

Course Title	Systematic Pharmacology II				
Course Code	MED-402				
Course Type	Required				
Level	Undergraduate				
Year/ Semester	Year 4				
Teacher's Name	Course Lead: Dr Katerina Prokopiou Contributor: Dr Katherine Anabel Alexander				
ECTS	6	Lectures / week	4	Laboratories / week	0
Course Purpose and Objectives	<p>The main general objective of this course is to develop proficiency in using drugs for treatment and/or prevention of main diseases and medical conditions. Students should be able to list and describe main drugs aimed to prevent, alleviate symptoms, cure, improve prognosis and/or reduce risk of recurrence for each studied disease/medical condition.</p> <p>For each drug type, students should be able to describe which patients may benefit from its use, likely mechanism of actions, the most common adverse effects and major contraindication. Students should learn therapeutic regimens against main diseases/medical conditions, how to counsel patients regarding use of drugs and how to prescribe drugs in appropriate doses using British National Formulary and similar pharmaceutical reference books. Students should learn how to tailor therapies for each individual patient (taking into consideration gender, age and other patient characteristics) to achieve maximal therapeutic efficacy and safety.</p> <p>This course covers drugs that are system-specific and/or target specific clinical conditions.</p>				
Learning Outcomes	<p>The following list provides the learning objectives that will be covered in the lectures and tutorials of each week:</p> <p>Week 1</p> <ol style="list-style-type: none"> 1. Describe the mechanism of action, place in therapy and side effects of drugs used in the treatment of gout <p>Week 2</p> <ul style="list-style-type: none"> • Same Lob as Week 1 <p>Week 3</p> <ol style="list-style-type: none"> 2. Discuss the pharmacological treatment of rheumatoid arthritis (RA) and describe the mechanism of action and major side effects of disease-modifying anti-rheumatic drugs and corticosteroids. 3. Describe the mechanism of action, place in therapy and side effects of drugs used in the treatment of gout <p>Week 4</p> <ul style="list-style-type: none"> • Same Lob as Week 3 				

Week 5

4. Discuss the pharmacological treatment of osteoarthritis.
5. Outline strategies for the prevention and treatment of rickets and osteomalacia.
6. Describe the mechanism of action, place in therapy and side effects of drugs used in the treatment of back pain.

Week 6

- Same Lob as Week 5

Week 7

7. Describe the mechanism of action, place in therapy and side effects of drugs used in the treatment of osteoporosis.

Week 8

- Same Lob as Week 7

Week 9

8. Discuss the treatment approach of systemic lupus erythematosus (SLE) and describe the mechanism of action and major side effects of drugs used in SLE.
9. Outline the clinical features of drug-induced lupus and give examples of drugs which cause this.

Week 10

- Same Lob as Week 9

Week 11

10. Describe the mechanism of action, place in therapy and major side effects of drugs (including anti-inflammatories, retinoids and biological drugs) for psoriasis.
11. Describe the mechanism of action, place in therapy and major side effects of drugs used in eczema and acne.

Week 12

- Same Lob as Week 11

Week 13

12. List the most commonly used vaccines and describe their action, indications and adverse effects.
13. Classify drugs used to treat glaucoma, including their mechanism of action, clinical uses and adverse effects.

Week 14

Revision

Week 15

14. Revise cell cycle and outline the characteristics of cancer cells.
15. Classify the different types of anti-cancer drugs.
16. Describe the mechanisms of action, clinical use and adverse effects of alkylating and related agents and anti-metabolites.

Week 16

- Same Lob as Week 15

Week 17

17. Describe the mechanisms of action, clinical use and adverse effects of cytotoxic antibiotics, plant derivatives, hormones.
18. Describe the clinical uses and adverse effects of protein kinase inhibitors and miscellaneous anti-cancer agents.

Week 18

- Same Lob as Week 17

Formative Midterm Exam

Week 19

19. Revise the hematopoietic system and classify the different types of anemias.
20. Describe the therapeutic uses and adverse effects of iron and folic acid.
21. Describe common drugs (e.g. vitamin B12, erythropoetin) used to treat disorders of the hematopoietic system, including mechanisms of action, clinical use and adverse effects.
22. Describe the hematopoietic growth factors, their clinical uses, mechanisms of action and adverse effects.

Week 20

- Same Lob as Week 19

Week 21

23. Describe principles of pharmacodynamics, dose-effect analysis and defining optimal dose.
24. Describe principles of pharmacokinetics and the target concentration strategy.

Week 22

- Same Lob as Week 21

Week 23

25. Classify the different types of drug toxicities and discuss their underlying mechanisms.
26. Discuss the types of possible drug interactions and identify how to predict each type.

