COURSE DATA

DATA SUBJECT

Code: 34103
Name: Clinical Microbiology
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2026-27

STUDY (S)

Degree	Center	Acad. year	Period
1201 - Degree in Pharmacy	Facultat de Farmàcia i Ciències de l'alimentació	5	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1201 - Degree in Pharmacy	Clinical microbiology	ELECTIVES

COORDINATION

RICO VIDAL HORTENSIA

SUMMARY

The course aims to give an overview of the microorganisms that cause infectious diseases in humans, with special emphasis on bacteria (prokaryotic organisms), although there will be a general review of fungal (eukaryotic microorganisms) and viruses.

The major groups within each category (bacteria, fungi and viruses) and the diseases caused by them, classified according to the organs and / or systems affected, are described.

The course also describes the laboratory methods and techniques currently available for identification (diagnosis) of disease-causing microorganisms.

Finally, new strategies for controlling infectious diseases will be studied, including techniques beyond traditional antibiotic therapy.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

It is recommended to have previously passed the subjects Microbiology, Microbiological and Parasitological Analysis, Immunology and Anatomy.

COMPETENCES / LEARNING OUTCOMES

1201 - Degree in Pharmacy

Act with autonomy in learning, making informed decisions in different contexts, issuing judgements based on experimentation and analysis, and transferring knowledge to new situations.

Collaborate effectively in work teams, assuming responsibilities and leadership roles and contributing to collective improvement and development.

Contribute to the design, development and implementation of solutions that respond to social demands, taking into account the Sustainable Development Goals as a reference.

Demonstrate critical and self-critical thinking in the field of the degree programme, considering aspects such as professional ethics, moral values and the social implications of the different activities carried out.

Know and understand, within the field of the degree programme, gender inequalities in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem solving.

Know aspects relating to the determination of susceptibility/resistance of pathogens to chemotherapeutic agents commonly used in clinical practice.

Know how to communicate effectively, both orally and in writing, adapting to the characteristics of the situation and the audience.

Know infections affecting the different organs and systems of the human body.

Know the basic microbiological, immunological and molecular biology techniques used in the diagnosis of infectious diseases.

Know the general principles of laboratory diagnosis of infectious diseases.

Know the main groups of microorganisms causing human infections: bacteria, fungi and viruses.

Propose creative and innovative solutions to complex situations or problems within the field of knowledge, to respond to diverse professional and social needs.

Reinforce the acquisition of the general competences of the curriculum.

DESCRIPTION OF CONTENTS

1. Introduction

CHAPTER 1. Main characteristics of the major groups of microorganisms with pathogenicity for humans: viruses, bacteria and fungi. Features.

CHAPTER 2. Pathogenesis of infectious diseases.

2. Diagnosis of Infectious Diseases. Microbiological Techniques

CHAPTER 3. Diagnosis of infectious diseases. Basic Principles.

CHAPTER 4. Diagnosis of infectious diseases I: phenotypic methods. Microscopic examination, sample processing for culture and interpretation thereof. Procedures for the identification of microorganisms.

CHAPTER 5. Diagnosis of infectious diseases II: no phenotypic methods. Direct antigen detection: methods and indications. Molecular diagnostic techniques. Immunological methods: antibody detection. proteomic methods

3. Etiologic diagnosis of Infectious Syndromes

CHAPTER 6. Blood culture

CHAPTER 7. Urinary Tract Infections

CHAPTER 8. Gastrointestinal tract infections

CHAPTER 9. Sexually transmitted infections

CHAPTER 10. Infections of the upper and lower airway

CHAPTER 11. CNS Infections

CHAPTER 12. Chronic wound Infections

CHAPTER 13. Eye infections

CHAPTER 14. Clinical Syndromes and laboratory diagnosis of fungal diseases

4. Control of infectious diseases

CHAPTER 15. New strategies for the control of infectious diseases

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	1,00
Theory	29,00
Seminar	1,00
Laboratory	14,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	5,00
Independent study and work	27,50
Preparation of lessons	25,00
Preparation for assessment activities	10,00
Resolution of case studies	0,00
Total hours	**67,50**

TEACHING METHODOLOGY

Theory:

Lectures for the presentation by the teacher of the most important concepts and contents of each issue in order for the student to acquire the knowledge related to the subject. Student participation will be encouraged.

Practical Classroom (workshops, problems):

The seminars will be used to enhance teamwork and improve oral presentation, by conducting theoretical and practical training to complement that is acquired in class work, and also to make another series of complementary activities of different types (study of cases, management of scientific literature, and discussion of current issues).

Laboratory and Computer Sessions:

The aim is to consolidate the theoretical knowledge, through the practical application thereof. The teacher will present the objectives, report on material handling, monitor job performance and help the interpretation of the results.

Tutorial Sessions:

Students come to them in small groups. In them, the teacher will evaluate the learning process of students in a global way. Equally, the tutorials will serve to resolve all doubts that have arisen over classes and guide students on the methods of work more useful for the resolution of the problems they may have. The teacher can raise issues and problems specific to the needs of students.

The competences and learning outcomes to be achieved in this subject integrate the Sustainable Development Goals (SDGs) promoted by the United Nations (Agenda 2030). Among others, the one referred to the reduction of the communicable and noncommunicable diseases and the development of vaccines to combat them (Objective 3: Health and Well-being) together with that of a Quality Education model (Objective 4)

EVALUATION

Students will be assessed on their theoretical knowledge through a test/exam representing **80%** of the final grade. The minimum grade to pass the course will be **5 out of 10. In addition, the exam must be balanced and without serious deficiencies in concepts or important parts of the subject. Oral exams may be part of the evaluation**

The assessment of laboratory sessions will contribute to the final grade by **20%** and it is required at least to obtain a score of **5 out of 10** to pass the course. The mark for laboratory sessions will include a test/exam, and **mandatory attendance**.

This activity is **MANDATORY AND NON-RECOVERABLE**, in accordance with the provisions of article 6.5 of the UV Evaluation and Qualification Regulations for Bachelor's and Master's degrees. In the event that, for justified reasons, it is not possible to attend, it must be communicated sufficiently in advance, so that the person in charge of the subject can assign the student a session in another group. Students will not be able to pass the course without **doing and passing** the laboratory practicals.

If the student does not pass the theoretical part, **the practical grade (passed) will only be maintained during the following two academic years whether the student enrolls in the subject or not**. After this time, **the student must repeat them again,** requesting inclusion in a group of practices.

Evidence of copying or plagiarism in any of the assessable tasks will result in failure to pass the subject and in appropriate disciplinary action being taken. Please note that, in accordance with article 13. d) of the Statute of the University Student (RD 1791/2010, of 30 December), it is the duty of students to refrain from using or participating in dishonest means in assessment tests, assignments or university official documents.

In the event of fraudulent practices, the **Action Protocol for fraudulent practices at the University of Valencia** will be applied (ACGUV 123/2020) https://www.uv.es/sgeneral/Protocols/C83sp.pdf

REFERENCES

- MICROBIOLOGÍA MÉDICA. 9ª Ed. Murray, P.R.,Rosenthal, K.S y Pfaller, M.A. Editorial Elsevier, 2021

- KONEMAN. DIAGNÓSTICO MICROBIOLÓGICO. 7ª ED. Winn, W.C., Allen, S.D., Janda, W.M., Koneman, E.W., Procop, G.W., Schreckenberger, P.C. y Woods, G.L. Editorial Médica Panamericana, 2017

- BAILEY & SCOTT'S. DIAGNOSTIC MICROBIOLOGY 16ª ED. Tille, P.M. Editorial Elsevier, 2021.

- MICROBOIOLOGIA Y PARASITOLOGÍA MÉDICA 2ª Edición Prats, G. Editorial Médica Panamericana, 2023

- MIMS MEDICAL MICROBIOLOGY AND IMMUNOLOGY. 7ª ED. Goering, R.V., Dockrell, H.M., Zuckerman, M. , Roitt, I.M., Chiodini, P.L. Editorial Elsevier, 2024