UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

History and Techniques of Contemporary Optometry

2627-1-F1702Q002

Aims

The objectives fall within the area of "Technologies and Instrumentation" and refer to the following Dublin Descriptors:

1 – Knowledge and understanding

- Provide knowledge and skills on the historical development and operational principles of contemporary optometric assessment techniques

2 – Applying knowledge and understanding

- Develop skills in the use of advanced instrumentation and technologies in the field of optometry, as well as the ability to critically analyze the collected data
- Develop the ability to produce, collect, organize, analyze, and critically interpret scientific literature
- Develop the ability to adopt a clinical optometric approach based on scientific evidence

3 – Making judgements

- Develop the ability to reflect independently on the course content
- Develop independent judgement in the field of optometry and vision science

4 – Communication skills

- Develop the ability to communicate effectively and contribute proactively to group work
- Develop the ability to read, write, and present scientific work

5 – Learning skills

- Develop the ability to reflect independently on the course content in order to acquire learning skills with a

view to future developments in the field

Contents

The course will cover:
? The historical evolution, operating principles, and use of some contemporary and advanced optometric investigation techniques
? The production and analysis of the scientific literature with specific activities concerning contemporary and advanced optometric investigation techniques
? The planning and design of optometric clinical studies.
Further details are provided in the extended program.

Detailed program

1. HISTORICAL EVOLUTION, OPERATING PRINCIPLES, AND USE OF THE FOLLOWING OPTOMETRIC INVESTIGATION TECHNIQUES
   ? Ocular tomography
   ? Ocular biometry
   ? Ocular aberrometry

2. SCIENTIFIC LITERATURE
   ? types of scientific articles
   ? search and retrieval of the current literature
   ? citations and plagiarism detection
   ? new approaches based on artificial intelligence
   ? how to read, to write, and to peer-review a scientific paper

3. REVIEW OF THE SCIENTIFIC LITERATURE ON SPECIFIC TOPICS
   The students will be asked to write a mini-review article based on the contents of point 2, focusing on a specific topic proposed by the lecturers related to the applications of the optometric investigation techniques listed in point 1. The assignment will follow the typical submission process of a scientific journal, including specific formatting requirements, a formal submission procedure, peer-style comments, and a revision phase.

4. CLINICAL STUDY
   ? Clinical study designs
   ? sources of bias in research designs
   ? evidence-based practice

Prerequisites

Basic knowledge of software for writing (e.g., Microsoft Office, downloadable at this link: https://en.unimib.it/services/utilities/service-desk/campus-software) and browsers (e.g., Google Chrome).

Teaching form

The lectures are delivered in English.
The course includes:

- 7 hours of in-person lectures (video-recorded and made available on the course e-learning platform)
- 12 hours of asynchronous online e-learning exercises based on optometric clinical cases
- 21 hours of asynchronous online interactive e-learning activities
- 12 hours of in-person interactive laboratory activities, with compulsory attendance

Textbook and teaching resource

- notes on the e-learning page provided by the lecturers
- papers taken from the scientific literature
- slides of the lectures
- videorecordings of the lectures

Semester

first semester

Assessment method

This course consists of FIVE SECTIONS, which are listed below. Each section includes an assessment of learning outcomes, and the results of these assessments will contribute to the final overall grade.
These five sections are:

1- HISTORICAL EVOLUTION, OPERATING PRINCIPLES, AND USE OF SOME OPTOMETRIC TECHNIQUES (S. Tavazzi)
? Teaching form: in-person classroom lectures, recorded and subsequently made available for asynchronous access on the e-learning page of the course
? Topics: Scheimpflug, OCT, AS-OCT, OCTA, biometry, aberrometry
? Assessment method: written examination in person in the classroom designated for the officially scheduled examination sessions, for which the student must register. A set of 20 written questions (closed-ended answers or questions requiring a brief open-ended response) will assess the student's preparation on this part of the program. The grade corresponds to the number of correct answers in the written test. The threshold for considering this part of the exam as passed is 12 points (max score in this part is 20 points).

2- CLINICAL OPTOMETRIC CASES (A. Calossi)
? Teaching form: asynchronous lectures available on the e-learning page of the course
? Topics: discussions on clinical cases based on real examples, including interpretation of collected data, discussion of possible artefacts, and related issues
? Assessment method: written examination in-person during the officially scheduled examination sessions, for which the student must register. A set of 8 written questions (closed-ended answers or questions requiring a brief open-ended response) will assess the student's preparation on this part of the program. The grade corresponds to the number of correct answers in the written test. The threshold for considering this part of the exam as passed is 5

points (max score in this part is 8 points). This part of the written examination may be taken on the same day as the written parts concerning points 1 (see above) and point 3 (see below) or, at the candidate's discretion, during a subsequent examination session, provided that the student registers for the new examination session.

3- EVIDENCE-BASED PRACTICE AND SCIENTIFIC LITERATURE (S. Tavazzi)
? Teaching form: asynchronous lectures available on the e-learning page of the course
? Topics: clinical study designs, sources of bias in research designs, evidence-based practice, types of scientific articles, search and retrieval of the current literature, citations and plagiarism detection, new approaches based on artificial intelligence, how to read, to write, and to peer-review a scientific paper
? Assessment method: written examination in-person during the officially scheduled examination sessions, for which the student must register. A set of 6 written questions (closed-ended answers or questions requiring a brief open-ended response) will assess the student's preparation on this part of the program. The grade corresponds to the number of correct answers in the written test. The threshold for considering this part of the exam as passed is 4 points (max score in this part is 6 points). This part of the written examination may be taken on the same day as the written parts concerning points 1 and 2 or, at the candidate's discretion, during a subsequent examination session, provided that the student registers for the new examination session.

4- SIMULATION OF THE PUBLICATION PROCESS OF A SCIENTIFIC REVIEW (S. Tavazzi)
? Teaching form: project work
? Topics: each student will be assigned a topic and asked to prepare a scientific review paper. The same assigned topic will also be discussed in a subsequent online oral interview. During the oral interview, the discussion will follow a predetermined structure or a presentation prepared in advance by the student; the lecturer will also ask a number of open questions on the assigned topic.
? Assessment method: evaluation of the scientific review paper and evaluation of the oral interview.
Once the topics are announced through the e-learning page of the course, it will be possible to submit the individual essay following the provided instructions. There is no specific deadline for submitting the paper; however, please note that the submission date will determine the date of the oral examination, due to technical scheduling reasons, as here described. Indeed, after submission, each student will receive written comments on his/her paper from the lecturers within three weeks. In this evaluation, the student can get three different possible comments from the reviewers:

- No revisions: the manuscript is excellent in terms of structure, content, and scientific quality. The student may proceed to the oral exam.
- Minor revisions: the manuscript is generally acceptable in terms of structure, content, and scientific quality, but requires limited corrections. If only minor revisions are required, the student is considered to have met the minimum threshold and may proceed to the oral exam.
- Major revisions: the manuscript requires substantial modifications before it can be considered acceptable. If major revisions are required, the student cannot take the oral exam until:
  ? The manuscript has been corrected according to the reviewers' comments.
  ? A reply letter addressing the revisions has been prepared.
  ? Both the corrected manuscript and the reply letter are submitted. The student will receive feedback about the revised manuscript within three weeks from the new submission. If the feedback changes to Minor revisions or to No revisions, the student may proceed to the oral exam.
  The threshold for considering the part of the exam as passed (written assay) is 6 points (max score is 10 points) based on clarity and precision of the submitted article, structure and completeness to evaluate whether the article is well-structured and includes all necessary sections (introduction, methodology, results, discussion, and conclusions), conclusion validity, quality and clarity of the figures and tables, style and formatting to evaluate whether the style and formatting of the article are appropriate and in agreement with the "Guidelines to Authors" provided.
  An oral discussion will verify the student's ability to critically interpret scientific literature concerning the topics of his/her written essay. This oral examination will take place at least three weeks after the student's submission of the written article and only when the minimum threshold required for the written article has been achieved (as described above). The threshold for considering the part of the exam as passed (oral interview) is 6 points (max score is 10 points) for whether the candidate demonstrates knowledge of the topics covered during the oral discussion.

5- LABORATORY ACTIVITIES (E. Ponzini, J. Saccani)
? Teaching form: mandatory in-person activity (address: U9/A building, COMiB research center, Viale dell'Innovazione 10, Milan)
? Topics: hands-on activities using the instruments available in the laboratory. For further important information regarding the laboratory activities, please refer to the specific documentation available in the "LABORATORY SESSIONS" section of the e-learning page of the course.
? Assessment method: practical examination carried out directly in the laboratory. At the end of the laboratory session (during the final hour scheduled in the calendar), each student will receive an assessment of the skills acquired in the laboratory and of the commitment demonstrated. The threshold for considering this part of the exam as passed is 7 points (max score in this part is 12 points).

FINAL MARK FOR THIS EXAM
As previously mentioned, the assessment consists of the FIVE PARTS outlined above. Each part requires a minimum score to be achieved (see above). If this threshold is not met, that specific part of the exam must be repeated. When the threshold has been reached in all five parts of the exam, the final grade will be the sum of the obtained scores divided by 2.1. Since the total score may range from 38 to 66 points, the corresponding final mark will range from 18/30 to 30/30 cum laude. Th mark 30/30 cum laude will correspond to total scores equal to 65 and 66. Students who have not completed the mandatory laboratory hours will not be eligible to complete the examination, regardless of their performance in the other assessment components. In such cases, the required laboratory hours must be completed in a subsequent academic year.

Office hours

by appointment arranged by email

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING