



Information about the subject

Degree: Bachelor of Science Degree in Medicine

Faculty: Faculty of Medicine and Health Sciences

Code: 340201 **Name:** General and Special Pharmacology

Credits: 9,00 **ECTS Year:** 3 **Semester:** 1/2

Module: Diagnostic and therapeutical procedures.

Subject Matter: Therapeutic procedure **Type:** Compulsory

Field of knowledge: Health Science

Department: Biomedical Sciences

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Diagnostic and therapeutical procedures.

Subject Matter	ECTS	Subject	ECTS	Year/semester
Diagnostic procedures	39,00	Basic Immunology	3,00	1/2
		Functional Assessment	6,00	This elective is not offered in the academic year 25/26
		Genetics	3,00	1/1
		Introduction to Medicine	3,00	1/2
		Laboratory of Diagnostic Tests	3,00	5/1
		Medical Microbiology and Parasitology	6,00	3/1
		Pathological Anatomy	6,00	2/2
		Physiological Records and Functional Tests	3,00	2/2
		Radiodiagnostic and Imaging Techniques	6,00	3/1
Therapeutic procedure	27,00	Anaesthesia and Resuscitation	3,00	5/1
		Biotechnology	6,00	This elective is not offered in the academic year 25/26
		General and Special Pharmacology	9,00	3/2



Therapeutic
procedure

General Procedures of
Intervention

6,00

This elective is not
offered in the
academic year
25/26

Rehabilitation and
Physical Therapy

3,00

4/2

Recommended knowledge

Not required



Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

- R1 Assess the risk/benefit ratio of diagnostic and therapeutic procedures.
- R2 Know the main groups of drugs, dosages, routes of administration and pharmacokinetics. Interactions and adverse effects.
- R3 Prescription and drug surveillance.
- R4 Pharmacology of the different devices and systems.
- R5 Analgesic, antineoplastic, antimicrobial and anti-inflammatory drugs.
- R6 Know the general principles of anesthesia and resuscitation. Nutrition and diet therapy. Know the main indications of electrophysiological techniques (ECG, EEG, EMG, and others).
- R7 Know the pathophysiology of wounds (including burns, frostbites and other types of wounds). Healing. Surgical hemorrhage and thromboembolic prophylaxis.
- R8 Know general surgical indications, preoperative risk and postoperative complications.
- R9 Know the possibilities of pharmacological and non-pharmacological management of acute and chronic pain
- R10 Perform some of the most common joint and periarticular infiltrations



Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB1	Students have demonstrated to possess and understand knowledge in a study area that starts from the base of the general secondary education, and is usually found at a level that, while supported by advanced textbooks, also includes some aspects that involve knowledge from the forefront of their field of study		X		
CB2	Students know how to apply their knowledge to their job or vocation in a professional way and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study				X
CB3	Students have the ability to collect and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical topics			X	
CB4	Students can pass on information, ideas, problems and solutions to both a specialized and non-specialized audience			X	
CB5	Students have developed the learning skills needed to undertake further studies with a high degree of autonomy			X	
GENERAL		Weighting			
		1	2	3	4
CG1	Recognizing the essential elements of the medical profession, including ethical principles, legal responsibilities, and patient-centered professional exercise			X	
CG2	Understanding the importance of such principles for the benefit of the patient, society and profession, with special attention to professional secrecy		X		
CG3	Knowing how to apply the principle of social justice to professional practice and understanding the ethical implications of health in a changing global context			X	



CG4	Developing professional practice with respect to patient autonomy, beliefs and culture				X
CG5	Recognizing the limitations themselves and the need to maintain and update their professional competence, giving special importance to the autonomous learning of new knowledge and techniques and to the motivation for quality				X
CG6	Developing professional practice with respect for other health professionals, acquiring teamwork skills				X
CG12	Understanding the basis of action, indications and efficacy of therapeutic interventions, based on available scientific evidence				X
CG18	Indicating the most appropriate therapeutics of the most prevalent and chronic acute processes, as well as terminally ill patients				X
CG21	Listening to carefully, obtain and synthesize relevant information about the problems afflicting the patient and understand the content of this information	X			
CG22	Writing medical histories and other medical records in an understandable way to outsiders	X			
CG23	Communicating effectively and clearly, both orally and in writing, with patients, family members, media workers and other professionals		X		
CG30	Basic knowledge of the National Health System and health legislation	X			
CG31	Knowing, critically valuing and knowing how to use the sources of clinical and biomedical information to obtain, organize, interpret and communicate scientific and health information				X
CG32	Knowing how to use information and communication technologies in clinical, therapeutic, preventive and research activities				X
CG33	Maintaining and using records with patient information for further analysis, preserving data confidentiality		X		
CG35	Understanding the importance and limitations of scientific thinking in the study, prevention and management of diseases				X
SPECIFIC		Weighting			
		1	2	3	4
CE71	Knowing the general principles of anesthesia and resuscitation. Nutrition and dietotherapy			X	



