

# EPIDEMIOLOGY AND PUBLIC HEALTH

## Degree in Human Nutrition and Dietetics Academic course 2026/27

**Code:** 803997

**Module:** 5

**Subject:** Public Health and Sanitary Legislation

**Type of course:** Compulsory

**Intended for:** FOURTH COURSE students of the GRADUATE in HUMAN NUTRITION and DIETETICS.

**Department** of Public and Maternal and Child Health. Preventive Medicine and Public Health Teaching Unit.

**Credits:** 9 ECTS

**Period of study:** Annual

**Starting date:** From September 4, 2025

**Schedule:** From Monday to Wednesday between 16.00 to 18.30h

**Place:** Faculty of Medicine

**Number of students:** 90

## PROFESSORS

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### Professors:

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## BRIEF DESCRIPTION

It is a basic subject with a theoretical and practical content that aims to provide students with knowledge of epidemiology as an instrument applicable to the description of health phenomena, to the explanation of their etiology and to the investigation of the most effective interventions.

It is intended that the future professional of Human Nutrition and Dietetics will be able to know how and why a method should be applied to solve a scientific problem, as well as to analyse the rigor of the scientific proofs or evidences on the effectiveness of health actions.

## COMPETENCIES

They are those corresponding to the Module and Subject to which this course belongs.

### General competencies

- C.G.1.1., C.G.1.2., C.G.1.3., C.G.1.4., C.G.2.1, C.G.2.2, C.G.2.3, C.G.5.1., C.G.5.2., C.G.5.3., C.G.5.4., C.G.6.1., C.G.6.2., C.G.7.1., C.G.7.3., C.G.7.4., C.G.8.1.

### Specific competencies

- CE.M1.1, CE.M1.3, CE.M1.5, CE.M1.7, CE.M1.8, CE.M3.1, CE.M3.2, CE.M3.7, CE.M3.8, CE.M4.22, CE.M5.1, CE.M5.2, CE.M5.3, CE.M5.4, CE.M5.5, CE.M5.6

## AIMS

1. To know general aspects of Public Health
2. To know and understand the concept of health and its determinants in population, both genetic and those dependent on sex and lifestyle and demographic, social, psychological and cultural.
3. To know the natural history of disease and prevention levels
4. To know and understand the concept, objectives, methodology and multiple applications of the epidemiological method as a tool, and to acquire the knowledge and skills necessary for its application in Public Health.
5. To know the fundamental concepts of demography and the phenomena that affect populations.

6. To know, understand and be able to apply epidemiology to the study of the beneficial and adverse effects of food and its handling.
7. To know the epidemiology of the processes that occur in our environment and be able to establish appropriate strategies for their prevention, surveillance and control, and intervene in disease prevention activities at individual and collective levels.
8. To know and understand the objectives, methods and means of health education.
9. To know and be able to intervene in health promotion and disease prevention programs in different stages and situations of a person's life.
10. To know health systems and health services.

## **SUBJECT**

### **Theoric program**

#### **Block I. Public Health and Nutrition**

1. Concept of Health, Preventive Medicine and Public Health.
2. Natural history of disease. Levels of prevention.
3. Determinants of health status. Socioeconomic inequalities in health.
4. Health, food and nutrition.

#### **Block II. Demography and Public Health**

5. Demography. Concept. Interrelations with Public Health. Sources of data.
6. Static demography. Population structure. Types of population.
7. Dynamic demography. Birth rate. Mortality.
8. Health indicators. Community health diagnosis.

#### **Block III. General Epidemiology**

##### **A) Epidemiological Method**

9. Epidemiology. Concept. Objectives. Uses. Strategies.
10. Causal inference in epidemiology: epidemiological variables. Surveys and questionnaires in epidemiology.
11. Causal inference in epidemiology: frequency measures. Incidence and prevalence.
12. Causal inference in epidemiology: measures of association: relative risk, Odds ratio. Impact measures.
13. Causal inference in epidemiology: causality and association.
14. Sequence of research. Types of epidemiological studies.
15. Descriptive epidemiology. Descriptive studies. Ecological studies.
16. Analytical epidemiology. Observational studies. Cohort studies.
17. Analytical epidemiology. Observational studies. Cross-sectional studies. Case-control studies.
18. Experimental epidemiology. Experimental studies.
19. Secondary data studies. Metaanalysis
20. Reproducibility of measurements. Instrument validation. Sensitivity. Specificity. Predictive values.

21. Errors in Epidemiology: its problems and control.
22. Epidemiological surveillance. Health information systems. Registries, health surveys and notification systems.

##### **B) Nutritional Epidemiology**

23. Nutritional epidemiology. Objectives. Principles and methods.
24. Assessment of food consumption in populations. Food surveys. General aspects.
25. Design, planning and evaluation of studies in Nutritional Epidemiology. Types of studies in Nutritional Epidemiology.
26. National studies and international strategies: ENKID, PREDIMED, REGICOR, ALADINO. ENRICA.
27. Dietary guidelines. Nutritional education.

