



**Jordan University of Science and Technology**  
**Faculty of Applied Medical Sciences**  
**Course Syllabus**

Course Information	
<b>Course Title</b>	Pharmacology for Allied Dental Sciences
<b>Course Code</b>	(ADS216)
<b>Prerequisites</b>	
<b>Course Website</b>	

**Course Description, Aims and Objectives**

This course is designed to provide the student with essential and basic knowledge of pharmacology most relevant to dentistry

**Course Description:**

This course will focus on the basic principles of pharmacology with focus on dental practice including pharmacokinetics and pharmacodynamics and will discuss drugs affecting different systems of the body and their classification, their pharmacological actions, mechanisms of action, clinical uses, major side effects, contraindications, & important drug-drug interaction, with emphasis on dental applications.

**Course Objectives:**

1. The study of general principles of pharmacology with focus on dental practice.
2. The study of principles of drug action on the body and therapeutic effects of drugs employed in dental practice.
3. To familiarize the students with the drug therapeutic indications, contraindications, toxic effects and drug-drug interactions of commonly used drugs in clinical practice.
4. To study common chronic diseases like hypertension, diabetes mellitus, bronchial asthma and to discuss the drugs used in their management.
5. A review of antimicrobial agents commonly employed in dentistry.
6. Coverage of various analgesic agents, anti-inflammatory drugs, local anesthetics, and commonly employed in dental practice.
7. A classification of drugs used for various systemic diseases with some emphasis on prototype drugs.

**Learning Objectives:**

After studying the material covered in lectures, the student is expected to achieve the following learning objectives:

Learning objectives	Weight
1. The students are expected to know the basic term used in pharmacology and to know the appropriate route of drug administration	
2. The students will be able to describe the pharmacology of autonomic nervous system as introductory to understanding the drugs action.	
3. The students will be able to explain the mechanism of drug action.	
4. The students will be able to be familiar with the important antimicrobial used and their safety record in children and during pregnancy.	
5. The students will memorize the analgesics and the local anesthetic used by dentist	

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Textbook/s	
Title	Lippincott's Illustrated Reviews
Author(s)	Richard A. Harvey, Pamela C. Champe,
Publisher	Wolters Kluwer
Year	2019
Edition	7th Edition
Book Website	

Useful Resources

Assessment		
Assessment	Expected Due Date	Percentage
First Exam	Week or date	30%
Midterm/second Exam	Week or date	30%
Final Exam	End of the semester	40%
TOTAL		100%

Teaching and Learning Methods
Lecturing and discussion of the topics selected for this course

## Course Schedule

Week	Topic	Lecture Subject	Specific learning objectives	References
Week 1	1. General principles of Pharmacology	1. Objectives & definitions Terminology 2. Routes of drug administration	1. define some pharmacological terminology 2. Explain how drugs are named 3. Explain drug sources 4. Identify dosage forms in which drugs are manufactured. 5. Describe common routes of drug administration 6. Describe absorption through the different routes of drug administration 7. Describe the advantages versus disadvantages of the drug administration routes	
Week 2		3. Pharmacokinetics 4. Pharmacodynamics	1. Compare the differences between pharmacodynamics and pharmacokinetics. 2. Describe the mechanisms of drug absorption through the various membranes in the body. 3. Distinguish between a loading dose and a maintenance dose 4. Describe the drug-receptor interaction. 5. Describe and differentiate the terms: toxicity, overdose, adverse drug reactions, adverse effects, drug interactions, tolerance	
Week 3	2. Drugs affecting the autonomic nervous system	1. Introduction to ANS 2. Parasympathetic system agents (agonist)	1. Understand the differences between the sympathetic and parasympathetic divisions of the autonomic nervous system. 2. Illustrate the different types of receptors and neurotransmitters in the autonomic nervous system.	
Week 4		3. Parasympathetic system agents (antagonist) 4. Sympathetic drugs (agonist & antagonist)	3. Identify the drugs affecting the autonomic nervous system (sympathetic and parasympathetic divisions). 4. Understand the differences between adrenergic and cholinergic drugs. 5. Describe the role of autonomic nervous system drugs in dentistry.	

			6. Explain the use of vasoconstrictors with local anesthetics in dental patients.	
<b>Week 5</b>	<b>3. Drugs affecting Cardiovascular system</b>	<b>1. Antihypertensive Drugs</b> <b>2. Drugs Used in Angina Pectoris</b>	1. List the different categories of drugs used in the treatment of hypertension and angina. 2. Identify the mechanism of action, contraindication and safe drugs during pregnancy. 3. Discuss the adverse side effects of drugs and to focus on that are important in the dental office. 4. Know the drug and the route used to manage acute attack of angina.	
<b>Week 6</b>	<b>4. Analgesics</b>	<b>1. Opioid Analgesics</b> <b>2. Non-steroidal Anti-inflammatory Drugs (NSAIDs)</b>	1. Give a list of major opioid agonists. 2. Describe the action of opioid agonists, their clinical uses, and adverse effects. 3. Focus on the terms of physical and psychological dependence. 4. Know opioids antidote. 5. Contrast the function of COX-1 and COX-2. 6. Identify prostaglandins and their effects. 7. Know NSAIDs main indications and contraindications. 8. Contrast the actions and toxicity of aspirin, the older nonselective and COX-2 selective drugs. 9. Give an example of COX-2 selective drugs and understand their risk for cardiovascular system. 10. List the toxic effects of NSAIDs 11. Discuss the commonly used pharmacological agents used for the treatment of toothache pain.	
<b>Week 7</b>	<b>5. Drugs Used in the Disorders of Coagulation</b>	<b>1. Anti-platelets, Anti-coagulants &amp; thrombolytic agents</b>	1. Identify the anticoagulant agents, antiplatelet, and fibrinolytic agents and understand their mechanisms of action. 2. Know the characteristic features of aspirin. 3. Compare the differences and similarities between warfarin and heparin. 4. Know the adverse effects of each of the above mentioned drug classes.	
	<b>6. Drugs Used in Gastrointestinal Disorders</b>	<b>1. Drugs Used in Peptic Ulcer, Constipation, Diarrhea &amp; Antiemetic</b>	1. Know the control of acid secretion in the parietal cells. 2. Describe the current theory of the etiology of peptic ulcer disease.	

			<ol style="list-style-type: none"> <li>3. List the classes of drugs used in the management of peptic ulcer and describe their mechanisms of action.</li> <li>4. List the agents used in symptomatic relief of peptic ulcer.</li> <li>5. Discuss any contraindications or precautions in dental patients with gastrointestinal disorders.</li> <li>6. list the pharmacologic therapy for GERD.</li> <li>7. List drugs used in the prevention and control of vomiting.</li> <li>8. List laxative drugs and antidiarrheal drugs.</li> </ol>	
<b>Week 8</b>	<b>7. Drugs affecting the endocrine system</b>	<ol style="list-style-type: none"> <li>1. Pharmacology of the diabetes mellitus</li> <li>2. Glucocorticosteroids</li> </ol>	<ol style="list-style-type: none"> <li>1. Illustrate the pathogenesis of diabetes mellitus.</li> <li>2. Compare the indications and effects of the available medications used to treat diabetes mellitus.</li> <li>3. Explain the dental management in diabetic patients.</li> <li>4. Describe the various drug-drug interactions of diabetic patients.</li> <li>5. State the dental management of patients taking corticosteroids.</li> <li>6. Describe the dental indications of topical corticosteroids.</li> <li>7. Describe important dental concerns of corticosteroids.</li> </ol>	
	<b>8. Drugs affecting the Respiratory system</b>	<b>1. Drugs Used in the management of Bronchial Asthma &amp; Cough</b>	<ol style="list-style-type: none"> <li>1. List and describe current medications used in asthma.</li> <li>2. Discuss the management of COPD and the therapy for cough.</li> <li>3. Discuss adverse effects of antihistamines as they relate to dentistry.</li> </ol>	
<b>Week 10</b>	<b>9. Autacoids</b>	<b>1. Anti-histamine</b>		
	<b>10. Drugs affecting the central nervous system (CNS)</b>	<b>1. Anxiolytics &amp; hypnotics drugs</b>	<ol style="list-style-type: none"> <li>1. Identify the major chemical classes of sedative-hypnotics.</li> <li>2. Describe the pharmacodynamics of benzodiazepines and barbiturates, including their mechanism of action.</li> </ol>	

Week 11

2. Anti-Depressants drugs,
3. Anti-epileptics drugs

3. Compare the pharmacokinetics of commonly used benzodiazepines and barbiturates and discuss how differences among them in clinical use.
4. Describe the clinical uses and the adverse effects of sedative-hypnotics
5. Describe the probable mechanism and the major properties of tricyclic antidepressants, selective serotonin reuptake inhibitors and MAO inhibitors.
6. Describe the pharmacokinetics and pharmacodynamics of lithium.
7. List the main adverse effects of these drugs.
8. List the different types of epilepsy.
9. Describe the management of a patient undergoing an epileptic seizure in the dental chair.
10. List and discuss drug-drug interactions with anti-epileptic drugs.

4. General anesthesia (GA) drugs
5. Local anesthesia (LA) drugs

1. List the premedication anesthetics and the reason for their use.
2. Identify the main inhalation anesthetic agent and describe their pharmacodynamic properties.
3. Describe the main pharmacokinetic and pharmacodynamic characteristics of the intravenous anesthetics.
4. List the main adverse effects and properties of these classes
5. Discuss the mechanism of action of local anesthetics.
6. Explain the use of vasoconstrictors with local anesthetics in dental patients.
7. Classify local anesthetics used in dentistry.
8. Describe adverse effects of local anesthetics.
9. Describe the signs and symptoms of anesthetic toxicity.
10. Discuss the use of local anesthetics during pregnancy.

<p><b>Week 12</b></p>	<p><b>11. Antimicrobial Agents</b></p>	<p>1. General Considerations</p> <p>2. Cell wall synthesis inhibitors</p>	<ol style="list-style-type: none"> <li>1. Understand the concept of bactericidal versus bacteriostatic antibiotics.</li> <li>2. List the classifications of the different antibiotics including penicillins, cephalosporins, tetracyclines, macrolides, fluoroquinolones and others.</li> <li>3. List the various antimycobacterial drugs.</li> <li>4. Describe adverse effects on the various antibiotics.</li> <li>5. Explain the use of antibiotics in periodontics</li> <li>6. Discuss the rationale for use of topical agents used in dentistry</li> <li>7. List the common antiherpetic drugs.</li> <li>8. Describe the appropriate dental management of patients with herpes labialis.</li> </ol>	
<p><b>Week 13</b></p>		<p>3. Protein synthesis inhibitors, fluoroquinolones, Folic Acid Antagonists &amp; Antimycobacterial Drugs</p> <p>4. Antiviral &amp; antifungal agents</p>	<ol style="list-style-type: none"> <li>9. List the patients that are higher risk for fungal infections.</li> <li>10. List common antifungal agents used to treat oral infections.</li> </ol>	

Additional Notes	
Statement on Professionalism	Professional behavior is expected of students at all times. Attitude and professional behavior are a minimum criterion for passing this class. Examples of unprofessional behavior include but are not limited to: missing classes, tardiness, lack of attention for a speaker, talking to others during lecture, leaving a lecture prior to its completion without prior authorization of the instructor, working on other class material during class, and sleeping during class.
Cheating	University regulations will be applied on cases of cheating and/or plagiarism
Cell phone:	The use of cellular phone is prohibited in class rooms and during exams. The cellular phone must be switched off in class rooms and during exams.
Attendance	No points will be count for points attendance of this class, however attending the lectures will greatly enhance your grade. The student is responsible for any information discussed in lecture sessions. It is imperative to attend all classes!
Absences:	University regulations will be applied. Students are not allowed to be absent for more than 20% of lectures for any reason or excuse. If a student exceeds the absence limit, he or she will not be allowed to sit for future course exams. (Please review university regulation for more details)
Make-up Exam	Make-up exams is entitled for students who miss the exam with accepted legal or medical excuse endorsed by the instructor within 24 hours after the scheduled exam (Please review university regulation for more details)
Feedback	Concerns, complaints, questions, and/or feedback are appreciated and will be important for the instructor. You can contact your instructor using the e-mail or during office hours

kindest Regards



Lippincott's Illustrated Reviews: Microbiology, 3rd Edition by Richard A. Harvey, Cy. Identifier-ark. ark:/13960/t0ms7kp1f. There are no reviews yet. Be the first one to write a review. 22,732 Views. 15 Favorites. Lippincott's Illustrated Reviews: Pharmacology, Fifth Edition enables rapid review and assimilation of complex information. Goodman and Gilman's The Pharmacological Basis of Therapeutics, 14th Edition, 1,423 Pages, 2017, 57.35 MB, 51,408 Downloads, New! Dependable, current, and complete, Robbins and Cotran Pathologic Basis of Disease, 9th Edition is the perennially best-selling Review of Pharmacology (PGMEE) Paperback, 2018, 660 Pages, 2018, 127.3 MB, 46,973 Downloads, New! Rang & Dale's Pharmacology. Lippincott Illustrated Reviews: Pharmacology 6th edition (Lippincott Illustrated Reviews Series) by Karen Whalen PharmD BCPS Lippincott Illustrated. Article by Low Price Books. 4. Pathophysiology of Disease: An Introduction to Clinical Medicine 7/E (Lange Medical Books) by Gary D. Hammer McGraw-Hill Education / Medical Lippincott Illustrated Reviews: Pharmacology Seventh Edition Karen Whalen, PharmD, BCPS, FAPhA Clinical Professor Department of Pharmacotherapy and Translational Research College of Pharmacy University of Florida Gainesville, Florida Collaborating Editors. Carinda Feild, PharmD, FCCM Clinical Associate Professor Department of Pharmacotherapy and Translational Research College of Pharmacy University of Florida St. Petersburg, Florida.