Course guide
370023 - PATOL - Pathology

Last modified: 25/06/2025

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: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Fuste Fusares, Celia
Torrents Gómez, Aurora

Others: Fuste Fusares, Celia
Molina Fernández, Juan José
Ubia Saez, Sandra
Bove Guri, Marta

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE02. Determine the functions of systems in the human body. Demonstrate knowledge of the principles and foundations of the biological processes involved in the normal functioning of the visual system. Recognise, with macroscopic and microscopic methods, the morphology and structure of the tissues, organs and systems in the human body. Demonstrate knowledge of and describe, macroscopically and microscopically, the structures that make up the visual system and ocular adnexa. Demonstrate knowledge of the structure of the cell, embryonic development and organogenesis. Describe the development of the visual system. Demonstrate knowledge of the microorganisms involved in visual system disorders. Demonstrate knowledge of the properties and functions of the various parts that make up the visual system.
CE13. Understand the factors that limit retinal image quality. Demonstrate knowledge of the spatial and temporal aspects of vision. Carry out psychophysical tests to determine levels of visual perception. Demonstrate knowledge of the functioning of the retina as a receptor of radiant energy. Demonstrate knowledge of the basic models of vision of colour, shape and movement. Demonstrate knowledge of age-related changes in perceptual processes. Measure and interpret psychophysical data obtained from an assessment of visual perception.
CE17. Demonstrate knowledge of manifestations of the pathological processes and mechanisms by which the main human diseases are generated. Recognise the types of mechanisms and physiopathological processes that trigger eye diseases. Demonstrate knowledge of the symptoms of visual disorders and recognise the signs associated with them. Recognise alterations that change normal functioning and trigger pathological processes that affect vision. Detect and assess the main ophthalmological disorders to refer patients to an ophthalmologist for examination and treatment. Demonstrate knowledge of manifestations of systemic diseases at the ocular level. Demonstrate knowledge of epidemiological models of the main pathologies.
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 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.

Generical:
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.
CG8. Plan and carry out research projects that contribute to the production of knowledge in the field of optometry and disseminate this scientific knowledge via the typical communication channels.
CG9. Expand and update one's professional abilities through continuing education.
CG14. Demonstrate knowledge, skills and abilities in patient healthcare.
CG16. Participate effectively in both single-discipline and multidisciplinary work groups on projects related to optometry.

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

TEACHING METHODOLOGY

MD1 - Participatory expository class of theoretical and practical content
MD3 - Practical resolution class, with the participation of students, of practical cases and/or exercises related to the contents of the subject
MD5 - Reading the didactic material, texts and articles related to the contents of the subject
MD6 - Realization of problems, exercises, assignments and resolution of doubts through the Atenea virtual campus
MD8 - Solving cases with real patients in healthcare establishments.

In the course of the subject, content and information will often be provided. The student must consult the Atenea platform regularly in order to be able to follow the subject correctly.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the eye pathology subject, the student must be able to:

- Interpret the different symptoms and signs of eye conditions within each patient context.
- Describe, justify and apply the clinical criteria that govern each treatment for different eye conditions, diagnostic tests and visual examinations.
- Apply the clinical procedures necessary to detect the eye condition early and the treatment protocol for it.
- Describe and apply the basic rules of patient care.
- Recognize the different types of mechanisms and physiopathological processes that trigger eye diseases.
- Recognize the alterations that modify normal functioning and trigger pathological processes that affect vision.
- Know and apply the procedures and indications of the different clinical examination methods and complementary diagnostic techniques.
- Know topical ocular preparations, with special attention to the use of drugs that facilitate the visual and optometric examination.
- Detect and assess the main ophthalmological disorders, with the aim of referring patients to the ophthalmologist for study and treatment.
- Know and apply health education techniques and the main generic eye health problems.

STUDY LOAD

Type	Hours	Percentage
Hours medium group	60,0	40.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

1. Eyelid pathology

Description:
Anatomical record
Eyelid tumours
Changes in eyelashes
Allergic diseases
Infectious diseases
Eyelid malposition

Full-or-part-time: 4h 30m
Practical classes: 4h 30m

2. Lacrimal drainage system disorders

Description:
Anatomical record
Tear duct obstruction
Infections of the lacrimal apparatus

Full-or-part-time: 1h 30m
Practical classes: 1h 30m

3. Orbit disorders

Description:
Thyroid orbitopathy
Orbital infections and inflammations
Orbital tumors
Anophthalmic socket

Full-or-part-time: 3h 30m
Practical classes: 3h 30m

4. Conjunctival disorders

Description:
Conjunctivitis (infectious, allergic, other inflammatory conjunctivitis)
Conjunctival degeneration
Conjunctival tumours
Subconjunctival hemorrhage

Full-or-part-time: 4h
Practical classes: 4h

5. Corneal diseases

Description:
- Drugs used for the exploration of the anterior pole and refraction.
- Infectious, neurotrophic and exposure keratitis.
- Congenital and hereditary alterations of the cornea.
- Corneal dystrophies and degenerations.
- Dry eye
- Refractive surgery:
- Preoperative assessment.
- Refractive surgery techniques: LASIK, PRK, phakic lenses,...
- Selection of suitable candidates for each type of refractive surgery.
- Postoperative follow-up and complications.

Full-or-part-time: 8h 30m
Practical classes: 8h 30m

6. Diseases of the crystalline lens

Description:
- Types of cataracts.
- Surgical treatment of cataracts.
- Types of intraocular lenses: monofocal, multifocal, EDOF.
- Choice of lens type depending on the patient's characteristics.
- Anomalies of the lens position.

Full-or-part-time: 4h
Practical classes: 4h

7. Glaucoma

Description:
Angular structure, drainage of aqueous humour and its relation to intraocular pressure
Diagnosis and medical-surgical treatment of glaucoma
Primary open-angle glaucoma
Normotensive glaucoma
Narrow-angle glaucoma
Secondary glaucomas

Full-or-part-time: 6h
Practical classes: 6h

8. Disease of the episclera and the sclera

Description:
Inflammatory pathology: episcleritis and scleritis
Autoimmune scleritis and infectious scleritis
Other scleral disorders

Full-or-part-time: 1h 30m
Practical classes: 1h 30m

9. Uveal disorders

Description:
- Uveal inflammations and their relationship with systemic, rheumatological, vasculitic, collagenosis and other pathologies.
- Uveal infections.
- Anterior uveitis
- Posterior uveitis (vasculitis).
- Endophthalmitis, panophthalmitis.
- Uveal tumors.
- Uveal trauma.

Full-or-part-time: 3h
Practical classes: 3h

10. Disorders of the vitreous and the retina

Description:
Degeneration, haemorrhages and trauma of the vitreous
Retinal periphery. Retinal detachment and underlying lesions
Retinal vasculopathy and its relation to cardiovascular, endocrinological and haematological diseases
Acquired maculopathy
Macular degeneration associated with age
Choroidal changes
Hereditary fundus dystrophies
Tumors

Full-or-part-time: 11h
Practical classes: 11h

11. Neuroophthalmology

Description:
Optic nerve disorders (vascular, tumoral, degenerative and nutritional alterations)
Neurosensory disorder
Disorders of the oculomotor nerves
Pupillary and accommodative disorders
Chiasmatic and retrochiasmatic diseases
Other neurological disorders and their relationship with the eye.

Full-or-part-time: 7h
Practical classes: 7h

12. Paediatric ophthalmology

Description:
Assessment and detection of abnormalities in infants' eyes
Guidelines for specialist referral
Infections and inflammations in paediatric patients
Retinopathy of prematurity
Tumors in pediatric age
Congenital and hereditary conditions

Full-or-part-time: 3h 30m
Practical classes: 3h 30m

ACTIVITIES

Assignment: resolution of clinical cases

Description:
Completion of a written assignment in which one or several clinical cases are presented. Students must reason (using the data provided and the knowledge gained in the course) and establish the pathology of the patient in question, and describe possible treatments.

Full-or-part-time: 10h
Self study: 10h

Seminar: Discussion of clinical cases. Integration of knowledge.

Description:
Clinical cases will be presented in which the student will have to reason and integrate the knowledge acquired in the subject in order to solve the posed problems.

Full-or-part-time: 2h
Practical classes: 2h

EUROPEAN DIPLOMA IN OPTOMETRY COMPETENCES

Description:
This module contributes to the European Diploma in Optometry competencies indicated in the following link:
https://drive.google.com/drive/folders/1bwmHBsvkrGnY63DfXAnWZB_i0I2pXa-I?usp=drive_link

GRADING SYSTEM

There will be a partial exam in the middle of the subject. This will represent 40% of the final mark.
The student will have to present a written work in the form of a resolution of clinical cases, which will represent 10% of the final mark.
The final exam of the subject will represent the remaining 50% of the grade.
The re-evaluation will be carried out through a single exam, which will represent 100% of the grade. A minimum grade of 3.50 is required to access de re-evaluation.

EXAMINATION RULES.

The questions will be mainly test-type. Some short questions may appear in the final exam.
Test questions have only one correct answer. Wrong answers subtract 0.25 points from the grade.

In case of partial or total copying in any of the evaluations of the subject, the provisions of the General Academic Regulations of the UPC will apply: "Irregular actions that may lead to a significant variation in the qualification of one or more students constitute a fraudulent performance of an evaluation act. This action entails the descriptive and numerical grade of 0 for the evaluation act and the subject, without prejudice to the disciplinary process that may arise as a result of acts performed".

The grade of not presented, which means that the student has not been assessed, is awarded when he has not participated in any of the assessment events planned for the subject, except in the case that the teaching guide for the subject published specify something different.

BIBLIOGRAPHY

Basic:
- Kanski, Jack J; Bowling, Brad. Kanski oftalmología clínica: un enfoque sistemático. 8ª ed. Barcelona [etc.]: Elsevier, cop. 2016. ISBN 9788491130031.