COURSE DATA

DATA SUBJECT

Code: 34302
Name: Paediatric optometry
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	3	Second quarter

SUBJECT-MATTER

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

COORDINATION

HERNANDEZ ANDRES ROSA MARIA

SUMMARY

The course is divided into four didactic units comprising 12 topics.

Didactic Unit I addresses motor and visual development during childhood, its relationship with the visual system, and the main pediatric pathologies, with the aim of distinguishing whether we are dealing with healthy eyes or not.

Didactic Unit II focuses on the analysis of visual efficiency in childhood. Today, children's vision is assessed at increasingly early ages, during a stage of active development in which various visual abilities emerge progressively. For this reason, it is important to know how to examine the pediatric population, adapting optometric tests to different stages, ages, and special populations. It is necessary to understand the typical development of the visual system at each age, including adolescence. This unit also emphasizes the importance of differentiating between findings within or outside normal limits and addresses the global issue of early-onset myopia and its consequences.

Didactic Unit III explores the processing of visual information. Since this process can be improved, it is essential to know how to assess it. The unit also reviews the role of the optometrist in

managing perceptual issues that interfere with visual information processing.

Finally, Didactic Unit IV focuses on the design and preparation of school vision screenings. It highlights the importance of diagnosis and the possible treatment options for visual problems in childhood and adolescence. The program concludes with two equally important topics: the need to inform parents and other professionals, interdisciplinary collaboration, and the preventive role that health professionals must undertake, along with basic concepts of visual ergonomics at school and at home.

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 that the student has passed the exams:
OPTOMETRY I
OPTOMETRY II
OPTOMETRY III

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.

Desarrollar habilidades de comunicación, de registro de datos y de elaboración de historias clínicas.

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

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 different protocols applied to patients.

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. 1. THE VISUAL SYSTEM IN CHILDHOOD.

T1. Psychomotor and visual development in childhood.

T2. Ocular health in children. The most frequent ocular and visual problems in childhood and adolescence.

2. 2. THE EFFICIENCY OF THE VISUAL SYSTEM. OPTOMETRIC ANALYSIS OF THE INFANT VISUAL SYSTEM.

T3. Visual examination adapted to the pediatric population. Considerations for special populations (Down Syndrome, ADHD, Autistic Spectrum Disorder-TEA)

T4. Visual acuity in childhood. Measurement and control.

T5. Refraction in childhood. Myopia, a growing problem worldwide.

T6. Oculomotor assessment.

T7. Binocular vision.

T8. Accommodation.

3. 3. INFORMATION PROCESSING.

Tema 9. La percepció visual. Avaluació de la percepció visual.

4. 4. DIAGNOSIS, TREATMENT AND PREVENTION.

T10. Diagnosis and treatments in childhood: spectacles, contact lenses, vision therapy.

T11. Vision screening at school. Information to families and interdisciplinary collaboration.

T12. Notes on ergonomics and visual hygiene for prevention.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Tutorials	7,50
Theory	30,00
Other activities	7,50
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	2,00
Individual or group project	18,00
Independent study and work	25,00
Preparation of lessons	15,00
Preparation for assessment activities	5,00
Resolution of case studies	2,50
Total hours	**67,50**

TEACHING METHODOLOGY

Lectures: face-to-face classes where the theoretical contents of the course will be delivered using various pedagogical techniques such as flipped classroom, group discussions, debates, etc. Audiovisual resources will be used to better illustrate theoretical concepts and examples.

Small-group theoretical sessions (seminars): these sessions are dedicated to student work in small groups, including case-based proposals that must be analysed and studied collectively. In addition to the theoretical fundamentals of the subject, exercises or clinical cases will be addressed to apply theoretical content in practice (Problem-Based Learning).

Theoretical knowledge will also be reinforced through the study of relevant published scientific articles directly related to the course.

Group interaction will be promoted through oral presentations in class under the supervision of the lecturer.

Supervised individual assignments: these are individual projects assigned to each student, allowing for in-depth exploration of a specific topic. The lecturer will provide personalised guidance and follow-up during the development of the work.

Practical sessions: these sessions are designed to apply theoretical knowledge in real-life settings such as school vision screenings, eye exams for children or adolescents in clinical environments, etc.

EVALUATION

A) Written evaluation (60¿%). Written exam including theoretical questions to assess students' understanding of the course fundamentals, and theoretical-practical questions to evaluate their ability to apply the techniques and models studied in real contexts. The exam consists of 30 multiple-choice questions worth up to 4 points and 4 short-answer questions worth up to 2 points. Together, both parts total 6 points (60¿%). In the multiple-choice section, one correct answer will be deducted for every (n-1) incorrect options selected.

B) Continuous assessment in lectures and seminars (20¿%). Based on various indicators: a) assignment of group and/or individual tasks (graded), and b) development of questions or clinical cases interactively in class (graded). Assignment deadlines will be announced well in advance. Attendance at seminars is mandatory. Students must attend at least 5 seminars to pass the course and submit the required assignments. Students who fail to attend the minimum of 5 seminars and/or fail the seminar component in the first session will be entitled to take a written exam in the second session covering the seminar content taught during the course.

C) Assessment of the practical component of the course (20¿%). Based on 2 practical sessions (visual screening) conducted in real-world settings, preferably in Primary and Secondary schools. If not possible due to extraordinary circumstances, the sessions will take place at the Optometry Clinic (Fundació Lluís Alcanyís-UVEG) or in Optometry practice rooms. These school-based screenings will be used to assess students' skill development. Attendance is mandatory and **this**

activity is non-recoverable. There are two sessions, each worth up to 1 point. After each session, students must submit a follow-up report analysing their skill progression, the difficulties encountered, the strategies used, and the learning outcomes achieved. If a student fails the practical component in the first session, they must submit a new follow-up report in the second session, as instructed by the lecturer, including the analysis of a pediatric clinical case.

The minimum score required to pass the course will be 50¿%. In addition, students must obtain at least half the maximum score in each of the three components (written exam, seminars, and practicals).

REFERENCES

Basic references:

- *Optometría. Principios básicos y aplicación clínica*. Montés Micó, R. Elsevier, 2011. ISBN 978-84-8086-822-8
- *Optometría pediátrica*. López Alemany, A. Ulleye, 2005. ISBN 978-84-930828-2-6
- *Clinical management of binocular vision: heterophoric, accommodative, and eye movement disorders*. Scheiman, M.; Wick, B.; Steinman, B. Wolters Kluwer, 2020. ISBN 978-1-4963-7758-6

Complementary references:

- *Optometría: Aspectos avanzados y consideraciones especiales*. Montés Micó, R. Elsevier, 2011. ISBN 978-84-8086-890-7
- *Innovative Approaches in the Delivery of Primary and Secondary Eye Care*. Khanna, R. C.; Rao, G. N.; Marmamula, S. Springer, 2019. ISBN 978-3-030-12345-6