

University of Detroit Mercy School of Dentistry
Dental Hygiene
Course Syllabus

Dental Hygiene Pharmacology
BS 823

Course Information

Web Address: <http://knowledge.udmercy.edu>

Course Directors:

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Winter Term, 2007

DH1 Students (Class of 2009)

Room 2440, Monday mornings, 1:00 – 2:00

Room 2440, Tuesday mornings, 10:00 – 12:00

Credit Hours: 3.0

Prerequisites: Physiology

Lecturers/Support Faculty

Lecturers:

N/A

Preclinical/Clinical Faculty:

N/A

Academic Policies:

All policies in the School of Dentistry Academic Policies Handbook including but not limited to academic integrity, mandatory attendance, professional decorum & dress code, identification (ID) badges, preclinical and classroom decorum, use of cell phone and electronic devices, examination policies and exam/quiz absences apply.

Accommodations:

If you would like to request a classroom, testing, preclinical, clinical, or other

accommodation because of a legally protected disability, or if you might require any special assistance in the event of an emergency or evacuation, please contact the University of Detroit Mercy's Office of University Academic Services (UAC) at 313-578-0310 or email your request for information to gallegem@udmercy.edu

Student Evaluation of Instruction

Student feedback is valued by the faculty and the administration. All students are required to complete the School of Dentistry's on-line course evaluation by a specified date. Failure to comply by posted deadline dates will result in the receipt of an F (Failing) grade of record for the Evaluation Responsibility Course. Only constructive, professional recommendations will be reported and considered.

Course Description

Purpose of the course:

This course will provide a framework and fundamental understanding of how drug acts and how the body "handles" the drug. The fundamental basis of therapeutics, pharmacodynamics and pharmacokinetic factors governing drug utilization, their desired and adverse will be introduced. These concepts and principles will be reinforced for all drug classes covered in the course. In addition, the mechanism of action, the clinical applications and an overview of the therapeutic and adverse actions, precautions, contraindications and interactions of drugs for each major drug category/class and their implications to dental patient management will be discussed.

Course Goals:

This course will introduce the student:

- the fundamental principles and concepts in pharmacology and therapeutics
- the integration of biomedical sciences with pharmacology and highlight their applications in clinical dentistry
- the principles of autonomic pharmacology, cardiovascular & renal drugs, centrally acting agents and their applications in clinical dentistry.
- the pharmacology of analgesic agents (local anesthetics, narcotic & nonnarcotic analgesic and analgesic adjuvants), their uses and implications to dental patient management.
- the concept of selective toxicity, antimicrobial therapy and their applications and implications in clinical dentistry.
- the pharmacology of drugs acting respiratory, endocrine, immune, anticancer and other agents, agents and highlight their uses and implications to dental patient management.

Specific Instructional Objectives:

At the conclusion of learning unit one (Basic Principle of Drug Action), the dental hygiene student will be able to:

- understand receptor drug theory and principles of pharmacodynamic.

- understand the principles of pharmacokinetics.
- explain the principles of pharmacotherapeutics and their applications in drug therapy.

At the conclusion of learning unit two (autonomic pharmacology), the dental hygiene student will be able to:

- describe how drug interfere autonomic neurotransmission.
- explain how different drug classes increase or decrease saliva flow.
- decrease the effects of cholinergic agoinsnt and antagonist.
- decrease trhe effects of adrenergic agoinsnt and antagonist.

At the conclusion of learning unit three (analgesic), the dental hygiene student will be able to:

- describe the pathophysiology of pain, the descending and ascending pain pathways, peripheral and central pain sensitization.
- decscribe and explain the clinical applications, adverse effects and drug interaction of aspirin, ibuprofen and other NSAIDs.
- explain the mechanism of action, clinical uses, adverse effects and drug interaction of acetaminophen.
- explain the mechanism of action, clinical uses, adverse effects and drug interaction of weak and strong opioids.
- explain the mechanism of action, clinical uses, adverse effects and drug interaction of tramadol.
- explain the mechanism of action, clinical uses, adverse effects and drug interaction of analgesic adjuvants (tricyclic antidepressants, anticonvulsants and caffeine).
- describe the pharmacological management of acute and chronic (TMD) pain in dentistry.
- describe angents as topical analgesic agents.

