COURSE DATA

DATA SUBJECT

Code: 34465
Name: General pharmacology of organs and systems
Cycle: Undergraduate Studies
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Facultat de Medicina i Odontologia	3	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1204 - Degree in Medicine	Diagnostic and therapeutic procedures	COMPULSORY

COORDINATION

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SUMMARY

Pharmacology is the science in which properties and effects of drugs and their interaction with living beings are studied. It is a branch of medicine focused on its therapeutic, preventive and diagnostic usage for the human being.

The objective of this subject is the development of knowledge, working capacity and communicative skills in the area of analysis of the updated information in all different aspects of pharmacological therapeutics. The incorporation of new information and communication technologies and literature search will contribute to such objectives.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

In order to course this subject, it is advisable that the student passes the knowledge of human anatomy, biology, biochemistry and physiology.

COMPETENCES / LEARNING OUTCOMES

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Acknowledge diversity and multiculturality.

Acquire properclinical experience in hospitals, health care centres and other health institutions, under supervision, as well as basic knowledge of clinical management focused on the patient and the correct use of tests, medicines and other resources available in the health care system.

Be able to formulate hypothesis, gather information and evaluate it critically in order to solve problems by following the scientific method.

Capacity for communicating with professional circles from other domains.

Compiles medical prescriptions correctly, adapted to the patients situation and legal requirements.

Consideration of ethics as a fundamental value in the professional practise.

Criticism and self-criticism skills.

Establish a good interpersonal communication which may allow professionals show empathy and talk to the patients efficiently,as well as to their relatives, the media and other professionals.

Establish the diagnosis, prognosis and treatment, applying principles based on the bestinformation available and on conditions of clinical safety.

Indicate the most accurate therapy in acute and chronic processes prevailing, as well as for terminally ill patients.

In the professional practise, take a point of view which is critical, creative, constructive and research-oriented.

Keep and use medical records which contain information about the patient for later analysis, preserving the confidentiality of personal data.

Know how to use IT in clinical, therapeutic and preventive activities, and those of research.

Know how to use the sources of clinical and biomedical information available, and value them critically in order to obtain, organise, interpret and communicate scientific and sanitary information.

Knows how to use medicines properly. Analgesic, antineoplastic, antimicrobial and anti-inflammatory drugs.

Knows pharmacology of various organs and systems.

Knows the main groups of drugs, doses, routes of administration and pharmacokinetics. Interactions and adverse effects.

Proper organisation and planning of the workload and timing in professional activities.

Team-working skills and engaging with other people in the same line of work or different.

Understands the characteristics of surgical haemorrhage and thromboembolic prophylaxis.

Understand the importance and the limitations of scientific thinking in the study, prevention and management of diseases.

Working capacity to function in an international context.

DESCRIPTION OF CONTENTS

1. THEORETICAL THEMATIC UNITS

1. Introduction to Pharmacology. Terminology. Basic concepts.
2. Pharmacokinetics. LADME processes. Influence of specific circumstances (illness, age, and gender).
3. Pharmacodynamics. Mechanism of action of drugs. Pharmacological interactions. Adverse reactions. Influence of specific circumstances (illness, age, and gender).
4. Pharmacology of the peripheral nervous system: Cholinergic and adrenergic systems.
5. Pharmacology of the central nervous system: Antidepressants. Anxiolytics and sedatives. Antiepileptics and anticonvulsants. Antipsychotics. Pharmacology of Parkinson's disease and other neurodegenerative disorders.
6. Opioids and anesthetics.
7. Nonsteroidal anti-inflammatory drugs. Glucocorticoids. Antihistaminics.
   8. Immunomodulatory drugs.
8. Pharmacology of the cardiovascular and renal systems: Treatment of heart failure. Antihypertensives. Antianginal agents. Antiarrhythmics.
9. Pharmacology of the blood: Hematopoiesis. Coagulation. Lipidemia. Uremia.
10. Pharmacology of the respiratory system.
11. Pharmacology of the digestive system: Antisecretory drugs. Antidiarrheal agents. Laxatives. Prokinetics. Antiemetics.
12. Pharmacology of the endocrine system: Pancreas. Thyroid. Gonads.
13. Hypothalamus-pituitary axis. Hormonal regulation of calcium and phosphorus.
14. Anti-infective pharmacology: Antibacterial agents. Antifungal drugs. Antiparasitic agents. Antiviral drugs. Antiseptics.
15. Antineoplastics.

2. SEMINARS

1. Integrated study of pharmacological possibilities against CNS disorders.
2. Integrated study of the pharmacological possibilities against inflammatory and/or immune

disorders.
3. Integrated study of the pharmacological possibilities against disorders of the cardiovascular system.
4. Integrated study of the pharmacological possibilities against metabolic disorders.

3. LABORATORY PRACTICES.

1. Analysis of the plasma level curve and the main pharmacokinetic parameters.
2. Design and analysis of dosage patterns.
3. Study of routes of administration / pharmaceutical forms.
4. Study of the drug-receptor interaction. Dose-response curve analysis.
5. Scientific approach to the study of drugs modulating nerve transmission.
6. Scientific approach to the study of anti-inflammatory and/or immunomodulatory drugs.
7. Scientific approach to the study of drugs modulating cardiovascular function.
8. Scientific approach to the study of anti-infective drugs.
9. Analysis and discussion of the pharmacology of other organic systems.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	19,00
Seminar	7,00
Laboratory	30,00
Total hours	**56,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	16,25
Independent study and work	20,00
Preparation of lessons	5,00
Preparation for assessment activities	15,00
Resolution of case studies	0,00
Total hours	**56,25**

TEACHING METHODOLOGY

- **Theoretical Lessons** (15 Thematic Units). The theoretical content will be taught of the different parts of the subject that can be complemented by audiovisual media, adapted for the subject.

- **Seminar** Practical Lessons (4 Thematic Units) about different theoretical aspects related with the use of drugs in the medical practice.
- **Laboratory Practical** Lessons (15 Thematic Units). These units are attending and with reduced groups, taught in the teaching laboratory where, individually, different experimental situations are recreated, which visualize the effects of the different pharmacological groups over different organs and tissues (pharmaco-dynamics). Likewise, different kinetic problems are studied, which appear during the application of the pharmacological treatments (pharmaco-kinetics). Other aspect which is taught in the practical lessons is the study of the action of different pharmacological treatments that are applied to different concrete clinical situations (clinical indication).

The gender perspective, the respect for diversity, and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.

EVALUATION

The grade comes from the sum of the scores obtained in the following activities:

Theoretical evaluation: It will be carried out through a final written test composed of 50 multiple choic four possible answers. Each correct answer will add 1 point, each incorrect answer will subtract 0.25 answers will not score. The maximum grade will be 50 points and a minimum of 25 points will be req subject.

Practical evaluation: A final written test will be carried out that will include pharmacological problems cases, whose maximum score will be 30 points and a minimum of 15 points will be required to pass remaining 20 points will come from continuous evaluation activities proposed in the practical sessions.

Attendance at practical activities is mandatory. The student is considered to meet this requirement attended a minimum of 80% of these activities and has adequately justified the impossibility of attendi sessions due to the occurrence of a cause of force majeure. It will be essential to comply with this require subject.

Students are reminded of the importance of carrying out evaluation surveys on all the teaching sta subjects.

REFERENCES

- Goodmann and Gilman (2023). Las bases farmacológicas de la terapéutica 14th ed. McGraw-Hill Education/Medical.
- Rang y Dale (2024). Farmacología. 10ª ed. Elsevier.
- Katzung, B.G. (2024). Farmacología básica y clínica ed. 16 McGraw-Hill LANGE.
- Velázquez. (2025). Farmacología Básica y Clínica 20ª ed. Madrid. Editorial Médica Panamericana.
- Florez J. (2025). Farmacología Humana, 7ª ed., Elsevier España.
- Golan DE. (2017) Principios de farmacología. Bases fisiopatológicas del tratamiento farmacológico. 4ª ed. Lippincott Castellano.
- Dipiro JT. Pharmacotherapy. A pathophysiologic approach. 12th ed. (2023) McGraw-Hill Education/Medical.
- RECURSOS e-Salut:
    - ClinicalKey Student Medicina, Odontologia y Enfermería [https://uv-es.libguides.com/RecursosSalut]
    - Acces Medicina [https://uv-es.libguides.com/Access_Medicina]
    - Médica Panamericana [https://uv-es.libguides.com/Medica_Panamericana]