1. BASIC INFORMATION

Course	EPIDEMIOLOGY, PUBLIC HEALTH AND APPLIED BIOSTATISTICS
Degree program	DENTISTRY
School	FACULTY OF HEALTH SCIENCES
Year	1st
ECTS	6
Credit type	MANDATORY
Language(s)	ENGLISH
Delivery mode	CAMPUS BASED MODE
Semester	1
Academic year	2025-2026
Coordinating professor	DR.MARIA CUEVAS

2. PRESENTATION

Epidemiology is a science that pursues through its study to achieve different objectives such as:

- To develop interest in research in health sciences and to create the habit in managing scientific publications and the critical thinking necessary for the understanding and evaluating epidemiological published studies.
- To develop both primary and secondary research skills and to improve skills of bibliographical revision and the habit of citing references.
- To know the design and uses of the main types of descriptive, analytical, and experimental epidemiological studies, as well as the different basic statistic tools for their realization.
- To relate the influence of the environment and lifestyle on the level of health of populations.
- To understand the epidemiology of the communicable diseases and prevention methods for these diseases, especially at the dental office.
- To know the epidemiology of chronic diseases with high prevalence and/or mortality and of the most common oral diseases.
- To raise awareness of the role of healthcare professionals in the education of the population.
- To know the epidemiological method and to have the critical capacity to assess established knowledge and new information.
- To evaluate published clinical research and to be able to integrate this training to improve the health of the patients.

3. COMPETENCIES AND LEARNING OUTCOMES

Core competencies:

- **CB2:** That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the elaboration and defence of arguments and the solution of problems within their area of study.
- **CB3:** That students develop the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.
- **CB4:** That students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.
- **CB5:** That the students have developed the necessary learning skills to undertake further studies with a high degree of autonomy.

General skills:

- **CG1:** To know the essential elements of the dental profession, including ethical principles and legal responsibilities.
- **CG3:** To know how to identify the patient's concerns and expectations, as well as to communicate effectively and clearly, both orally and in writing, with patients, relatives, the media, and other professionals.
- **CG8:** To know how to share information with other health professionals and to work in a team.
- **CG9:** To understand the relevance of keeping and using records with information about a patient for its later analysis, preserving the confidentiality of the data.
- **CG18:** To assess critically and to know how to use the clinical and biomedical sources of information to obtain, organize, interpret and communicate health and scientific information.
- **CG19:** To know the scientific method and to critically assess established and new knowledge. To be capable of formulating hypothesis, gather and evaluate information to solve problems using the scientific method.

Cross-curricular competencies:

- **CT1**: Responsibility: That the student is able to assume the consequences of the actions he performs and responds to his own actions.
- **CT4**: Communication skills: the student is able to express concepts and ideas effectively. This includes being concise and clear in written communication, as well as speaking clearly in public.
- **CT5**: Interpersonal understanding: That the student is able to perform an active listening in order to reach agreements using an assertive communication style.

- **CT7**: Teamwork: That the student is able to participate in an active way in the achievement of a common goal, listening, respecting and giving value to ideas and proposals of the rest of the members of the team.
- **CT9:** Planning: That the students are capable of effectively stablishing their goals and priorities by defining the optimal actions, deadlines and resources required to achieve such goals.

Specific competencies:

- **CE03**: To know the scientific method and to develop critical thinking to assess established and new knowledge.

Learning outcomes:

- **RA1:** To foster interest in research in health sciences and to create the habit of handling scientific publications and the critical thinking necessary for the understanding and evaluation of published epidemiological studies.
- **RA2:** To develop both primary and secondary research skills. To generate bibliographic review skills and the habit of referencing (introduction of the Vancouver method).
- **RA3:** To know the design and uses of the main types of descriptive, analytical, and experimental epidemiological studies, as well as the different basic statistic tools for their realization.
- **RA4:** To relate the influence of the environment and lifestyle on the level of health of populations.
- **RA5:** To understand the epidemiology of communicable diseases and prevention methods for these diseases, especially in the dental office.
- **RA6:** To know the epidemiology of chronic diseases with high prevalence and/or mortality and of the most common oral diseases.
- **RA7:** To be aware of the role of healthcare professionals in the education of the population.
- **RA8:** To know the different ethical aspects related with scientific publication.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued:

Competencies	Learning outcomes
Core: CB2, CB3, CB4, CB5	RA1, RA2, RA3, RA8, RA9
General: CG1, CG3, CG8, CG9, CG18, CG19	RA1, RA2, RA3, RA8, RA9
Cross-curricular: CT1, CT4, CT5, CT7, CT9	RA1, RA2, RA5, RA8
Specific: CE3	RA1, RA4, RA8, RA9

4. CONTENT

PART I: FUNDAMENTALS OF GENERAL EPIDEMIOLOGY

Unit 1: Concept of health and determinants.

Unit 2: Static demography.

Unit 3: Dynamic demography.

Unit 4: Health information systems - Epidemiological surveillance.

Unit 5: Introduction to biostatistics. Variables. Frequency measures.

Unit 6: Association Measurements, statistical significance and hypothesis testing.

Unit 7: Descriptive epidemiology.

Unit 8: Case-controls studies.

Unit 9: Morbidity and mortality studies.

Unit 10: Cohort Studies.

Unit 11: Experimental studies. Clinical trials.

PART II: PUBLIC HEALTH, PROTECTION AND PROMOTION OF HEALTH

Unit 12: Vaccines general aspects.

Unit 13: Communicable diseases.

Unit 14: Food transmission diseases.

Unit 15: Epidemiology and preventive medicine of HIV.

Unit 16: Epidemiology of hepatitis.

Unit 17: Epidemiology and prevention of airborne communicable diseases. Tuberculosis. Influenza.

Unit 18: Lifestyles and health.

Unit 19: Epidemiology of cancer. Risk factors. Prevention and control.

Unit 20: Endocrine and metabolic diseases. Diabetes and obesity.

Unit 21: Epidemiology and prevention of cardiovascular diseases, and neurodegenerative diseases.

5. TEACHING-LEARNING METHODOLOGIES

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

- Master class
- Case Method
- Collaborative learning
- Problem based learning

- Project 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:

Campus-based mode:

Learning activity	Number of hours
Tutoring sessions	18
Master classes	20
Virtual master classes	2
Critical analysis of articles	12
Problem solving	22
Practical exercises	14
Case study	13
Independent study and work	47
Knowledge tests	2
TOTAL	**150 hours**

7. ASSESSMENT

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

Campus-based mode:

Assessment system	Weight
Knowledge test: 1st partial exam (eliminatory) 2nd partial exam	 30% 30%
Practical exercises	20%
Activities Case method	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 assessment period

To pass the course in the First Assessment Period, you must obtain a grade greater than 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 greater than or equal to 5.0, independently, in each of the evaluation systems that make up the course (including the knowledge tests separated into Partials). It may be considered that 1st and 2nd Partial Knowledge tests will be averaged between them from a grade equal to or greater than 4.

The Universidad Europea de Valencia establishes continuous assessment as a system of evaluation of knowledge, skills and basic, general, transversal and specific competences of the degree in Dentistry, in accordance with the provisions of the Regulations for the evaluation of undergraduate degrees. In this regard and for the purposes of the consumption of calls the student should be aware that, if any evaluation system provided in the Learning Guide is presented in the First assessment period , the student will have an overall grade of the subject, thus consuming call.

According to the aforementioned Regulations, students taking face-to-face degree courses are required to justify at least 50% of class attendance, as a necessary part of the evaluation process. In the case of theoretical or practical classes determined as mandatory by the teacher in the schedules of the subject, the student must register an attendance of 90%, whether the absence is justified or not. The lack of accreditation by the means proposed by the University will entitle the professor to grade the subject as failed in the First assessment period, according to the grading system.

Punctuality will be required, 3 delays of more than 15 minutes or departures before the class is finished, will be counted as a lack of attendance.

The student must consult in the schedule of the course in the Virtual Campus the sessions of compulsory attendance in the classroom.

The mention of "Matrícula de Honor" will be awarded to students who have obtained a grade equal to or higher than 9.0. Their number may not exceed 5% of the students enrolled in each subject in the corresponding academic year, unless the number of students enrolled is less than 20, in which case only one “Matrícula de Honor” may be awarded.
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7.2. Second assessment period

To pass the course in the Second assessment period, 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 greater than or equal to 5.0 in the final test, so that it can be averaged with the rest of the activities.

