PARKLAND COLLEGE

Course Information Form (CIF)

Course Code: DHG 118

Course Title: Pharmacology for the Dental Hygienist

Department: Allied Health
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 51.0601
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 2-0-2
Credit Hour Distribution:

Lecture: 2	Lab: 0	Clinical: 0	**Total: 2**

General Course Information

Catalog Description

Study of drugs, including their pharmacologic effects, adverse reactions, indications, and contraindications as they relate to patient medical history and dental hygiene treatment.

General Course Objectives

1. Identify the uses, actions, and contraindications of drugs commonly taken by patients.
2. Recognize systemic and oral manifestations associated with drug use.
3. Be familiar with emergency drugs and recognize and respond to a patient crisis situation.
4. Discuss the history of pharmacology and exhibit an understanding of its importance to dental hygiene.
5. Explain basic pharmacokinetics and related factors that affect a drug's ability to produce a therapeutic effect.
6. Recognize the generic and trade names of some of the most commonly prescribed drugs, demonstrate their correct pronunciation, and be able to classify them according to their principal therapeutic indications.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 099	Placement out of CCS 098	None

Prerequisites

Credit in DHG 110, DHG 111, DHG 113, DHG 114, and BIO 122
Admission into the Dental Hygiene program

Methods of Evaluation

11-14 objective multiple choice quizzes, 1-2 objective multiple choice exams, 1 final exam, 2-3 reflective discussion posts, 10-11 clinical case study assignments, and 1 final comprehensive review assignment.

Instructional Materials and Additional Supplies

Pharmacology for the Dental Hygienist, Haveles, E. B. St Louis, MO: Elsevier Mosby. 978-0323798631

Laptop computer

Course Content

General Learning Outcomes (GLOs)

