

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

Code	34302
Name	Paediatric optometry
Cycle	Grade
ECTS Credits	4.5
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. Period
1207 - Degree in Optics and Optometry	Faculty of Physics	3 First term

Subject-matter

Degree	Subject-matter	Character
1207 - Degree in Optics and Optometry	12 - Optometry	Obligatory

Coordination

Name	Department
HERNANDEZ ANDRES, ROSA MARIA	280 - Optics and Optometry and Vision Sciences

SUMMARY

The subject is divided into four didactic units covering 12 topics. In Unit I we study motor and visual development during childhood, its relationship with the visual system and the main childhood pathologies, in order to differentiate between healthy and unhealthy eyes. Didactic Unit II deals with the analysis of visual efficiency in childhood. Nowadays, children's vision is analysed at an earlier age and their visual system is in an active stage in which the different visual skills develop progressively. For this reason it is important to know how to examine the paediatric population, adapting the optometric tests to the different stages and ages, as well as to know the development of the visual system characteristic of each age. Emphasis is also placed on knowing how to differentiate between findings that are within the norm and those that are not within the norm. In Unit III we study the processing of visual information. This processing can be improved, so it is necessary to know how to assess it. In this unit we also review the role of the Optician-Optometrist when faced with perceptual problems that affect the processing of visual information. Finally, Unit IV focuses on the diagnosis and possible treatment options for children's vision problems. The programme ends with two no less important chapters: the need to inform parents, mothers and other professionals, the interdisciplinary relationship and finally, the preventive work that we as health professionals must carry out together with some basic notions on visual ergonomics at



school and at home for children.

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,

OUTCOMES

1207 - Degree in Optics and Optometry

- Desarrollar habilidades de comunicación, de registro de datos y de elaboración de historias clínicas.
- To have and to understand the fundamentals of Optometry for its correct clinical and healthcare application.
- Knowing how to apply the knowledge acquired to professional activity, knowing how to solve problems and develop and defend arguments.
- 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.
- To acquire the skills for the interpretation and clinical judgment of the results of visual tests, to establish the most appropriate diagnosis and treatment.
- Ability to measure, interpret and treat refractive and binocular errors.
- To know the sensory and oculomotor mechanisms of binocular vision.
- To know the principles and to have the skills to measure, interpret, and treat accommodative and binocular vision abnormalities.
- Ability to prescribe, control and monitor optical corrections.



- 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 know the nature and organization of the different types of clinical care.
- To know the different protocols applied to patients.
- To know and to apply visual screening techniques applied to different populations.
- To know and to apply new technologies in the field of optometric clinic.
- Ability to act as a primary visual care agent.

LEARNING OUTCOMES

- Understand the appearance and evolution of visual disorders and the mechanisms involved.
- Differentiate whether or not there is an associated pathology in order to refer to the appropriate health specialist if necessary.
- Be able to carry out visual examinations on children, and adapt examination procedures according to the age subgroup to which the patient belongs.
- Detect functional and/or refractive alterations and know how to discriminate whether or not they correspond to the patient's stage of visual development. Know the treatments to be applied in each case.
- Understand the semiology of functional and/or refractive problems in children.
- Know the communicative particularities of each paediatric subgroup and know how to extract clinically useful information according to the type of paediatric patient.

DESCRIPTION OF CONTENTS

1. 1. THE VISUAL SYSTEM IN CHILDHOOD.

Topic 1. Psychomotor and visual development in childhood.

Topic 2. Ocular health in the paediatric population. Prevalence of ocular diseases in the paediatric population.

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

Topic 3. Visual examination adapted to the paediatric population.

Topic 4. Visual acuity in childhood. Measurement and control.

Topic 5. Refraction in childhood.

Topic 6. Oculomotor assessment.

Topic 7. Binocular vision.

Topic 8. Accommodation.

**3. 3. INFORMATION PROCESSING.**

Topic 9. Visual perception.

4. 4. DIAGNOSIS, TREATMENT AND PREVENTION.

Topic 10. Diagnosis and treatment in childhood.

Topic 11. Information and interdisciplinary work.

Topic 12. Notes on ergonomics and visual hygiene.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	30,00	100
Tutorials	7,50	100
Laboratory practices	7,50	100
Attendance at events and external activities	2,00	0
Development of group work	9,00	0
Development of individual work	9,00	0
Study and independent work	20,00	0
Readings supplementary material	5,00	0
Preparation of evaluation activities	5,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	5,00	0
Resolution of case studies	2,50	0
TOTAL	112,50	

TEACHING METHODOLOGY

Theoretical classes: face-to-face classes, where the theoretical content of the subject will be taught, using different teaching techniques such as inverted classes, group discussions, debates, etc. The use of audiovisual methodology will be reinforced in order to provide clearer examples of the theoretical contents and the examples to be developed.

