COURSE DATA

DATA SUBJECT

Code: 46996
Name: Advanced optometry
Cycle: Master's Degree
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2280 - Master's Degree in Advanced Optometry and Vision Sciences	Facultat de Física	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2280 - Master's Degree in Advanced Optometry and Vision Sciences	Optometría avanzada	COMPULSORY

COORDINATION

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SUMMARY

The Advanced Optometry course provides students with the optometric knowledge and skills needed to carry out their professional activity in an advanced clinical setting. Symptoms, signs and expected findings related to various ocular conditions will be addressed, as well as refractive management in special situations. The course will also focus on how to guide an optometric examination, which tests to perform and how to act at the optometric level to achieve the best possible visual outcome, taking into account the latest scientific advances. In addition, it promotes critical interpretation of clinical tests, selection of appropriate techniques for each case, assessment of their reliability, ethical reasoning, effective communication and appropriateness of referrals. The course also highlights the importance of multidisciplinary teams in which the optometrist works closely with other health professionals to provide comprehensive visual care.

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 to have completed prior courses in general optometry and to have basic knowledge of visual examination techniques.

COMPETENCES / LEARNING OUTCOMES

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Act autonomously in learning, make informed decisions in different contexts, issue judgements based on experimentation and analysis and transfer knowledge to new situations.

Apply optometric techniques to achieve the best visual outcome.

Apply the knowledge acquired and be able to solve proplems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study.

Apply the most suitable test for a specific purpose.

Be able to communicate effectively, both orally and in writing, adapting to the characteristics of the situation and audience.

Be aware of advances in visual analysis in geriatric patients.

Be aware of advances in visual analysis in pediatric patients.

Collaborate effectively in work teams, taking on responsibilities and leadership roles and contributing to collective improvement and development.

Conduct a clinical history appropriate to the patient's profile.

Contribute to the design, development and implementation of solutions that respond to social demands, considering the Sustainable Development Goals as a reference.

Demonstrate confidence in interpreting common clinical tests and know how to evaluate the reliability of a measurement made with a device.

Demonstrate critical and self-critical reasoning in the field of the degree, considering aspects such as professional ethics, moral value and the social implications of the different activities carried out.

Distinguish the most appropriate optometric solution for each individual patient at any time.

Evaluate and perform differential diagnosis and apply treatments for various visual problems specific to the field of optometry.

Have ethical commitment and social responsibility, both in the care component linked to the optometrist profession and in clinical research.

Identify problems and limitations encountered by patients with specific characteristics due to their pathology.

Identify the difficulties experienced by pathological patients undergoing clinical examination and develop strategies to minimise them.

Identify the limitations presented by optometric corrections.

Identify when it is appropriate to refer the patient for other types of optometric aids.

Interpret and analyse ophthalmological clinical diagnostic tests.

Know and understand, within the area of the degree, inequalities based on sex and gender in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem-solving.

Know how to communicate conclusions and the knowledge and rationale behind them to both specialised and non-specialised audiences clearly and unambiguously.

Know the visual anomalies with pathological incidence.

Organise the different areas of visual care, from primary care to specialised care in public or private clinics.

Plan and manage time and resources, and gain experience in decision-making.

Propose creative and innovative solutions to complex situations or problems within the field of knowledge to respond to diverse professional and social needs.

Relate ophthalmological manifestations, systemic, neurological and endocrine diseases with the most prevalent visual impairments.

Understand the management and refractive treatment in specific conditions.

Work in multidisciplinary teams in the health sciences.

DESCRIPTION OF CONTENTS

UT1. Patients with optometric needs.
The healthcare profession of the optometrist. Characteristics of the healthy eye. Definition of pathological patient. Influential factors in ocular and visual health. Complete anamnesis and clinical decision-making.

UT2. Optometric approach to binocular vision anomalies.
Binocular vision anomalies in different populations and optometric examination.

UT3. Advances in controlling myopia progression.

Prevalence of myopia and influencing factors. Current optometric solutions used in controlling myopia progression.

UT4. Optometric approach to corneal conditions.
Morphological and functional characteristics. Examination and morphological parametrization. Corneal biomechanics. Corneal disorders with visual impact and optometric management.

UT5. Optometric approach to pupillary conditions.
Anatomical and physiological characteristics. Pupil and pupillary pathway examination. Pupillary defects.

UT6. Optometric approach to crystalline lens conditions.
Anatomical and physiological characteristics. Cataracts. Other lens anomalies.

UT7. Advances in techniques for presbyopia correction.
Prevalence and impact of presbyopia. Presbyopia correction methods. Advanced characterization of intraocular lenses.

