UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Advanced Optometry With Laboratory

2122-3-E3002Q034

Aims

General aims of the module

To develop student's theoretical understanding, and investigative practical skills in clinical optometry, with specific focus in areas such as primary care, binocular vision anomalies, visual training, paediatric optometry, 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: 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. Evidence-based practice in Optometry

2. Primary care Optometry: posterior and anterior eye assessment, tonometry, pupil functioning evaluation, visual functioning assessment.

3. Optical prescription

4. binocular vision anomalies

5. Visual Training

6. Paediatric Optometry

7. 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**. Evidence-based practice in Optometry (L)**

-What the evidence-based practice is?

-How to develop an evidence-based approach through a correct analysis of scientific literature.

2. **Primary care Optometry (L and PS)**

-The relevance of Primary care in Optometry

-Direct and Indirect ophthalmoscopy in posterior eye assessment

-Tonometry.

-Anterior chamber angle assessment techniques: Pen-Torch, Van Herick, Smith's Technique, Gonioscopy.

-Pupil functioning evaluation.

3. Visual functioning assessment

-Visual Field assessment: gross perimetry, Kinetic perimetry, Static automatized perimetry, Amsler chart.

-The Psychophyics in visual functioning measurements:

-Standards in visual acuity and contrast sensitivity measurement.

-Contrast sensitivity measurement: low contrast charts, Pelli Robson chart.

-Colour vision testing.

-Vision quality questionnaires: NAVQ, NEI-VFQ-25

-Reading performance assessment: Radner test, MNREad chart and Rate of Reading Test. The measurement of reading speed, CPS and reading acuity.

4. **Binocular vision anomalies (L and PS)**

-Binocular vision anomalies.

-Fixation disparity.

-Tests for binocular vision anomalies assessment: Hirschberg test, Krimsky test, 4 Dp Base-out test, Six Cardinal Positions of Gaze assessment (H test), Cover test and cover-uncover test, Worth test. Bagolini test.

5. **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.

6. Visual Training (L and PS)

Visual Training rationale

Historical development of Visual training

Visual Training prescription

Visual Training effectiveness

Sequence and guidelines

Instrumentation for visual training and procedures

7. **Pediatric Optometry (L)**

Visual system development

Visual functioning assessment in children.

Amblyopia and its assessment.

Specific Learning disorders and vision.

8. Geriatric optometry and low vision (L)

Low vision definition and classification

Epidemiology and aetiology

Visual impairment subtypes.

Psychology and low vision

Functional assessment in low vision patient.

Optics of magnification

Low vision patient assessment

Low vision devices prescription

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 per shift), group work and student-managed learning.

We remind students that a compulsory green pass for attending the lectures/labs in presence is requested (see at https://www.unimib.it/news/informazioni-attivita-didattiche-servizi-e-ingressi-universita-partire-dal-1-settembre-2021)

Lectures

(Tuesday 15.30-17.30 and Wednesday 13.30-14.30, classroom U3-10). It will be possible to attend the lectures

remotely thanks to a streaming on Webex.

(https://unimib.webex.com/meet/fabrizio.zeri)

Topics:

1. Evidence-based practice in Optometry
2. Primary care Optometry: posterior and anterior eye assessment, tonometry,
3. Visual functioning assessment.
4. Ocular motility, binocular vision and binocular vision anomalies
5. Optical prescription
6. Visual Training
7. Paediatric Optometry
8. Geriatric Optometry and low vision

Practical sessions in Lab (Wednesday 8.30-12.30 and Thursday 8.30-12.30)

Students are split into two groups (A and B) with alternating attendance of both Wednesday and Thursday)

Topics:

-Basic Optometric procedures Revision

-Direct and indirect Opthalmoscopy.

-Tonometry and anterior chamber angle evaluation techniques.

-Visual field tests.

-Psychophysical measurement of visual functioning (high and low contrast AV, crowding)

-Colour vision testing

-Vision quality questionnaires

-Reading performance assessment

-Ocular motility and Binocular vision assessment

-Fixation disparity

- Visual training techniques

-Clinics with patients

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 4th, 2021 to January 28th 2022. (see Agenda at a glance)

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.

We remind students that a compulsory green pass is required to sit in the exam (see at https://www.unimib.it/news/informazioni-attivita-didattiche-servizi-e-ingressi-universita-partire-dal-1-settembre-2021)

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**

-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

The overall mark consists in the addition of the 3 marks obtained by the student in the different examinations (written, oral and group work). 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