



General Information	
Academic subject	PHARMACEUTICAL AND TOXICOLOGICAL CHEMISTRY II
Degree course	PHARMACY
ECTS credits	9
Compulsory attendance	YES
Language	Italian language
Academic year	2022/2023

Subject teacher		
Course A-E	Name Surname	Role
	Orazio Nicolotti	Full Prof in Med Chemistry
	Mail address	Telephone number
	orazio.nicolotti@uniba.it	080-5442551
Course F-N	FRANCESCO LEONETTI	PROF ASSOCIATO CHIM/08
	francesco.leonetti@uniba.it	080-5442784
Course O-Z	NICOLA ANTONIO COLABUFO	PROF ORDINARIO CHIM/08
	nicolaantonio.colabufo@uniba.it	080-5442752

ECTS credits details	Area	SSD	CFU/ETCS
Basic teaching activities	03D1	CHIM/08	9

Class schedule	
Period	From March to June
Year	2022/2023
Type of class	IV Pharmacy

Time management	
Hours	90
In-class study hours	90
Out-of-class study hours	230

Academic calendar	
Class begins	February 20, 2023
Class ends	June 15, 2023

Syllabus	
Prerequisites/requirements	Fundamentals of Biochemistry, Organic Chemistry and Pharmaceutical and Toxicological Chemistry I
Expected learning outcomes	<i>Knowledge and understanding on:</i> <ul style="list-style-type: none">○ Physicochemical properties of drugs and molecular basis of drug action, and ability for interdisciplinary links with pharmacology and pharmaceutical technology. <i>Applying knowledge and understanding on:</i> <ul style="list-style-type: none">○ Ability to process the acquired knowledge and the



	<p>experiences gained in the course, integrating them in a multidisciplinary vision of the pharmaceutical science. <i>Making informed judgments and choices:</i></p> <ul style="list-style-type: none">○ Ability to critically reviewing of the acquired knowledge in view of the improvement of professional skills <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none">○ Students should demonstrate appreciable communication skills in presentation and discussion of the topics covered. <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none">○ Achievement of the learning skills necessary to deal with the further acquisition of information and knowledge in relation to the discipline evolution..
Contents	<p>Presentation of the course, aims and methodologies that will be used.</p> <ul style="list-style-type: none">- Signal transduction, hormones and receptors; classification; hypothalamic pituitary hormones.- Thyroid hormones and thyromimetic drugs.- Insulin and its formulations;- Hypoglycemics agents: sulfonylureas and glinides, drugs active on the incretin system, biguanides, thiazolidinediones, α-glucosidase inhibitors;- Steroid hormones: nuclear receptors and their classification;- Biogenesis of estrogens, androgens, corticosteroids: mechanism of action. Antitumor therapy. Progestogens, Androgens and Androgenic and Anabolic Hormonoids. Antiestrogens, antiandrogens in anticancer therapy;- Pathophysiology elements of adrenocortical hormones; Glucorticoids, Mineralocorticoids.- Osmotic diuretics, steroidal aldosterone antagonists, renin inhibitors, ACE inhibitors and sartans; carbonic anhydrase inhibitors; High ceiling diuretics; polyazotated compounds; K^+ sparing diuretics; Uricosurics;- Dyslipidemias: first and second generation of statins; fibrates; bile acid sequestrants, Etizimibe. <p>Antibiotics: introduction. Mechanisms of action and resistance of antibiotics. Phosphomycin, D-Cycloserine, Bacitracin, Polypeptide antibiotics. Polymyxins, Penicillins and beta-lactamase inhibitors; I-IV generation Cephalosporins; Carbapenems, Monobactams. Glycopetides (Vancomycin, Teicoplanin, Oritavancin, Telavancin, Ramoplanin, Daptomycin);</p> <ul style="list-style-type: none">-Ribosomal antibiotics: Aminoglycosides, macrolides, streptogramins, lincosamides, chloramphenicol, oxazolidinones;- Quinolone antibiotics; Sulfamidic drugs;- TBC: rifamycin, isoniazid, pyraldine ethambutol.- Anthelmintics. Antimalarials. Antimocotics.- Antivirals:, herpes simplex and zoster. HIV, hepatitis;- Anticancer drug, cell cycle oncogenes and tumor suppressors. <p>Classification of anticancer drugs; cytotoxic agents: alkylating agents</p> <ul style="list-style-type: none">- Antimetabolites: biosynthesis uridyl acid inhibitors; 2'-deoxyribonucleotide biosynthesis inhibitors; thymidyl acid inhibitors; dihydrofolate reductase inhibitors.



	<ul style="list-style-type: none">- ROS and intercalating agents: Anthracyclins, Mitoxantrone, Actinomycin D, Bleomycins.- Microtubule stability modulators: Vinca alkaloids, Taxane drugs, Combretastatin.- Tyrosine kinase inhibitors: Imatinib, Dasatinib, Nilotinib
Course program	
Bibliography	<ol style="list-style-type: none">1) Chimica Farmaceutica (Gasco, Gualtieri, Melchiorre) ED. CEA.2) Principi di Chimica Farmaceutica (Foye) Ed Piccin3) Chimica Farmaceutica (Patrick) Ed. Edises
Notes	None
Teaching methods	Frontal lessons with video projection of slides,. Case study seminars
Assessment methods	Oral exam; range 18-30
Evaluation criteria	<ul style="list-style-type: none">• <i>Knowledge and understanding</i><ul style="list-style-type: none">○ The oral exam consists of at least three questions relating to different topics of the course. <i>Applying knowledge and understanding</i>• <i>Autonomy of judgment</i><ul style="list-style-type: none">○ The student demonstrates the full acquisition of basic concepts in pharmaceutical chemistry with particular relevance for the molecular mechanisms of drug action, physicochemical basis of pharmacokinetics, metabolism and drug toxicity, strategies of drug design and drug targeting.○ <i>Communicating knowledge and understanding</i>○ The student is able to autonomously interconnect different topics covered and to elaborate motivated opinions on the related issues-○ <i>Communication skills</i><ul style="list-style-type: none">○ The student is able to fully communicate the concepts learned using appropriate scientific language.○ <i>Capacities to continue learning</i>○ The student has sufficient knowledge to continue his educational path by deepening the topics covered.
Further information	