1. BASIC DATA

Course	General Microbiology and Immunology
Degree program	Dentistry
School	Faculty of Health Sciences
Year	First year
ECTS	6 ETC
Credit type	Basic
Language(s)	English/Spanish
Delivery mode	Campus-based mode
Semester	Second Semester
Academic year	2025-2026
Coordinating professor	Pilar Ribera Alba

2. PRESENTATION

This subject is intended for the Dentistry student to learn the basic principles of medical microbiology and general immunology.
The knowledge and management of infections of the oral cavity is an important tool for the dentist, since it allows him to know their etiology, select the appropriate antimicrobial and also determine the efficacy of the prescribed treatment. In addition, it involves a series of actions of vital importance for the diagnosis of infectious diseases, such as the correct collection of the sample, its transport to the microbiology laboratory and the adequate interpretation of the results it emits.

3. COMPETENCIES AND LEARNING OUTCOMES

Core competencies:

- CB1: Students must have demonstrated that they possess and understand knowledge in an area of study that is based on the basis of general secondary education, and is usually at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study.
- CB2: Students must know how to apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study.
- CB3: Students must have the ability to gather and interpret relevant data (usually within their area of study) in order to make judgments that include reflection on relevant social, scientific or ethical issues.
- CB5: Students must have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

General Competencies:

- CG7 - Ability to promote the autonomous learning of new knowledge and techniques, as well as the motivation for quality.
- CG11: Ability to understand the basic biomedical sciences on which Dentistry is based to ensure correct oral and dental care.
- CG14: Knowledge of the general processes of disease, including infection, inflammation, immune system disorders, degeneration, neoplasia, metabolic alterations and genetic disorders.
- CG15 - Be familiar with the general pathological characteristics of diseases and disorders that affect the organ systems, specifically those that have oral repercussions.
- CG16 - Ability to 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.
- CG18: Knowledge to critically assess and know how to use clinical and biomedical information sources to obtain, organise, interpret and communicate scientific and health information.
- CG19 - Knowledge of the scientific method and critical capacity to assess established knowledge and new information. Be able to formulate hypotheses, collect and critically evaluate information for problem solving, following the scientific method.

Transversal competences:

- CT1: Responsibility: That the student is able to assume the consequences of the actions he or she performs and respond to his or her own actions.
- CT2 - Self-confidence: That the student is able to act confidently and with sufficient motivation to achieve their goals.
- CT5: Interpersonal comprehension: That the student is able to actively listen in order to reach agreements using an assertive communication style.
- CT7: Teamwork: That the student is able to participate actively in the achievement of a common goal, listening, respecting and valuing the ideas and proposals of the rest of the members of their team.
- CT8 - Initiative: That the student is able to proactively anticipate by proposing solutions or alternatives to the situations presented.
- CT9: Planning: That the student is able to effectively determine his or her goals and priorities by defining the optimal actions, deadlines, and resources required to achieve those goals.

Specific competencies:

- CE1: Know the biomedical sciences on which Dentistry is based to ensure correct oral care. These sciences should include appropriate contents of Embryology, Anatomy, Histology and Physiology of the Human Body, Genetics, Biochemistry, Cell and Molecular Biology and Microbiology and Immunology.

Learning outcomes:

- RA1: Knowledge of the structure, metabolism and genetics of microorganisms, the main bacteria, fungi, parasites and viruses that cause disease in humans and the infections they produce.
- RA2: Knowledge of the main antimicrobials, their mechanisms of action and general resistance mechanisms.
- RA3: Knowledge of the microbiology of oral infections and their systemic repercussions.
- RA4: Knowledge of the sampling techniques and transport systems used in dentistry and the main procedures and techniques performed in clinical microbiology laboratories.
- RA5: Knowledge of the immune system of the human body.

The table below shows the relationship between the competencies developed in the subject and the learning outcomes that are pursued:

Competences	Learning outcomes
CB1, CB2, CB3, CB5, CG7, CG11, CG14, CG15, CG18, CG19, CT1, CT2, CT5, CT8, CT9, CE1	**RA1**: Knowledge of the structure, metabolism and genetics of microorganisms, the main bacteria, fungi, parasites and viruses that cause disease in humans and the infections they produce.
CB1, CB2, CB3, CB5, CG7, CG11, CG14, CG16, CG18, CG19, CT1, CT7, CT9, CE1	**RA2**: Knowledge of the main antimicrobials, their mechanisms of action and general resistance mechanisms.
CB1, CB2, CG11, CG14, CG15, CG16, CG18, CG19, CT1, CT5, CE1	**RA3**: Knowledge of the microbiology of oral infections and their systemic repercussions.
CB1, CG11, CG18, CG19, CT1, CT5, CT9, CE1	**RA4**: Knowledge of the sampling techniques and transport systems used in dentistry and the main procedures and techniques performed in clinical microbiology laboratories.
CB1, CB5, CG14, CT7, CE1	**RA5:** Knowledge of the immune system of the human body.

