Course guide
370031 - FARMACO - Pharmacology

Unit in charge: Terrassa School of Optics and Optometry
Teaching unit: 731 - OO - Department of Optics and Optometry.

Degree: BACHELOR'S DEGREE IN OPTICS AND OPTOMETRY (Syllabus 2020). (Compulsory subject).
Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan

LECTURER

Coordinating lecturer: Clot Silla, Eduardo
Others: Clot Silla, Eduardo

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE07. (ENG) The ability to understand and manage basic laboratory materials and techniques.
CE15. (ENG) Adquirir habilitats de treball en equip com unitat en la que s’estructuren de forma uni o multidisciplinar els professionals i demés personal relacionats amb la salut visual.

CE16. (ENG) Adquirir la capacitat per exercir la professió amb respecte a l’autonomia del pacient, a les seves creences, cultura, determinants genètics, demogràfics i socioeconòmics, aplicant els principis de justícia social i comprenent les implicacions ètiques en un context mundial en transformació.

CE18. Describe and apply the procedures and indications of clinical examination methods and complementary diagnostic techniques. Demonstrate knowledge of current eye surgery techniques and develop the capacity to carry out eye tests, including during pre- and postoperative examinations. Identify and apply new technologies in the field of optometric clinical practice.
CE19. Demonstrate knowledge of the general principles of pharmacokinetics and pharmacodynamics. Demonstrate knowledge of pharmacological actions, collateral effects and drug interactions. Demonstrate knowledge of topical eye preparations, with a focus on the use of drugs that facilitate visual and optometric examination. Demonstrate knowledge of the most common systemic adverse effects after the application of topical eye medication.
Generical:
CG3. Advise and guide patients and relatives during the entire treatment.
CG4. Critically reflect on the clinical, scientific, ethical and social issues involved in the professional practice of optometry, understand the scientific foundations of optics and optometry and critically evaluate terminology, clinical trials and research methods related to optics and optometry.
CG9. Expand and update one's professional abilities through continuing education.
CG10. Communicate treatment indications of visual health and their conclusions to the patient, relatives and other professionals involved in the patient's care, adapting to the sociocultural characteristics of each person.
CG11. Locate new information and interpret it in context.
CG13. Demonstrate and interpret methods for critical analysis and theory development and apply them to the field of optometry.
CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG15. (ENG) Demostrar capacitat per actuar com a agent d'atenció primària visual.
CG16. Participate effectively in both single-discipline and multidisciplinary work groups on projects related to optometry.
CG17. (ENG) Incorporar els principis ètics i legals de la professió a la pràctica professional, respectant l'autonomia del pacient, els seus determinants genètics, demogràfics, culturals i socioeconòmics, integrant els aspectes socials i comunitaris en la presa de decisions, aplicant els principis de justícia social en la pràctica professional, en un context mundial en transformació.
CG18. (ENG) Adquirir la capacitat per a realitzar una gestió clínica centrada en el pacient, el l'economia de la salut i en l’ús eficient dels recursos sanitaris, així com la gestió eficaç de la documentació clínica amb especial atenció a la confidencialitat.

Transversal:
CT3. Teamwork. To be able to work as a member of a multidisciplinary team, either as a base member or undertaking managerial decisions aiming at developing projects from a practical and responsible standpoint, adopting commitments given the available resources
CT5. Efficient use of informacion resources. To manage data and technical and scientific information acquisition, organization, analysis and visualization and to provide a critical appraisal of the results of this management
CT6. Independent learning. Identify and overcome gaps in one's knowledge by thinking critically and choosing the best approach to extending one's knowledge.
CT4. (ENG) Teamwork. The ability to work as a member of an interdisciplinary team, as just another member or in a leadership role, who can contribute to developing projects pragmatically and with a sense of responsibility and make commitments that take into account the resources that are available.

TEACHING METHODOLOGY
The course will consist of full-time teaching combining theoretical classes with practical classes in the laboratory of Ocular Pharmacology. On the other hand, some concepts will be learned by doing assignments on behalf of the student.

LEARNING OBJECTIVES OF THE SUBJECT
Upon completion of the subject Eye Pharmacology, the student must be able to:
- Interpret pharmacokinetic, pharmacodynamic and toxicological data of drugs used in the prevention and treatment of eye conditions, diagnostic tests and visual examinations.
- Recognize and characterize the different pharmaceutical forms and routes of administration of medicines used in the prevention and treatment of eye conditions, diagnostic tests and visual examinations.
- Discriminate the route of administration according to the therapeutic objective
- Describe, justify and apply the clinical criteria governing the rational use of medicines used in the prevention and treatment of eye conditions, diagnostic tests and visual examinations
- Apply the necessary clinical procedures to detect an ocular adverse reaction early
- Establish lines of action in the face of an adverse eye reaction.
- Describe and apply the basic rules of patient care.
## STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>5.0</td>
<td>4.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>45.0</td>
<td>36.00</td>
</tr>
<tr>
<td>Self study</td>
<td>60.0</td>
<td>48.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>15.0</td>
<td>12.00</td>
</tr>
</tbody>
</table>

**Total learning time:** 125 h
CONTENTS

3. Pharmacological Basis

Description:
Introduction to Pharmacology
Basic pharmacological terminology
Legal aspects related to the use of the drug
General principles of Pharmacodynamics
General principles of Pharmacokinetics
Ocular pharmacokinetics

This content works on:
The basic concepts related to ocular pharmacology.

Specific objectives:
Acquire the basic knowledge of pharmacological science

Related activities:
Laboratory activities related to the blog will be conducted. Each activity consists of their laboratory notebook that will be evaluated as part of the final grade of the course.

Related competencies:
CG16. Participate effectively in both single-discipline and multidisciplinary work groups on projects related to optometry.

CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG11. Locate new information and interpret it in context.
CG17. (ENG) Incorporar els principis ètics i legals de la professió a la pràctica professional, respectant l'autonomia del pacient, els seus determinants genètics, demogràfics, culturals i socioeconòmics, integrant els aspectes socials i comunitaris en la presa de decisions, aplicant els principis de justícia social en la pràctica professional, en un context mundial en transformació.

CG18. (ENG) Adquirir la capacitat per a realitzar una gestió clínica centrada en el pacient, el l'economia de la salut i en l’ús eficient dels recursos sanitaris, així com la gestió eficaç de la documentació clínica amb especial atenció a la confidencialitat.

CG15. (ENG) Demostrar capacitat per actuar com a agent d'atenció primària visual.

CG9. Expand and update one’s professional abilities through continuing education.
CG10. Communicate treatment indications of visual health and their conclusions to the patient, relatives and other professionals involved in the patient’s care, adapting to the sociocultural characteristics of each person.
CE19. Demonstrate knowledge of the forms of presentation and general administration routes of drugs. Demonstrate knowledge of the general principles of pharmacokinetics and pharmacodynamics. Demonstrate knowledge of pharmacological actions, collateral effects and drug interactions. Demonstrate knowledge of topical eye preparations, with a focus on the use of drugs that facilitate visual and optometric examination. Demonstrate knowledge of the most common systemic adverse effects after the application of topical eye medication.
CE16. (ENG) Adquirir la capacitat per exercir la professió amb respecte a l'autonomia del pacient, a les seves creences, cultura, determinants genètics, demogràfics i socioeconòmics, aplicant els principis de justícia social i comprenent les implicacions ètiques en un context mundial en transformació.

CE15. (ENG) Adquirir habilitats de treball en equip com unitat en la que s'estructuren de forma uni o multidisciplinar els professionals i demés personal relacionats amb la salut visual.

CT3. Teamwork. To be able to work as a member of a multidisciplinary team, either as a base member or undertaking managerial decisions aiming at developing projects from a practical and responsible standpoint, adopting commitments given the available resources
CT5. Efficient use of information resources. To manage data and technical and scientific information acquisition, organization, analysis and visualization and to provide a critical appraisal of the results of this management

Full-or-part-time: 0h 45m
Theory classes: 0h 04m
2. Diagnostic and exploratory drugs

Description:
Local anesthetics
Dyes for diagnosis
Myotics, mydriasis and cycloplegics
Pharmacology of neuro-ocular diagnosis

Specific objectives:
Knowledge of the basic aspects related to the mechanism of action, dosage, route of administration, indications and adverse reactions of pharmacological groups that are involved in the detection and diagnosis of different ocular disorders.

Related activities:
Laboratory practices related to the blog will be conducted. Each practice consists of their laboratory notebook that will be evaluated as part of the final grade of the course.

Related competencies:
CE19. Demonstrate knowledge of the forms of presentation and general administration routes of drugs. Demonstrate knowledge of the general principles of pharmacokinetics and pharmacodynamics. Demonstrate knowledge of pharmacological actions, collateral effects and drug interactions. Demonstrate knowledge of topical eye preparations, with a focus on the use of drugs that facilitate visual and optometric examination. Demonstrate knowledge of the most common systemic adverse effects after the application of topical eye medication.

CE18. Describe and apply the procedures and indications of clinical examination methods and complementary diagnostic techniques. Demonstrate knowledge of current eye surgery techniques and develop the capacity to carry out eye tests, including during pre- and postoperative examinations. Identify and apply new technologies in the field of optometric clinical practice.

CT4. (ENG) Teamwork. The ability to work as a member of an interdisciplinary team, as just another member or in a leadership role, who can contribute to developing projects pragmatically and with a sense of responsibility and make commitments that take into account the resources that are available.

CT6. Independent learning. Identify and overcome gaps in one’s knowledge by thinking critically and choosing the best approach to extending one’s knowledge.

Full-or-part-time: 0h 14m
Theory classes: 0h 10m
Practical classes: 0h 04m
3. Ocular pharmacotherapeutics

Description:
Antiglaucoma
Anti-inflammatory
Antiallergic
Antinfectives
Viscoelastics
Antiangiogens
Botulinum toxin

Specific objectives:
Basic aspects related to the mechanism of action, dosage, route of administration, indications and adverse reactions of the different pharmacological groups that are indicated in the treatment of the most common ocular pathologies, basic clinical procedures and evaluation of the refractive state.

Related activities:
Laboratory practices related to the blog will be conducted. Each laboratory practice consists of their laboratory notebook that will be evaluated as part of the final grade of the course.

Related competencies:
CE19. Demonstrate knowledge of the forms of presentation and general administration routes of drugs. Demonstrate knowledge of the general principles of pharmacokinetics and pharmacodynamics. Demonstrate knowledge of pharmacological actions, collateral effects and drug interactions. Demonstrate knowledge of topical eye preparations, with a focus on the use of drugs that facilitate visual and optometric examination. Demonstrate knowledge of the most common systemic adverse effects after the application of topical eye medication.
CT6. Independent learning. Identify and overcome gaps in one’s knowledge by thinking critically and choosing the best approach to extending one’s knowledge.

Full-or-part-time: 1 h 42 m
Theory classes: 1 h 17 m
Practical classes: 0 h 25 m

GRADING SYSTEM

he final grade of the course will be made by the following sum:
40% of the arithmetic mean of the grades of the three theoretical exams performed +
40% of the arithmetic mean of the qualifications of the practices carried out +
10% of the qualification of the writing work of the abstract +
10% of the qualification of the clinical case work.

EXAMINATION RULES.

In no case can any form or notes be available in the learning controls, tests or exams.
The theoretical exams will consist of 70 test-type questions of 3 options each with a penalty in case of incorrect answer, with only one valid option, along with 3 short reasoning questions. The test part and each of the short reasoning questions will be scored on 10 points and the final mark of the exam will result from the arithmetic mean of the four grades.
BIBLIOGRAPHY

Basic:

Complementary: