

General Information	BACELOR DEGREE IN BIOTECHONOLOGIES
Title of the subject	Pharmacology and Elements of toxicology
Degree Course (class)	Industrial and Agri-Food Biotechnologies (L-2)
ECTS credits	8
Compulsory attendance	yes
Language	Italian
Academic year	2020-21

Subject Teacher		
Name and Surname	Cotecchia Susanna	
email address	susanna.cotecchia@uniba.it	
Place and time of reception	upon student's request via e-mail	
ECTS credits details		
	Discipline sector (SSD)	Area
	BIO/14	---

Study plan schedule	Year of study plan		Semester	
	III year		first semester	
Time management				
	Lessons	Laboratory	Exercises	Total
CFU	8	-	-	8
Total hours	200	-	-	200
In-class study hours	64	-	-	64
Out-of-class study hours	136	-	-	136

Syllabus	
Prerequisites / Requirements	Good basic knowledge of biochemistry, molecular biology, anatomy and human physiology
Expected learning outcomes (according to Dublin descriptors)	
Knowledge and understanding	Basic concepts of general pharmacology (pharmacokinetics and pharmacodynamics) and the properties (mechanisms of cation and effects) of the main classes of therapeutical agents. These notions will be integrated with aspects pf pharmacogenomics which have an impact on individual drug response.
Applying knowledge	Capacity of applying the acquired knowledge to development of new drugs and therapeutical approaches or new diagnostic tools.
Making informed judgments and choices	Capacity of critically interpreting and address scientific problems concerning the development and use of therapeutical agents in society.
Communicating knowledge	Capacity of discussing, using a scientific language and appropriate arguments, problems related to the development and use of therapeutical agents.
Capacities to continue learning	Capacity to expand knowledge on pharmacology, in a critical and independent fashion, learning from the scientific literature.

Study Program	
Content	<p>General Pharmacology</p> <ul style="list-style-type: none"> • Pharmacokinetics (Absorption, Distribution, Metabolism, Elimination) • Pharmacodynamics (ligand-receptor interaction, Dose-response, Tolerance) • Drugs targets (Receptors, Transporters, Channels, Enzymes) Drug Toxicity <p>Classes of drugs</p> <ul style="list-style-type: none"> • Pharmacology of the parasympathetic system • Pharmacology of the sympathetic system • Pharmacology of serotonin and histamine transmission • Pharmacology of the neuromuscular junction • Principles of cardiovascular pharmacology (vasodilators, antihypertensive agents, positive inotropes) • Pharmacology of cholesterol and lipoproteins • Anticoagulants • Pharmacology of the central nervous system (anti-parkinsoniens, antidepressants, antipsychotics, opioids) • Pharmacodipendence (drugs of abuse, alcohol) • Non steroidal anti-inflammatory agents • Glucocorticoids • Sexual hormones • Antibiotics • Cancer chemotherapy • Insulin • Interleukins and chemokines • Monoclonal antibodies <p>Elements of pharmacogenomics</p> <ul style="list-style-type: none"> • Polymorphisms of CYP450 • Pharmacogenomics of alcohol <p>Elements of toxicology</p> <ul style="list-style-type: none"> • Main classes of toxic agents • Mechanisms of toxicity • Tests of toxicity
Bibliography and textbooks	Rang and Dale's: Pharmacology Caserett and Dull's: Compendium of Toxicology
Teaching methods	frontal lessons using slides which will be posted on the web site
Assessment methods (oral, written, ongoing assessment)	oral exam
Evaluation criteria (describe criteria for each of the above expected outcomes)	The oral exam will assess the following student's capacities: <ul style="list-style-type: none"> i) understanding basic concepts of pharmacology and properties of different classes of drugs ii) use of appropriate scientific language iii) ability to integrate different notions and topics of the program iv) ability to integrate notions from other disciplines to understand drug action