UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Principles of Ocular Pathology

2627-3-E3002Q018

Aims

The course is intended to provide students with fundamental concepts on pathology relevant for their professional field. At the end of the course, students will have achieved the following aims:

Knowledge and understanding:
The course aims to provide appropriate medical, physiological, and pathological knowledge for an optimal understanding of the functioning of the visual system and the mechanisms underlying vision.

Ability to apply knowledge and understanding:
The course enables students to identify physiological characteristics of the visual system that may be potentially pathological, and consequently to recommend further specialist medical-ophthalmological evaluation when visual issues are not of a functional or optometric nature.

Making judgements:
The course develops the ability to use the procedures and instruments necessary for detecting essential ocular parameters, and to critically analyze and interpret data in order to make independent judgments regarding individuals' visual function and to assess the most appropriate solutions for the correction of visual defects.

Communication skills:
The course provides the necessary training to communicate ideas, issues, and solutions both to specialists and professionals in the fields of optometry and ophthalmology, as well as to non-specialists, including at an international level.

Learning skills:
Learning process will be stimulated by PowerPoint presentations with extensive use of images and diagrams. Examples of clinical cases will be presented to encourage discussion and critical thinking, as well as to assess the actual understanding of the topics covered.

Contents

GENERAL PATHOLOGY: Homeostasis and disease. Etiology and pathogenesis: disease-causing agents. Inflammation and tissue repair. Oncology.

OCULAR PATHOLOGY: Pathogenic mechanisms of the main ocular pathologies.

Detailed program

GENERAL PATHOLOGY:
• Etiology. Pathogenesis. Concept of homeostasis and disease. Onset and course of disease. Acute and chronic diseases. General etiology. Physiological and pathological predisposing factors.
• Causes of disease. Physical causes, chemical causes, biological causes: bacteria, viruses, protozoa, fungi, metazoans. Virulence. Pathogenicity. Transmission of infections. Spread of infectious agents. Pathogenic action.
• Cellular homeostasis disorders. Atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia. Cell injury and death.
• Acute and Chronic Inflammation. Phases of the inflammatory process. Chemical mediators. The cells of inflammation.
• Pathophysiology of thermoregulation. Generalities. Thermogenesis: basal metabolism, regulation of thermogenesis. Termodispersion. Alterations in body temperature. Not fever Hyperthermia. Fever Hyperthermia: pathogenesis, course, types of fever.
•Oncology. Benign and malignant tumors. Invasion and metastasis. Classification of tumors. Oncogenes and tumor suppressor genes. Epidemiology of cancers. Gender differences in cancer susceptibility.

OCULAR PATHOLOGY:
• Bulbar and ocular anatomy. Optical pathway anatomy.
• Ocular physiology: single binocular vision, extrinsic and intrinsic ocular motility, eyelid motility, lacrimation physiology, corneal physiology, pupillary reflexes, ocular hydrodynamic physiology, accommodation, vision physiology, epithelial physiology retinal pigment.
• Clinical and instrumental diagnostics. Visual acuity, visual field, main clinical signs, clinical instrumentation, visual acuity examination, visual field examination, biomicroscopy, tonometry, retinal angiography, optical coherence tomography, ultrasound.
• Refraction defects: myopia, hyperopia, astigmatism.
• Acute affections disabling visual function: hemovitreus, occlusion of the central artery and central retinal vein, exudative age-related macular degeneration, rhegmatogenous retinal detachment, anterior ischemic opticopathy, papillitis, retrobulbar neurotticopathy.
• Chronic affections disabling the visual function: refractive errors, cataracts, open angle glaucoma, atrophic age-related macular degeneration.
• Mainly inflammatory affections: blepharitis, dacryocystitis, conjunctivitis, keratitis, dry eye, iridocyclitis, angle closure glaucoma (acute glaucoma).
• The eye and systemic diseases: diabetic retinopathy, hypertensive retinopathy, ocular immunopathology, papilledema, incomitating strabismus, exophthalmos.
• Ocular pathologies of pediatric interest: amblyopia, concomitant strabismus, leukocoria, congenital glaucoma.
• Ocular traumatology.

Prerequisites

Propedeutic courses.

Teaching form

16 face-to-face lectures of 2 hours in a traditional format.

Textbook and teaching resource

PATOLOGIA GENERALE: Pontieri G.M., Elementi di Patologia per i corsi di Laurea in Professioni Sanitarie, III Edizione, Piccin

All materials shown during lectures will be published in e-learning.

Semester

III year, I Semester

Assessment method

Written examination: thirty multiple-choice questions and one open-ended question on the course topics
There will not be in itinere examinations.
The questions are aimed at ascertaining the effective acquisition of theoretical knowledge presented during the course.
The evaluation criteria are the followings: the correctness of the answers, the ability to understand the text of the open question, to argue the answer and to synthesize.
Based on the outcome of the written examination, there could be the possibility of an optional oral interview (upon request by professor or student) focused on all the course topics, which can lead to an increase or a decrease on the score of the written exam.
Erasmus students can take the exam in English if they decide on.

Office hours

By appointment (email request)

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY