

1. BASIC INFORMATION

Course	Epidemiology, Public Health and Applied Biostatistics
Degree program	Dentistry
School	Facultad de Ciencias Biomédicas y de la Salud
Year	First
ECTS	6 ECTS
Credit type	Basic
Language(s)	English & Spanish
Delivery mode	Face-to-face
Semester	First/second semester
Academic year	2025-2026
Coordinating professor	Mónica Terrazo

2. PRESENTATION

This subject is located in the first year of the curriculum and is a basic subject. The main objective of this subject is learning Epidemiology and Public Health based on the scientific method and providing information related to the frequency and distribution of the disease in the population and the factors that favors or condition its development, with a particular focus on oral health.

3. LEARNING OUTCOMES

Knowledge

CON01 Know the essential elements of the dental profession, including ethical principles and legal responsibilities.

CON06 Understand the importance of maintaining and using patient information records for further analysis, preserving the confidentiality of the data.

CON22 To be familiar with the scientific method and have the critical capacity to evaluate established knowledge and new information.

Subject-specific knowledge

- Describe the main types of epidemiological studies, as well as the different basic statistical techniques for carrying them out.
- To relate the influence of environment and lifestyle on the health status of populations.
- Identify the epidemiology of chronic and communicable diseases and methods of prevention.
- Identify the role of health workers in population health education.
- Define the overall approach to oral care and apply the principles of health promotion and prevention of oral diseases.
- Understand the statistical principles on which artificial intelligence is based.

Skills

HAB03 To be able to share information with other health professionals and work in a team.

HAB04 Knowing, critically assessing and knowing how to use clinical and biomedical information sources and critically assessing them to obtain, organise, interpret and communicate scientific and health information.

HAB05 Know the scientific method and have the critical capacity to evaluate established knowledge and new information. Be able to formulate hypotheses, collect and critically evaluate information to solve problems, following the scientific method.

Subject-specific skills

- Use a spreadsheet to produce descriptive statistics and graphs.
- Identify the key points of a clinical study.
- Solve simulated cases of epidemic outbreaks.
- Develop literature review skills and the habit of referencing.

Competences

CP44 Integrate analysis with critical thinking in a process of evaluating different ideas or professional possibilities and their potential for error, based on objective evidence and data leading to effective and valid decisionmaking.

CP46 Demonstrate ethical behaviour and social commitment in the performance of the activities of a profession, as well as sensitivity to inequality and diversity.

4. CONTENT

- Basic concepts of statistics
- Frequency measurements
- Comparative frequency measures
- Probability applications. Sensitivity and specificity.
- Probability distributions
- Hypothesis testing
- Conformity, homogeneity and independence tests
- Introduction to artificial intelligence
- Epidemiology. Basic concepts.
- Risk factors and causality in epidemiology.
- Types of epidemiological studies.
- Concepts of health and determinants of health
- Health demographics
- Epidemiology and prevention of communicable diseases
- Epidemiology and prevention of diseases with high prevalence and mortality.
- Epidemiology and prevention of the most common dental diseases.

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- MD1 Masterclass
- MD2 Case Study

- MD4 Problem-Based Learning
- MD6 Workshop/Lab-Based Learning

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Learning activity	Number of hours
AF1 Masterclass	32,5
AF3 Case study	20
AF4 Problem-based learning	18
AF5 Oral presentation	2
AF6 Preparation of reports and writings	2
AF8 Activities in workshops and/or laboratories	2
AF10 Autonomous work	71
AF12 In-person assessment tests	2,5
TOTAL	150

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Assessment system	Weight
Knowledge tests	40%
Test problems	20%
Learning folder (analysis of an article)	20%
Case/problem	20%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

In order to pass the course in the ordinary exam session, you must obtain a grade higher or equal to 5.0 out of 10.0 in the final grade (weighted average) of the course. However, this grade will only be valid if the minimum requirements established for each of the assessable blocks have been met, as indicated in the learning guide. This means that, even if the weighted average is equal to or higher than 5.0, the subject will not be passed if any of the parts have not reached the minimum grade required.

In any case, it will be necessary to obtain a grade higher or equal to 5.0 in the final exam, so that it can be averaged with the rest of the evaluable activities that have been passed according to the criteria established in the learning guide.

Furthermore, in order to take the final exam, you must have attended at least 50% of the scheduled classes and activities, as established in the course guide. This requirement applies regardless of whether the absences are justified or not. If the percentage of absences exceeds this limit, they cannot be justified in any case and this will imply the impossibility of passing the subject in that call.

7.2. Second exam period

In order to pass the course in the extraordinary call, you must obtain a grade higher or equal to 5.0 out of 10.0 in the final grade (weighted average) of the course.

In any case, it will be necessary to obtain a grade higher or equal to 5.0 in the final exam, so that it can be averaged with the rest of the evaluable activities.

Depending on the parts not passed in the ordinary exam, you will have to make up those that have not reached the minimum grade required:

- If you have not passed the theory exam, you will have to repeat this test in the extraordinary call.
- If you have not passed the practical part of the subject (practical exam), you will have to take it again, according to the indications of the course professors.
- If any of the continuous assessment activities (theoretical or practical) have not been passed or were not presented in the ordinary exam, you must complete them in person during the follow-up period, at the established times. These activities may coincide with the original ones or be replaced by others, at the discretion of the professors.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Activity Statistical analysis article	Week 11-12
Objective test type test - intermediate	Week 8-10

Objective test: problems	Week 8-10
Analysis of the epidemiological case	Week 12-14
Epidemiological case presentation	Week 15

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any changes as and when appropriate.

9. BIBLIOGRAPHY

The main reference work for this subject is:

- GORDIS, I. Epidemiology 5ª ed., 2015.Elsevier/Saunders.

The recommended Bibliography is:

- HERNÁNDEZ AGUADO, Manual de Epidemiología y salud pública para licenciaturas y diplomaturas en ciencias de la salud, 2005.
- RUIZ MORALES, Epidemiología Clínica: investigación clínica aplicada, 2004.
- DAWSON, BETH. TRAPP, ROBERT G. Bioestadística Médica, 4ª edición. Editorial Manual Moderno, 2005.
- FLETCHER, Epidemiología Clínica: aspectos fundamentales, 2003.
- M. GOLDBERG, La Epidemiología sin esfuerzo, 1994.
- Unidad de Bioestadística Médica del Hospital Ramón y Cajal. Material docente. http://www.hrc.es/bioest/M_docente.html
- NORDNESS R. Epidemiology and Biostatistics Secrets. Mosby, 2006.
- G. PIEDROLA GIL, Medicina Preventiva y Salud Pública, 11ª edición, 2008.
- HERNANDEZ AGUADO, Manual de Epidemiología y Salud Pública, 2ª edición, 2013.
- A. FRIAS OSUNA, Salud pública y educación para la salud, 1ª edición, 3ª reimpresión, 2006.
- REMINGTON PL, BROWNSON RC, WEGNER MV. Chronic disease epidemiology and control, 3rd ed. American Public Health Association, 2010 [libro electrónico disponible: imprescindible registrarse para acceder al recurso electrónico]
<http://eds.a.ebscohost.com.ezproxy.universidadeuropea.es/eds/ebookviewer/ebook?sid=0d161525-7022-46a4-a4bc-f43cbd385c70%40sessionmgr4006&vid=0&format=EB>
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10. EDUCATIONAL GUIDANCE, DIVERSITY AND INCLUSION UNIT

From the Educational Guidance, Diversity and Inclusion Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students'

inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by mean of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunity for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:

orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section on virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.