UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

dipartimento di farmacia-scienze del farmaco

General Information	
Academic subject	**GENERAL PHARMACOLOGY AND PHARMACOTHERAPY 1**
Degree course	**PHARMACY**
ECTS credits	10
Compulsory attendance	YES
Language	ITALIAN
Academic year	2020/2021

Subject teacher		
Course A-E	Name Surname	Role
	Annamaria De Luca	Full Professor
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Course F-N	Name Surname	Role
	Paola Imbrici	Associate professor
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Course O-Z	Name Surname	Role
	Sabata Pierno	Associate professor
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ECTS credits details	Area	SSD	CFU/ETCS
Basic teaching activities	05-Biological Sciences	BIO/14	10

Class schedule	
Period	First semester
Year	III
Type of class	Lectures and exercises

Time management	
Hours	100
In-class study hours	100
Out-of-class study hours	

Academic calendar	
Class begins	September 2020
Class ends	January 2021

Syllabus	
Prerequisites/requirements	Basic knowledge of biology and physiology
Expected learning outcomes	*Knowledge and understanding on:* o Pharmacokinetics: absorption, distribution, metabolism and elimination of drugs o Pharmacodynamics: targets of drug action and signal transduction mechanisms o Pharmacometrics: receptor activation theories and dose-response curves

	o Pharmacotherapy: main classes of drugs for the treatment of cardiovascular, metabolic, inflammatory, respiratory, gastrointestinal, neurological diseases *Applying knowledge and understanding on*: o to understand the dose-therapeutic effect-toxic effect relationship o to distinguish the different classes of drugs and their use in clinics *Making informed judgments and choices:* o to use drugs wisely and to evaluate risk/benefit profile *Communicating knowledge and understanding* o Use the specific vocabulary of pharmacology *Capacities to continue learning* o Ability to read scientific papers and documents
Contents	PART I: GENERAL PHARMACOLOGY INTRODUCTION TO PHARMACOLOGY: General principles and definitions of drug (chemical, biotechnological and natural), supplement and functional food (nutraceutical). TARGETS OF DRUG ACTION: membrane and intracellular receptors and associated signal transduction systems; ion channels; enzymes; transporters and pumps; nucleic acids; cytoskeleton proteins; pathogens; New targets and new drugs (monoclonal antibodies; pharmacology of RNA and gene transcription, etc). Modifications of drug response: down and up-regulation, desensitization, tolerance, dependence, tachyphylaxis. DEFINITION AND QUANTIFICATION OF THE DRUGS ACTION: Pharmacological research in vitro and in vivo. Dose-response curves, agonism, antagonism, partial agonism, inverse agonism, receptor modulation, affinity, efficacy, potency, tolerance, dependence, tachyphylaxis. Preclinical research and development of new drugs. Outline of clinical trials (including pharmacovigilance). PHARMACOKINETICS AND METABOLISM: The different routes of drug administration. Absorption, distribution, metabolism and excretion of drugs. The calculation of the dose. Enzyme induction and inhibition. Interaction between drugs. Drug-food interactions. PHARMACOGENETICS AND PERSONALISED THERAPY: Individual variability in drugs response and personalized medicine; Pharmacokinetic and pharmacodynamic genetic polymorphisms. OVERVIEW OF THE REGULATORY ASPECTS OF DRUG REGISTRATION AND USE: The definition of: pharmaceutical product, generic drug, biosimilar drug, OTC, galenic preparations. The classes of drugs according to the national health system. Regulatory agencies (FDA, EMA, AIFA) and their

	activities. PART II: PHARMACOTHERAPY 1 CHEMICAL TRANSMISSION AND AUTONOMOUS AND CENTRAL NERVOUS SYSTEM: Anatomo-functional organization of the central and peripheral nervous system. Pharmacological control of synaptic function: cholinergic, noradrenergic, dopaminergic, serotonergic, histaminergic, gabaergic, glutamatergic, purinergic, peptidergic, cannabinoid, and nitric oxide transmission PHARMACOLOGY OF PERIPHERAL NERVOUS TRANSMISSION: Receptors classification and cholinergic agonist and antagonist drugs. Anticholinesterases. Local anesthetics. DRUGS ACTIVE ON HEART AND CIRCULATION: Principles of controlling cardiovascular homeostasis. β-blocker drugs. Agonists and antagonists of α-adrenergic receptors. Calcium channel blockers. Drugs active on the renin-angiotensin-aldosterone system. Nitro-derivatives. Antiarrhythmic drugs. Positive inotropes. Antiplatelet agents. Anticoagulants. Fibrinolytics. DIURETICS: classes and their mechanism of action. PHARMACOLOGY OF DYSLIPIDEMIA: Ion exchange resins. Statins. Fibrates. Nicotinic acid. New drugs. Principles of prevention and treatment of dyslipidemia. PHARMACOLOGY OF INFLAMMATORY REACTIONS: mediators and neurotransmitters involved. Non-steroidal anti-inflammatory drugs (NSAIDs). Migraine therapy. DRUGS ACTIVE ON THE RESPIRATORY SYSTEM: Factors that influence bronchial smooth muscle. Bronchodilator drugs (β2-agonists, muscarinic cholinergic antagonists, methylxanthines). Mucus-active drugs. Therapy of asthma, bronchopneumopathy and cough. PSYCHOPHARMACOLOGY: Outline of the pathogenesis of the main psychiatric disorders. The pharmacodynamic basis of the action of psychotropic drugs. Antidepressants. Anxiolytics. Neuroleptics. NEUROPHARMACOLOGY: Outline of the pathogenesis of the main neurodegenerative diseases. Targets and drugs for the treatment of Parkinson's disease, Alzheimer's disease, Hungtington's chorea, Epilepsies. PHARMACOLOGY OF SKELETAL MUSCLE PATHOLOGIES. GENERAL ANESTHETICS. PHARMACOLOGICAL INTERVENTIONS ON UTERINE MOTILITY: Uterotonic and uterolytic. PHARMACOLOGY OF THE GASTROENTERIC SYSTEM: Antacids. Antiulcer. Antidiarrheals. Antispasmodics. Laxatives. Antiemetics. BIOTECHNOLOGICAL AND BIOSIMILAR DRUGS.

Course program	
Bibliography	- FARMACOLOGIA PRINCIPI DI BASE E APPLICAZIONI TERAPEUTICHE: F. ROSSI, V. CUOMO, C. RICCARDI (EDIZIONI MINERVA MEDICA)
Notes	None
Teaching methods	Lectures and exercises
Assessment methods	Oral examination
Evaluation criteria	*Knowledge and understanding* o Based on expected learning outcome *Applying knowledge and understanding* o Based on expected learning outcome *Autonomy of judgment* o Based on expected learning outcome *Communicating knowledge and understanding* o Based on expected learning outcome *Communication skills* o Based on expected learning outcome *Capacities to continue learning* o Based on expected learning outcome
Further information	