UT8. Optometric approach to posterior pole conditions.
Advanced examination in glaucoma. Advanced examination in diabetic retinopathy. Other retinal disorders.

UT9. Vector notation for handling optical solutions and optometric prescriptions.
Vector operations. Applications of vector formalism. Vector measurement of refractive error.

UT10. New technologies in optometric practice.
Impact of artificial intelligence (AI) in the field of optics and optometry. Advantages and limitations of AI. Research advances and challenges in the use of AI.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	30,00
Seminar	14,00
Total hours	**44,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	20,00
Independent study and work	40,00

Preparation of lessons	0,00
Preparation for assessment activities	8,50
Resolution of case studies	0,00
Total hours	**68,50**

TEACHING METHODOLOGY

The course in the face-to-face modality will include two types of sessions with differentiated methodologies:

(1) Lectures
(2) Seminars

1. In lectures, the contents of the course will be presented, alternating theoretical and practical cases from all topics. In addition, students will be encouraged to engage in discussion on the questions raised during the session.

2. Seminars will be classroom-based sessions with various approaches:

- Sessions in which each student individually works on scientific articles or clinical cases (original or published) related to the subject.

- Sessions conducted in small groups (no more than 4 or 5 students) to address a specific topic covered in the course.

- When available, guest lecturers and/or professionals working in relevant fields may be invited to participate.

- Some seminar sessions may be reserved to address questions and problems raised by the course itself or by the students.

- Assignment presentations: individual presentations no longer than 10 minutes, in which students must present their work on articles or cases and provide a critical analysis.

In the online modality:

Students will be provided with the lecture slides and additional audiovisual materials to follow the course remotely.

They will work both individually and in groups on the search, reading and analysis of scientific articles related to the course content.

If guest lecturers are scheduled, students will be notified in advance, and the sessions will be broadcast live using Zoom (or similar platforms) to allow remote attendance.

The virtual classroom will be used to resolve questions and facilitate discussion about the subject.

Students in this modality must complete the same assignments as those in the face-to-face modality. In their case, presentations must be recorded in an audiovisual format that includes both audio and video. The resulting videos (maximum duration: 10 minutes) must be uploaded to the virtual classroom for evaluation.

EVALUATION

The maximum overall grade that can be obtained in the course is 10 points. The final grade will be calculated based on the following assessment components:

A. Written exam (60% of the final grade: 6 points): all students enrolled in the course, regardless of the modality, must take a written exam in person at the facilities of the University of Valencia. This exam will consist of theoretical and practical questions based on the content taught in lectures and seminars. It will include multiple-choice questions and/or open-ended questions and/or case problems. Multiple-choice questions will offer several answer options, but only one will be correct. An incorrect answer will deduct one third of the value of a correct answer.

B. Individual assignment (20% of the final grade: 2 points): students will be assessed on an individual assignment. Students in the face-to-face modality will present the assignment in the classroom, while students in the online modality will record themselves (audio and video) and upload the resulting video to the virtual classroom.

C. Group assignment (20% of the final grade: 2 points): group assignments developed in small groups of students. Face-to-face students will present their work in class; online students will present their work via a video recording (audio and video), which must be uploaded to the virtual classroom.

Requirements to pass the course:

In order to apply the weighted average, students must obtain at least 50% of the grade in each of the three components.
- If all components are passed with a minimum of 50%:
  * The final grade will be the weighted average of components A, B and C.

- If any component is failed (less than 50%):
  * The course will not be passed, even if the weighted average is higher than 5.
  * In that case, the final grade will be the score of the failed component, scaled to 10.
  * If more than one component is failed, the final grade will be the highest of those failed components, scaled to 10.

All components are resit-eligible under the same conditions.
For the second exam session, the grades of the components passed in the first session will be retained.

REFERENCES

Basic references:

- *Optometría Pediátrica*. Antonio López Alemany. Editorial Ulleye, 2004. ISBN: 84-930828-2-1
- *Vision and Aging*. A.A. Rosenbloom, Jr.; M.W. Morgan. Butterworth-Heinemann, 1992. ISBN 13: 978-0750673594.
- *Oftalmología Clínica*. Jack J. Kanski. Elsevier España, 2021 (9ª ed.). ISBN 13: 978-8491138938
- *Retina y nervio óptico para optometristas y otros profesionales sanitarios*. Marc Biarnés Pérez (coord.). Grupo ICM, S.L., 2022. ISBN 13: 978-84-123998-6-8

Complementary references:

- Artículos seleccionados de diversas revistas relacionadas con la visión y la salud ocular: *Journal of Cataract and Refractive Surgery*, *Ophthalmology*, *Journal of Refractive Surgery*, *European Journal of Ophthalmology*, etc.