UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata
ACADEMIC YEAR	2016/2017
MASTER'S DEGREE (MSC)	MEDICINE AND SURGERY
INTEGRATED COURSE	PHARMACOLOGY - INTEGRATED COURSE
CODE	03143
MODULES	Yes
NUMBER OF MODULES	2
SCIENTIFIC SECTOR(S)	BIO/14
HEAD PROFESSOR(S)	MELI MARIA — Ricercatore — Univ. di PALERMO CANNIZZARO CARLA — Professore Ordinario — Univ. di PALERMO CANNIZZARO EMANUELE — Professore Associato — Univ. di PALERMO
OTHER PROFESSOR(S)	CANNIZZARO EMANUELE — Professore Associato — Univ. di PALERMO CANNIZZARO CARLA — Professore Ordinario — Univ. di PALERMO MELI MARIA — Ricercatore — Univ. di PALERMO LETO GAETANO — Ricercatore — Univ. di PALERMO CALASCIBETTA ANNA — Ricercatore — Univ. di PALERMO PLESCIA FULVIO — Professore Associato — Univ. di PALERMO
CREDITS	8
PROPAEDEUTICAL SUBJECTS	13246 - SYSTEMATIC PATHOLOGY I - INTEGRATED COURSE 13248 - SYSTEMATIC PATHOLOGY II - INTEGRATED COURSE 13257 - SYSTEMATIC PATHOLOGY IV - INTEGRATED COURSE 13253 - SYSTEMATIC PATHOLOGY III - INTEGRATED COURSE
MUTUALIZATION	
YEAR	4
TERM (SEMESTER)	2° semester
ATTENDANCE	Mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**CALASCIBETTA ANNA** Monday 09:00 14:00 edificio 9 policlinico Paolo Giaccone sez Farmacologia **CANNIZZARO CARLA** Thursday 11:00 13:00 Farmacologia, Edificio 11d - AOUP Paolo Giaccone, Via del Vespro 129 Palermo Friday 10:00 12:00 Farmacologia, Edificio 11d - AOUP Paolo Giaccone, Via del Vespro 129 Palermo **CANNIZZARO EMANUELE** Monday 09:30 11:00 Medicina del Lavoro. Primo piano stanza docente **LETO GAETANO** Tuesday 12:00 13:00 Thursday 12:00 13:30 **MELI MARIA** Wednesday 11:00 13:00 Istituto di Farmacologia **PLESCIA FULVIO** Monday 9:30 11:30 Policlinico Universitario, Padiglione 11d - Farmacologia

DOCENTE: Prof. EMANUELE CANNIZZARO- *Sede HYPATIA*

PREREQUISITES	Students will have acquired the basics of physiology, anatomy and pathology
LEARNING OUTCOMES	Knowledge and understanding - Acquisition of the most appropriate instruments to the knowledge of the effects of pharmacological treatments - Ability to retain and apply a methodology to consolidate a critical knowledge of the main categories of pharmacological agents and their direct action on specific organs and systems - Acquisition of a dynamic and "analytical" assessment concerning the fields of pharmacological applications
ASSESSMENT METHODS	The examinee must answer at least three orally questions regarding all object parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of topics concerning the effects of pharmacological agents. The pass mark will be reached when the student showed that he understood the arguments, at least in general lines, and has reached minimum competence regarding the knowledge of the main categories of pharmacological compounds and their direct action on specific organs and system. Below this threshold the examination will be considered insufficient. More the examinee is able to better expose the exam topics, more its assessment will be positive. The assessment is carried out of thirty
TEACHING METHODS	Lectures

DOCENTE: Prof.ssa CARLA CANNIZZARO- *Sede CHIRONE*

PREREQUISITES	Students will have acquired the basics of Human Physiology, Microbiology, General Pathology, Pathophysiology and Medical Methodology and pathology, Systematic Pathology 1, Systematic Pathology 2
LEARNING OUTCOMES	Knowledge and understanding - Acquisition of the most appropriate instruments to the knowledge of the effects of pharmacological treatments - Ability to retain and apply a methodology to consolidate a critical knowledge of the main categories of pharmacological agents and their direct action on specific organs and systems - Acquisition of a dynamic and "analytical" assessment concerning the fields of pharmacological applications
ASSESSMENT METHODS	The examinee must answer at least three orally questions regarding all object parts of the program, with reference to the recommended texts. Final assessment aims to evaluate whether the student has knowledge and understanding of topics concerning the effects of pharmacological agents. The pass mark will be reached when the student showed that he understood the arguments, at least in general lines, and has reached minimum competence regarding the knowledge of the main categories of pharmacological compounds and their direct action on specific organs and system. Below this threshold the examination will be considered insufficient. More the examinee is able to better expose the exam topics, more its assessment will be positive. The assessment is carried out of thirty
TEACHING METHODS	Lectures

DOCENTE: Prof.ssa MARIA MELI- *Sede IPPOCRATE*

PREREQUISITES	Knowledge of chemistry, biochemistry, physiology, microbiology, pathology. Passing the exam of physiopathology.
LEARNING OUTCOMES	Knowledge and understanding: Students will gain knowledge in the field of pharmacology including the most recent acquisitions relative to the pharmacodynamics and pharmacokinetics properties of drugs. They have to demonstrate familiarity with the specific terminology of this discipline. Applying knowledge and understanding: The students will be able to apply their pharmacological knowledge in the clinical practice by choosing the correct drug in different clinical contexts taking into account the variability of drug actions in each patient and balancing the costs and benefits of treatments. Making judgements: Students will be capable of obtaining and evaluating the information on drug therapies in the clinical context and take autonomous clinical decisions taking into account also the ethical, social and scientific implications of their actions. Communication skills: Students will acquire the specific pharmacologic terminology so that they can clearly explain any pharmacologic problem to patients and/or colleagues. Learning skills: Students will acquire the ability to obtain new information on pharmacological themes by consulting scientific journals and/or databases on the web or by participating to meetings and courses ad hoc. They will be capable of interpreting critically the results of preclinical or clinical studies and selecting the information that is relevant for the clinical practice.
ASSESSMENT METHODS	Oral examination. The evaluation will be as following: -Excellent (30-30 with laude): Excellent knowledge of teaching contents; students should show high analytical and synthetic capabilities and should be able to apply their knowledge to solve highly complex problems. - Very Good (27-29): Very good knowledge of the teaching contents and excellent language control; students should show analytical and synthetic skills and be able to apply their knowledge to solve problems of medium and, in some cases, even higher complexity. -Good (24-26): Good knowledge of teaching contents and good language control; the students should be able to apply their knowledge to solve problems of medium complexity -Satisfactory (21-23): Average knowledge of the teaching contents, in some cases limited to the main topic; acceptable ability to use the specific discipline language and independently apply the acquired knowledge. - Sufficient (18-20): Minimum teaching content knowledge, often limited to the main topic; modest ability to use the subject specific language and independently apply the acquired knowledge.Minima conoscenza dei contenuti dell'insegnamento, spesso limitata agli argomenti principali; modesta capacita' di utilizzare il linguaggio specifico della disciplina e di applicare autonomamente le conoscenze acquisite - Fail: Lack of an acceptable knowledge of the main teaching content knowledge; very little or no ability to use the specific subject language and apply independently the acquired knowledge.
TEACHING METHODS	Lectures

MODULE
PHARMACOLOGY I

Prof. EMANUELE CANNIZZARO - Sede HYPATIA, - Sede HYPATIA

SUGGESTED BIBLIOGRAPHY	
Farmacologia Generale. Cannizzaro. Idelson-Gnocchi Farmacologia generale e molecolare. Francesco Clemente, Guido Fumagalli. UTET Trattato di Farmacologia. L.Annunziato – G. Di Renzo. Idelson-Gnocchi (II Edizione) The Pharmacological Basis of THERAPEUTICS. Goodman & Gilman's. Mc Graw Hill Principi di Farmacologia. Lebasi farmacologiche della terapia. Casa Editrice Ambrosiana	
AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40
EDUCATIONAL OBJECTIVES OF THE MODULE	
The goal of this course is to understand the composition, properties, and actions of drugs.	