At the conclusion of learning unit four (local anesthetics and vasoconstrictors), the dental hygiene student will be able to:

- classified different types of local anesthetic agents
- describe and explain the mechanism of action of local anesthetics and vasoconstrictors
- describe the physiochemical properties and physiological factors that influences the anesthetic profile of local anesthetics.
- describe the adverse effects and drug interactions associated with the use of local anesthetics and vasoconstrictors in dentistry.
- calculate the dose of local anesthetics and amount of vasoconstrictor injected in a patient.

At the conclusion of learning unit five (antiinfectives), the dental hygiene student will be able to:

- describe the mechanism of action , adverse effects, drug interaction and clinical uses of cell wall synthesis inhibitors, protein synthesis inhibitors, antimetabolites, and nucleic synthesis inhibitors.
- select the most appropriate antibiotic for a given clinical situation.
- describe the mechanism of action , adverse effects, drug interaction and clinical uses of antifungals, and antiviral agents commonly employed in dentistry.
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At the conclusion of learning unit six (cardiovascular and renal drugs), the dental hygiene student will be able to:

- recognize various drug classes employed in the management of hypertension, congestive heart failure, and other cardiac conditions.
- describe the potential adverse effects, drug interactions and clinical applications the major cardiovascular renal drugs.

At the conclusion of learning unit seven (lipid lowering agents and anticoagulants), the dental hygiene student will be able to:

- recognize various drug classes employed in the hyperlipidemia, their adverse effects, drug interaction and dental implications.
- recognize various drug classes that can interfere the coagulation pathway, their clinical application, adverse effects, drug interaction and dental implications.
- recognize various topical agents employed as localize hemostatic agents in dentistry.

At the conclusion of learning unit eight (Antihistamines, gastrointestinal drugs and Respiratory drugs), the dental hygiene student will be able to:

- describe the action, adverse effects, drug interactions and clinical applications associated with antihistamines.
- describe the action, adverse effects, drug interactions and clinical applications associated with respiratory drugs.
- describe the action, adverse effects, drug interactions and clinical applications of drug employed in the management of various gastrointestinal diseases.

At the conclusion of learning unit nine (Drugs acting on the CNS), the dental hygiene student will be able to:

- described drug employed as antianxiety agents and their clinical applications, adverse effects and drug interactions in dentistry.
- recognize drugs employed in the management of neurological conditions, their adverse effects, drug interaction and implications to dental patient management.

At the conclusion of learning unit ten (endocrine drugs), the dental hygiene student will be able to:

- describe the action, adverse effects, drug interactions and clinical applications associated with drugs acting on the endocrine system.

- describe the action, adverse effects, drug interactions and clinical applications of steroidal anti-inflammatory drugs.
- describe the action, adverse effects, drug interactions and clinical applications employed in the management of diabetes, hypothyroidism and Cushing syndrome..

At the conclusion of learning unit eleven (antineoplastics and immune modulating agents), the dental hygiene student will be able to:

- recognize various drug classes employed in the treatment of cancer, their adverse effects, drug interaction and dental implications.
- recognize various topical formulations use in the management of mucositis.

Instructional Methods:

Instructional methods utilized in the course include Vullandrem in eum velestrud eraesto The primary instructional method is via didactic teaching with web links an selected journal articles and websites provided via the course Blackboard site. Relevant clinical cases will be introduced to illustrate the clinical uses and implications of each class of drugs.

School of Dentistry Competencies

Competency-based Education: Assumes that learning to become an entry-level professional is a progression through stages from novice to competent.

Stages of Progression to Competence:

F or Foundation Knowledge: Basic knowledge, skills, and attitudes needed to begin the journey to competence.

N or Novice Level: Ability to articulate or describe the appropriate skills, knowledge, and professional attitudes. Novices need structure, clarity of goals, single and clearly explained approaches.

B or Beginner Level: Combines the appropriate skills, knowledge, and professional attitudes, all of which are performed with guidance and correction.

C or Competent Level: Combines the appropriate supporting skills, knowledge, and professional attitudes, all of which are performed reliably without assistance.

	Competencies of the Graduating Dental Hygiene Student	Addressed	Evaluated	Method
1.	The graduate demonstrates interpersonal communication skills to function successfully in a multicultural work environment with diverse populations.	NO	NO	NA NA NA
2.	The graduate makes professional decisions affecting the practice of dental hygiene that satisfy legal, societal and ethical principles.	NO	NO	NA NA NA
3.	The graduate performs routine evaluation of self and staff members and takes corrective action to address perceived deficiencies.	NO	NO	NA NA NA
4.	The graduate critically evaluates the validity of new information, new products, and/or techniques and their relevance to the practice of dental hygiene.	NO	NO	NA NA NA
5.	The graduate applies business and practice management skills.	NO	NO	NA NA NA
6.	The graduate promotes health maintenance and disease prevention.	NO	NO	NA NA NA
7.	The graduate applies the principles of infection control and environmental safety.	NO	NO	NA NA NA
8.	The graduate obtains, records, updates and organizes accurate and complete medical/dental histories including pertinent psychological and socioeconomic information.	YES	F	NA Written Evaluation NA
9.	The graduate performs, records and organizes a physical assessment appropriate for dental care.	NO	NO	NA NA NA
10.	The graduate determines differential, provisional or	NO	NO	NA

	definitive dental hygiene diagnoses related to and congruent with the diagnosis of the dentist and other health professionals.			NA NA
11.	The graduate develops alternative dental hygiene care plans which are sequenced to address patients' needs, consistent with assessment and diagnoses.	NO	NO	NA NA NA
12.	The graduate establishes with the patient a mutually acceptable dental hygiene care plan.	NO	NO	NA NA NA
13.	The graduate monitors and provides for patient comfort associated with dental hygiene care.	NO	NO	NA NA NA
14.	The graduate delivers and/or manages planned dental hygiene treatment and education in sequence and in accordance with accepted standards of care.	YES	F	NA Written Evaluation NA

Course Policies

- Students must be familiar with appropriate School of Dentistry policies including but not limited to professional decorum, dress code, identification badges, and examination protocol).
- Students are responsible in accessing the course Blackboard sites for class announcement, grades, course documents and additional websites/links or electronic resources.
- Attendance is mandatory.
- Required textbook and other readings are mandatory. At each lecture, the instructor will provide notes, handouts or PowerPoint handouts. These notes and handouts do not take the place of your textbook, but they allow you to ensure your classroom notes are complete
- All students must follow examination protocols as outlined in the student handbook and as prescribed by the course director for all examinations and quizzes. Failure to follow the prescribed protocol may result in a failing grade on the examination and/or the registration of an academic misconduct complaint with the Academic Administration. Academic integrity is a very serious issue that reflects on your fitness to practice your chosen profession.
- EXCUSED ABSENCES is when student absences is due to health, bereavement in the family or for exceptional reasons approved by both the Executive Associate Dean (Academic Affairs) and the course director. Students **must inform** both the Dean's Office and the course director (via email) on the precise day and dates for their excused absences.
- Students are expected to turn off their cell phones during class and exams.
- All electronic device must be turn off during examinations.
- Students late for examinations: Students are not permitted to take the examinations 30 minutes after the start of the examinations. No additional time will be provided to students arriving late for examinations.
- Tablet PC utilization expectations e.g. prior to class meeting, downloading of handouts, utilization during the lecture including inappropriate use)

Textbook and Resource Materials

Required Textbook: Applied Pharmacology for the Dental Hygienist, 5th edition; Elena Bablenis Haveles, Mosby, St. Louis 2007.

Suggested text: Pharmacology 3rd edition – Lippincott's Illustrated Reviews. Howland RD and Mycek MJ. Lippincott Williams & Wilkins, 2006.

Reserved materials:	Physician Desk Reference (2008) ADA Guide to Dental Therapeutics 4th edition
Journal articles:	see each unit and Blackboard posting
Additional Web sites:	see each unit and Blackboard posting.

Evaluation and Grading

Grading Scale

A	=94-100%
A-	=90-93%
B+	=87-89%
B	=83-86%
B-	=80-82%
C+	=77-79%
C	=73-76%
C-	=70-72%
D+	=67-69
D	=60-66
F	=below 60%
W	Withdraw, no credit
I	Incomplete, a temporary grade not of record

Course Grade Components

Quizzes	10%
Examination I	22%
Examination II	22%
Examination III	22%
Final Examination	<u>24%</u>
	100%

Course Evaluation Methods:

Quizzes

- Questions will be composed of true/false, multiple choices question with one **MOST APPROPRATE** answer, multiple-multiple and/or short answer questions. Questions will be drawn from the assigned readings and the lecture material.
- **Scheduled short quizzes and Unscheduled quizzes** will be administered. There will be **NO make-up quizzes permitted.**
- All quiz grades will be averaged into the final grade computation.

Examination #1, #2 & #3

- Questions will be composed of true/false, multiple choices question with one **MOST APPROPRATE** answer, multiple-multiple and/or short answer questions. Questions will be drawn from the assigned readings and the lecture material. The units cover for each exam will be identified.

Final Examination

- Questions will be composed of true/false, multiple choices question with one **MOST APPROPRATE** answer, multiple-multiple and/or short answer questions. Questions will be drawn from the assigned readings and the lecture material.

COURSE SCHEDULE

BS 823 Pharmacology I (Graduating Class 2009)

Mondays: 1:00 PM to 2:00 PM (1 hour)

Tuesdays: 10:00 AM to 12:00 PM (2 hours)

Room: 2440

DATE	TOPICS	LECTURER	READING
Jan 21/ Monday	Martin Luther King Day	Foong	Handouts
Jan 22/ Tuesday	Course orientation, Cases Basic Principle of Drug Action (unit 1)	Foong	Handouts
Jan 28/ Monday	Basic Principle of Drug Action (unit 1)	Foong	Handouts
Jan 29/ Tuesday	Basic Principle of Drug Action (unit 1) Autonomic Pharmacology (unit 2)	Foong	Handouts
Feb 4/ Monday	Autonomic Pharmacology (unit 2)	Foong	Handouts
Feb 5/ Tuesday	Autonomic Pharmacology (unit 2)	Foong	Handouts
Feb 11/ Monday	EXAM #1 (units 1 & 2)	Foong	
Feb 12/ Tuesday	Pain: Analgesics ASA & NSAIDs (unit 3)	Foong	Handouts
Feb 18/ Monday	Pain: Analgesics ASA & NSAIDs (unit 3)	Foong	Handouts
Feb 19/ Tuesday	Pain: Analgesics Opioids (unit 3)	Foong	Handouts
Feb 25/ Monday	Pain: Analgesics Opioids & adjuvants (unit 3)) Pain: Local Anesthetics (Unit 4)	Foong	Handouts
Feb 26/ Tuesday	Anti-infectives (Unit 5)	Mammo	Handouts
Mar 3/ Monday	Anti-infectives (Unit 5)	Mammo	Handouts
Mar 4/ Tuesday	Anti-infectives (Unit 5)	Mammo	Handouts
Mar 10/ Monday	EXAM # 2 (Units 3, 4 & 5)	Foong/ Mammo	Handouts
Mar 11/ Tuesday	Cardiovascular and Renal Drugs (Unit 6)	Foong	Handouts
Mar 17/ Monday	Cardiovascular and Renal Drugs (Unit 6);	Foong	Handouts
Mar 18/ Tuesday	Lipid Lowering drugs (Unit 7)	Foong	Handouts
Mar 24/ Monday	Drugs affect the blood & coagulation (unit 7)	Foong	
Mar 25/ Tuesday	Antihistamines (Unit 8)	Foong	
Mar 31/ Monday	Spring Break		Handouts
Apr 1/ Tuesday	Spring Break		Handouts
Apr 7/ Monday	Respiratory (Unit 8) & Gastrointestinal drugs (Unit 8)	Foong	
Apr 8/ Tuesday	EXAM #3 (Units 6, 7, & 8)	Foong	Handouts
Apr 14/ Monday	CNS Drugs: Antianxiety & sedatives (Unit 9)	Foong	Handouts
Apr 15/ Tuesday	CNS Drugs: Anti-epileptics; Antidepressants, etc (Unit 9)	Foong	Handouts
Apr 21/ Monday	CNS Drugs: Parkinsons Diseases etc (Unit 9)	Foong	Handouts
Apr 22/ Tuesday	Endocrine Drugs: (Unit 10)	Foong	Handouts
Apr 28/ Monday	Endocrine Drugs: (Unit 10)	Foong	Handouts
Apr 29/ Tuesday	Antineoplastics & immunomodulators (unit 11)	Foong	Handouts
May 5 to May 9	Exam week: Exam #4 Units 9, 10 & 11	Foong	