Week 24

- Same Lob as Week 23

Week 25

27. Define the term clinical pharmacogenetics and describe the principles of pharmacogenetics, giving examples of important genetic polymorphisms.

Week 26

- Same Lob as Week 25

	<p>Week 27</p> <p>28. Describe the variations in pharmacokinetics and pharmacodynamics in children and the consequent therapeutic considerations.</p> <p>29. Describe the variations in pharmacokinetics and effector system functions in the elderly and the consequent therapeutic considerations.</p> <p>Week 28</p> <ul style="list-style-type: none"> • Same ob as Week 27 		
Prerequisites	<p>MED-303 Pharmacology</p> <p>MED-308 Systematic Pharmacology I</p>	Required	None.
Course Content	<ul style="list-style-type: none"> • Drugs for disorders of the musculoskeletal system I – Gout • Tutorial on drugs for disorders of the musculoskeletal system I – Gout • Drugs for disorders of the musculoskeletal system II - Rheumatoid arthritis • Tutorial on drugs for disorders of the musculoskeletal system II - Rheumatoid arthritis • Drugs for disorders of the musculoskeletal system III - Osteoarthritis, osteomalacia and back pain • Tutorial on drugs for disorders of the musculoskeletal system III - Osteoarthritis, osteomalacia and back pain • Drugs for disorders of the musculoskeletal system IV – Osteoporosis • Tutorial on drugs for disorders of the musculoskeletal system IV – Osteoporosis • Drugs for disorders of the musculoskeletal system V - Systemic lupus erythematosus • Tutorial on drugs for disorders of the musculoskeletal system V - Systemic lupus erythematosus • Drugs for disorders of the skin • Tutorial on drugs for disorders of the skin • Drugs used to treat glaucoma • Cancer Therapeutics I • Tutorial on cancer therapeutics I • Cancer Therapeutics II • Tutorial on cancer therapeutics II • Drugs used to treat disorders of the hematopoietic system • Tutorial on drugs used to treat disorders of the hematopoietic system • Principles of clinical pharmacology: Clinical pharmacodynamics and pharmacokinetics • Tutorial on principles of clinical pharmacology: Clinical pharmacodynamics and pharmacokinetics • Principles of clinical pharmacology: Drug toxicity and Drug interactions • Tutorial on principles of clinical pharmacology: Drug toxicity and Drug interactions • Principles of clinical pharmacology: mClinical pharmacogenetics Flipped Classroom • Tutorial on principles of clinical pharmacology: Clinical pharmacogenetics • Principles of clinical pharmacology: Elderly and paediatric therapeutics • Tutorial on principles of clinical pharmacology: Elderly and paediatric therapeutics 		
Teaching Methodology	Lectures, Tutorials.		

Bibliography

Required Textbooks/Reading:

Students can choose to buy one of the three required books

Authors	Title	Publisher	Year	ISBN
Rang, H. P	Rang and Dale's pharmacology	Elsevier 10 th Edition	2024	9780323873956
Todd W.Vanderah	Katzung's Basic and Clinical Pharmacology	McGraw-Hill Education 16 th Edition	2023	9781260463309
Laurence Brunton, Bjorn Knollmann	Goodman & Gilman's the Pharmacological Basis of Therapeutics	McGraw-Hill 14 th Edition	2023	9781264258079

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Kaplan Medical	Preclinical Pharmacology Review (previously USMLE Step 1 Lecture Notes)	Kaplan	2023	9781506284552
Karen Whalen	Lippincott Illustrated Reviews: Pharmacology	Lippincott Williams & Wilkins 8 th Edition	2022	9781975170585
Siri Ancha, Christine Auberle, Devin Cash, Mohit Harsh, John Hickman, Carole Kounga	The Washington manual of medical therapeutics	Wolters Kluwer 37 th Edition	2022	9781975190620
Arthur J Atkinson, Jr, Shiew-Meu Huang, Juan JL Lertora, Sanford P Markey,	Principles of clinical Pharmacology	Academic Press 3 rd Edition	2012	9780123854711

	E-book Permalink: http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=nlebk&AN=477513&site=eds-live&custid=s1098328				
	Sarah Lerchenfeldt	BRS Pharmacology	Wolters Kluwer Health 7 th Edition	2019	9781975105495
Assessment	Formative Midterm Exam and Summative Final Exam. The Summative Final Exam will contribute towards 100% of the course grade. Assessment is by Single Best Answer MCQs (SBAs) and there may also be some Short Answer Questions (SAQs).				
Language	English				