CE72	Knowing the main indications of electrophysiological techniques (ECG, EEG, EMG, and others)	X			
CE74	Knowing general surgical indications, preoperative risk and postoperative complications. Transfusions and transplants	X			
CE75	Know the principles and indications of radiotherapy	X			
CE76	Knowing the basics of rehabilitation, the promotion of personal autonomy, the functional adaptation of the environment, and other physical procedures in morbidity, for the improvement of the quality of life	X			
CE78	Knowing how to interpret the results of the laboratory's diagnostic tests	X			
CE79	Managing disinfection and sterilization techniques	X			
CE80	Knowing how to interpret a radiological image by systematic reading	X			
CE81	Knowing how to use different kind of drugs properly				X
CE82	Knowing how to make and interpret an ECG and EEG	X			
CE83	Correctly writing prescriptions, adapted to each patient's situation and legal requirements			X	
CE84	Assessing nutritional status and develop a diet appropriate to different circumstances	X			
CE85	Practicing elementary surgical procedures: cleaning, hemostatics and wound suture	X			
TRANSVERSAL		Weighting			
		1	2	3	4
CT1	Analytical and synthesis capacity		X		
CT2	Planification and organization capacity			X	
CT6	Manage information capacity			X	
CT7	Solving problems			X	



CT8	Making decisions				X
CT9	Team work			X	
CT10	Interdisciplinary team work				X
CT12	Interpersonal relationship skills			X	
CT14	Critical reasoning			X	
CT16	Individual learning			X	
CT18	Creativity	X			
CT19	Leadership	X			
CT24	Ability to take responsibility			X	
CT25	Autocriticism capacity			X	
CT26	Knowing how to value personal action and know your own skills and limitations			X	
CT27	Ability to express one's feelings		X		
CT28	Show sensitivity to humanity's problems				X



Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4	20,00%	Open questions
R1, R2	60,00%	Tests
R1	5,00%	Participation in class
R5, R6, R7	15,00%	Practice exam

Observations

To pass the subject the student must meet the following requirements:

1.- First partial elimination that will be made at the end of the first semester of the course and that will cover approximately 60% of the topics included in the theoretical program of the subject. The exam will be passed with a grade equal to or greater than 5.

2.- Second partial to be made at the end of the second semester of the course. It will cover approximately 40% of the topics included in the theoretical program of the subject.

The student who has approved the first partial shall only examine, at the end of the second semester, the subject matter corresponding to the second part. If you were suspenseful, the entire subject of the subject will be examined. The average of both grades will represent 85% of the grade of the subject. If the student suspends the subject in 1st call and has the first partial approved (> 5), it will be presented in the 2nd call only to the second partial. If the student was examined of the entire subject of the subject in 1st call and suspends, the whole subject is examined in 2nd call. 3.- The practical review will cover the topics covered in the seminars to be given during the first semester of the course, "Introduction to Pharmacokinetics" and "Pharmaceutical Forms and Routes of Administration". It will be performed together with the first elimination partial and will represent 10% of the grade of the subject. The student who suspends this exam must re-take it in the 1st call, at the end of the second semester. If you approve, you will have the opportunity to re-perform it and the best grade of the two obtained will be counted. In the 2nd call the student will be eligible for a third chance, either to overcome it or to improve the previously obtained qualifications, considering for its posting, the highest of the three.

4.- Assistance and participation; 5% of the subject's grade. It corresponds to the attendance record of the students and the participation in activities developed in the classroom or through platform.

5.- The final grade of the subject, both in 1st and 2nd call, will be the average among the scores obtained in: First partial (51%) + Second partial (34%) + Practical Examination (10%) +



Assistance and participation (5%). In order to average the notes of the two partials it will be essential to have obtained in both a > 4 .

For students belonging to second or successive enrolments: The evaluation, both in 1st and 2nd call, will correspond to the sum of the following tests: First partial (51%) + Second partial (34%) + Practical Examination (15%). It will be essential, in order to average all grades, that neither partial has a rating of less than 4.

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "**Matrícula de Honor**" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

MENTION OF DISTINCTION:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 Masterclass



M2	Problems resolution and practical cases
M4	Content presentations by teacher
M5	Knowledges and skills explanation
M6	Laboratory practices
M7	Oral presentation by student
M8	Group activities supervised by professor
M9	Knowledge acquirance through student interaction and activity
M11	Personalised attention by professor
M12	Tests to understand the level of knowledge acquirance and skills
M13	Written work
M14	Online activity on e-learning
M15	Personal study
M16	Information research
M17	Discussion and solving issues in group
M21	Supervision of clinical histories



IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theory class M1, M5	R1, R2, R3	84,50	3,38
Seminar and group practices M2, M4, M6, M8	R1, R5, R6, R7	15,00	0,60
Practices in small groups M2, M4, M8, M9, M11, M16, M17	R1, R2	5,00	0,20
Tutoring M5, M11	R1	7,50	0,30
Evaluation M12, M15	R1, R2, R3, R9	2,00	0,08
TOTAL		114,00	4,56

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
No attendance M15, M16	R1, R2, R3, R7	111,00	4,44
TOTAL		111,00	4,44



Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
UNIT II.- PHARMACOLOGY OF THE AUTONOMOUS NERVOUS SYSTEM	<ul style="list-style-type: none">7. General pharmacology of the autonomic nervous system.8. Adrenergic transmission. Adrenergic agonist and antagonist drugs.9. Cholinergic transmission. Cholinergic agonist and antagonist dr10. Neuromuscular and ganglion blocking drugs.
UNIT I.- GENERAL PHARMACOLOGY	<ul style="list-style-type: none">1. Introduction to the study of pharmacology. Concept and objectives.2. General mechanisms of action of drugs. Drug-receptor interaction.3. ADME process: Absorption, Distribution, Metabolism and elimination of drugs.4. Drug administration guidelines. Physiological and pathological factors that determine the response to drugs.5. Routes of administration of drugs.6. Adverse drug reactions. Drug interactions
UNIT VII.- PHARMACOLOGY OF INFLAMMATION AND PAIN	<ul style="list-style-type: none">30. Pharmacology related to cellular mediators, histamine, serotonin, eicosanoids and peptide in nature.31. NSAIDs.32. Opioid pain relievers.33. Rheumatic disease modifying drugs: antiarthritic drugs.



UNIT X.- PHARMACOLOGY OF INFECTIOUS PROCESSES

- 37.- Anti-infective drugs: general principles and mechanisms of antibacterial action. Bacterial resistance to antibiotics.
- 38. β -lactam antibiotics: penicillins, cephalosporins and others.
- 39. Aminoglycosides, glycopeptides and oxazolidinones.
- 40. Tetracyclines, phenicols and lincosamides.
- 41. Macrolides.
- 42. Quinolones. Sulfamides. Other urinary antiseptics.
- 43. Pharmacology of mycobacterial infections.
- 44. Antifungal drugs.
- 45. Antiviral drugs.
- 46. Antiparasitics: antiprotozoa and anthelmintics.

UNIT V.- PHARMACOLOGY OF THE RESPIRATORY SYSTEM

- 23. Bronchodilator and antiasthmatic drugs. Antitussive, mucolytic and expectorant drugs

UNIT VIII.- PHARMACOLOGY OF THE CARDIOVASCULAR SYSTEM

- 34. Pharmacology of heart failure.
- 35. Antihypertensive drugs. Diuretic drugs.
- 36. Antianginal drugs.
- 37. Antiarrhythmic drugs.
- 38. Pharmacology of vascular insufficiency.
- 39. Lipid-lowering drugs.
- 40. Pharmacology of hemostasis.

UNIT VI.- PHARMACOLOGY OF THE DIGESTIVE APPARATUS

- 24. Pharmacology of gastrointestinal function

UNIT IV.- PHARMACOLOGY RELATED TO HORMONES AND METABOLISM

- 18.-Hormonas hipofisarias e hipotalámicas.
- 19.-Hormonas tiroideas y fármacos antitiroideos. Homeostasia del calcio.
- 20.-Hormonas sexuales: estrógenos, andrógenos, gestágenos y anticonceptivos hormonales.
- 21.-Insulina e hipoglucemiantes orales. Glucagón.
- 22.-Hormonas suprarrenales. Esteroides corticales



UNIT III.- PHARMACOLOGY OF THE CENTRAL NERVOUS SYSTEM

11. Neurotransmission in the Central Nervous System.
12. Pharmacology of anxiety and insomnia. Anxiolytic, hypnotic and sedative drugs.
13. Antidepressant, antimanic, and neuroleptic antipsychotic drugs.
14. Antiparkinsonian and antispastic drugs.
15. Antiepileptic and anticonvulsant drugs.
16. Pharmacology of dementia and abnormal behaviors. Alzheimer's.
17. General and local anesthetic drugs



Temporary organization of learning:

Block of content	Number of sessions	Hours
UNIT II.- PHARMACOLOGY OF THE AUTONOMOUS NERVOUS SYSTEM	8,00	16,00
UNIT I.- GENERAL PHARMACOLOGY	5,00	10,00
UNIT VII.- PHARMACOLOGY OF INFLAMMATION AND PAIN	8,00	16,00
UNIT X.- PHARMACOLOGY OF INFECTIOUS PROCESSES	6,00	12,00
UNIT V.- PHARMACOLOGY OF THE RESPIRATORY SYSTEM	1,00	2,00
UNIT VIII.- PHARMACOLOGY OF THE CARDIOVASCULAR SYSTEM	3,00	6,00
UNIT VI.- PHARMACOLOGY OF THE DIGESTIVE APPARATUS	7,00	14,00
UNIT IV.- PHARMACOLOGY RELATED TO HORMONES AND METABOLISM	10,00	20,00
UNIT III.- PHARMACOLOGY OF THE CENTRAL NERVOUS SYSTEM	9,00	18,00



References

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3. Lorenzo, P., Moreno, A. Leza, J.C., Lizasoain, I., Moro, M.A., Portolés, A. VELÁZQUEZ. FARMACOLOGÍA BÁSICA Y CLÍNICA. 19ªEd. Medica Panamericana. Madrid 2018.
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7. Rang & Dale. FLASHCARDS DE FARMACOLOGÍA. 2ª Ed. Elsevier. 2021.
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11. Olsen, J.L., Giangrosso, A.P., Shrimpton, D. MEDICAL DOSAGE CALCULATIONS. 11TH Ed. Pearson Education. 2014.
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BIBLIOGRAFIA COMPLEMENTARIA

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2. Buckingham, R. MARTINDALE. THE COMPLETE DRUG REFERENCE. 40TH Ed. Pharmaceutical Press. 2020.
3. Brunton, L.L., Hildal-Dandan, R., Knollmann, B. GOODMAN & GILMAN: LAS BASES FARMACOLÓGICAS DE LA TERAPÉUTICA. 13ªEd. McGraw-Hill Interamericana. 2019.
4. Birkett, D.J. FARMACOCINÉTICA FÁCIL. 1ª Ed. McGraw-Hill. 2005. ISBN: 978-8448198046



Addendum to the Course Guide of the Subject

Due to the exceptional situation caused by the health crisis of the COVID-19 and taking into account the security measures related to the development of the educational activity in the Higher Education Institution teaching area, the following changes have been made in the guide of the subject to ensure that Students achieve their learning outcomes of the Subject.

Situation 1: Teaching without limited capacity (when the number of enrolled students is lower than the allowed capacity in classroom, according to the security measures taken).

In this case, no changes are made in the guide of the subject.

Situation 2: Teaching with limited capacity (when the number of enrolled students is higher than the allowed capacity in classroom, according to the security measures taken).

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject will be made through a simultaneous teaching method combining onsite teaching in the classroom and synchronous online teaching. Students will be able to attend classes onsite or to attend them online through the telematic tools provided by the university (videoconferences). In any case, students who attend classes onsite and who attend them by videoconference will rotate periodically.

In the particular case of this subject, these videoconferences will be made through:

☒ Microsoft Teams

☐ Kaltura



Situation 3: Confinement due to a new State of Alarm.

In this case, the following changes are made:

1. Educational Activities of Onsite Work:

All the foreseen activities to be developed in the classroom as indicated in this field of the guide of the subject, as well as the group and personalized tutoring, will be done with the telematic tools provided by the University, through:

☒ Microsoft Teams

☐ Kaltura

Explanation about the practical sessions:



2. System for Assessing the Acquisition of the competences and Assessment System

ONSITE WORK

Regarding the Assessment Tools:

☒ The Assessment Tools will not be modified. If onsite assessment is not possible, it will be done online through the UCVnet Campus.

☐ The following changes will be made to adapt the subject's assessment to the online teaching.

Course guide		Adaptation	
Assessment tool	Allocated percentage	Description of the suggested changes	Platform to be used

The other Assessment Tools will not be modified with regards to what is indicated in the Course Guide.

Comments to the Assessment System: