

Course Description

DEH2300 | Pharmacology and Pain Control | 1.00 credit

This course introduces the student to a broad range of Pharmacological concepts including drug categories, drug action, and adverse drug effects. Dental prescriptions such as antibiotics, antifungals and antivirals will be studied. Students will learn the common medical conditions affecting dental hygiene care, such as cardiovascular disease, endocrine and neurological disorders as well as their drug management will be examined. Prerequisite: DES 1044; Corequisites: DEH1802L, 2300L

Course Competencies

Competency 1: The student will be able to demonstrate knowledge and comprehension of the role of pharmacology, drug reference resources, and the naming of drugs by:

1. Describing the role of pharmacology as it relates to the dental hygiene process of care
2. Listing several sources of pharmacologic information
3. Describing the methods by which drugs are named
4. Identifying regulatory agencies and drug study testing

Competency 2: The student will demonstrate knowledge and comprehension of drug action by:

1. Defining the term pharmacokinetics and describing the four categories involved (absorption, distribution, metabolism, and excretion)
2. Describing the effect of ionization on drug absorption
3. Defining pharmacodynamics, describing differentiating drug potency and efficacy using log-dose effect curves
4. Comparing and contrasting the common routes of drug administration
5. Listing factors that alter drug effects
6. Comparing and contrasting minimum effective concentration and toxic concentration and their effect on safety
7. Describing the formula for therapeutic index and summarizing its meaning
8. Deriving the therapeutic index for a given drug

Competency 3: The student will be able to demonstrate knowledge and comprehension of adverse drug interactions by:

1. Defining and describing the classifications of adverse drug interactions
2. Describing common risk factors in drug interactions
3. Identifying clinically significant drug-drug, drug-food and drug-herbal interactions

Competency 4: The student will be able to demonstrate knowledge and comprehension of the autonomic nervous system and its relationship to drugs by:

1. Comparing and contrasting the anatomical and functional organization of the parasympathetic and sympathetic nervous system
2. Describing responses of the major tissues and organ systems to the sympathetic and parasympathetic nervous system
3. Identifying the location and function of the neurotransmitters acetylcholine, epinephrine, and norepinephrine, and receptors
4. Listing the four groups of drugs that act on the autonomic nervous system and, for each group, describing the pharmacologic effects, adverse reactions, contraindications, and uses

Competency 5: The student will be able to demonstrate knowledge and comprehension of prescriptions by:

1. Listing and describing the information required in a prescription
2. Defining Latin terms used in prescription writing Identifying common errors in prescription writing
3. Describing the issues related to controlled substance prescriptions

Competency 6: The student will demonstrate knowledge and comprehension of anti-infectives by:

1. Classifying anti-infective agents as bactericidal or bacteriostatic
2. Describing dental therapeutic and prophylactic indications for antimicrobial agents
3. Identifying the pharmacokinetics, mechanism of action, adverse reactions, and uses for penicillin, erythromycin, tetracyclines, clindamycin, metronidazole, cephalosporins, and other anti-microbial agents
4. Describing the mechanism of action, pharmacokinetics, adverse reactions, and uses for the anti-viral, anti-tubercidin, and anti-fungal agents

Competency 7: The student will demonstrate knowledge and comprehension of the cardiovascular drugs by:

1. Classifying and describing the mechanism of action, medical uses, and adverse effects of cardiovascular drugs
2. Identifying the cholesterol-lowering drugs and their uses, mechanism of action, adverse effects, and contraindications

Competency 8: The student will demonstrate knowledge and comprehension of anticonvulsants (anti-seizure drugs), migraine treatment, and Parkinson's Disease management by:

1. Describing general adverse reactions of anticonvulsant drugs
2. Classifying anticonvulsants by chemical group and describing the adverse reactions, uses, and pharmacologic effects for each group
3. Describing common types of seizure disorders
4. Recognizing the dental hygiene care for the patient with a seizure disorder
5. Describing Migraines and standard drug therapy
6. Describing Parkinson's Disease and the medication management and dental hygiene considerations

Competency 9: The student will be able to demonstrate knowledge and comprehension of the psychiatric drugs by:

1. Describing the major classes of psychiatric drugs for psychosis, depression, sleep disorders, and anxiety
2. Listing the adverse effects, contraindications, and pharmacologic effects of the psychiatric drugs

Competency 10: The student will demonstrate knowledge, comprehension, and application of the respiratory drugs by:

1. Classifying and explaining the mechanism of action, pharmacological effects, uses, and dental implications for the corticosteroids
2. Describing the pathogenesis of diabetes mellitus
3. Identifying diabetic drug therapy, including insulin function and oral anti-diabetic drug function
4. Stating the possible oral manifestations of oral contraceptives or hormone therapy.
5. Describing the thyroid drugs, effects, and dental considerations

Competency 11: The student will demonstrate knowledge, comprehension, and application of the respiratory drugs by:

1. Describing the pathogenesis of asthma and COPD
2. Identifying mechanism of action, pharmacological effects, adverse effects, of the bronchodilators, short and long-acting agents for respiratory diseases
3. Classifying the antihistamines and providing uses, mechanism of action, pharmacological effects, adverse effects, for each category
4. Listing the drugs for cough and their therapeutic and adverse effects
5. Identifying the dental hygiene considerations for a patient with COPD, Asthma or Allergy

Competency 12: The student will demonstrate knowledge and comprehension of the gastrointestinal drugs by:

1. Comparing and contrasting the pathophysiology of peptic ulcers and GERD
2. Describing the drugs used for the treatment of the gastrointestinal disorders, including the antacids, Histamine 2 blockers, Protective barrier drugs and the Proton Pump Inhibitors and others Describing the dental hygiene considerations for the patient with a GI disorder

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data
- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information