#### **Block IV. Environmental Risks**

28. Environment and Health.
29. Sanitary study of water. Sanitary criteria of drinking water quality. System of supply and purification of water for human consumption.
30. Production and management of urban and sanitary waste.
31. Disinfection. Pest control. Health problem of pesticides.

#### **Block V. Epidemiology of the main health problems.**

##### **A) Communicable Diseases**

32. General Epidemiology of Communicable Diseases. General prevention of communicable diseases.
33. Specific communicable disease prophylaxis. Vaccination programs.
34. Epidemiology and prevention of Foodborne Toxicosis. Surveys. Problems of food handlers.
35. Epidemiology and prevention of salmonellosis and epidemiology and prevention of diarrheal processes.
36. Food safety. Food alert networks: regional, national and transnational. Self-control of the food company: Hazard analysis and critical control points (HACCP).
38. Epidemiology and prevention of zoonoses. Parasitosis.
37. Epidemiology and prevention of brucellosis.
39. Epidemiology and prevention of enteroviruses.
40. Epidemiology and prevention of other communicable diseases of epidemiologic interest.

##### **B) Chronic Disorders**

41. Epidemiology and prevention of chronic diseases.
42. Epidemiology and prevention of cardiovascular diseases. Risk factors related to nutrition.
43. Epidemiology and Prevention of Metabolic Diseases. Metabolic syndrome as cardiovascular risk.
44. Epidemiology and prevention of eating disorders.
45. Epidemiology and prevention of cancer. Food-related risk factors.
46. Epidemiology and prevention of institutionalized drug addiction.

#### **Block VI. Health Promotion and Education**

47. Health promotion. Concept. Objectives. Strategies. Lifestyles and health. The nutritionist as a health educator.

48. Health education. Methods and means.

## Block VII. Health Planning and Management

49. Planning and management of health services.

50. Health system

### Practical Program

#### Non-attendance (Virtual Campus)

- Analysis of population structure and dynamics.  
Standardization of rates.
- Health diagnosis of a community.

#### Presential

- Application of the epidemiological method in nutrition. Measures of frequency, association and potential impact. Design of nutritional epidemiological studies.
- Approach to a food poisoning outbreak: attack rate and case/control study.
- Reproducibility of diagnostic tests.
- Elaboration of an investigation protocol.

## EVALUATION

- - **Continuous assessment**
  - ✓ Evaluations and self-evaluations through the virtual campus: 5%.
  - ✓ Formative evaluation: 10%
- - **Theoretical/Practical Evaluation**
  - ✓ Theory 60%: Multitest, wrong answers are subtracted.
  - ✓ Practical 25%: Resolution of practical assumption(s).

*It is essential to pass both the theoretical and the practical part to pass the course.*

The Council of the Department of Public and Maternal and Child Health, at its meeting of March 14, 2018, adopted the following agreement regarding **possible fraudulent activities**: "Both impersonation and fraudulent copying, action or activity during an exam will lead to failure of the corresponding subject in the current call. The use or presence of notes, textbooks, calculators, cell phones or other means that have not been expressly authorized by the teacher in the statement of the exam will be considered as a fraudulent activity. In any of these circumstances, the **infraction may be subject to the corresponding informative file and in its case sanctioning to the Services Inspection of the UCM.** The Quality Commission,

at its meeting of February 23, 2017, approved the attitude to be followed in the event of a voluntary or accidental violation of the rules for conducting the exam and the suspicion of misuse of foreign texts in certain works: "The voluntary or accidental violation of the rules for conducting the exam prevents the assessment of the same, so the offending student will take the oral examination of the subject to establish their knowledge of the subject. If intentionality is confirmed in the cheating, it will be considered a very serious misconduct, and will be reported to the Services Inspection to take the disciplinary measures it deems appropriate. Any work that may be considered plagiarism or fraudulent will be invalidated and the Services Inspectorate will be notified to take the appropriate disciplinary measures."

## ADDENDUM FOR NON-CLASSROOM TEACHING

In the event that it is necessary to carry out the proposed activities in a non face-to-face manner, the following modifications will be made

### Teaching methodology

Regarding the teaching content, the theoretical and practical program will be maintained. The theoretical and practical contents will be taught by means of synchronous classes during class hours, by means of different videoconference platforms and asynchronous classes by means of recordings made available to the student.

### Tutorials

Synchronous online tutorials (videoconference, chat...) and asynchronous tutorials (forums, e-mail...).

### Virtual platforms

Virtual tools used include Google Meet, MS-Teams, Quizzes and required readings.

### Evaluation

For the evaluation of all teaching the use of electronic questionnaires will be handled through the virtual Campus. The exam will be conducted online, with the same scheme and the same assessment as the face-to-face exam. The Google Meet or MS-Teams tool will be used for the revision of exams.

## BIBLIOGRAPHY

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