

## Course Description Form

<b>1. Course Name:</b>					
Advanced Therapeutics I					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
First semester					
<b>4. Description Preparation Date:</b>					
09/2024					
<b>5. Available Attendance Forms:</b>					
On campus					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
3 Hours /3 Units					
<b>7. Course administrator's name (mention all, if/ more than one name)</b>					
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<b>8. Course Objectives</b>					
<b>Course Objectives</b>			<ul style="list-style-type: none"> <li>The course provides students with the basic knowledge about pathophysiology, symptoms and aims of treatment.</li> <li>In addition to the basic knowledge on the drug's use, kinetics, drug interactions, dose calculations, side effects, treatment algorithms and patient awareness are provided.</li> <li>In addition to selected topics about medicines' use in special populations, antibiotics management and effect of genetics on drug response.</li> </ul>		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		Lectures Seminars Simple quizzes Brainstorming questions			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		Asthma.	Lectures. Discussions.	Simple quizzes.

		<ol style="list-style-type: none"> <li>1. Describe the pathophysiology and clinical presentation of acute and chronic asthma.</li> <li>2. List the treatment goals for asthma.</li> <li>3. Identify environmental factors associated with worsening asthma control.</li> <li>4. Discuss the factors to consider when choosing an inhaled drug delivery device for a patient.</li> <li>5. Recommend an asthma medication regimen for an adult patient based on symptoms.</li> <li>6. Compare the preferred asthma reliever and controller regimens for children, adolescents, and adults.</li> <li>7. Describe the purpose of an individualized asthma action plan.</li> </ol>			
2	3	<ol style="list-style-type: none"> <li>1. Describe the pathophysiology of chronic obstructive pulmonary disease (COPD).</li> <li>2. Assess a patient for signs and symptoms of COPD.</li> <li>3. List the treatment goals for a patient with COPD.</li> <li>4. Design an appropriate COPD maintenance treatment regimen based on patient-specific data.</li> <li>5. Design an appropriate COPD exacerbation treatment regimen based on patient-specific data.</li> <li>6. Develop a monitoring plan to assess effectiveness and adverse effects of pharmacotherapy for COPD.</li> </ol>	Chronic obstructive pulmonary disease.	Lectures. Simple discussions.	Simple quizzes.

		7. Formulate an appropriate education plan for a patient with COPD.			
3	3	<p>1. Describe the phases of the cardiac action potential, and the relationship between the cardiac action potential and the electrocardiogram (ECG).</p> <p>2. Describe the modified Vaughan Williams classification of antiarrhythmic drugs and compare and contrast the effects of these drugs on cardiac electrophysiology.</p> <p>3. Determine risk factors for and mechanisms, etiologies, symptoms, and goals of therapy of (a) sinus bradycardia, (b) atrioventricular (AV) block, (c) atrial fibrillation (AF), (d) paroxysmal supraventricular tachycardia (PSVT), (e) premature ventricular complexes (PVCs), (f) ventricular tachycardia (VT, including torsades de pointes [TdP]), and (g) ventricular fibrillation (VF).</p> <p>4. Compare and contrast mechanisms of action of drugs used for ventricular rate control, conversion to sinus rhythm, and maintenance of sinus rhythm in patients with AF.</p> <p>5. Compare and contrast the advantages and disadvantages of warfarin and the direct oral anticoagulants (DOACs) for prevention of stroke and systemic embolism in patients with AF.</p> <p>6. Discuss nonpharmacologic methods for termination of PSVT and compare and contrast mechanisms of action of drugs</p>	Arrhythmias	Lectures. Simple discussions.	Simple quizzes.

