UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Applied Optometry With Laboratory

2627-3-E3002Q052

Aims

General aims of the module

Consolidate the theoretical knowledge and practical skills in basic clinical optometry and provide initial theoretical and practical training in more 'advanced' areas such as primary care, binocular vision anomalies, visual training, pediatric and geriatric optometry, and low vision."
To strengthen the student's autonomy in performing an optometric clinical investigation, by selecting the appropriate procedures for subjects of different ages and conditions with "evidence-based" criteria.
To boost the student's problem solving and decision-making skills in order to identify suitable and effective management options for the needs of the subject examined.

Specific learning outcomes (LO):

By the end of this module, a successful student will be able to:

-LO1: Knowledge, understanding and skill to select evidence-based optometric procedures and tests to be performed on the base of the needs of the clinical case.

-LO2: Develop the theoretical knowledge and practical skills to perform psychophysical measurements of the visual system functionality.

-LO3: Develop the theoretical knowledge and practical skills to perform primary care screening and an assessment of ocular motility and binocular vision.

-LO4: Describe the theoretical principles underlying general optometric correction and in fields such as binocular vision anomalies, paediatric optometry, geriatric optometry and low vision.

-LO5: Select the appropriate corrective approach and visual training strategy on the base of the needs of the clinical case.

Contents

1. Primary care Optometry

2. Optical prescription

3. Binocular vision anomalies

4. Visual Training

5. Paediatric Optometry

6. Geriatric Optometry and low vision

Detailed program

The module syllabus is articulated as it follows, including lectures (L) and practical sessions (PS) for each topic:

1. Primary care Optometry (L and PS)
-The relevance of Primary care in Optometry
-Ophthalmoscopy
-Tonometry
-Anterior chamber angle assessment techniques
-Pupil functioning assessment

2. Visual assessment in clinical practice (L and PS)
-Elements of visual psychophysics
-Visual Field assessment
-Visual acuity and contrast sensitivity measurement
-Crowding assessment
-Colour vision testing.
-Vision quality questionnaires
-Reading performance assessment

3. Binocular vision anomalies (L and PS)
-Binocular vision anomalies
-Fixation disparity
-Tests for binocular vision anomalies assessment

4. Optical prescription (L)
-The correction of refractive errors with spectacles, contact lenses and refractive surgery
-Optical correction and myopia progression
-Presbyopia correction with spectacles
-Problem solving in optical dispensing

5. Basic elements of isual Training (L and PS)
-Visual Training history and rationale
-Visual Training effectiveness
-Sequence and guidelines

-Instrumentation for visual training and procedures

6. Basic elements of Pediatric Optometry (L)
-Visual system development
-Visual functioning assessment in children.
-Amblyopia
-Specific Learning disorders and vision

7. Basic elements of Geriatric optometry and low vision (L)
-Effects of aging on structure, optical properties and functioning of the eye and the visual system
-Low vision definition, classification, epidemiology and aetiology
-Visual impairment subtypes and psychological aspects
-Functional assessment of the low vision patient
-Optics of magnification and vision aids selection
-Low vision devices, Coaching and training in low vision

Prerequisites

It is requested a theoretical and practical knowledge of:

-The main techniques of measurement of ocular parameters and ocular refraction.

-The basic principles of the optical correction of vision defects and of the physiology of binocular vision.

-The mechanisms underneath basic visual functions and information processing.

Teaching form

Learning objectives will be pursued through different teaching methods: lectures (28 hours), direct learning in Lab practical sessions (48 hours), group work and student-managed learning.

Lectures will be held in person on Tuesday (13:30-15:30) in U2 05 classroom and Thursdays (14:30-15:30) in U2-04 Classroom.

Lab practice (Tutor: to be defined) will be held on Monday (14.30-18.30) and Wednesday from 9:(9.30-13.30) in the the labs or U9 Clinics. Students will be divided into two groups (A and B).

Textbook and teaching resource

Summative assessments can be prepared with the following textbooks and scientific papers.

Textbooks:

- Elliott DB. (2013). Clinical Procedures in Primary Eye Care E-Book. Elsevier Health Sciences.

-Zeri F, Rossetti A, Fossetti A, Calossi A. (2012). Ottica visuale. SEU.

-Eperjesi F, Bartlett H, Dunne MC. (2007). Ophthalmic Clinical Procedures: A Multimedia Guide. Elsevier Health Sciences.

-Scheiman M, Wick B. (2008). Clinical management of binocular vision: heterophoric, accommodative, and eye movement disorders. Lippincott Williams & Wilkins.

-Gheller P, Rossetti A. (2007). Manuale di optometria e contattologia. Bologna, Zanichelli.

-Lupelli, L. (2004). Ipovisione: i fondamenti e la pratica. Medical Books.

Papers:

-American Optometric Association. 2004. Pediatric Eye and Vision Examination: Reference for Clinicians. SI. Louis: The Association.

-Martínez PC, Muñoz ÁG, Ruiz-Cantero MT. Treatment of accommodative and nonstrabismic binocular dysfunctions: a systematic review. Optometry-Journal of the American Optometric Association. 2009 Dec 1;80(12):702-16.

-Meister DJ, Fisher SW. Progress in the spectacle correction of presbyopia. Part 1: Design and development of progressive lenses. Clinical and experimental optometry. 2008 May;91(3):240-50.

-Owsley, C. (2011). Aging and vision. Vision research, 51(13), 1610-1622.

-Zeri F, Beltramo I, Boccardo L, Palumbo P, Petitti V, Wolffsohn JS, Naroo SA. An Italian translation and validation of the Near Activity Visual Questionnaire (NAVQ). European journal of ophthalmology. 2017 Nov 8;27(6):640-5.

A comprehensive list of the mandatory readings is available on the e-learning page.

Link to websites offering clinical procedures simulators are also available.

Semester

First Semester
From October 30th 2025, to January 30th 2026. Lectures and labs' agenda will be available on the e-learning course page.

Assessment method

Final summative assessment.

Admission criteria:

To sit for the exam of Advanced Optometry it is necessary to have passed the exam of General Optometry and have a percentage of attendance of Practical session in Lab not inferior to 75% of the total amount of hours provided in the course.

The assessment is divided into:

1.Written Examination with MCQ and short answer question.

-20 MCQs (0.5 mark each);

-One short-answer question (6 marks). ‘Identifying the appropriate examination procedures necessary for the evaluation of a particular clinical case and the proposed case management"

-Cut-off mark to pass: 10/30. Maximum mark: 16/30 (weighting about 50% of the total exam mark).

-Duration: 45 minutes

2.** Oral examination**

-Expected task: Theoretical description and practical execution of an optometric technique foreseen by the program.

-Cut-off mark to pass: 6/30. Maximum mark: 10/30; (weighting about 33% of the total exam mark).

3**. Group Work (GW) or Essay**
GW
-Expected task: Group presentation on one question/dilemma identified at the beginning of the semester. (see specific description on e-learning)
-Cut-off mark to pass: 2/30. Maximum mark: 4/30; (peer assessment and staff members) (weighting about 15% of the total exam mark).
-Duration: 10 minutes
Essay
-Expected task: Brief essay on a topic of the Module agreed with the lecturer (see specific description on e-learning)
-Cut-off mark to pass: 2/30. Maximum mark: 4/30;

The overall mark consists in the addition of the 3 marks obtained by the student in the different examinations (written, oral and group work or Essay). The three examinations are considered evaluations of different learning objectives (LO 1-5) and therefore they are thus not calculated as an average, but rather added to form the overall final vote. Each examination requires a minimum rank of 60%. Overall rank to pass: 18/30.

Office hours

Appointment needed

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | DECENT WORK AND ECONOMIC GROWTH