UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Pharmacology

2223-1-F0901D045

Aims

The students will learn: (i) the cellular and molecular mechanisms underlying the effects induced by drugs acting on CNS, their abuse and dependence, the genetic determinants that influence their responses; (ii) the differences between chemical and biological drugs and the concept of biosimilars; (iii) the principles that regulate drug patenting and their accessibility. In addition, through the discussion of scientific articles, the students will learn the main pharmacological methods employed during the development of new drugs.

Contents

Drugs acting on the Central Nervous System (CNS): mechanisms of action, effects, and experimental methods of study. Drug abuse and dependence. Pharmacogenetics and pharmacogenomics. Biological drugs and biosimilars. Drug patenting and access.

Detailed program

Cellular and molecular basis of the actions of drugs acting on the main psychiatric diseases (major and bipolar depression, psychosis, anxiety and insomnia) and neurological disorders (epilepsy, migraine, Parkinson's and Alzheimer's diseases), and opioid analgesics. Neurobiological basis of drug abuse and dependence. Differences between chemical and biological drugs. Biosimilars. Genetic determinants that influence drug responses. Principles of drug patenting and international laws that regulate drug access. Main experimental methods that are employed to study drugs.

Prerequisites

Knowledge of chemistry, biochemistry, molecular and cell biology, genetics, anatomy, physiology, pathology.

Teaching form

The course is entirely taught in English. Lessons will consist in formal lectures and discussions of original scientific articles on pharmacological topics related to the course. The lessons will be delivered in the presence of students except if different indications will be given according to the pandemic situation.

Textbook and teaching resource

Clementi F, Fumagalli G. General and Molecular Pharmacology: Principles of Drug Action. Sep 2015 Wiley.

Clementi F, Fumagalli G. Farmacologia generale e molecolare: V Edizione, 2018, Edra.

Vegeto E, Maggi A, Minghetti P. Farmaci biotecnologici: aspetti farmacologici e clinici. Casa Editrice Ambrosiana, 2020.

Goodman & Gilman's: The Pharmacological Basis of Therapeutics, Thirteenth Edition 2018, McGraw-Hill.

Goodman & Gilman "Le Basi Farmacologiche della Terapia", XIII Edizione, Zanichelli, 2019.

Goodman & Gilman's Manual of Pharmacologyand Therapeutics. Second Edition 2013, McGraw-Hill.Goodman & Gilman "Le basi farmacologiche della terapia – Il manuale", II Edizione, 2015.

Semester

Second semester.

Assessment method

The exams will consist in a written test with multiple choice questions and an oral presentation in English or Italian of an original article by groups of two students. Eventually, questions will follow on the contents of the article and on topics covered during the course. Exams will be done in the presence of students. No intermediate tests will be performed.

Office hours

On appointment.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING