

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

Code	33965
Name	Pharmacology
Cycle	Grade
ECTS Credits	4.5
Academic year	2018 - 2019

Study (s)

Degree	Center	Acad. Period
1205 - Degree in Human Nutrition and Dietetics	Faculty of Pharmacy and Food Sciences	4 First term

Subject-matter

Degree	Subject-matter	Character
1205 - Degree in Human Nutrition and Dietetics	24 - Pharmacology	Obligatory

Coordination

Name	Department
MAÑEZ ALIÑO, SALVADOR	135 - Pharmacology
NOGUERA ROMERO, MARIA ANTONIA	135 - Pharmacology

SUMMARY

Pharmacology is an important subject in the training of future graduates in Human Nutrition and Dietetics. Pharmacology is the science that studies the actions and properties of drugs in live organisms, understanding the term "drug" as any chemical used in the treatment, prevention or diagnosis of a disease, or to avoid the appearance of unwanted physiological process.

The contents of the subject Pharmacology in the Degree in Human Nutrition and Dietetics collect general aspects of pharmacokinetics, pharmacodynamics and pharmacotherapy. In addition, the general principles of drug action are established for better understanding how the drugs work according to the organs and physiological systems in which they operate. We further learn the fundamental aspects for the future nutritionist: The main groups used in diseases that require adequate dietary advice for control and pharmacological groups that can influence nutritional status. We also study the influence of nutritional status in drug response and potential drug-food interactions.



In the current curriculum this subject is in the fourth year of the Bachelor's Degree and has 4.5 credits. it is actually placed in the first semester of the academic year and is mandatory.

The credits are distributed as follows: 35 h devoted to issues of theory (four days a week), 3 hours of practical classes in the computer lab (in one session), 2 hours of seminars, 2 hours of group tutorials and 2 hours for the examination of the theory. It can also be scheduled on line activities for the realization of self-correcting quizzes or resolution of problems on the virtual platform.

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 reach a proper learning and achieve the competencies derived from the subject of Pharmacology, students must have acquired knowledge of Physiology and Biochemistry, which are necessary to understand the actions of drugs and their therapeutic effects.

OUTCOMES

1205 - Degree in Human Nutrition and Dietetics

- Capacidad para localizar y sintetizar la información y realizar una exposición oral con el empleo de las TIC.
- Capacidad para analizar problemas y resolverlos con espíritu crítico colaborando con otros profesionales sanitarios en el consejo al paciente medicalizado.
- Saber realizar búsquedas bibliográficas en bases de datos de medicamentos comprendiendo la terminología científica.
- Learn basic concepts of pharmacology (pharmacokinetic and pharmacodynamic aspects).
- Know the pharmacological action of the therapeutic groups and relate them to their effects, indications and adverse reactions.
- Determine the influence of the nutritional status on the pharmacological response, drug-food interactions and their clinical significance.

LEARNING OUTCOMES

Knowledge of the physico-chemical characteristics of the drugs and understanding of the influence of the human body on them.



Knowledge and understanding of general principles of the mechanism of action of drugs, basis of drug interactions and adverse reactions.

Express themselves with rigor and pharmacological terminology and adequately addressing both the patient and other healthcare professional.

Acquisition of skills in search of information about drugs and in critically evaluate this information in order to provide objective and contrasted information both healthcare professionals and patients, with the use of new technologies.

DESCRIPTION OF CONTENTS

1. GENERAL PHARMACOLOGY

Basic Concepts in Pharmacology, general principles of Pharmacokinetics and several aspects of molecular pharmacology (mechanism of action of drugs). Drug interactions and types of adverse reactions.

UNIT 1 .- Introduction. Concepts. Development and evaluation of new drugs.

UNIT 2 .- Mechanisms of action of drugs. Drug-receptor interactions.

UNIT 3 .- General principles of pharmacokinetics. LADME process. Drug absorption.

UNIT 4 .- Distribution of drugs.

UNIT 5 .- Elimination of drugs. Metabolism.

UNIT 6 .- Excretion. Routes of excretion.

UNIT 7 .- Pharmacokinetic parameters. Patterns of drug administration.

UNIT 8 .- Drug interactions and variations in drug response. Factors dependent on the drug and the patient.

UNIT 9 .- Adverse drug reactions. Pharmacovigilance.

2. SPECIAL PHARMACOLOGY

It addresses the pharmacological groups used in different diseases including: mechanism of action, pharmacological effects, pharmacokinetics, adverse reactions and therapeutic applications. Preferentially developing those drugs used in diseases requiring dietary intervention.

UNIT 10 .- Pharmacology of gastric, hepatobiliary and exocrine pancreas secretion.

UNIT 11 .- Pharmacology of gastrointestinal motility and vomiting.

UNIT 12 .- Drugs affecting intestinal motility: laxatives and antidiarrheics. Drugs used in the treatment of inflammatory bowel disease.

UNIT 13 .- Treatment of obesity. Appetite stimulant medications.

UNIT 14 .- Lipid-lowering drugs.

UNIT 15 .- Antidepressants and anxiolytics.

UNIT 16 .- Psychostimulants and addictions.

UNIT 17 .- Respiratory pharmacology.

UNIT 18 .- Analgesic and antiinflammatory drugs.



UNIT 19 .- Drugs used in the treatment of gout and hyperuricemia.

UNIT 20 .- Antihypertensive drugs

UNIT 21 .- Anticoagulants and other drugs used in blood disorders.

UNIT 22.- Antidiabetic drugs.

UNIT 23 .- Pharmacology of thyroid disorders and other hormonal therapies.

UNIT 24 .- Pharmacology of osteoporosis and bone metabolism disorders.

UNIT 25 .- Patterns of anti-infective therapy. Antimicrobial drugs.

3. INTERACTIONS DRUGS - FOOD

Details the influence of drugs on the process of nutrition, and the interference of food, diet or nutritional status on drug response. In certain circumstances, these interactions may even cause therapeutic failure or nutritional deficiencies.

UNIT 26 .- Influence of drugs on patients nutrition.

UNIT 27 .- Influence of food and nutritional status in drug response.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	35,00	100
Computer classroom practice	3,00	100
Seminars	2,00	100
Tutorials	2,00	100
Attendance at events and external activities	2,00	0
Development of group work	10,00	0
Study and independent work	32,00	0
Readings supplementary material	2,50	0
Preparation of evaluation activities	11,00	0
Preparing lectures	8,00	0
Preparation of practical classes and problem	1,00	0
Resolution of case studies	1,00	0
TOTAL	109,50	

TEACHING METHODOLOGY

* Theoretical Lessons. - Students must acquire basic knowledge covered by the syllabus by attending lectures and personal study. In these lectures, the professor will give an overview of the topic under study with the support of audiovisual systems and active student participation. To facilitate personal study and preparation of the issues in depth, the proper literature and necessary support material will be indicated or provided to students through the Virtual Classroom.



* **Seminars.**- Seminars allow a more active involvement of students. In seminars, the students, gathered in groups of 4 members, will prepare, exhibit and discuss with his class mates a topic related to the content of Pharmacology. In these seminars students will exercise or acquire the capability to search, outline and summarize information and the ability of oral and written expression, promoting teamwork as well. Coordination of seminars will be performed by the Faculty.

In addition students could be offered to participate in complementary activities of varied type (cineforum, debates, press news,...) covering current issues related to the subject, or addressing any particular aspect of the syllabus of difficult comprehension, if required by the students.

* **Tutorials .-** The tutorials are collective and organized into small groups of students (16 students), according to the established timetable. In these sessions, the tutor will evaluate the learning process of the students in a global way. The tutor may raise specific issues previously worked by students. Besides, the tutorials will serve to advise students on strategies to circumvent difficulties that might encounter.

* **Computer practical classes.**- They are realized in groups of 32 students in a single session in the computer room. They are prepared to facilitate the student the sources of information relevant to their future profession and to acquire the capability to search in internet issues related with drugs and their interactions with nutrients and / or food.

***Examinations:** Attendance: 3 hours

EVALUATION

The evaluation will consider:

- Attendance at tutorials (5%). The teacher will consider various aspects, such as participatory attendance, the ability to collaborate with the rest of the group, etc. Assistance to the group tutorial is required.
- Seminars with oral exposure and subsequent discussion (10%). It assessed the level of knowledge and the ability of oral and written expression and discussion. In case a student fails the subject the year that they were taken, the score obtained will be applicable to only the consecutive year.
- Computer practical classes (5%). It will be assessed for participation in activities, resolution of issues and performance of a small report to be delivered individual or in pairs at the end of the practice session. Practical lessons are mandatory and attendance is required. In case a student fails the subject the year that they were taken, the score obtained will be applicable to only the two next consecutive years.
- Theoretical exam: 75% of the grade will come from the qualification of the theoretical exam.
- Other classroom activities (5%): Cineforum, attendance at seminars of his peers, participation in classes, other activities... The teacher will consider various aspects, such as participatory attendance.

It is an essential requirement to pass the subject to have passed the theoretical exam.



REFERENCES

Basic

- FLÓREZ (editor). Farmacología humana 6ª ed. Elsevier Masson, 2014.
- LORENZO, MORENO, LIZASOAÍN, LEZA, MORO y PORTOLÉS. Velázquez. Manual de Farmacología Básica y Clínica. 19ª ed. Médica Panamericana, 2012 (disponible a partir de septiembre 2012)
- RANG y DALE. Farmacología. 7ª ed. Elsevier, 2012.
- HITNER y NAGLE. Introducción a la Farmacología. 5ª ed. McGraw Hill, 2007
- MESTRES y DURAN. Farmacología en Nutrición. 1ª ed. Médica Panamericana, 2011

Additional

- DAWSON, TAYLOR y REIDE. Lo esencial en Farmacología. 2ª ed. Elsevier, 2003.
- LÜLLMANN, MOHR y HEIN. Farmacología. Texto y Atlas. 6ª ed. Medica Panamericana, 2010.
- MONTORO y SALGADO. Interacciones fármacos-alimentos. 1º ed. Novartis. Rubes Editorial, S.L., 1999.
- SALAS-SALVADÓ, BONADA, TRALLERO y SALÓ. Nutrición y dietética clínica. 1ª ed. Masson, 2002.