

Course Description

***SUBJECT: INTRODUCTION TO RESEARCH AND
STATISTICS***

COURSE 2ND; SEMESTER 1ST

DEGREE: DENTISTRY

MODALITY: PRESENTIAL COURSE

ACADEMIC YEA: 2022/2023

FACULTY OF MEDICINE

1. COURSE IDENTIFICATION

1.-COURSE:

Title: INTRODUCTION TO RESEARCH AND STATISTICS		
Code: b121		
Year (s) in which the course is taught: 2º	Semester (s) when the course is taught: 1º	
Type: Compulsory subject	ECTS of the course: 6	Hours ECTS: 30
Language: English	Modality: on campus	
School which the course is taught: Medicine		

2.- ORGANIZATION OF THE COURSE:

Department: Clinical Medical Sciences
Subject: Preventive medicine and public health

2. LECTURERS OF THE COURSE/SUBJECT

1.-LECTURERS:

Responsible of the course	CONTACT
Name:	Santiago Angulo Díaz-Parreño,
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Office:	Edificio C. Despacho 218.

Lecturer (s)	CONTACT
Name:	Dra. María González Moreno
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Lecturer (s)	CONTACT
Name:	Gloria Anemone
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Email:	gloria.anemone@ceu.es
Office:	Edificio C. Despacho 223

2.- TUTORIALS:

For any queries students can contact lecturers by e-mail, phone or visiting their office during the teacher's tutorial times published on the students' Virtual Campus

3. COURSE DESCRIPTION

The course describes the different sources of clinical and biomedical information used to organise, interpret, and communicate scientific and health information. It focuses on knowledge of the scientific method and a critical ability to evaluate established knowledge as well as new information. It describes how to formulate hypotheses, collect, and critically evaluate information for problem solving following the scientific method. To this end, the different types of epidemiological studies and the basic statistical sources for their elaboration are described, as well as the statistical tools and programmes available, such as the SPSS programme, for the interpretation and analysis of scientific data.

For all these reasons, the student of dentistry must understand and know the topics that are part of this subject, which is basic in the dentistry syllabus.

4. COMPETENCES

1.- COMPETENCES:

Code	Basic and General Skills
CB1	The students have to demonstrate knowledge and understanding in an area of study that is based on general secondary education, and is usually at a level that, while relying on advanced textbooks, also includes some aspects that involve knowledge from the cutting edge of their field of study.
CG07	To promote autonomous learning of new knowledge and techniques, as well as motivation for quality.
CG18	To know, critically assess and know how to use sources of clinical and biomedical information to obtain, organise, interpret and communicate scientific and health information.
CG19	To know the scientific method and have the critical capacity to evaluate established knowledge and new information. To be able to formulate hypotheses, collect and critically evaluate information to solve problems, following the scientific method.

Code	Specific Skills
CE.3	To know the scientific method and to have critical capacity to value the established knowledge and the new information.
CE.20	Understand the impact of demographic and epidemiological trends on the practice of dentistry

2.- LEARNING OUTCOMES:

Subject	Learning outcomes-	Contents
INTRODUCTION TO RESEARCH AND STATISTICS	<p>Conduct a bibliographic search.</p> <p>Search for information in biomedical databases.</p> <p>Develop a basic research protocol.</p> <p>Tabulate the results obtained.</p> <p>Be familiar with the treatment of data and research variables in spreadsheets for computer statistical analysis.</p> <p>Apply the knowledge to write a scientific paper, prepare an oral scientific communication and a poster in Dentistry.</p>	<p>The course describes the different sources of clinical and biomedical information used to organise, interpret, and communicate scientific and health information. It focuses on knowledge of the scientific method and a critical ability to evaluate established knowledge as well as new information. It describes how to formulate hypotheses, collect, and critically evaluate information for problem solving, following the scientific method. To this end, the different types of epidemiological studies and the basic statistical sources for their elaboration are described, as well as the statistical tools and programmes available, such as the SPSS programme for the interpretation and analysis of scientific data.</p> <p>For all these reasons, students of dentistry must understand and know the topics that make up this subject, which is a basic part of the dentistry syllabus.</p>

5. LEARNING ACTIVITIES

1.- DISTRIBUTION OF STUDENTS' ASSIGNMENT:

Total hours of the course	180
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Code	Name	In-class teaching
	Lessons	45h
	Practices	12h
	Tutorial	3h
TOTAL Hours		60h

Code	Name	Not on-campus hours
	Independent Work	120

2.- LEARNING ACTIVITIES

ID	Activity	On-site	Definition
AF1	Theoretical-Practical Class	100%	Training activity that combines the transmission of theoretical information by the teacher for the acquisition of knowledge and the performing of practical activities in the classroom that involve the application of the theoretical knowledge acquired. It can include theoretical class, information search, resolution of practical cases, reasoned interpretation of study sources, resolution of exercises, expositions of topics by students, etc., always under the teacher's supervision.
AF2	Practice	100%	Training activity that prioritizes the performance by the student of practical activities in the laboratory involving the application of theoretical knowledge and the acquisition and development of practical knowledge and skills. This activity may include work among peers, learning of basic and specific techniques and methods, workbooks, use of ICTs, simulation with typodons, phantoms and virtual simulation in three dimensions, etc.
AF8	Trabajo autónomo del alumno	0%	Training activity in which the student autonomously manages his or her learning through the study of training materials. It is understood as the work time that the student needs and uses, outside class time, to acquire the competences and skills required by the degree syllabus.

6. ASSESMENT OF LEARNING

1.- CLASS ATTENDANCE:

In order to be eligible for examination by continuous assessment students must attend at least 75% of scheduled class time (attendance sheets will be used). As students may be absent 25% of the classes, no attenuating circumstances will be accepted for absences.