- Communication: Students will demonstrate the ability to read, write, listen, and speak effectively.
- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Introduction to Course, Information, Sources, Regulatory Agencies, Drug Legislation, Prescription Writing, and Adverse Reactions	1. Summarize the history of pharmacology and its relationship to the dental hygienist. 2. List where detailed and updated information on medications can be found. 3. Define the ways in which drugs are named and the significance of each. 4. Define genetic equivalence and how it is related to drug substitution. 5. Describe the acts and agencies within the federal government designed to regulate drugs. 6. Identify the four phases of clinical evaluation involved in drug approval and the five schedules of drugs. 7. Discuss the history of drug legislation. 8. List the five schedules of controlled substances. 9. Explain package inserts and black box warnings. 10. Discuss the difference between labeled and off-label uses. 11. Explain orphan drugs and drug recalls. 12. Define an adverse drug reaction and name five categories of reaction. 13. Discuss the risk-to-benefit ratio of the use of a drug for therapeutic effect and its potential adverse reactions. 14. Explain how the toxic effects of drugs are evaluated. 15. Discuss the importance of recognizing adverse drug effects. 16. Identify all parts of a prescription and know common abbreviations. 17. List and describe the four types of hypersensitivities (allergic reaction).	2	0	0
Drug Action and Handling	1. Discuss dose, potency, and efficacy in the context of the actions of drugs. 2. Explain the pharmacologic effect of a drug. 3. Discuss the major steps of pharmacokinetics: absorption, distribution, metabolism, and excretion. 4. Explain how altering absorption, distribution, metabolism, and excretion can affect clinical pharmacokinetics. 5. Explain how half-life relates to clinical pharmacokinetics. 6. Provide examples of factors that may alter the effect of a drug. 7. Summarize the various routes of drug administration and the common dose forms used. 8. Define efficacy and potency. 9. Explain the mechanism of action of drugs and how agonists and antagonists work on receptors in the body. 10. Describe the effects of ionization in weak acids and weak bases. 11. Describe the first-pass effect. 12. Explain enterohepatic circulation. 13. Describe zero-order kinetics.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Autonomic Drugs	1. Explain the two divisions of the autonomic nervous system. 2. Identify where the parasympathetic and sympathetic autonomic nervous systems originate. 3. Identify the functional organization of the autonomic nervous system. 4. Identify the neurotransmitters used in both the parasympathetic and sympathetic autonomic nervous systems. 5. Identify the receptor sites that acetylcholine binds to once released. 6. Explain the pharmacologic effects of all the body systems under the parasympathetic autonomic nervous system. 7. Identify the contraindications and dental considerations of the cholinergic agents and anticholinergic agents. 8. Identify the specific uses for cholinergic agents and anticholinergic agents. 9. Know the most critical drug interactions associated with the cholinergic and anticholinergic agents. 10. Identify the sympathetic autonomic nervous system receptors. 11. Explain the pharmacologic effects of all the body systems under the sympathetic autonomic nervous system. 12. Identify the contraindications and dental considerations of the adrenergic (sympathomimetic) agents. 13. Identify the specific uses for adrenergic agents. 14. Identify the specific adrenergic agents, adrenergic blocking agents, and neuromuscular blocking drugs. 15. Know the most critical drug interactions associated with the adrenergic and adrenergic blocking agents. 16. Identify the use, class, and mechanism of action from a list of drugs.	4	0	0
Non-Opioid Non-Narcotic Analgesics and Opioid (Narcotic) Analgesics and Antagonists	1. Describe pain and its purpose and main components. 2. Explain the classification of analgesic agents. 3. Identify the pharmacologic effects and use of salicylates, nonsteroidal anti-inflammatory drugs, and acetaminophen. 4. Discuss the adverse reactions of salicylates, nonsteroidal anti-inflammatory drugs, and acetaminophen. 5. Identify the risk of toxicity of salicylates, nonsteroidal anti-inflammatory drugs, and acetaminophen. 6. List the drug interactions for salicylates, nonsteroidal anti-inflammatory drugs, and acetaminophen. 7. Explain the disease known as gout and summarize the drugs used to treat it. 8. Identify the drugs used to treat arthritis. 9. Explain the classification, mechanism of action, and pharmacokinetics of opioids. 10. List the pharmacologic effects and potential adverse reactions of opioids, including addiction potential. 11. Identify the opioid receptors and the effects on those receptors by various opioids. 12. Identify and explain the mechanism of action and the analgesic actions of the common opioid agents. 13. Apply the use of opioids in dentistry. 14. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Drugs for the Treatment of Respiratory Disorders and Allergic Rhinitis	1. Summarize the two groups of respiratory diseases. 2. Name and describe the mechanisms of action of several types of drugs used to treat respiratory diseases. 3. Discuss the types of drugs used to treat respiratory infections, including the implications to dentistry. 4. Define histamine and discuss its pharmacologic effects, adverse reactions, and uses. 5. Describe the dental implications, pharmacologic effects, adverse reactions, toxicity, and uses of antihistamines. 6. Name and discuss the mechanism of action of non-sedating H1-receptor antagonists. 7. Discuss prostaglandins and thromboxanes and outline their pharmacologic effects, uses, and dental implications. 8. List several other types of autocoids and describe how they work. 9. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
Drugs for the Treatment of Gastrointestinal Disorders	1. Summarize the most common types of gastrointestinal disease. 2. Explain why a diagnosis of Barrett's esophagus is concerning. 3. Describe the types of drugs used to treat gastrointestinal diseases. 4. Identify the adverse reactions and drug interactions of gastrointestinal drugs. 5. Discuss the role of H2-receptor blockers in treating peptic ulcer disease and gastroesophageal reflux disease. 6. Discuss the role of proton pump inhibitors and antibiotics in treating peptic ulcer and gastroesophageal reflux disease. 7. Describe the role of antacids in treating peptic ulcer disease and gastroesophageal reflux disease. 8. List the antibiotics that can be used in the treatment of ulcers. 9. List the types of laxative that can be used to treat constipation. 10. List the medications used to treat diarrhea. 11. Define antiemetics and give examples of drugs used to treat vomiting and nausea. 12. Discuss the medications used to manage chronic inflammatory bowel disease (IBD). 13. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
Anti-Infective Agents	1. Review the history and basic principles of infection and its relevance to dentistry. 2. Summarize the principal indications for the use of antimicrobial agents. 3. Name and describe the significant adverse reactions and disadvantages of using anti-infective agents. 4. Discuss penicillin, macrolides, tetracyclines, and cephalosporins, their chemical makeup, properties, mechanisms of action, uses, and potential adverse reactions, and name several specific types. 5. Name and describe several other types of antibiotics and anti-infectives. 6. Discuss the use of anti-infective agents in dentistry. 7. Describe the drugs used to treat tuberculosis and the difficulties this disease presents. 8. Summarize the concept and practice of antibiotic prophylaxis in dentistry. 9. Explain under what conditions antibiotic prophylaxis is necessary. 10. Identify the specific drugs and doses for antibiotic prophylaxis. 11. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Antifungal and Antiviral Drugs	1. Name several types of antifungal agents and discuss their indications in dentistry and potential adverse reactions. 2. Discuss the treatment of herpes simplex. 3. Describe the various drugs and drug combinations used to treat acquired immunodeficiency syndrome. 4. Name the least toxic antifungal agent useful in the treatment of oral candidiasis; state three dose forms useful in dentistry and describe their pros and cons. 5. Describe the reason for the difficulty associated with the treatment of herpes simplex labialis with antiviral agents. 6. Explain the significance of a patient taking AZT and ritonavir. 7. Describe the serious adverse reactions associated with AZT. 8. Describe how drug combinations are used to manage HIV. 9. List the therapeutic use of two different interferons. 10. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
General Anesthetics and Emergency Drugs	1. Summarize the history of general anesthesia in dentistry. 2. Describe how general anesthesia works and the stages and planes involved, as well as possible adverse reactions associated with its use. 3. Compare the classifications of general anesthesia. 4. Summarize the general measures a dental professional should follow to train for an emergency and the preparation for treatment in the event of an emergency. 5. Name and describe several categories of emergencies and provide common examples within each category. 6. List the critical drugs to include in a dental office emergency kit and several examples of second or third level drugs that would be optional. 7. Name several pieces of equipment that would be included in an emergency kit. 8. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
Drugs for the Treatment of Cardiovascular Disease	1. Identify several dental issues in the treatment of patients with cardiovascular disease. 2. Describe heart failure and identify drugs commonly used to treat it, including the mechanisms of action, pharmacologic effects, adverse reactions, and uses of each. 3. Define arrhythmia and dysrhythmia and describe how the heart maintains its normal rhythm. 4. Describe the mechanisms of action, pharmacologic effects, adverse reactions, and uses of anti-arrhythmic agents and identify the issues to consider in dental treatment. 5. Define angina pectoris and describe the types of drugs used to treat it; identify the dental implications of these drugs. 6. Describe the various types of anti-hypertensive agents, including the mechanisms of action, pharmacologic effects, adverse reactions, and uses of each; identify potential drug interactions and the dental implications of these drugs. 7. Define hyperlipidemia and hyperlipoproteinemia and summarize the types of drugs used to restore cholesterol homeostasis in the body. 8. Describe the role of warfarin in blood coagulation and the potential adverse reactions and interactions associated with its use. 9. Identify several other drugs that affect blood coagulation. 10. Define INR and prothrombin time, and be able to identify the specific number range needed for dental treatment. 11. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Anti-Anxiety Agents, Treatment of Central Nervous System Disorders, and Seizure Disorders	1. Discuss the value of patient relaxation in dentistry. 2. Describe the mechanism of action, interactions, and dental relevance of benzodiazepines and barbiturates. 3. Name and briefly describe the mechanism of action of the non-benzodiazepine-non-barbiturate sedative-hypnotics and the non-benzodiazepine-non-barbiturate receptor agonists. 4. Name a melatonin receptor agonist and summarize its actions. 5. Explain the workings of the centrally-acting muscle relaxants and how they are used. 6. Discuss some general precautions about which the dental practitioner should be aware with the use of anti-anxiety agents. 7. Name and describe the three categories of functional disorders discussed. 8. Review some basic precautions that the dental health care professional should consider when treating patients with psychiatric disorders. 9. Summarize the primary mechanism of action, pharmacologic effects, adverse reactions, drug interactions, and uses of antipsychotic agents. 10. Describe the mechanism of action, pharmacologic effects, adverse reactions, drug interactions, uses, and dental implications of tricyclic antidepressants. 11. Identify other types of antidepressants and their mechanism of action. 12. List the drugs used to treat bipolar disorder. 13. Define epilepsy and briefly summarize the various types of seizures. 14. List and describe general adverse reactions to anticonvulsants. 15. Summarize the pharmacologic effects, adverse reactions, and drug interactions of the main anticonvulsants: carbamazepine, valproate, phenobarbital, and phenytoin. 16. Name two miscellaneous anticonvulsants and describe the workings of each. 17. Provide several examples of new types of anticonvulsants, including the mechanism of action, indications, and adverse reactions. 18. Outline the dental treatment of patients with epilepsy. 19. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
Adrenocorticosteroids and Anti-Neoplastic Drugs	1. Define adrenocorticosteroids and describe how the body releases them. 2. Summarize the classification, administration, mechanism of action, and pharmacologic effects of adrenocorticosteroids. 3. Describe the various adverse reactions and uses of adrenocorticosteroids, including their application to dentistry. 4. Give several examples of corticosteroids. 5. List several dental implications to the use of steroids. 6. Define antineoplastic agents. 7. Summarize the use, mechanism of action, and classification of antineoplastic agents. 8. Describe several adverse drug effects associated with antineoplastic agents. 9. Discuss the dental implications of patients planning to take or actively taking antineoplastic drugs. 10. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Drugs for the Treatment of Diabetes Mellitus and Endocrine Disorders	1. Define the functions of the anterior and posterior glands. 2. Provide an overview of the thyroid hormones, the conditions known as hypothyroidism and hyperthyroidism, and the anti-thyroid drug. 3. Define diabetes mellitus; list and describe type I, II, and II insulin-dependent. 4. Name and describe the types of drugs used to treat diabetes. 5. Describe the complications found in type I and type II diabetes. 6. Describe concerns, cautions, and contraindications involving treating dental patients with diabetes. 7. Identify normal, prediabetes, and diabetes from the four laboratory measurements. 8. Identify the need for a medical consult regarding diabetes laboratory measurements. 9. Summarize the major female and male sex hormones and name and describe several types of hormonal contraceptives. 10. Discuss pituitary hormones and the functions of the anterior and posterior pituitary glands, and describe the negative feedback mechanism in endocrine glands. 11. Discuss other agents that affect sex hormone systems. 12. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0
Local Anesthesia	1. Explain the mechanism of action, pharmacokinetics, pharmacologic effects, and adverse reactions of local anesthetics. 2. Describe the composition of each of the drugs used in local anesthetic solutions. 3. Summarize the factors involved in the choice of a local anesthetic drug. 4. Discuss the use, types, and doses of topical anesthetic in dentistry. 5. Identify the use, class, and mechanism of action from a list of drugs.	2	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
30	0	0