



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## COURSE SYLLABUS

### Pharmacology

2021-2-I0302D034-I0302D039M

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#### 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. Iatrogenic 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**

II year, II 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

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