		<p>used for acute termination of PSVT, as well as treatment options for long-term prevention of PSVT recurrence.</p> <p>7. Describe the role of drug therapy for management of asymptomatic and symptomatic PVCs.</p> <p>8. Compare and contrast mechanisms of action of drugs used for treatment of acute episodes of VT and describe options and indications for nonpharmacologic treatment of VT and VF.</p> <p>9. Design individualized drug therapy treatment plans for patients with (a) sinus bradycardia, (b) AV block, (c) AF, (d) PSVT, (e) PVCs, (f) VT (including TdP), and (g) VF.</p>			
4	3	<p>1. Identify risk factors and signs and symptoms of deep vein thrombosis (DVT) and pulmonary embolism (PE).</p> <p>2. Determine a patient's risk of developing venous thrombosis.</p> <p>3. Formulate an appropriate prevention strategy for a patient at risk for DVT.</p> <p>4. Select and interpret laboratory test(s) to monitor antithrombotic medications for safety and efficacy.</p> <p>5. Identify factors that place a patient at high risk of bleeding while receiving antithrombotic medications.</p> <p>6. State at least two potential advantages of newer anticoagulants (ie, low-molecular-weight heparins, fondaparinux, oral direct thrombin inhibitors, and oral</p>	Venous Thromboembolism	Lectures. Simple discussions.	Simple quizzes.

		<p>direct factor Xa inhibitors) over traditional anticoagulants (ie, unfractionated heparin and warfarin).</p> <p>7. Manage a patient with toxicity secondary to an anticoagulant with or without bleeding.</p> <p>8. Identify relevant factors such as drug–drug and drug–food interactions to optimize anticoagulant medication selection.</p> <p>9. Formulate an appropriate treatment plan, including duration and monitoring, for a patient who develops a DVT or PE.</p>			
5	3	<p>1. Explain the routes of transmission for human immunodeficiency virus (HIV) and its natural disease progression.</p> <p>2. Identify typical and atypical signs and symptoms of acute and chronic HIV infection.</p> <p>3. Identify the desired therapeutic outcomes for patients living with HIV.</p> <p>4. Recommend appropriate first-line pharmacotherapy interventions for patients with HIV infection.</p> <p>5. Describe the components of a monitoring plan to assess effectiveness and adverse effects of pharmacotherapy for HIV infection.</p> <p>6. Educate patients about the disease state, appropriate lifestyle modifications, and drug therapy required for effective treatment.</p>	Human Immunodeficiency Virus Infection	Lectures. Simple discussions.	Simple quizzes.
6	3	1- Describe the age-related changes in physiology which	Geriatrics Medicines	Lectures.	Simple quizzes.

		<p>reflect on the pharmacokinetics and pharmacodynamics of numerous drugs.</p> <p>2- Explain the strategies to improve and maintain the functional status as a cornerstone of care for older adults.</p> <p>3- Identify drug-related problems in older adults with their negative consequences.</p> <p>4- Describe the possible solutions to optimize drug therapy and prevent drug-related problems in older adults.</p>		Simple discussions.	
7	3	<p>1- Define medication adherence and its importance in maintaining patient safety.</p> <p>2- Identify common barriers to medication adherence, including social, economic, and psychological factors.</p> <p>3- Explain the impact of non-adherence on patient outcomes, healthcare expenses, and disease progression.</p> <p>4- Describe different strategies for assessing medication adherence, such as pill counts, electronic monitoring, and patient self-report.</p> <p>5- Recognize the role of healthcare providers in promoting medication adherence, including patient education, counseling, and follow-up.</p>	Medication Adherence	Lectures. Simple discussions.	Simple quizzes.
8	3	<p>1. Evaluate patient-specific parameters to determine whether EN is appropriate.</p> <p>2. Compare clinical efficacy, complications, and costs of EN versus parenteral nutrition (PN).</p> <p>3. Describe the components of EN and their role in nutrition support therapy.</p>	Enteral Nutrition	Lectures. Simple discussions.	Simple quizzes.

