

# UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA

# **COURSE SYLLABUS**

# **Pharmacology**

2122-2-I0301D008-I0301D031M

#### **Aims**

The course aims at providing students with the basic principles of general pharmacology and the mechanism of action of some of the major drugs.

#### **Contents**

The fundamental concepts of the principles of pharmacokinetics (fate of drugs in the body) and of pharmacodynamics (molecular targets of drugs); signs of drug-receptor interaction and pharmacological response variability; classification of adverse drug reactions. Mechanism of action of the main classes of drugs.

# **Detailed program**

#### **Pharmacology**

*Introduction*: discovery and drug development; study of drugs. Preclinical phase. Clinical research. Pharmacovigilance.

Pharmacokinetics: routes of drug administration; mechanisms of drug absorption; drug distribution and transport; biotransformation of drugs; elimination: main (renal-biliary) and secondary routes; individual variability of the

pharmacological response (age, gender, ethnicity, conditions and pathologies of patients).

*Pharmacodynamics*: the different types of receptors: membrane and intracellular receptors; characteristics of the drug-receptor interaction; agonists and antagonists; dose-response relationship; therapeutic index, therapeutic window.

Adverse drug reactions: hypersensitivity, idiosyncrasy, allergy. latrogenic diseases.

Drug interactions: synergy, additivity, antagonism, indifference.

The autonomic nervous system and the main pharmacological intervention sites: adrenergic and cholinergic transmission.

Main pharmacological classes:

- overview of cardiovascular pharmacology (antihypertensive);
- anti-inflammatories and painkillers;
- · antibiotics;
- drugs that act on bone tissue (bisphosphonates);
- antiseptics and disinfectants.

# **Prerequisites**

Knowledge of the introductory courses indicated in the regulation of the degree course.

# **Teaching form**

Lectures, exercises in Italian language.

# Textbook and teaching resource

Suggested text book: Cella, Di Giulio, Gorio, Scaglione, Farmacologia generale e speciale per le lauree sanitarie triennali, Ed. Piccin;

The teachers will provide educational material.

#### Semester

Il year, Il semester.

#### **Assessment method**

- The written test will consist of a single task for the Pharmacology and Anesthesiology modules. 33 multiple choice questions (5 answers each, only one is correct) will be administered, divided proportionally to the credits: 22 on topics related to Pharmacology and 11 of Anesthesiology. For some multiple choice questions, a brief analysis could be required (like open question).

The oral test will focus on in-depth study of the written test.

For the evaluation of the written and oral test, the following criteria will be taken into account:

- correct answers;
- answer relevance
- completeness to the questions.

### Office hours

By appointment