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**COURSE (TITLE):** PHARMACOTHERAPEUTICS AND BIOPHARMACEUTICALS.

**LECTURER:**

**YEAR and SEMESTER:** 2

**CREDITS (CFU):** 8

**SECTOR (SDS):** BIO/14

**ACADEMIC YEAR:**

**ASSESSMENT:** WRITTEN AND ORAL EXAMINATION

**LOCATION:** Department of Environmental, Biological and Pharmaceutical Science and Technologies, Via Vivaldi 43 Caserta

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**COURSE OBJECTIVES/OUTCOMES:** The aims of this course are: 1. to introduce the fundamental principles of pharmacological science including pharmacokinetics, pharmacodynamics of drugs and drug-drug interactions; 2. to describe the process of new drugs discovery and development; 3. to provide a comprehensive view of differences between synthetic and biotechnological drugs; to introduce the pharmacology of the major organ systems with a particular emphasis on biotechnology drugs.

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**SYLLABUS (overview):** Knowledge in main aspects of structure-activity relationships regulating macromolecular drugs interactions (especially protein and peptide structure) and their biological target.

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**SYLLABUS (Detailed description):**

GENERAL PRINCIPLES:

- How drugs act
- Molecular aspects: targets for drug action
- Receptor proteins, ion channels as drug targets, control of receptor expression

PHARMACOKINETICS:

- Drug absorption, distribution, metabolism and excretion
- Drug interactions
- Drug allergy and idiosyncratic reactions
- Variability factors of drug response

PHARMACODYNAMICS

- Agonism and antagonism
- Dose-response curve and efficacy of a drug
- Drug interactions

BIOEQUIVALENT AND BIOSIMILAR DRUGS

PHARMACOVIGILANCE AND ADVERSE DRUG REACTIONS

PRECLINICAL AND CLINICAL DRUG EXPERIMENTATION

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**DRUGS AFFECTING MAJOR ORGAN SYSTEMS:**

- The heart: haemostasis, thrombosis and drugs that affect cardiac function
- The respiratory system
- The endocrine pancreas: control of blood glucose
- Lipoprotein metabolism
- The nervous system: neurodegenerative disorders
- Drugs used in cancer chemotherapy
- Anti-inflammatory drugs
- Antirheumatoid drugs
- Immunosuppressant drugs
- Stem cells and cellular therapy
- Vaccines

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**TEXTBOOKS:** Rang & Dale's Pharmacology, 8th Edition

Authors: James Ritter Rod Flower Graeme Henderson Humphrey Rang

Paperback ISBN: 9780702053627

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**ADDITIONAL READING:**

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