



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Pharmacology

2223-5-H4102D032-H4102D134M

Aims

To learn the following aspects of the drugs acting on the main diseases of the peripheral and central nervous system: (1) cellular and molecular mechanisms of action; (2) pharmacokinetic properties; (3) therapeutic, side, and toxic effects; (4) drug-drug interactions; (5) pharmacogenetics determinants of drug responses; (5) the peculiarities of the pharmacological treatment of special subjects: pregnant and lactating women, elders, children; (6) the neurobiological basis of drug abuse and dependence.

Contents

- (1) Centrally acting analgesics (opioids)
- (2) Cannabinoids
- (3) Drugs and substances of abuse
- (4) Local and general anesthetics

Neuropsychopharmacology in special populations: pregnant and lactating women, elders, children.
Neurobiological basis of drug abuse and dependence.

Detailed program

Drug Addiction and dependence: overview of the effects of chronic drug use on the CNS and the adaptive responses that underlay withdrawal and dependence; key concepts include drug withdrawal and dependence, synapses and cell signalling and the modulation of neurotransmitters and biochemical pathways contributing to drug addiction; drug treatments of drug addiction.

Pain and analgesia in the CNS: overview of the peripheral and central nervous system mechanisms of pain and

analgesia; nociceptive and neuropathic pain; modulatory mechanisms in nociceptive pathways, neurotransmitters involved in nociception, chemical signalling and the pharmacology of drugs such as opioids and cannabinoids which modulate pain.

Drug Addiction and dependence: overview of the effects of chronic drug use on the CNS and the adaptive responses that underlay withdrawal and dependence; key concepts include drug withdrawal and dependence, synapses and cell signalling and the modulation of neurotransmitters and biochemical pathways contributing to drug addiction; drug treatments of drug addiction.

Local and general anaesthetics: overview of the different types of local and general anaesthetic agents; mechanisms of action of a number of different commonly used anaesthetics; central nervous system effects; sites of action; adverse effects; effects on axonal and synaptic transmission.

Prerequisites

Previous knowledge of the basic principles of chemistry, biochemistry, and of anatomy, physiology and pathology of peripheral and central nervous systems is required.

Teaching form

The teaching will be performed in attendance, except for ministerial changes due to the COVID pandemic situation.

The language is English.

Textbook and teaching resource

Goodman and Gilman's The pharmacological basis of therapeutics, 13th ed. (2018) McGraw-Hill Education.
Stahl's Essential Psychopharmacology, 7th ed (2021) Cambridge Medicine.

Semester

First (fall) semester.

Assessment method

Multiple choice test and oral examination.

Office hours

On appointment.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING
