

**COURSE DATA****Data Subject**

<b>Code</b>	34097
<b>Name</b>	Pharmacotherapy
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	4.5
<b>Academic year</b>	2023 - 2024

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1201 - Degree in Pharmacy	Faculty of Pharmacy and Food Sciences	5	First term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1201 - Degree in Pharmacy	30 - Pharmacotherapy	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
NOGUERA ROMERO, MARIA ANTONIA	135 - Pharmacology

**SUMMARY**

This subject is designed to give students an overview of how to apply principles of rational drug use in clinical practice. This is a very practical course that will enable students to become familiar with using the drug in the pharmaceutical environment, so it is a practical complement to the training acquired in the different core subjects included in the pharmacological sciences.

**Objectives:**

- To know the appropriate use of medicines in clinical practice.
- To develop the skills necessary to perform an efficient resource management in the health care pharmacotherapy.



## 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 studied the subjects: Pathophysiology, Biochemistry, Pharmacology and Biopharmaceutics and Pharmacokinetics.

## COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

### 1201 - Degree in Pharmacy

- To know how interpret, value and communicate relevant data in the different aspects of pharmaceutical activity, making use of information and communication technologies.
- Skill to communicate ideas, analyze problems and solve them with a critical mind, achieving team-working abilities and assuming leadership whenever required.
- Development of skills to update their knowledge and undertake further studies, including pharmaceutical specialization, scientific research and technological development, and teaching.
- Know how to apply the scientific method and acquire skills in the management of legislation, information sources, bibliography, elaboration of protocols and other aspects that are considered necessary for the design and critical evaluation of preclinical and clinical trials.
- To promote the rational use of medicines and health products
- To develop communication and information skills, both oral and written, to deal with patients and other health professionals in the center where they carry out their professional activity. To promote the capacity of work and collaboration in multidisciplinary teams and those related to other health professionals.
- To recognize personal limitations and the need to keep up to date professional competence, paying particular attention to the self-learning of new knowledge based on available scientific evidences.
- Ability to convey ideas, problems and solutions
- To apply knowledge in clinical situations to issue therapeutic advice and participate in decision making in the hospital, community and home care.
- To know the pharmacotherapy most appropriate to each clinical situation and that can be applied with the maximum scientific evidence, applying the guided clinics.
- To know how to locate and evaluate clinical drug data to provide adequate information to both health professionals and patients.
- To know how to register the service of the pharmacist, with the purpose of guaranteeing the effective and safe use of medicines.



- To acquire the ability to detect and resolve the lack of information presented by the patient regarding health problems and / or drug use.

## **LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)**

- Acquisition of basic knowledge and understanding of pharmacotherapy and rational use of medicines.
- Implementation of pharmacotherapeutic knowledge to clinical situations in hospitals, community and geriatric care.
- Solving practical problems of Drug Therapy.
- Data management and interpretation of results derived from pharmacological research.
- Application in a given patient, the principles of Quality Drug Therapy.
- Critical analysis of the sources of drug information.
- Management and interpretation of clinical guidelines.
- Communication and pharmacotherapy information to patients and other health professionals.

Ability to work in multidisciplinary teams focused on the selection of drugs and/ or development of pharmacotherapeutic guides.

## **DESCRIPTION OF CONTENTS**

### **1. Basic Principles of Pharmacotherapy**

- Chapter 1. Introduction. Background. Bioethics.
- Chapter 2. Rational drug use.
- Chapter 3. Sociological aspects of drug use.
- Chapter 4. Evidence-Based Medicine. Information and drug selection.
- Chapter 5. Pharmacotherapeutic guidelines. Clinical Practice Guidelines

### **2. Pharmacotherapeutic strategies**

- Seminar 1. Pharmacotherapeutic strategies for inflammatory and painful processes.
- Seminar 2. Pharmacotherapy of respiratory diseases.
- Seminar 3. Pharmacotherapy of gastrointestinal problems.
- Seminar 4. Pharmacotherapy of obesity and diabetes.
- Seminar 5. Pharmacotherapy of cardiovascular disorders.
- Seminar 6. Pharmacotherapy for thyroid disorders.
- Seminar 7. Pharmacotherapy of osteoporosis and other hormonal changes.
- Seminar 8. Drug therapy of neurodegenerative and motors disorders.
- Seminar 9. Pharmacotherapy of behavioral disturbances and sleep disorders.
- Seminar 10. Recommendations for the use of anti-infectives.

**3. Tools to interpret pharmacotherapeutic strategies**

Practice 1. Critical reading of information on drugs.

Practice 2. Interpretation of clinical guidelines for different diseases.

Practice 3. Criteria for the development of pharmacotherapeutic guidelines.

Practice 4. Case Studies

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Seminars	25,00	100
Computer classroom practice	9,00	100
Theory classes	5,00	100
Tutorials	2,00	100
Development of group work	10,00	0
Study and independent work	10,00	0
Readings supplementary material	5,00	0
Preparation of evaluation activities	10,00	0
Preparing lectures	5,00	0
Preparation of practical classes and problem	7,50	0
Resolution of case studies	20,00	0
<b>TOTAL</b>	<b>108,50</b>	

**TEACHING METHODOLOGY**

**Lectures** (Thematic unit I). To obtain the basic knowledge of Therapy and Rational Use of Medicines (Skills: 1, 7, 9-11). Dogmatic method is used in combination with heuristic method for the presentation of the fundamental concepts and the relevant contents of the course, using audiovisual equipment to develop them. Previous to the lectures teachers will provide students the bibliographic information and audiovisual material in the teaching support platform "Aula Virtual". There will be a total of 5 one-hour sessions.

**Seminars clinical care problems** (thematic unit II). We apply the method of "problem-based learning" in the pharmacotherapy teaching oriented to professional activity of pharmacists in the field of pharmaceutical care (Skills: 1-12). The student has the educational material provided by the teacher in the Platform "Aula Virtual" (Pharmacotherapy of different pathologies and clinical guidelines). Different problems / case studies, representative of the pharmacotherapy of various diseases described in the syllabus, are proposed to be solved by students and then discussed in classroom sessions under teacher supervision, which will imply active student participation. A total of 25 one-hour sessions will be carried out.



**Practical classes in computer classroom** (Thematic unit III) in which students undertake a study on drug use in clinical practice. The study will be performed by students in groups of 5-6, through surveys of drug use, analysis and evaluation of pharmacotherapeutic data from these surveys and oral presentation of the work at the end of practice. (Skills: 1-12). In total there were 3 sessions of 3 hours.

**Tutorials:** The tutorials are organized in reduced student groups according to the established calendar. In them the teacher may ask individually or collectively specific questions, which will be more complex than the ones solved in normal seminars, according to the students' needs. Moreover, the tutorials will help solve any doubts derived from the theory classes and will assess students on strategies to overcome any difficulty that may appear. A total of 2 one-hour sessions will be carried out.

It is noteworthy that the competencies and learning outcomes to be achieved in this subject, as well as the teaching methodology used, especially in seminars and practicals, are part of the Sustainable Development Goals (SDGs) promoted by the United Nations (Agenda 2030). Among them, it is important to highlight the Rational Drug and the promotion of Community Health (Objective 3: Health and Well-being) and Quality Education (Objective 4).

## EVALUATION

In the students' learning evaluation all the aspects exposed in the teaching methodology section of this guide will be taken into account:

**20% of the mark:** will come from the evaluation of the questions realized during the development of the seminars.

**20% of the mark:** will come from the mark of the practical sessions. It will assess through questionnaires completed during the practical sessions and the presentation of the final report. If the student does not pass the exam, this mark will only be kept until the following year.

**15% of the mark:** will come from the continuous assessment based on the resolution of questions individually in the classroom (10%) and evaluation of tutorials (5%).

**45% of the mark:** will come from the final exam, which includes:

- Test objective based on short questions or multiple response (10%)
- Analysis and resolution of a problem of pharmacotherapy (35%)

In order to pass the subject it is necessary to have done and passed the practical sessions and the theoretical exam.



## REFERENCES

### Basic

- Baños J, Farré M. Principios de Farmacología Clínica.. Masson, 2002
- Baxter k. Stockley. Interacciones farmacológicas. Pharma ed. 2007
- Belon JP. Consejos en la farmacia., Masson, 2002
- Bertrand P, Agostinucci JM, Aimeur A, Atención primaria en la oficina de farmacia. Ars Galenica. 2002
- Brunton LL, Lazo JS, Parker KL, G, Goodman & Gilman- Las bases Farmacológicas de la Terapéutica. 13ª ed., Mc Graw-Hill Interamericana, 2019.
- Katzung B.G. Farmacología básica y clínica. 13ª ed. McGraw, 2016
- Florez J (editor). Farmacología humana 6ª ed Elsevier Masson, 2013
- Herrera J. Manual de Farmacia Clínica y Atención Farmacéutica. Elsevier. 2003.
- López AC, Moreno L, Villagrasa V. Manual de Farmacología. Guía para el uso racional del medicamento. Elsevier. 2010
- Lorenzo P y cols. Velásquez-Farmacología Básica y Clínica. 19ª ed. Med. Panamericana 2018
- Golan DE y cols. Principios de Farmacología: Bases fisiopatológicas del tratamiento farmacológico. 4ª ed. Wolters Kluwer 2017
- Rang HP, Dale MM, Ritter JM. Farmacología. 9ª ed., Elsevier, 2019.
- Rodes J. Manual de Terapéutica Médica. Masson. 2002
- Brenner and Stevens, Farmacología Básica. 5ª ed. Elsevier 2019
- Waldman S, Terzic A. Farmacología y terapéutica: principios para la práctica. Manual Moderno, 2010

### Additional

- Catálogo de especialidades farmacéuticas. Consejo General de Colegios Oficiales de Farmacéuticos. 2014
- Medimecum 2009: Guía de terapia farmacológica. 14ª ed. Adis, 2009
- The Merck Index. 14ª ed. Mosby
- Manual Merck de Diagnóstico y Terapéutica 16ª edición, Elsevier, 2006
- Guía de la Buena Prescripción. OMS, 1998
- Guía terapéutica en Atención Primaria. 3ª ed. SEMFYC, 2007
- Annual Review of Pharmacology and Toxicology (Journal)



- Agencia Española del Medicamento y Productos Sanitarios. <https://www.aemps.gob.es/>
- Base de Datos PubMed. U.S. National Library of Medicine and the National Institutes of Health. <https://pubmed.ncbi.nlm.nih.gov/>
- Fundació Institut Català de Farmacologia  
<https://portal.guiasalud.es/>
- Cochrane Library. Biblioteca Cochrane Plus [www.cochrane.org](http://www.cochrane.org)