

## 1. BASIC INFORMATION

<b>Course</b>	EPIDEMIOLOGY ,PUBLIC HEALTH AND APPLIED BIOSTATISTICS
<b>Degree program</b>	DENTISTRY DEGREE
<b>School</b>	HEALTH SCIENCES FACULTY
<b>Year</b>	1ST
<b>ECTS</b>	6
<b>Credit type</b>	ECTS
<b>Language</b>	ENGLISH
<b>Delivery mode</b>	FACE TO FACE
<b>Semester</b>	1ST
<b>Academic year</b>	2020-21
<b>Coordinating professor</b>	PATRICIA GUILLEM SAIZ
<b>Professor</b>	MARIA PALOMA ALVAREZ AZAUSTRE

## 2. PRESENTATION

- To develop interest in health science research and to create the habit of handling scientific publications and the critical sense necessary for the understanding and evaluation of published epidemiological studies.
- Develop research skills, both primary and secondary. To generate skills of bibliographic review and habit of referencing.
- To know the design and usefulness of the main types of descriptive, analytical and experimental epidemiological studies, as well as the different basic statistical techniques to carry them out.
- To relate the influence of the environment and lifestyle on the health level of the populations.
- Understand the epidemiology of communicable diseases and methods of prevention of these diseases, especially in the dental practice.
- To know the epidemiology of chronic diseases with high prevalence and high mortality and the most frequent oral diseases.
- To become aware of the role of health personnel in the health education of the population.

- To know different aspects of scientific publication related to scientific papers

### 3. COMPETENCIES AND LEARNING OUTCOMES

#### Basic 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 defense of arguments and the resolution of problems within their area of study.
- CB3: - Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include reflection on relevant social, scientific or ethical issues.
- CB4 - Students are able to convey information, ideas, problems and solutions to both specialised and non-specialised audiences.
- CB5 - That students have developed the learning skills necessary to undertake further studies with a high degree of autonomy.

#### General competencies:

- CG1 - Know the essential elements of the dentistry profession, including ethical principles and legal responsibilities.
- CG3 - Ability to identify patient concerns and expectations, as well as communicate effectively and clearly, both orally and in writing, with patients, family members, the media and other professionals.
- CG8 - Ability to share information with other healthcare professionals and work in teams.
- CG9 - Ability to understand the importance of maintaining and using records with patient information for later analysis, preserving data confidentiality.
- CG18 - Knowledge to critically assess and know how to use clinical and biomedical information sources to obtain, organize, interpret and communicate scientific and health information.
- CG19 - Knowledge of the scientific method and critical capacity to value established knowledge and new information. Be able to formulate hypotheses, collect and critically evaluate information for problem solving, following the scientific method.

#### Cross-curricular competencies:

- CT1 - Responsibility: That the student is able to assume the consequences of the actions he or she performs and be accountable for his or her own actions.

- CT4 - Communicative Skills: The student must be able to express concepts and ideas effectively, including the ability to communicate concisely and clearly in writing, as well as to speak effectively in public.
- CT5 - Interpersonal Comprehension: The student must be able to listen actively in order to reach agreements using an assertive style of communication.
- CT7 - Teamwork: The student must be able to participate actively in the achievement of a common objective, listening, respecting and valuing the ideas and proposals of the rest of the members of the team.
- CT9 - Planning: That the student is able to effectively determine his goals and priorities by defining the actions, deadlines, and optimal resources required to achieve such goals.

**Specific competencies:**

- CE03: To know the scientific method and to have critical capacity to value the established knowledge and the new information.

**Learning outcomes:**

- LO 1 To develop interest in research in health sciences and to create the habit of handling scientific publications and the critical sense necessary for the understanding and evaluation of published epidemiological studies.
- LO 2 Develop research skills, both primary and secondary. Develop communication skills.
- LO 3 Generate bibliographic review skills and reference habit (Vancouver method introduction).
- LO 4 To know the design and usefulness of the main types of descriptive, analytical and experimental epidemiological studies, as well as the different basic statistical techniques for carrying them out.
- LO 5 To relate the influence of the environment and lifestyle on the level of health of the populations.
- LO 6 Understand the epidemiology of communicable diseases and methods of prevention of these diseases, especially in dental practice.
- LO 7 To know the epidemiology of chronic diseases with high prevalence and high mortality and of the most frequent oral diseases.
- LO 8 Raise awareness of the role of health personnel in health education for the population.
- LO 9 To be aware of different ethical aspects related to scientific publication.

The table below shows the relation between the competencies developed during the course and the envisaged learning outcomes:

Competencies	Learning outcomes
<b>BASIC:</b> CB 2, CB 3, CB 4, CB 5	LO1, LO2, LO3, LO8, LO9
<b>GENERAL:</b> CG 1 CG3 CG 8 CG 9 CG 18 CG 19	LO1, LO2, LO3, LO8, LO9
<b>CROSS CURRICULAR:</b> CT1, CT4, CT5, CT7, CT9  <b>SPECIFIC:</b> CE3	LO1, LO2, LO5, LO8
	LO1, LO4, LO8, LO9

## 4. CONTENT

### EPIDEMIOLOGY, PUBLIC HEALTH AND APPLIED BIOSTATISTICS

#### 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. Transversal and ecological studies.

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: Active and passive immunization.

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.

## 5. TEACHING-LEARNING METHODOLOGIES

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

- master class
- problem based learning
- practical exercises
- project based learning
- collaborative 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 OG HOURS
Investigation	20 h
Problem solving	17 h
Case study	13 h

Critical analysis of articles	17 h
Master classes	83 h
TOTAL	150 h

## ASSESSMENT

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

Assessment system	Weight
Knowledge test 1 <sup>st</sup> partial exam ( theory exam)	25%
Knowledge test 1 <sup>st</sup> partial exam ( theory exam)	25%
Practical exercises ( Group work )	25%
Case method (Activities)	25%

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.

### 6.1. ORDINARY CALL

To pass the course in the Ordinary Call you should....

Theory will be assessed through 2 partial written exams: 1<sup>st</sup> partial exam will count 25% of final mark in the course; 2<sup>nd</sup> partial exam will count 25% of final mark in the course. 1<sup>st</sup> partial exam contents will be discarded once passed ( they will not be included again in 2<sup>nd</sup> partial exam ).

The teacher will assign distribution of students into specific WORK GROUPS. Changes among students in the distribution , will not be allowed.

- Obtain a grade greater than or equal to 5.0 out of 10.0 points in the final grade of the written exam of the subject.

- To calculate the average with other activities and group work, the score of the written exam must be a minimum of 5.0 points. There is no minimum score in the other activities or in the group work.
- The proposed activities will be delivered in paper format and/or using the blackboard platform (as established by the teacher). They will have a deadline so that any task, delivered later / or not achieving characteristics previously required will be assessed as "0" ( zero)
- In order to be able to qualify for the written exam in the Ordinary Call, students must have attended a minimum of 50% of the theory session ( face to face or either distance sessions).
- 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 granted.
- The written exam will consist of MCQ ( multiple choice questions ) and essay type questions (which may include problems, clinical cases, filling in tables, case studies etc). Each wrongly answered MCQ subtracts points from this section, the following formula will be applied:

$$\text{Test grade} = \text{Correct answers} - (\text{Incorrect answers} / 3)$$

- The section MCQ (Multiple choice questions) has a value of 50% of the exam (up to 5 points) and the section of short open questions the other 50% (5 points).
- The duration of the exam will be established by the teacher . Essay type questions will not subtract punctuation in case they are answered incorrectly. The content of the questions of the test will cover the entire theory program taught, including seminars and problems.
- It is compulsory to attend at least 50% of the classes, as a necessary part of the final evaluation process and to comply with the student's right to receive advice and academic follow-up by the teacher.
- Failure to attend class (whether justified or not) will be considered "absence". It is the student's obligation to know the theory or practical sessions they have missed. It is the responsibility of the student to find out the theoretical content and or activities carried out in the class on the date of their missed classes.
- In the event of exceeding the maximum number of absences, the teacher is entitled to declare the subject failed in Ordinary Call.
- Even if support notes are provided through blackboard, it is mandatory for the student to take notes during the explanations as well as to consult the bibliography recommended by the teacher.

## 6.2. EXTRAORDINARY CALL

To pass the course in the Extraordinary Call you should ....

- a) Students who have failed or not attended 1<sup>st</sup> or 2<sup>nd</sup> partial exams in the Ordinary Call, must recover the theory by resitting corresponding partial exam in the Extraordinary Call.
- b) For students resitting only 1 partial exam, it will consist of 25 MCQ + 5 open questions.
- c) For students resitting both partial exams ( 1<sup>st</sup> and 2<sup>nd</sup>), it will consist of 1 global exam of 40 MCQ + 5 open questions.

examples:

- student who failed/ not attended 1<sup>st</sup> partial exam and passed 2<sup>nd</sup> partial exam: will resit only 1<sup>st</sup> partial exam in Extraordinary Call
- student who failed/not attended 2<sup>nd</sup> partial exam and passed 1<sup>st</sup> partial exam: will resit only 2<sup>nd</sup> partial exam in Extraordinary Call.
- student who failed/not attended 1<sup>st</sup> and 2 partial exams: will resit both in Extraordinary Call

The grade obtained in Activities and/or group works within the Ordinary Call, will be maintained in the evaluation of the Extraordinary Call, mark on this section can not be changed or improved.

b) For students who have not taken the Theory exam in the Ordinary Call, and must take the Theory exam in the Extraordinary Call, if they have not submitted the Activities and/or works in the Ordinary Call, they must submit them before the new deadline established by the teacher, and in the format established by the teacher (handwritten, Word, power point, poster). Missing works will be submitted on Blackboard platform in the new folder created by the teacher.

d) Any Activity and/or work submitted after the deadline, or not submitted, will be assessed as " 0" ( zero).

e) All missing Activities and works will be uploaded on Blackboard, within the corresponding Extraordinary Call Folder created by the teacher.

f) From one edition to the next, no grades will be stored in any evaluation section.

## 7. SCHEDULE

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



Assessable activities	Deadline
Hippocrates and determinants of health	September
Data quality standards	September
Purpose of patients records	September
Climate change and oral health	September
Vaccines update	October
Clinical cases diabetes and obesity	October
Exercise the best polypill	October
Sanitation and Ductfit technology	November
Communicable disease: west Nile virus	November
Problems on relative risk	December
Epidemiological studies design	December

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

## 8. BIBLIOGRAPHY

### Recommended required bibliography:

- Piédrola Gil. Medicina preventiva y salud pública. 12ed. 2015. Elsevier.
- Hernández Aguado. Manual de Epidemiología y Salud Pública para Grados en Ciencias de la salud. 2018. Editorial Médica Panamericana SA
- Hulley S.B., Cummings S.R. Epidemiología moderna. Ed. Díaz de Santos. Madrid. (1993)
- Ruiz Morales. Epidemiología Clínica: investigación clínica aplicada. 2015. Editorial Médica Panamericana SA.
- D. Sackett. Epidemiología clínica. Ciencia Básica para la Medicina Clínica, Editorial Médica Panamericana. C. 2ª Edición. 2004.
- J M Argimón. Métodos de investigación clínica y epidemiología, 4ª ed., Elsevier, Barcelona, España (2018)
- Concepts of Epidemiology. Raj Bhopal . 2016

**Recommended additional bibliography:**

- Modern Epidemiology. Kenneth J. Rothman. 2013 Ed: Lippincott Williams & Wilkins
- Epidemiology. R.Saracci .2010. Publicado por Oxford Scholarship.
- Epidemiology Fundamentals. Kahl-Martin. 1990. Ecoe ediciones
- Statistical methods in the Biological and Health Sciences. J. Susan Milton. 2001 Ed McGraw-Hill Education.
- Biostatistics. Wayne W. Daniel. 2014. **Ed:** John Wiley & Sons Inc
- Health Care Information Systems Karen A.Wager. 2017. John Wiley & Sons Ltd.
- Cultural diversity in Health and Illness. R.Spector 2016. Ed. Pearson.

## 9. DIVERSITY MANAGEMENT UNIT

Students with specific learning support needs:

Curricular adaptations and adjustments for students with specific learning support needs, in order to guarantee equal opportunities, will be overseen by the Diversity Management Unit (UAD: Unidad de Atención a la Diversidad).

It is compulsory for this Unit to issue a curricular adaptation/adjustment report, and therefore students with specific learning support needs should contact the Unit at [unidad.diversidad@universidadeuropea.es](mailto:unidad.diversidad@universidadeuropea.es) at the beginning of each semester.

## 10. 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 in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.