1. Small group theory sessions (seminars): These are sessions dedicated to student work in small groups, with proposals for the study of real cases to be analysed and studied by the group. In addition to the basic theoretical concepts of the subject, exercises or clinical cases of practical application of the theoretical contents will be developed (Problem Based Learning).

Theoretical concepts are also reinforced through the study of published scientific articles of interest,



directly related to the subject.

Group interrelation will be sought through oral presentations in the classroom, under the supervision of the teacher.

2. Individual supervised projects: these are projects assigned to each student, which will allow them to study a specific topic in depth on an individual basis. At the same time, the teacher can monitor the work individually.

3. Practical work: in which the theoretical concepts are developed in a practical way in various settings, such as screening in schools, examinations of children or adolescents in the clinical setting, etc.

EVALUATION

A) Written assessment (60%), by means of theoretical questions to check the assimilation of the theoretical foundations of the subject and theoretical-practical questions where the student's ability to carry out real applications of the techniques and models studied is assessed. This written test has multiple-choice questions. The multiple-choice questions will subtract 1 correct question for every (n-1) incorrect answer options.

B) Continuous assessment in theory classes and seminars (20%), established on the basis of different indicators: i) assignment of group and/or individual work (scoring) and ii) development of questions or clinical cases, interactively in the classroom (scoring). The dates for submitting the assignments will be indicated sufficiently in advance. Attendance at the seminars is compulsory. Students must attend at least 5 seminars in order to pass the course and hand in the required assignments. Students who have not attended a minimum of 5 seminars will be entitled to an exam of the content studied in the seminars.

C) Evaluation of the practical part of the course (20%), by means of practical work carried out in the real field (schools, Optometry Clinic, Optometry offices, etc.), which will allow students to analyse the evolution of their skills. Attendance at these practical sessions is compulsory and **and is a non-recoverable activity**. There are two sessions, each one scoring up to 1 point. After the completion of each practical, a follow-up form must be handed in to analyse the evolution of the student's skills. This form will also include the difficulties the student has had, the resolution mechanisms used and the learning concept achieved.

The grade required to pass the subject will be 50%. It is also a basic requirement to have a minimum score of half of the points in each of the three sections (written evaluation, seminars and practical).



REFERENCES

Basic

- Referencia b1: Grosvenor, T. (2007). Primary care optometry / Theodore Grosvenor (5th ed.). Elsevier Butterworth-Heinemann.
- Referencia b2: Press, L. J., & Moore, B. D. (1993). Clinical pediatric optometry / Leonard J. Press, Bruce D. Moore. Butterworth-Heinemann.
- Referencia b3: López Alemany, A. (2005). Optometría pediátrica / Antonio López Alemany, editor. Ulleye.
- Referencia b4: Montés Micó R. Optometría. Principios básicos y aplicación clínica. 2011. Elsevier ISBN: 978-84-8086-822-8
- Referencia b5: Khanna, R. C., Rao, G. N., & Marmamula, S. (2019). Innovative Approaches in the Delivery of Primary and Secondary Eye Care. Springer International Publishing AG.
- Referencia b6: Montés Micó R. Optometría: Aspectos avanzados y consideraciones Especiales. Elsevier. 2011: ISBN: 978-84-8086-890-7
- Referencia b7: Scheiman, M. M., & Wick, B. (1996). Tratamiento clínico de la visión binocular: disfunciones heterofóricas, acomodativas y oculomotoras / Mitchell Scheiman, Bruce Wick. Lippincott.

Additional

- Referencia c1:
Buckingham, T. (1993). Visual problems in childhood / Edited by Terry Buckingham. Butterworth-Heinemann.
- Referencia c2:
Zihl, J., & Dutton, G. N. (2014). Cerebral Visual Impairment in Children: Visuoperceptive and Visuocognitive Disorders (2015th ed.). Springer Wien. <https://doi.org/10.1007/978-3-7091-1815-3>
- Referencia c3: Scheiman, M., Wick, B., & Steinman, B. (2020). Clinical management of binocular vision: heterophoric, accommodative, and eye movement disorders / Mitchell Scheiman (O.D., Ph.D., Professor, Dean of Research, Director of Graduate Programs, Pennsylvania College of Optometry at Salus University, Elkins Park, Pennsylvania), Bruce Wick (Professor Emeritus, University of Houston, College of Optometry, Houston, Texas); illustrator Barbara Steinman (O.D., Ph.D) (Fifth edition). Wolters Kluwer Health.