SYLLABUS

Hrs	Frontal teaching
2	Introduction and presentation to the course
10	GENERAL PRINCIPLES. Pharmacokinetics; the dynamics of drug, absorption, metabolism and elimination. Pharmacodynamics; molecular mechanisms of drug action. Membrane transporter. Ion channels
8	NEUROPHARMACOLOGY. Neurotransmission. Muscarinic receptor agonist and antagonist. Anticholinesterase agents. Adrenergic agonist and antagonist. 5-Hydroxytriptamine and Dopamine. Neurotrasmission and central nervous system. Drug therapy of depression and anxiety disorders. Pharmacotherapy of psychosis mania. Hypnootics and sedatives. Oppiods, analgesia and pain management. General and local anesthetics. Pharmacothetapy of epilepsies. Treatment of degenerative disorders.
6	MODULATION OF CARDIOVASCULAR FUNCTION. Regulation of renal function. Renin angiotensin. Treatment of myocardial ischemia and hypertension. Congestive heart failure. Anti-arrhythmic drugs. Anticoagulant, fibrinolytic and antiplatelet drugs. Drug therapy of hypercholesterolemia and dyslipidemia.
6	DRUGS AFFECTING GASTROINTESTINAL FUNCTION. Pharmacotherapy of gastric acidity, peptic ulcers, and gastroesophageal reflux disease. Treatment of disorders of bowl motility. Pharmacoterapy of inflammatory bowel disease

MODULE
PHARMACOLOGY I

Prof. FULVIO PLESCIA - Sede HYPATIA, - Sede HYPATIA

SUGGESTED BIBLIOGRAPHY

Goodman & Gilman Le basi farmacologiche della terapia. McGraw-Hill
Rang, Dale, Ritter, Flower. Farmacologia. Elsevier Masson
Rossi, Cuomo, Riccardi. Farmacologia - Principi di Base e applicazioni terapeutiche. Edizioni Minerva Medica.

AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

Knowing the basics of pharmacokinetics, the different classes of medications including chemotherapy, molecular and cellular mechanisms of their action, therapeutic uses, the variability of response in relation to genetic and pathophysiologic factors, the drug interactions and the definition of schemas criteria therapeutic, and the principles and methods of clinical pharmacology, including the drug surveillance and pharmaco-epidemiology, side effects and toxicity of drugs and substances of abuse.

SYLLABUS

Hrs	Frontal teaching
1	Definition of medication. Origin and procurement of medicines. The Drug testing phases
10	Pharmacokinetics. pharmacokinetic phases. Role of pharmacokinetics in the Pharmacodynamics of a drug. Absorption: the passage of drugs through biological membranes. Influence of pH on the absorption of drugs, the pKa of the route of administration influence on the absorption and the effect of a drug. routes of administration: cutaneous, respiratory, rectal, oral, parenteral, district, use of infusaids. Criteria for choosing the route of administration. Bioavailability. A.U.C. plasma peak, peak time, the blood concentration of a drug. Distribution. Distribution of importance in determining the therapeutic effect. apparent volume of distribution. blood-tissue barriers. blood flow function. Pseudoresistenza. Redistribution. Study of pharmacokinetic curves "Steady state". drug-protein binding. Metabolism. Phases of metabolism. Activity of products derived from the metabolism of drugs. pharmacokinetic tolerance. Carcinogenesis products Pharmacogenetics of drug metabolism. Problems of administering a drug in epatopazienti Role induction and enzyme inhibition in the activity of a drug. Elimination. elimination pathways: skin, lung, bile, intestine, salivary, milk, kidney. Clearance of a drug. Half-life. Administration of drugs that are eliminated by the kidneys in renal patients. Principles of toxicology. adverse effects of drugs, teratogenicity. diagnostic and therapeutic approach to the most common acute poisoning.
1	Clinical Pharmacology: clinical trials, pharmacovigilance and pharmacoepidemiology.
6	Anti-inflammatory drugs, anti-allergic and immunosuppressive: Pharmacology of the main corticosteroids (hydrocortisone, prednisone, methylprednisolone, betamethasone, dexamethasone). Classification based on the duration of action and the mineralocorticoid component. antagonists of H1 histamine receptors and immunosuppressive drugs.
3	Bronchodilators and other drugs for the treatment of asthma and chronic obstructive pulmonary disease: 2 stimulants (salbutamol, formoterol, salmeterol); xanthine derivatives (theophylline); antimuscarinic (ipratropium); inhaled corticosteroids (beclomethasone, budesonide); cromones (cromolyn and nedocromil); leukotriene antagonists (montelukast).
2	Pharmacology of hemostasis: pharmacological characteristics of heparins and oral anticoagulants. Monitoring of anticoagulation therapies. Drugs platelet aggregation inhibitors (aspirin, ticlopidine, abciximab) in patients receiving thrombolytic agents (streptokinase, urokinase, tPA).
8	Chemotherapy of infectious diseases: General information on antibacterial drugs. Classification and action mechanisms; bacteriostatic and bactericidal, time- and concentration-dependent effects, spectrum of activity. Resistance to chemoantibiotics, associations of antimicrobial drugs, antibiotic prophylaxis; complications of antibiotic therapy. pharmacological characteristics: antifolates (sulfonamides, trimethoprim); Inhibitors of peptidoglycan synthesis: -lactams, glycopeptides; Protein synthesis inhibitors (tetracyclines, aminoglycosides, chloramphenicol, macrolides, lincosamides, streptogramins and linezolid); Other (fluoroquinolones, nitrofurantoin). tuberculosis therapy. Drugs and second-choice mechanism of action, side effects and drug interactions. Therapy-resistant tuberculosis. Antifungals: Drugs for systemic fungal infection (amphotericin B, flucytosine, fluconazole, itraconazole, voriconazole, caspofungin) and surface (miconazole, nystatin, griseofulvin, terbinafine). Antiviral drugs: drugs active against herpes viruses (acyclovir and congeners), the hepatitis viruses (interferon alpha, lamivudine, ribavirin), influenza virus (amantadine, zanamivir). Anti-HIV drugs: nucleoside analogues, non-nucleoside reverse transcriptase inhibitors and protease inhibitors. HAART.
4	Cancer chemotherapy: Target and therapeutic effects on the cell cycle. Mechanisms of resistance. toxic and supportive care effects. rational behind polichemioterapiche associations and major protocols used in therapy. Characteristics of the main classes of drugs: alkylating agents, antimetabolites, topoisomerase inhibitors, anti-mitotic and new targeted agents. Elements of hormone therapy.

2	Pharmacology of endocrine diseases and metabolism: antidiabetic drugs: fast-acting insulins, slow and semilenta; oral hypoglycemic agents. Complications of diabetic medicine. antithyroid drugs. osteoporosis therapy: vitamin D, calcitonin, bisphosphonates.
3	Gastrointestinal Pharmacology: antacids, antiemetics. Peptic ulcer therapy: proton pump inhibitors, H2-antagonists, misoprostol. Laxatives and anti-diarrheal drugs.

MODULE
PHARMACOLOGY I

Prof. GAETANO LETO - Sede CHIRONE, - Sede CHIRONE

SUGGESTED BIBLIOGRAPHY

FARMACOLOGIA. A cura di H.P. Rang, M.M. Dale, J.M.Ritter, R.J. Flower. VII edizione. 2012 Elsevier Masson, Milano
Goodman & Gilman LE BASI FARMACOLOGICHE DELLA TERAPIA. Il Manuale Seconda edizione. Zanichelli Bologna 2015
Farmacologia generale e clinica di Bertram G. Katzung IX Edizione Italiana Piccin Padova 2014

AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The central goal of the Pharmacology is twofold. First to provide students with a solid grounding in the basic concepts and scientific underpinnings of Pharmacology. Second, to provide students with a comprehensive introduction to the fundamental Pharmacology and uses of the major classes of clinically important drugs currently used in medical practice. Specific key concepts and learning objectives will be provided for each individual lecture topic. On successful completion of the course students should be able to:
(1) To learn basic scientific concepts and principles that will serve as the foundation for understanding the pharmacology of specific drugs.
(2) To understand the Pharmacology and clinical use of the major class of clinically important drugs. For each drug/drug class you should know the following: a) DRUG ACTION b) MECHANISM OF ACTION - c) Drug PHARMACOKINETICS. d) INDICATIONS e)ADVERSE EFFECTS -f) CONTRAINDICATIONS . g) DRUG INTERACTIONS

SYLLABUS

Hrs	Frontal teaching
2	Drug receptors and their classification. Drug-Receptor interaction. Dose-response Curve. Drug potency, Relative efficacy, Drug affinity. Intrinsic activity. Agonists and antagonists: Agonist Drug; Inverse agonist Drug; Antagonist Drug; Competitive Antagonist, Noncompetitive Antagonist; Therapeutic index
2	Variability in responsiveness to drugs. Pharmacokinetics variability (drug absorption, distribution ,metabolism, excretion). Pharmacodynamic variability. Tolerace, Tachyphylaxys, Reverse Tolerance (sensitization), idiosyncrasy, allergy,.Chronopharmacology
2	Drug interactions at level of drug absorption, distribution ,metabolism, excretion
2	Cholinergics and Anticholinergics agents Classification, pharmacological properties and clinical uses
2	Agent acting at neuromusculr junction and autonomic ganglia Classification, pharmacological properties and clinical uses
2	Serotonin (5-HT) receptor agonists and antagonists Classification, pharmacological properties and clinical uses
2	Drug abuse and drug addiction: Cocaine, Amphetamine: pharmacological properties. Cardiovascular and CNS effects
2	Drug abuse and drug addiction. Allucinogens, MDMA,LSD,
2	Cannabinoids. THC receptors. Pharmacological effects. Clinical uses of synthetic THC analogs
2	CNS depressant. Ethanol, hydroxy-gamma-butirric acid (GHB). Pharmacological effects
2	Opioid Analgesic. Opioid receptors classification. Endogenous opioid peptides.
2	Morphine and Morphine Agonist and antagonist. Classification pharmacological properties clinical uses and side effects
1	Local anesthetics. Mechanism of action, Classification , pharmacological properties , clinical uses
1	Antiepileptic drugs. Classification pharmacological properties , clinical uses, side effects
2	Antiparkinsonian drugs. Classification, pharmacological properties , clinical uses, side effects
2	Histamine and their antagonists Classification, pharmacological properties , clinical uses, side effects
2	Drug affecting gastrointestinal function. Gastric acid secretion inhibitors; Antiemetic drugs, Prokinetic drugs, Antidiarrheal agents. Classification, pharmacological properties , clinical uses, side effects
2	Adrenocortical Steroids and their synthetic analogs. Mechanisms of action. Classification, Physiological functions and pharmacological effects. Clinical uses, side effects of adrenocortical steroids
2	Nonsteroidal antiinflammatory drugs (NSADs). Mechanism of action. Classification, Therapeutic uses and side effects
2	Pharmacotherapy of Gout. Classification, Therapeutic uses and side effects. Pharmacotherapy of Asthma, COPD and Rhinitis
2	Blood Coagulation and anticoagulant, Thrombolytic and Antiplateled drugs Mechanisms of action. Classification, Therapeutic uses and side effects.

1	Drug Therapy for hypercholesterolemia and Dyslipemia. Statins, Bile-Acid sequestrant, niacin, Fibric acid derivatives, Ezetimibe
2	Pharmacology of Endocrine Pancreas. Insulin, Oral hypoglycemic agents, Incretins. Mechanisms of action. Classification, pharmacological effects. Clinical uses, side effects
2	Diuretics Mechanism of action. Classification, Therapeutic uses and side effects
3	Introduction to Chemotherapy of Antimicrobial diseases. Classification mechanisms of action, therapeutic uses and side effects of the main classes of antimicrobial and antifungal agents

MODULE
PHARMACOLOGY I

Prof.ssa ANNA CALASCIBETTA - Sede IPPOCRATE, - Sede IPPOCRATE

SUGGESTED BIBLIOGRAPHY

Farmacologia. A cura di H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower. Sesta edizione. Elsevier Masson, Milano

Farmacologia. A cura di F. Rossi, V. Cuomo, G. Riccardi. Edizioni Minerva Medica, Torino

Goodman & Gilman Le basi farmacologiche della terapia - Il manuale Seconda edizione, Edizioni Zanichelli

Farmacologia Generale e Clinica di B.G. Katzung, Edizioni Piccin, Padova

AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The course (Pharmacology I) provides knowledge in the areas of pharmacodynamics, and clinical pharmacology that is essential for the appropriate clinical use of drugs in individual patients. It will also address the characteristics of some of the main drug classes by discussing their mechanisms of action at the molecular and cellular level, the pharmacokinetics, the clinical uses, the main source of variability in drug response due to physiopathological and/or genetic factors, their drug interactions and adverse drug reactions.

SYLLABUS

Hrs	Frontal teaching
4	Pharmacodynamics. Mechanisms of drug action. Receptors and drug-receptor interactions. Agonists and antagonists: partial and inverse agonists. Dose-response curves. Types of drug antagonism.Therapeutic index. Factors affecting drug response.
4	Types and classifications of adverse drug reactions (ADR). Mechanisms of tolerance to drug effects. Drug dependence and addiction. Pharmacovigilance.
2	Research and development in pharmacology. Preclinical and clinical studies. Meta-analysis. Principles of pharmacoepidemiology and pharmacoeconomics.
4	Mediators of inflammation. Non-steroidal and steroidal anti-inflammatory drugs. Pharmacotherapy of gout.
4	Antihistamines and immunosuppressant drugs. Anti-asthmatic agents. Agents used in the therapy of osteoporosis.
4	Opiates and non-opiate analgesic agents. Local anaesthetics. Anti-migraine agents.
2	Pharmacotherapy of congestive heart failure. Digoxin and other inotropic agents.
3	Antianginal drugs. Organic nitrates. Drug therapy of dyslipidemia.
2	Antiarrhythmic agents.
2	Drugs used in the treatment of diabetes. Insulins and oral hypoglycaemic agents.
6	Principles of chemotherapy of infective diseases. Resistance to antimicrobial agents. Batteriolitic, bactericidal and bacteriostatic agents: mechanisms of action, spectrum of antibacterial activity, pharmacokinetics, clinical uses and drug toxicity. Post-antibiotic effect and PK/PD index. Antimycobacterial agents.
1	Antimycotic agents.
2	Antiviral agents: anti-herpesvirus, anti-influenza, anti-hepatitis virus and anti-HIV agents. HAARTand drug combinations in antiviral therapy.

MODULE
PHARMACOLOGY I

Prof.ssa CARLA CANNIZZARO - Sede CHIRONE, - Sede CHIRONE

SUGGESTED BIBLIOGRAPHY

Farmacologia Generale. Cannizzaro. Idelson-Gnocchi
Farmacologia generale e molecolare. Francesco Clemente, Guido Fumagalli.UTET
Trattato di Farmacologia. L.Annunziato – G. Di Renzo. Idelson-Gnocchi (II Edizione)The Pharmacological Basis of THERAPEUTICS. Goodman & Gilman's. Mc Graw Hill
Principi di Farmacologia. Le basi farmacologiche della terapia. Casa Editrice Ambrosiana

AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The goal of this course is to understand the composition, properties, and actions of drugs.

SYLLABUS

Hrs	Frontal teaching
16	MODULATION OF CARDIOVASCULAR FUNCTION. Regulation of renal function. Renin angiotensin. Treatment of myocardial ischemia and hypertension. Congestive heart failure. Anti-arrhythmic drugs. Anticoagulant, fibrinolytic and antiplatelet drugs.
8	INFLAMMATION, IMMUNOMODULATION AND HEMATOPOIESIS. Histamine, bradykinin and their agonist. Pharmacotherapy of the gout. Pulmonary pharmacology. Hematopoietic agents
4	CHEMOTHERAPY OF MICROBAL DISEASE. General principles of antimicrobical therapy. Sulfonamides, quinolones and agents for urinary tract infections. Penicillins, cephalosporins, and order beta-lactam antibiotics. Amynoglicosides
4	Chemiotherapy of tubercolisis, Mycobacterium avium complex disease, and leprosy. Antifungal agents. Antiviral agents. Antiretroviral agents and treatment of HIV infection

MODULE
PHARMACOLOGY I

Prof.ssa MARIA MELI - Sede IPPOCRATE, - Sede IPPOCRATE

SUGGESTED BIBLIOGRAPHY

Farmacologia. A cura di H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower. Sesta edizione. Elsevier Masson, Milano

Farmacologia. A cura di F. Rossi, V. Cuomo, G. Riccardi. Edizioni Minerva Medica, Torino

Goodman & Gilman Le basi farmacologiche della terapia - Il manuale Seconda edizione, Edizioni Zanichelli

Farmacologia Generale e Clinica di B.G. Katzung, Edizioni Piccin, Padova

AMBIT	50415-Farmacologia, tossicologia e principi di terapia medica
INDIVIDUAL STUDY (Hrs)	60
COURSE ACTIVITY (Hrs)	40

EDUCATIONAL OBJECTIVES OF THE MODULE

The course (Pharmacology II) provides knowledge in the area of pharmacokinetics that is essential for the appropriate clinical use of drugs in individual patients. It will also address the characteristics of some drug classes including psychoactive and antitumor drugs, and will describe their mechanisms of action at the molecular and cellular level,their farmacokinetics, the clinical uses, the main source of variability in drug response due to physiopathological and genetic factors, drug interactions and adverse drug reactions.

SYLLABUS

Hrs	Frontal teaching
1	Introduction to pharmacology: drug names and classifications. Pharmacokinetics. Phases of pharmacokinetics (ADME).
2	Drug absorption. Transfer of drugs across membranes: influence of pH and pKa. Routes of drug administration: oral, rectal, parenteral, transdermal, pulmonary, topical.
2	Bioavailability. First-pass metabolism. P-glycoprotein. Time-concentration curves. AUC. Loading dose.
2	Drug distribution. Blood flow. Binding to plasma proteins. Blood-tissue barriers. Volume of distribution.
3	Pathways of drug metabolism. Phase I, II and III of drug metabolism. CYP450. Prodrugs and drug metabolites. Pharmacogenetics. Enzyme induction and inhibition.
2	Drug elimination. Routes of drug excretion: renal, fecal, pulmonary and others. Cearance, half-life. Steady state and drug dosing.
2	Polytherapy and drug-drug intractions. Pharmacodinamic and pharmacokinetic basis of drug interactions.
5	Introduction to the pharmacology of the autonomic nervous system. Neurotransmitters and receptors. Muscarinic receptors agonists and antagonists. Anticholinesterase agents. Nicotinic agonists and antagonists.
4	Adrenergic agonists and antagonists.
2	Antihypertensive drugs. Diuretic agents.
3	Drugs acting on the renin-angiotensin system. Calcium channel blockers. Vasodilators.
3	Pharmacology of hemostasis. Parenteral and oral anticoagulant agents. Antiplatelet and fibrinolytic drugs.
2	Actions of drugs in the CNS. Anxiolytic and hypnotic drugs: benzodiazepines and barbiturates.
3	Antidepressant and mood stabilizer drugs. Antipsychotic drugs.
1	Anticonvulsant drugs.Therapeutic monitoring.
2	Principles of cancer chemotherapy. Mechanisms of anticancer drug resistance. Main classes of anticancer agents: alkylating agents, topoisomerase inhibitors, antimitotic agents, antimetabolites, targeted agents, hormonal drugs.
1	Principles of prescription order writing. Reading of scientific articles regarding pharmacologic subjects.