		<ol style="list-style-type: none"> <li>4. Develop a plan to design, initiate, and adjust an EN formulation for an adult patient based on patient-specific factors.</li> <li>5. Describe the etiology and risk factors for EN-associated complications in adult patients receiving EN.</li> <li>6. Select appropriate medication administration techniques for an EN patient.</li> </ol>			
9	3	<ol style="list-style-type: none"> <li>1. List appropriate indications for parenteral nutrition (PN) in adult patients.</li> <li>2. Describe the components of PN and their role in nutrition support therapy.</li> <li>3. Develop a plan to design, initiate, and adjust a PN formulation for an adult patient based on patient-specific factors.</li> <li>4. Describe the etiology and risk factors for PN macronutrient-associated complications in adult patients receiving PN.</li> <li>5. Describe the etiology and risk factors for refeeding syndrome, as well as measures to prevent refeeding syndrome.</li> </ol>	Parenteral Nutrition	Lectures. Simple discussions.	Simple quizzes.
10	3	<ol style="list-style-type: none"> <li>1. Describe the search for genetic variations that lead to interindividual differences in drug response.</li> <li>2. Illustrate the application of pharmacogenetic data to disease management to improve response, to avoid adverse effects, and to avoid treatment failure.</li> </ol>	Pharmacogenetics	Lectures. Simple discussions.	Simple quizzes.
11	3	<ol style="list-style-type: none"> <li>1. Describe the problem encountered with the use of antibiotics such as misuse,</li> </ol>	Antibiotic Stewardship	Lectures. Simple discussions.	Simple quizzes.

		<p>underuse, overuse, and abuse and the consequences of these problems on health.</p> <p>2. Defining the methods of proper use of antibiotics and the ways to prevent and control the wrong use of them.</p>			
12	3	<ol style="list-style-type: none"> <li>1. Describe the underlying etiology of dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and menopause.</li> <li>2. Explain the physiologic changes associated with dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and menopause.</li> <li>3. Identify the signs and symptoms associated with dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and menopause.</li> <li>4. Determine the desired therapeutic outcomes for patients with dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and patients taking menopausal hormone therapy (MHT).</li> <li>5. Explain how to evaluate a patient for the appropriate use of MHT.</li> <li>6. Recommend appropriate nonpharmacologic and pharmacologic interventions for dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and menopausal symptoms.</li> <li>7. Design a monitoring plan to assess the safety and effectiveness of pharmacotherapy for</li> </ol>	Menopause and menstruation-related disorders	Lectures. Simple discussions.	Simple quizzes.



		dysmenorrhea, amenorrhea, anovulatory bleeding, heavy menstrual bleeding, and a patient taking MHT.			
13	3	<ol style="list-style-type: none"> <li>1. Discuss the physiology of the female reproductive system.</li> <li>2. Compare the efficacy of oral contraceptives with that of other methods of contraception.</li> <li>3. State the mechanism of action of hormonal contraceptives.</li> <li>4. Discuss adverse effects, risks, and contraindications associated with the use of contraceptives and recommend strategies for minimizing or eliminating such risks.</li> <li>5. Describe advantages and disadvantages of various contraceptives, including oral and nonoral formulations.</li> <li>6. Cite important drug interactions that may occur with oral contraceptives.</li> <li>7. Provide appropriate patient education regarding the use of oral and barrier methods of contraception.</li> <li>8. Discuss how emergency contraception may be employed to prevent unintended pregnancy.</li> </ol>	Contraception	Lectures. Simple discussions.	Simple quizzes.
14	3	<ol style="list-style-type: none"> <li>1. Explain the underlying causes of overweight and obesity.</li> <li>2. Identify parameters used to diagnose obesity and indicate the severity of disease.</li> <li>3. Identify desired therapeutic goals for patients with obesity.</li> <li>4. Recommend appropriate nonpharmacologic and pharmacologic therapeutic</li> </ol>	Overweight and Obesity		

		<p>interventions for overweight or obese patients.</p> <p>5. Implement a monitoring plan that will assess both the efficacy and safety of therapy initiated.</p> <p>6. Educate patients about the disease state and associated risks, comprehensive lifestyle interventions, drug therapy, and surgical options necessary for effective treatment.</p>			
11. Course Evaluation					
Midterm exam 30 marks, Final exam 70 marks					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)		Pharmacotherapy: Principles & Practice 6 <sup>th</sup> edition.			
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites		Electronic books and review articles.			