

**COURSE DATA****DATA SUBJECT**

Code: 47000
Name: Pre- and Post-Surgery Optometric Care
Cycle: Master's Degree
ECTS Credits: 3
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	Atención optométrica pre y post cirugía	COMPULSORY

COORDINATION

ALBARRAN DIEGO CESAR ANTONIO

SUMMARY

This subject delivers a comprehensive overview of optometric care for patients undergoing refractive surgery. It covers the principles of various techniques (corneal, phakic and pseudophakic intraocular), specific diagnostic tools, the use of calculators for intraocular power calculation, and a practical approach through pre- and postoperative clinical case analysis. Additionally, the subject includes a hands-on component with real patients, to be conducted in three sessions at the UV Optometric Clinic.

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 students enter this subject with a solid understanding of the content taught in the Bachelor's degree related to optometry, contactology, ocular anatomy, and ocular physiology.

COMPETENCES / LEARNING OUTCOMES

2280 - Master's Degree in Advanced Optometry and Vision Sciences

Calculate the required power of an intraocular lens for cataract surgery.

Communicate and inform the patient about all procedures and tests to be performed and clearly explain the results and diagnosis.

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

Manage optometrically the patient being evaluated for refractive surgery or who has undergone such surgery.

Measure and analyse visual function at different distances in a patient with different types of multifocal intraocular lenses.

Review and evaluate the patient's ocular and visual health before and after undergoing refractive surgery.

Understand optical solutions for refractive surgery.

Understand the pre- and post-operative examination protocols for refractive surgery patients.

Understand the techniques and procedures of refractive and cataract surgery.

DESCRIPTION OF CONTENTS

Topic 1. Introduction to refractive surgery

This topic defines refractive surgery, outlines its objectives, and classifies the different types based on the treated area: corneal and intraocular. It also describes the main corneal techniques (incisional, conductive, photoablative, subtractive, UV irradiation, and corneal implantology) and intraocular techniques (phakic and pseudophakic IOL implantation).

Topic 2. Corneal refractive techniques

This topic presents surgical approaches applied to the cornea to correct refractive errors, including incisional, conductive, photoablative, and subtractive methods, highlighting the key clinical considerations for planning and follow-up.

Topic 3. Phakic intraocular refractive techniques



This topic covers phakic intraocular lenses as an option for high myopia and other refractive errors. It reviews lens types (iris-claw, anterior chamber, and posterior sulcus), patient selection criteria, and preoperative biometric and optometric assessments. It also outlines the surgical procedure, postoperative follow-up, and management of potential complications such as endothelial cell loss or lens decentration.

Topic 4. Pseudophakic intraocular refractive surgery

This topic addresses pseudophakic intraocular surgery or lens replacement, including ocular biometry using ultrasonic and optical techniques and IOL power calculation based on key biometric parameters (keratometry, axial length, anterior chamber depth, lens thickness, and white-to-white diameter). It covers the classification and preoperative assessment of cataracts and the selection criteria for monofocal and multifocal IOLs. Finally, it outlines pre- and postoperative follow-up protocols, emphasizing the defocus curve concept for evaluating multifocal lens performance.

Topic 5. Analysis and communication of refractive surgery outcomes

This topic introduces the applicability of vector notation for analyzing refractive surgery outcomes, particularly in astigmatic procedures. It describes alternative refraction protocols based on vector notation for irregular cornea cases and outlines postoperative analysis using vector subtraction of pre- and postoperative refractions. Finally, it addresses result communication and the evaluation of predictability, efficacy, and safety of refractive procedures.

Practical session 1: corneal refractive surgery cases

Students will attend, at the UV Optometric Clinic, patients who have undergone corneal refractive surgery under faculty supervision.

Practical session 2: corneal ectasia cases

Students will first practice stenopaic slit refraction and vectorial refraction techniques on each other. They will then apply these methods to a real patient case of corneal ectasia under faculty supervision.

Practical session 3: intraocular refractive surgery cases

Students will attend, at the UV Optometric Clinic, patients who have undergone phakic and pseudophakic intraocular refractive surgery under faculty supervision.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	10,00



Seminar	5,00
Laboratory	15,00
Total hours	30,00

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	10,00
Independent study and work	25,00
Preparation of lessons	0,00
Preparation for assessment activities	5,00
Resolution of case studies	5,00
Total hours	45,00

TEACHING METHODOLOGY

The course combines lectures, seminars and hands-on clinical sessions with real patients to foster both knowledge acquisition and active student engagement.

Lectures:

An expository (lecture-style) approach is used, supported by audiovisual materials (images, videos and diagrams) to clarify concepts and surgical techniques.

Seminars:

Students tackle questionnaires and clinical case studies derived from the lecture content, encouraging discussion and practical application of pre- and postoperative optometric procedures.

Clinical sessions:

Three practical sessions at the UV Optometric Clinic with real patients, where students take part in pre- and postoperative evaluation and follow-up under faculty supervision.

EVALUATION

The final grade in the first examination period is obtained by weighting three components with the following criteria, minimum thresholds and specifications:

- Final exam (60 %). To pass this component, students must achieve at least 5 out of 10 (equivalent to 3 points of the 7 it contributes).
- Continuous assessment (20 %). This consists of completing questionnaires that students must submit by the deadline set by the professor (usually at the end of each topic). A minimum of 5 out of 10 is required to pass this component (1 point of the 2 it contributes). Continuous assessment cannot be retaken.
- Practical component (20 %). Involves submitting a report with two clinical cases from the practical sessions at the optometric clinic, in which the student describes in detail the entire consultation protocol for two patients seen during the sessions. A minimum of



5 out of 10 is required (1 point of the 2 it contributes).

In the second examination period, continuous assessment is eliminated, and the following criteria apply:

1. Exam (80 %): all students who did not pass continuous assessment and/or the exam in the first examination period must take the make-up exam, which will be worth 80 % of the final grade.
2. Practical component (20 %): students who failed the practical component in the first examination period must resubmit the clinical cases according to the professor's instructions.

Thus:

- If only continuous assessment was failed in the first examination period, only the exam (80 %) is taken in the second.
- If only the exam was failed in the first examination period, the exam (80 %) is taken in the second, retaining the continuous assessment grade.
- If both components were failed, the exam (80 %) and the practical resubmission (20 %) must be taken in the second.

To pass the course in the second examination period, students must obtain at least 5 out of 10 on the make-up exam and, if applicable, on the practical component.

REFERENCES



Basic references:

- American Academy of Ophthalmology. *Refractive Surgery. Basic and Clinical Science Course 2024-2025*. American Academy of Ophthalmology, 2024. ISBN 1681047950.
- Dimitri Azar. *Refractive Surgery*. Mosby-Elsevier, 2007. ISBN 9780323035996.
- Robert Montés-Micó. *Optometría: Aspectos avanzados y consideraciones especiales*. Elsevier, 2011. ISBN 9788480868341.

Complementary references:

- José Antonio Calvache Anaya. *Manual de biometría ocular y cálculo de lentes intraoculares*. Saera, 2017. ISBN 9788494476013.
- Aylin Kiliç, Cynthia J. Roberts. *Corneal Topography*. Kugler Publications, 2013. ISBN 9789062992300.