1. BASIC INFORMATION

Course	General Microbiology and Immunology
Degree program	Dentistry
School	Biomedical Sciences and Health
Year	First year
ECTS	6
Credit type	Compulsory
Language(s)	Spanish and English
Delivery mode	Face-to-face
Semester	1st and 2nd
Academic year	2025-2026
Coordinating professor	Iris Azami Conesa

2. PRESENTATION

This subject is taught during the first and the second semester of the first year of the degree in Dentistry and is a compulsory subject of 6 ECTs.

The general objective of this course is the learning of the main mechanisms and components of our immune system and the acquisition of basic knowledge of Microbiology.

The aim of this course is to provide the knowledge of the main microorganisms and their role in the most frequent infectious diseases in humans, taking special attention in those related to the oral cavity. Likewise, the knowledge and skills acquired in the theoretical and practical part of the course will provide the student with the necessary basis to understand the mechanisms of action of antimicrobials.

In addition, the student is expected to master the concepts with a microscopic approach and to be aware of the importance of preventive measures in the development of infectious diseases.

3. LEARNING OUTCOMES

Knowledge

CON05 Promote autonomous learning of new knowledge and techniques, as well as motivation for quality.

CON11 To be aware of general disease processes and their treatment, including infection, inflammation, immune system alterations, degeneration, neoplasia, metabolic alterations and genetic disorders.

CON13 Understand the basis of action, indications and efficacy of drugs and other therapeutic interventions, knowing their contraindications, interactions, systemic effects and interactions on other organs, based on the available scientific evidence.

CON20 Know the biomedical sciences on which dentistry is based to ensure correct oral and dental care. These sciences must include appropriate content in microbiology and immunology.

Subject-specific knowledge

• To know the general characteristics of micro-organisms.
• To know the main antibiotics, their mechanisms of action and general resistance mechanisms.
• To understand the microbiology of oral infections and their systemic repercussions.

Skills

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

• Processing samples for microbiological diagnosis.

Competences

CP43 Cooperate with others in the achievement of a shared academic or professional objective, participating in an active, empathetic way and exercising active listening and respect for all members.

4. CONTENT

MODULE I.

GENERAL IMMUNOLOGY

Unit 1. Basic Concepts in the Immune System. Organs and main components
Unit 2. Natural and Adaptive Immunity
Unit 3. Humoral immunity
Unit 4. Cellular immunity

GENERAL MICROBIOLOGY

Unit 5. Bacterial morphology and structure
Unit 6. Bacterial metabolism and division
Unit 7. Microbial genetics
Unit 8. Antimicrobial chemotherapy
Unit 9. Host-bacteria relationships
Unit 10. General Mycology and Parasitology
Unit 11. General virology

MODULE II.

IMPORTANT BACTERIAL GENERA IN HUMAN PATHOLOGY

Unit 12. *Staphylococcus* genera
Unit 13. *Streptococcus* genera
Unit 14. Gram negative bacteria
Unit 15. Anaerobic bacteria important in human pathology and dental microbiology
Unit 16. Facultative anaerobic bacteria of dental interest
Unit 17. Acid-resistant bacteria. Genus *Mycobacterium*
Unit 18. Spirochetes

ORAL MICROBIOLOGY
Unit 19. Composition and ecology of oral microbiota
Unit 20. Dental plaque
Unit 21. Microbiology of caries
Unit 22. Microbiology of gingivitis and periodontitis
Unit 23. Endodontic microbiology and infection-related processes
Unit 24. Systemic complications of oral infections

5. TEACHING-LEARNING METHODOLOGIES

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

- MD1 Master class
- MD2 Case method
- MD3 Cooperative learning
- MD4 Problem-based learning.
- MD6 Workshop/laboratory-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 Master classes	32
AF2 Practical application seminars	4
AF3 Case studies	4
AF4 Problem solving	14
AF5 Oral presentations of work	2
AF8 Workshop and/or laboratory activities	6
AF10 Independent work	83
AF12 Face-to-face assessment tests	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
SE1 Face-to-face assessment tests	60%
SE4 Case/problem	25%
SE6 Performance assessment	15%

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
AF4 Problem solving 1	Weeks 6-7
AF12 Face-to-face assessment tests 1	Weeks 7-8
AF8 Workshop and/or laboratory activities	Weeks 8-10
AF4 Problem solving 2	Weeks 11-12
AF3 Case analysis	Weeks 13-14
AF5 Oral presentations of work	Weeks 13-14
AF12 Face-to-face assessment tests 1	Weeks 19-20

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:

- Murray PR, Rosenthal KS, Pfaller MA. Medical microbiology. 9th ed. Philadelphia: Elsevier Saunders; 2021.
- Murray PR, Rosenthal S, Pfaller A. Microbiología médica. 9ª ed. Barcelona: Elsevier; 2021.
- Willey JM, Sherwood L, Woolverton CJ, Prescott LM. Prescott's microbiology. 9th ed. New York: McGraw-Hill; 2014.
- Prescott LM, Harley JP, Klein DA, Gamazo de la Rasilla C, Lasa Uzcudum Í. Microbiología. 2ª ed. Editorial: McGraw-Hill Interamericana de España; 2004.
- J. Liébana. Microbiología oral. 2ª ed. Editorial Interamericana-McGraw-Hill; 2002.
- Marsh PD, Martin MV, Lewis MAO, Pérez Guillén F. Microbiología Oral. 5a ed. Editorial Amolca; 2011

- Samaranayake LP. Essential microbiology for dentistry. 4th ed. Churchill Livingstone Elsevier; 2012.

The recommended Bibliography is:

- Rosa Fraile Mdl, Prieto Prieto J. Microbiología en ciencias de la salud: conceptos y aplicaciones. 3ª ed. Editorial: Elsevier; 2011.
- Roitt IM, Delves PJ, Rondinone S, Tzal K. Inmunología: fundamentos. 10ª ed. Editorial Médica Panamericana; 2008.
- Bauman RW. Microbiology with Diseases by Body System. 3rd ed. San Francisco: Benjamin Cummings; 2012.
- Cowan MK. Microbiology: a systems approach. 6th ed. Nueva York: McGraw-Hill; 2021.
- Negroni M. Microbiología estomatológica, fundamentos y guía práctica. 2ª edición. Editorial Médica Panamericana. 2009.
- Bagg J, Bagg S. Essentials of microbiology for dental students.2nd ed. Oxford University Press; 2006.

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.