

**DH 75 Course Outline as of Fall 2017****CATALOG INFORMATION**

Dept and Nbr: DH 75

Title: PHARM FOR THE DENTAL HYG

Full Title: Pharmacology for the Dental Hygienist

Last Reviewed: 11/28/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	2.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	2.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	2.00		Contact Total	35.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 105.00

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

The clinical usage of the therapeutic agents used in the practice of dentistry. The indications, dosage, methods of administration, contraindications and side effects of these agents will be studied to give the student hygienist a foundation in the physical manifestations to be expected in drug administration.

**Prerequisites/Corequisites:**

Course Completion of DH 71A

**Recommended Preparation:****Limits on Enrollment:**

Acceptance into Allied Dental Program

**Schedule of Classes Information:**

Description: The clinical usage of the therapeutic agents used in the practice of dentistry. The indications, dosage, methods of administration, contraindications and side effects of these agents will be studied to give the student hygienist a foundation in the physical manifestations to be expected in drug administration. (Grade Only)

Prerequisites/Corequisites: Course Completion of DH 71A

Recommended:

Limits on Enrollment: Acceptance into Allied Dental Program

Transfer Credit: CSU;

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
<b>CSU Transfer:</b>	Transferable	Effective: Fall 1999	Inactive:
<b>UC Transfer:</b>		Effective:	Inactive:

**CID:**

**Certificate/Major Applicable:**

Major Applicable Course

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Describe the general principles of pharmacology to include the basic mechanisms of drug action and interaction, indications and contraindications, dosages, therapeutic effects and toxicity and methods of administration.
2. Describe the pharmacology of each class of drugs and the dental implications in order to assess a patient's medical status for dental hygiene care and make appropriate modifications in dental management.
3. Demonstrate a working knowledge of therapeutic agents used in the routine practice of clinical dentistry and be able to provide the patient with appropriate instructions for compliance.

### **Objectives:**

Upon completion of the course, students will be able to:

1. Define and describe the mechanism of action and therapeutic effect of each class of drugs.
2. Evaluate new therapeutic agents utilizing pharmacological principles.
3. Discuss the dental implications of each drug classification and how these implications affect and modify dental hygiene care.
4. List factors that influence the pharmacokinetics of drugs.
5. Describe adverse reactions and general methods of toxicity prevention.
6. Describe the mechanism and classification of drug interactions.
7. List the sources of drug information and demonstrate the use of these sources.
8. List the routes of drug administration.
9. Identify and define the parts of a prescription.
10. List common abbreviations, nomenclature and measurement systems used in prescription writing.
11. Identify the regulatory agencies and laws pertaining to prescribing and use of drugs.
12. Describe the dental implications of drug abuse and the possible modifications to patient management.

13. Recognize and describe the management of medical emergency situations resulting from the administration and/or use of drugs.
14. Describe common oral conditions and list the medications used to treat these conditions.
15. List common medications and the usual dosage forms used in dentistry.
16. Provide appropriate instructions for compliance to patient taking common medications used in dentistry.
17. List the forms of medications and the usual dosage form used in dentistry.
18. Discuss medications regarding the pregnant or lactating patient.

## **Topics and Scope:**

### **I. General Principles - Introduction to Clinical Pharmacology**

- A. Pharmacology and the Dental Hygiene Process of Care
- B. Sources of drug information
- D. Drug related web and software based information sources
- E. State and Federal regulation and classification of drugs
  1. Drug development and safety
  2. Labeling Requirements
- F. Drug Names and Properties
- G. Prescription writing
  1. Parts of the prescription
  2. Units of Measurement
  3. Latin Abbreviations
  4. Prescription writing and safety
- H. Prescription and Nonprescription Drugs
  1. Scheduled Drugs
  2. Package Inserts and warnings
  3. Labeled and off label use of drugs

### **II. Fundamentals of Drug Action**

- A. Routes of drug administration
  1. Enteral
  2. Parenteral
  3. Topical
- B. Pharmacokinetics
  1. Absorption
  2. Distribution
  3. Metabolism (biotransformation)
  - 4 Excretion
  5. Drug administration and dosage
- C. Pharmacodynamics
  1. Drug receptor interaction
  2. Dose-response relationship
  3. Potency, efficacy, and the ceiling effect
  4. Toxicity
- D. Drug effects
- E. Drug interactions

### **III. Autonomic Nervous System Drugs**

- A. Functions of the Autonomic Nervous System
  1. Sympathetic nervous system
    - a. Adrenergic neurotransmitters
    - b. Adrenergic receptors
  2. Parasympathetic neurotransmitters and receptors

- B. Autonomic drugs
- C. Sympathomimetic drugs: drugs affecting sympathetic transmission
- D. Adrenergic sympathetic agonists
  - 1. Direct-acting adrenergic receptor agonists
  - 2. Indirect acting agonists
  - 3. Mixed-acting adrenergic agonists
  - 4. Therapeutic uses, adverse effects and drug interactions
- E. Adrenergic receptor antagonists
  - 1. Alpha 1 antagonists (blockers)
  - 2. Beta antagonists
  - 3. Indirect acting antagonists
  - 4. Adverse effects and drug interactions
- F. Drugs affecting cholinergic transmission
  - 1. Parasympathomimetic drugs
  - 2. Anticholinergic drugs
- IV. Local Anesthetics Introduction and History
  - A. Properties of local anesthetics
    - 1. Chemical
    - 2. Mechanism of action and effects of pH
    - 3. Metabolism and excretion
  - B. Local anesthetic agents
  - C. Vasoconstrictors in local anesthetics
  - D. Adverse effects of local anesthetics
  - E. Dental management of medically compromised patients
- V. Sedation and General Anesthetics
  - A. Routes and types of administration
  - B. Moderated sedation in the dental office
    - 1. Anti-anxiety agents: benzodiazepines
    - 2. Sedative hypnotics
      - a. Barbiturates
      - b. Nonbarbiturates
  - C. Nitrous Oxide Sedation
    - 1. Pharmacokinetics and method of administration
    - 2. Adverse effects and contraindications
    - 3. Occupational exposure and abuse
  - D. General anesthesia history and stages
- VI. Drugs for Pain Control
  - A. Neurophysiology of pain
  - B. Nonnarcotic analgesics
    - 1. Salicylates
    - 2. Non-steroidal anti-inflammatory
    - 3. Acetaminophen
  - C. Opioid analgesics
    - 1. Agonists/antagonist
    - 2. Combination narcotic and nonnarcotic analgesic
  - D. Substance abuse and dependency
- VII. Antibacterial Agents
  - A. Antimicrobial agents
    - 1. Bacteriacidal vs bacteriostatic
    - 2. Other agents
  - B. Prevention of infective endocarditis
  - C. Tuberculosis

1. Testing
  2. Treatment
- VIII. Antiviral and Antifungal Agents
- A. Antivirals for herpes simplex
    1. Primary herpes
    2. Recurrent herpes
  - B. Antiretroviral agents: HIV/AIDS
    1. Antiretroviral drugs
    2. Systemic opportunistic infections
    3. Oral opportunistic lesions/conditions
  - C. Antifungal agents
- IX. Antineoplastic, Immunosuppressant, and Bisphosphonate Drugs
- X. Fluorides
- A. Composition and sources
  - B. Uses and delivery systems
    1. Systemic
    2. Topical
  - C. Toxicology
  - D. Dental hygiene applications
- XI. Cardiovascular Drugs
- A. Hypertension
  - B. Angina pectoris
  - C. Heart failure
  - D. Arrhythmias
  - E. Epinephrine in cardiac patients
  - F. Lipid lowering drugs
  - G. Thrombolytic drugs
  - H. Other drugs
- XII. Gastrointestinal Drugs
- A. Peptic ulcer disorders
    1. Peptic-ulcer disease
    2. Gastroesophageal reflux disease (GERD)
  - B. Irritable bowel syndrome
  - C. Nausea and vomiting
  - D. Constipation
  - E. Diarrhea
  - F. Ulcerative colitis
- XIII. Respiratory Drugs
- A. Asthma
    1. Classification of medications
    2. Severity and control
    3. Chronic obstructive pulmonary disease (COPD)
  - B. Drugs for colds
  - C. Drugs for coughs
- XIV. Neurological Drugs
- A. Epilepsy
  - B. Parkinson's disease
  - C. Alzheimers disease
  - D. Headaches; migraine
- XV. Psychiatric Drugs
- A. Antipsychotic drugs
  - B. Mood disorders

1. Depression
  2. Bipolar disorders
  - C. Anxiolytics (anti-anxiety) agents
  - D. Sedative/hypnotic drugs
  - E. Attention-deficit/hyperactivity disorder (ADHD)
- XVI. Endocrine and Hormonal Drugs
- A. Diabetes mellitus
    1. Type 1
    2. Type 2
    3. Insulin formulations
  - B. Thyroid Drugs
  - C. Adrenal (steroid) hormones
  - D. Sex hormones and contraceptives
  - E. Bisphosphonates/osteoporosis
    1. Risk factors
    2. Dental hygiene applications
- XVII. Herbal and Natural Remedies
- A. Homeopathy and natural products
  - B. Vitamins and minerals
  - C. Dental Hygiene applications
- XVIII. Pregnancy and Breastfeeding

### Assignment:

Reading assignments (20-30 pages per week)  
 One drug reference material assignment  
 One article abstract  
 Quizzes (8-10), one midterm and one final

### Methods of Evaluation/Basis of Grade:

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Write article abstract

Writing  
5 - 10%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Drug reference material assignment

Problem solving  
20 - 30%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations  
0 - 0%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes, midterm and final

Exams  
65 - 75%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

None

Other Category  
0 - 0%

**Representative Textbooks and Materials:**

Oral Pharmacology for the Dental Hygienist. 2nd ed. Weinberg, Mea and Westphal-Theile, Cheryl and Burke Fine, James. Pearson. 2012 (classic)

Instructor prepared materials