

ΔΙΠΑΕ ΦΟΡΕΑΣ ΔΙΑΣΦΑΛΙΣΗΣ ΚΑΙ ΠΙΣΤΟΠΟΙΗΣΗΣ ΤΗΣ ΠΟΙΟΤΗΤΑΣ ΤΗΣ ΑΝΩΤΕΡΗΣ ΕΚΠΑΙΔΕΥΣΗΣ CYQAA THE CYPRUS AGENCY OF QUALITY ASSURANCE AND ACCREDITATION IN HIGHER EDUCATION



Course Title	Pharmacology I			
Course Code	PHA309			
Course Type	Compulsory			
Level	BSc (Level 1)/ MPharm (Level 2)			
Year / Semester	3 rd (6 th Semester)			
Teacher's Name	Dr Charalampos Triantis, Dr N. Drakoulis			
ECTS	6 Lectures / week 3 Laboratories/week 2			
Course Purpose	The aim of the subject is to provide students with proper knowledge about biological and pharmacological effects of the drugs and their applications. Furthermore, aims at teaching how to interpret phenomena such as drug resistance and drug sensitivity, teach how a compound can be used for specific pharmacological or biological purpose and how its action can be verified.			
Learning Outcomes	 specific pharmacological or biological purpose and how its action can be verified. By the end of this course, the students are expected to be able to: Define and describe pharmacology as a science, its aim, the different types of drugs, their classification according to pharmacological action, ways of use and routes of administration (parenteral, non-parenteral, oral, otologic, nasal, rectal, transdermal, inhalational). Explain the action of a compound in molecular, cellular, tissue, visceral, organ system and whole- organism level. State the biological and pharmacological properties of the common drugs. Distinguish pharmacodynamic and chemotherapeutic agents and their differences. Describe immunization, immunization agent, vaccines (indications and precautions) as well as the usefulness of various drugs and devices. Explain eating habits, demand in nutritional elements, protein, carbohydrates, lipids, vitamins, inorganic elements. Special reference to nutritional demands during infancy and adolescence. Conceptualize the pharmacology of Autonomic Nervous System, its connection to various diseases and the main drug categories relevant to Autonomic Nervous System and neuromuscular junctions. Recognise allergies, causes, symptomatology with special reference to allergic rhinitis and its treatment. Define drugs of the respiratory system such as antihistamines, decongestants, antitussives, expectorants, mucolytics and bronchodilator drugs. List the main drugs used against gastrointestinal disorders (antacids, H₂ receptor antagonists, antispasmodics, anticholinergics, laxatives, antidiarrheals, antiemetics), the indications and contraindications of these drugs. 			



	 and non- steroidal drug local anesthetics, myo cataract drugs. Recall the various de antimicrobials, anti-acr anti-inflammatory drug agents, as well as local Analyse inflammation, and the main non- stero Describe antibiotic agen of administration, indi- disinfectants. Define anti-neoplastic f precautions concerning toxicity. Analyze the possible compound. Describe the methodol abbreviations and terma 	gs, anti-inflammatory otics and mydriatics ermatological formula ne drugs, antifungals gs, antihistamines, anesthetics, analges its connection to vari- oidal anti-inflammator nts, their classification cations and contrain factor and the most in g their use, patient pr or expected thera ogy and ways of pre- s.	drugs, drug combinations, , anti-glaucoma and anti- tions such as antiseptics, , virostatics, antiparasitics, healing and regenerative ics and keratolytics. ous pathological conditions y drugs used in therapy. n and their spectrum, routes indications. Antiseptics and mportant anti-cancer drugs, reparation, and evidence of apeutic applications of a scribing, including the Latin
Prerequisites	PHA108	Corequisites	None
	PHA205		
Course Content	 PHA205 Theory Introduction to pharmacology: Pharmacological classification of drugs. Principles of drug therapy. Pharmacokinetics and Pharmacodynamics. Routes of administration. The role of nurses in drug administration. Drugs affecting the Autonomic Nervous System: Cholinergic and adrenergic agonists and antagonists Drugs affecting Respiratory system: Asthma, Chronic Obstructive Pulmonary Disease. Cough remedies. Antihistamines, decongestion, expectoration, bronchodilators and mycolytic drugs Drugs affecting Gastrointestinal system: Peptic ulcer and gastroesophageal reflux. Proton-pump inhibitor, H2 inhibitors, antacids, anti-emetics, laxatives, antidiarrhoea drugs. Drugs affecting Urinary system: Benign Hyperplasia Prostate. Erectile Dysfunction Non Steroids Anti-inflammatory drugs: Analgetics. Rheumatoid arthritis. Migraine. Chemotherapy: Antibacterial drugs: Antibiotics, antiseptics and disinfectants. Antifungal and antiviral agents: treatment of HIV disease. Anticancer Drugs. Immunosuppressants. Laboratory experiments/exercises and case studies: As part of the course, laboratory exercises are carried out on the course material for a better deepening and consolidation of the theoretical part. Clinical case studies and analysis of data from research articles are also included.		

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	1. Asthma		
	2. Cancer		
	3. Bacterial and viral infections		
	 Critical revision of data of the activity of proton pump inhibitors on gastroesophageal reflux 		
	Exercises		
	Exercise 1: In silico study of the potential pharmacological properties ar actions of compounds of pharmaceutical interest.		
	Exercise 2: Analysis of binding of the salicylic acid with plasma proteins.		
	Exercise 3: Determination of the antimicrobial activity of antibiotics and drug resistance testing.		
	Exercise 4: Carrageenan induced inflammation and determination of the anti-inflammatory activity of Indomethacin.		
	Exercise 5: Determination of the cytotoxic activity of anti-cancer drugs.		
Teaching Methodology	The teaching methodology includes lectures offering the theoretical background for a better perception of concepts of Pharmacology. Methods such as discussion, questions/answers, pros/cons, role playing and case studies are used to enhance student's participation. Flipped classroom, group-based learning and peer-feedback methods will also be implemented. The students have the opportunity to work in teams and discuss their findings with the professor. In addition, recent scientific results and review studies are included. Detailed notes with PowerPoint are used in the lesson. Image-rich material and short animations are used to comprehend some biological processes. The laboratory part of the course is conducted in the Pharmaceutical Lab under the supervision of the professor/lab instructor.		
Bibliography	 (a) <u>Textbooks:</u> Pharmacology, Lippincott, K. Whalen, R. A. Harvey. Wolter Kluwer. 6th ed, 2015 R. Harvey. Lippincott Pharmacology, 6th edition, Greek Publisher Parisianos, 2015 (b) <u>References:</u> K. Whalen. Lippincott Pharmacology, 7th edition, 2019 "Goodman and Gilman's The Pharmacological Basis of Therapeutics", (13th Edition). Laurence Brunton, Randa Hilal-Dandan, Bjorn Knollmann. McGraw-Hill Education 2017 "Basic & Clinical Pharmacology", Katzung G. Bertram, 1st Ed, Publisher Medical Publication Pashalidis, 2009 		
Assessment	All written exams conclude open questions and multiple choice questions Coursework 50% • Midterm written exam 30% • Lab reports and Case study presentation 20% Final written exam 50%		



	The evaluation of the course is performed by (a) a written mid-term exam during the semester, which examines specific modules of the course and it accounts for 30% of the overall grade, (b) the laboratory reports during the semester, in which students present the collected and analysed experimental data as well as their conclusions, derived from theory and the experimental data which accounts for 20% of the overall grade, and (c) a written final exam, which examines all modules of the course, and it accounts for 50% of the overall grade. Students are prepared for the above written exams by discussion, questions/answers, pros/cons and case studies, related to the field of Pharmacology, in the class. Additional material and exercises are given to them for further practice at home. For a better comprehension of the subject, frequent revisions are performed at regular time intervals. Questions of gradual difficulty apply to the evaluation of the mid-term and final examination. There may be multiple choice or right/wrong questions with justification of the answers or issue analysis and problem solving questions may be applied in order to evaluate the knowledge and perception of the student on the subject. For the evaluation of laboratory exercise reports, the following criteria shall be taken into account, with ratios varying according to the laboratory evaraine:
	(a) data collection
	(b) data analysis
	(c) application of theory to draw conclusions
	The above criteria and assessment tools, as well as their weight, are communicated to the students, and are formulated in such a way in order to maximize the expected learning outcomes as well as the quality of the course.
Language	Greek, English