

**COURSE DATA****DATA SUBJECT****Code:** 34297**Name:** Optometry I**Cycle:** Undergraduate Studies**ECTS Credits:** 4.5**Academic year:** 2025-26**STUDY (S)**

| Degree                                | Center             | Acad. year | Period        |
|---------------------------------------|--------------------|------------|---------------|
| 1207 - Degree in Optics and Optometry | Facultat de Física | 2          | First quarter |

**SUBJECT-MATTER**

| Degree                                | Subject-matter | Character  |
|---------------------------------------|----------------|------------|
| 1207 - Degree in Optics and Optometry | Optometry      | COMPULSORY |

**COORDINATION**

CERVIÑO EXPOSITO ALEJANDRO

**SUMMARY**

The contents of this course are related to knowledge-oriented end to occupation, in addition to serving as the foundation and basis for the subsequent development of other subjects of Optometry matter to be studied later.

They provide students with the fundamentals of Optometry as a clinical discipline, the knowledge required for the understanding of refractive disorders and their clinical implications, as well as the basics of detection and quantification.

The ocular refractive state conditions the visual system functionality and is based on the relationship between the various components and their correct refractive eye development and interaction. Since the aim of the course to provide students with the fundamentals of optometry and visual system refractive assessment, integrating new knowledge with those obtained previously in subjects previously studied and its management and its alternatives optometric correction, provide the skills necessary for the management of patients with visual defects, including the basis for the detection and quantification techniques refractive error, and reasoning skills and clinical judgment allowing the performance of diagnosis, prognosis and appropriate treatment planning.

**PREVIOUS KNOWLEDGE**



## RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

## OTHER REQUIREMENTS

The student must master the concepts taught in the subjects of Human and Ocular Anatomy, Ocular and Human Physiology and Physiological Optics

## COMPETENCES / LEARNING OUTCOMES

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Ability to act as a primary visual care agent.

Ability to measure, interpret and treat refractive and binocular errors.

Ability to prescribe, control and monitor optical corrections.

Being able to gather and interpret relevant data to make judgments.

Being able to transmit information, ideas, problems and solutions to both a specialized and non-specialized audience.

Development of learning skills necessary to undertake further studies with a high degree of autonomy.

Knowing how to apply the knowledge acquired to professional activity, knowing how to solve problems and develop and defend arguments.

To acquire skills in the instrumental tests for the evaluation of visual functions and eye health. To know how to take a complete anamnesis.

To acquire the ability to examine, to diagnose and to treat visual abnormalities with special emphasis on differential diagnosis.

To acquire the clinical skills necessary for the examination and treatment of patients.

To acquire the skills for the interpretation and clinical judgment of the results of visual tests, to establish the most appropriate diagnosis and treatment.

To apply the clinical procedures associated with the adaptation of contact lenses to different refractive and ocular dysfunctions.

To design, to apply and to control visual therapy programs. To know the current techniques of eye surgery and to have the ability to perform the eye tests included in the pre and post-operative exam.

To develop communication skills, data recording and medical record making.

To have and to understand the fundamentals of Optometry for its correct clinical and healthcare application.



- To identify and to analyze environmental and occupational risk factors that can cause visual problems.
- To know, to apply and to interpret instrumental tests related to visual health problems.
- To know and to apply new technologies in the field of optometric clinic.
- To know and to apply visual screening techniques applied to different populations.
- To know the applicable legislation in professional practice, with special attention to matters of gender equality between men and women, human rights, solidarity, protection of the environment and promotion of the culture of peace.
- To know the applicable legislation in professional practice, with special attention to matters of gender equality between men and women, human rights, solidarity, sustainability, protection of the environment and promotion of the culture of peace.
- To know the differences in treatment and refractive diagnosis of the pediatric patient.
- To know the different protocols applied to patients.
- To know the fundamentals and techniques of health education and the main generic health programs to which the optometrist must contribute from their scope of action.
- To know the legal and psychosocial aspects of the profession.
- To know the modifications linked to aging in perceptual processes.
- To know the nature and organization of the different types of clinical care.
- To know the principles and to have the skills to measure, interpret, and treat accommodative and binocular vision abnormalities.
- To know the sensory and oculomotor mechanisms of binocular vision.

## DESCRIPTION OF CONTENTS

### **1. Introduction to the refractive state.**

Genesis and Epidemiology of refractive errors. Classification and prevalence. Age and refractive error. Emmetropization. Accommodation and Presbyopia

### **2. Refractive anomalies**

Spherical ametropia. Definition, prevalence, aetiology and classification of myopia. Examination, diagnosis



and treatment of myopia. Definition, prevalence, aetiology and classification of hyperopia Definition, prevalence, aetiology and classification of Astigmatism. Vision of the eye with astigmatism.

### 3. Refractive Examination

Visual Acuity. Optotypes. Monocular refractive objective: Keratometry. Retinoscopy and autorrefractometría. Monocular and binocular subjective refraction

## WORKLOAD

### PRESENCIAL ACTIVITIES

| Activity           | Hours        |
|--------------------|--------------|
| Tutorials          | 15,00        |
| Theory             | 30,00        |
| <b>Total hours</b> | <b>45,00</b> |

### NON PRESENCIAL ACTIVITIES

| Activity                              | Hours        |
|---------------------------------------|--------------|
| Attendance at other activities        | 0,00         |
| Individual or group project           | 20,00        |
| Independent study and work            | 25,00        |
| Preparation of lessons                | 5,00         |
| Preparation for assessment activities | 10,00        |
| Resolution of case studies            | 7,50         |
| <b>Total hours</b>                    | <b>67,50</b> |

## TEACHING METHODOLOGY

#### Face-to-face activities

a) **Theoretical classes:** face-to-face classes (with the possibility of including hybrid or online modalities) where the theoretical contents of the subject will be taught. The use of audiovisual methodologies will be reinforced to illustrate theoretical contents and examples more clearly.

b) **Small-group theoretical sessions:** sessions dedicated to group work by students, with real-case proposals that must be analyzed and studied by the group. Group interactivity will be fostered through oral presentations and in-class examples, and will count toward the continuous assessment.

#### Student work



- Study of theoretical foundations
- Development of assignments and questions posed in class
- Individual tutorials

## EVALUATION

The course will be assessed according to the following criteria:

a) A written exam with theoretical and practical questions (90% of the grade). This exam will consist of a series of multiple-choice and/or short questions. A minimum of 4.5 points must be obtained on this exam to pass the course.

b) Continuous assessment seminars (10% of the grade). These seminars will consist of exercises, tutored assignments, etc., submitted during the course, and may contribute up to a maximum of 1 point. A minimum of 0.5 points must be obtained on this part to pass the course.

The grade required to pass the course will be 5 points (out of 10).

In the second sitting, only the written part will be taken, maintaining the continuous assessment grade (b).

## REFERENCES

Basic:

- Montes-Micó R. Optometría: Principios Básicos y Aplicación Clínica. Elsevier. 2011. ISBN: 978-84-8086-822-8
- Montés-Micó R. Optometría: Aspectos Avanzados y Consideraciones Especiales. Elsevier. 2011. ISBN: 978-84-8086-890-7
- Furlan W., García J., Muñoz L.: Fundamentos de Optometría. Refracción ocular. (2009)

Complementary:

- Rosenfield M, Logan N. Optometry. Science, Techniques and Clinical Management. 2nd Edition. Butterworth-Heinemann-Elsevier. 2009
- Benjamin W.J. Borish's clinical refraction. (2008) Referencia b6: Grosvenor T. Primary Care Optometry. Butterworth-Heinemann. 5th edition. (2006)