4. CONTENT

- General Microbiology and Immunology
- Bacterial Morphology
- Antimicrobial Agents
- Bacterial Metabolism and Genetics
- Mycology
- Virology
- Bacteria: Cocci and Bacilli
- Oral Microbiology: Oral Ecology
- Bacterial Plaque: Periodontal and Cariogenic
- General and Specific Immunity
- Antigens and Antibodies
- Immune Response

5. TEACHING-LEARNING METHODOLOGIES

The following are the types of teaching-learning methodologies that will be applied:

- Masterclass
- Case Method
- Cooperative learning
- Problem-Based Learning (PBL)

6. TRAINING ACTIVITIES

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

Campus-based mode:

Training activity	Number of hours
Tutorials	18 h
Master Classes	24 h
Virtual Masterclasses	8 h
Troubleshooting	8 h
Case Analysis	25 h
Laboratory Practices	20 h
Study and freelance work	45 h
Face-to-face knowledge tests	2 h
TOTAL	**150**

7. ASSESSMENT

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

Campus-based mode:

Assessable block	Evaluation system	Weight
1. Tests	Objective tests of knowledge:	60%
2. Practices	Laboratory Practices	15%
3. Activities	Cases/Problems	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.

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 assessed that a grade equal to or greater than 4 is needed in the knowledge tests when separated into partial exams.

The Universidad Europea de Valencia establishes continuous assessment as a system of evaluation of knowledge, skills and core, general, cross-curricular 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 use of calls the student should be aware that, if any evaluation system provided in the Learning Guide, in the first assessment period the student will have an overall grade of the subject, thus using up one 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 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. 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 class 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 honorary registration may be awarded.

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 submitted, 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 core, general, cross-curricular, 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 using calls, the student should be aware that in the second assessment period the Objective Test of Knowledge (OTK) which determines whether or not the call was used. In the exceptional case that the student only needs to pass evaluation system /s that are not the OTK, it will be considered NP if not presented and will obtain a numerical grade if the student was examined of, at least, one of them.

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 take the second assessment period, need 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
First Knowledge Test	Week 4
Second Knowledge Test	June 2026
Laboratory Practices	See Virtual Campus
Virtual simulations	Week 2-3
Cases / Problems	Weeks 3, 4, 7, 9, 12, 15

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

9. BIBLIOGRAPHY

The reference work for the follow-up of the subject is:

- Brock, T.D. (2015). **Biology of microorganisms.** Madrid: Pearson Addison Welsey. 14th edition.
- Abbas, A.K. (2017). **Basic immunology.** Barcelona: Elsevier. 5th edition.
- Rosa Fraile, M de la. (2011). **Microbiology in health sciences. Concepts and applications.** Madrid: Elsevier. 3rd Edition.
- Bagg, J. & Bagg, S. (2006). **Essentials of Microbiology for dental students.** Oxford: Oxford University Press. 2nd edition.

Recommended bibliography is indicated below:

- Samaranayake, L. (2018). **Essential Microbiology for Dentistry**. Elsevier, 5th edition.
- Negroni, M. (2018). **Stomatological Microbiology. Fundamentals and practical guide**. Buenos Aires: Panamericana, 3rd Ed., 2018.
- Murray, P.R., Rosenthal, K.S., Pfaller, M.A. (2017). **Medical Microbiology**, St. Louis: Elsevier-Mosby, 8th Edition.
- Kenneth, J., Ryan, C. (2017). **Sherris, medical microbiology.** Mexico City: McGraw-Hill Interamericana. 6th edition
- Liébana Ureña, J. (2002). **Oral microbiology**. Madrid: McGraw-Hill – Interamericana. 2nd edition.

Online resources:

- Spanish Society of Infectious Diseases and Clinical Microbiology www.seimc.org
- American Society for Microbiology http://journals.asm.org/

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

From the Educational Guidance and Diversity Unit (ODI) we offer support to our students throughout their university life to help them achieve their academic achievements. Other pillars of our action are the inclusion of students with specific educational support needs, universal accessibility on the different campuses of the university and equal opportunities.
This Unit offers students:

1. Accompaniment and follow-up through the realization of personalized counseling and plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made, that is, at the level of methodology and evaluation, in those students with specific educational support needs, thus pursuing equality of opportunities for all students.
3. We offer students different extracurricular training resources to develop various skills that will enrich them in their personal and professional development.
4. Vocational guidance through the provision of tools and advice to students with vocational doubts or who believe that they have made a mistake in the choice of degree.

Students who need educational support can write to us at:
unidad.diversidaduev@universidadeuropea.es