekane Balluerka . 2ª ed., corr. Salamanca : Amarú, 2011
- Balluerka Lasa, Nekane. Diseños de investigación experimental en psicología : modelos y análisis de datos mediante el SPSS 10.0 / Nekane Balluerka Lasa, Ana Isabel Vergara Iraeta ; introducción, Jaume Arnau y Gras . Madrid : Prentice Hall, D.L. 2002
- Botella, Juan. Análisis de datos en psicología I / Juan Botella, Orfelio G. León, Rafael San Martín . [1a ed., reimp.] Madrid : Pirámide, 1994
- Gambara d'Errico, Hilda. Métodos de investigación en psicología y educación : cuaderno de prácticas / Hilda Gambara d'Errico . 3ª ed., [reimpr.] Madrid [etc.] : Mc Graw Hill, D.L. 2010
- León, Orfelio G.. Métodos de investigación en psicología y educación / Orfelio G. León, Ignacio Montero . 3ª ed. [reimpr.] Madrid [etc.] : McGraw Hill, D.L.2010
- Pardo Merino, Antonio. Análisis de datos en ciencias sociales y de la salud I / Antonio Pardo, Miguel Angel Ruiz, Rafael San Martín . Madrid : Síntesis, 2009
- Pardo Merino, Antonio. Análisis de datos en ciencias sociales y de la salud II / Antonio Pardo, Rafael San Martín . Madrid : Síntesis, 2010
- Pardo Merino, Antonio. Análisis de datos en ciencias sociales y de la salud III / Antonio Pardo, Miguel Ángel Ruiz . Madrid : Síntesis, D.L. 2012