The activities that were not handed in or passed in the First assessment period must be handed in, after having received the corresponding corrections from the teacher.

The Universidad Europea de Valencia establishes the continuous evaluation as a system of assessment of knowledge, skills and basic, general, transversal and specific competences of the degree in Dentistry, in accordance with the provisions of the Regulations for the evaluation of undergraduate degrees. In the Second assessment period, the Call will be used up if the student takes the Knowledge Test.

Pursuant to the aforementioned Regulations, students taking face-to-face degree courses are required to justify at least 50% of class attendance, as a necessary part of the evaluation process, and in the case of theoretical or practical classes determined as mandatory by the teacher in the schedules of the subject, the student must register an attendance of 90%, whether the absence is justified or not. Those students who, due to non-compliance with this requirement, must sit the Second assessment period knowledge test, will have to perform as many activities or knowledge tests determined by the teacher to recover this part ; successful completion will be based on the specified rubric.

8. SCHEDULE

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

Assessable activities	Deadline
KNOWLEDGE TESTS First partial knowledge test Second partial knowledge test	 November 2025 January 2026
PRACTICAL EXERCISES **Problems on RR-OR** **Activity simulation MUN**	 October December
ACTIVITIES CASE-PROBLEM - Infographic Dental Public Health -Ethics and use of IA in Health Sciencies	 November December

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change in advance.

9. BIBLIOGRAPHY

Main Reference textbooks for this subject are:

PIEDROLA GIL (2015). Medicina Preventiva y Salud Pública. Editorial Elsevier. 12ª Edición.

GIL P. (2016). Medicina preventiva y salud pública. Barcelona: Elsevier España. 12ª edición.

HERNANDEZ-AGUADO I. & LUMBRERAS-LACARRA B. (2018) Manual de Epidemiología y Salud Pública para Grados en Ciencias de la Salud. Madrid, España: Editorial Médica Paramericana. 3ª edición.

ROTHMAN, K.J. (1987). Epidemiología moderna. Madrid: Díaz de Santos, D.L.

RUIZ MORALES, A. & GÓMEZ-RESTREPO C. (2015) Epidemiología Clínica: Investigación clínica aplicada. Bogotá: Editorial Médica Panamericana. 2ª edición.

SACKETT, DL. (2004). Epidemiología clínica: Ciencia Básica para la Medicina Clínica. Buenos Aires: Editorial Médica Panamericana. 2º edición.

ARGIMÓN-PALLÁS JM. & JIMÉNEZ-VILLA, J. (2013). Métodos de investigación clínica y epidemiología. Madrid: Elsevier, D.L. 4ª edición.

BHOPAL, R. (2016). Concepts of Epidemiology: integrating the ideas, theories, principles, and methods of epidemiology. Oxford, United Kingdom: Oxford University Press. 3 edition.

Other recommended Bibliography is:

ROTHMAN K.J& LASH T.L & GREENLAND S. (2020). Modern Epidemiology. Philadephia: Lippincott Williams & Wilkins. 4 edition.

SARACCI R. (2010). Epidemiology: A very short introduction. Oxford; New York: Oxford University Press.

KAHL-MARTIN C. (2018). Fundamentos de epidemiología. Colombia: ECOE Ediciones. 3ª edicion.

MILTON, J.S. & TSOKOS, J.O. (1998). Statistical methods in the Biological and Health Sciences. Ed Mc Graw – Hill Education.

WAYNE W.D. & CHAD L.C (2018). Biostatistics: A foundation for analysis in the health sciences. New York. John Wiley & Sons. 11th edition.

WAGEN K.A. & LEE F.W. & GLASER J.P. (2017) Health Care Information Systems: A Practical Approach for Health Care Management. San Francisco: Jossey-Bass. A Wiley Brand. 4th edition.

SPECTOR R.E. (2017) Cultural diversity in Health and Illness. New York: Pearson. 9th edition

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity 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 means 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 regarding methodology and assessment for those students with specific educational needs, pursuing equal opportunities 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.uev@universidadeuropea.es