100% attendance to practical classes is mandatory in order to pass the course. Attendance and participation in practical classes are compulsory. As there is no possibility to carry out practicals between the ordinary and extraordinary exams, failure to carry them out in the scheduled months will lead to failure in both exams.

2.- ASSESMENT METHOD AND CRITERIA:

ORDINARY ASSESMENT (Continual Assessment)		
ASSESMENT SYSTEM		
Code	Name	Percentage
	Practical computer lab Practical exam	25%

	A final practical exam will be held at the same time as the ordinary exam and passing the exam will be effective for grades equal to or higher than 5 out of 10. The overall average will not be calculated with grades lower than 5.	
	All the students must take the final exam. It is essential to achieve the minimum score of 5 out of 10 to pass the course. No averages will be taken with scores below 5.	75%
		100%

EXTRAORDINARY ASSESMENT		
ASSESSMENT SYSTEM		
Code	Name	Percentage
	Practical computer lab: Practical exam A final practical exam will be held at the same time as the ordinary exam and passing the exam will be effective for grades equal to or higher than 5 out of 10. The overall average will not be calculated with grades lower than 5.	25%
	All the students must take the final exam. It is essential to achieve the minimum score of 5 out of 10 to pass the course. No averages will be taken with scores below 5.	75%
		100%

3.- ASSESMENT METHOD DESCRIPTION:

ID	Assesment criteria	Definition
SE1	Theoretical exam	A written exam in which all the contents of the subjects are assessed, as well as the degree of acquisition of the competences linked to them. There will be exams (or assessment tests) with theoretical-practical questions and the resolution of assumptions that include the contents of the subject studied.
SE2	Practical Exam	Practical work will be assessed through practical exercises, notebooks, exams, work performance and presentation, clinical cases, etc. that cover the practical content worked on.
SE3	Individual and/or group work (continuous assessment)	Assessment of work carried out in the classroom or outside it, individually or in groups.

7. COURSE SYLLABUS

1.- COURSE SYLLABUS

THEORETICAL:

1. Introduction to the course

BLOCK 1. SCIENCE, SCIENTIFIC DOCUMENTATION AND WRITING SCIENTIFIC

2. Scientific Method. Introduction and History.
3. General Principles of Clinical Research
4. Ethics of Experimentation and Clinical Research
5. Scientific Communication and Publication.

BLOCK 2. APPLIED STATISTICS AND EPIDEMIOLOGY IN DENTISTRY

6. Introduction to statistic
7. Descriptive statistics: continuous and categorical variables, frequency measures and graphical representation of data, measures of position, dispersion, and form.
8. Regression and correlation: two-dimensional distribution, simple regression models and correlation.
9. Inferential statistics: introduction to parametric tests and no parametric tests.
10. Relation between qualitative variables. Chi square and risk analysis.
11. Design of cross-sectional studies: cohort studies, cohort studies and clinical Trial.

PRACTICAL WORK PROGRAMME:

PRACTICE. 1 - Bibliographic search of scientific articles. Scientific directories, databases and meta-search engines.

PRACTICE. 2 - Analysis and review of dental scientific papers.

PRACTICE. 3 - Summary of scientific papers. Analysis, writing and review.

PRACTICE. 4 - Descriptive Statistics.

PRACTICE. 5 - Regression and correlation

PRACTICE. 6- Confidence Intervals

PRACTICE. 7- Parametric hypothesis tests.

PRACTICE. 8- Diagnostic test

PRACTICE. 9 -Chi-square and risk analysis.

8. BIBLIOGRAPHY

1.- ESSENTIAL BIBLIOGRAPHY:

- Essentials of Biostatistics in Public Health, Lisa M. Sullivan, Jones & Bartlett Learning, 2018
- Epidemiology and Biostatistics - An Introduction to Clinical Research. Kestenbaum, Bryan. Springer. 2009
- Evidence-based Dentistry An Introduction by Allan Hackshaw, Elizabeth Paul, Elizabeth Davenport (2006)
- Introduction to Biostatistics. Kevin Mitchell; Thomas Glover. Mcgraw-Hill Interamericana. 2001

2.- ADDITIONAL BIBLIOGRAPHY:

- Introduction to Research in Health Sciences. Stephen Polgar; Shane A. Thomas. Churchill Livingstone. 2009
- Introduction to Health Research Methods. A Practical guide. Kathryn H. Jacobsen. Jones & Bartlett Publishers. 2011

3.- WEB RESOURCES:

A practical guide to quantitative methods with SPSS b Ylva B AlmquistYlva, B Almquist, Signild Kvar, Lars Brännström (2019) (https://su.figshare.com/articles/preprint/A_practical_guide_to_quantitative_methods_with_SPSS/10321829)
<https://www.medcalc.org/features/statistics.php>
<http://www.ine.es/>
<https://www.msssi.gob.es/>

9. ATTITUDE IN THE CLASSROOM

1.- GUIDELINES

Any irregular act of academic integrity (no reference to cited sources, plagiarism of work or inappropriate use of prohibited information during examinations) or signing the attendance sheet for fellow students not present in class will result in the student not being eligible for continuous assessment and possibly being penalized according to the University regulations.

10. EXTRAORDINARY MEASURES

Should an exceptional situation occur which prevents continuing with face-to-face teaching under the conditions previously established to this end, the University will take appropriate decisions and adopt the necessary measures to guarantee the acquisition of skills and attainment of learning outcomes as established in this Course Unit Guide. This will be done in accordance with the teaching coordination mechanisms included in the Internal Quality Assurance System of each degree.