DEN 5015 Clinical Pharmacology for Dentistry

Course title	Code	Semester	Type of course	Course structure and volume (hours)			ECTS
Clinical Pharmacology for Dentistry	**DEN 5015**	**IX**	**Mandatory**	**Lecture**	20	90	**3**
				Seminar	17		
				Midterm Exam	1		
				Final Exam	2		
				Independent Work	50		

Faculty, the educational program and level of education	School of Dental Medicine One cycle (5-year duration) Higher Educational Program "Dentistry"
Staff	**Demet Akin,** associate Professor E-mail: demet.akin@bauinternational.edu.ge Personal one-to-one consultation can be arranged at an agreed-upon date and time in the Faculty of medical and healthcare sciences.
Duration	17 weeks
Prerequisite	DEN2001- DEN2003
Aim	The aim of this course is to familiarize dental students with the types of drugs and their uses, mechanisms of action and side effects that are needed in dental patients to suppress bacterial, fungal and viral infections. Furthermore, it deals with the pharmacology and therapeutic uses of those drugs that dental patients may be using for treatment of depression, psychosis, epilepsy, asthma and diabetes. Such knowledge will help dental students to understand the medical history of their patients; clinically relevant side effects of the drugs that may adversely affect the health of the patient; understand the circumstances in which the drug not be administered to certain patient population due to significantly increase risk of adverse effects.
Methods of Teaching/Learning	Lecture, Seminar, Case Based Learning, Problem Based Learning
Assessment System and Criteria	**Attendance - student is obliged to attend 70% of the total number of the learning course**

The knowledge of the student is evaluated by 100 point-based evaluation system out of which 40 points are allocated for the current assessment, 20 for midterm exam and 40 points for the final exam.

1. **Activity - 40 points, including the following:**
    - CBL - 2x10=20 points;
    - PBL – 2x10=20 points;

CBL assessment criteria (maximum 10 points):

1. Ability of case interpretation - 2 points;
2. Ability of using additional sources - 2 points;
3. Ability of applying theoretical knowledge - 2 points;
4. Ability of correlating normal and pathological conditions - 2 points;
5. Ability of drawing conclusions – 2 points.

Assessment criteria: Excellent – 2 points; Average – 1 point; Weak – 0 points.

PBL assessment criteria (maximum 10 points):

1. Ability of problem-solving - 2 points;
2. Ability of team work **-** 2 points;
3. Ability of decision-making - 2 points;
4. Ability of practical application of the acquired theoretical knowledge - 2 points;
5. Ability of using additional sources - 2 points;

Assessment criteria: Excellent – 2 points; Average – 1 point; Weak – 0 points.

2. **Midterm Exams - 20 points;**

The exam is conducted in a test-based form (Multiple Choice Questions - MCQ). The test includes 50 questions and the value of each is 0. 4 point(s). The highest possible score is 20.

3. **Final Exam - 40 points**

Final Exam is conducted in a combined way:

- Test-based form (MCQ -50 tests with 0.4 point(s) for each question.
- Oral form (2 topics, each scored at maximum 5 points, and 2 Clinical Cases each scored at maximum 5 points).

Oral Exam assessment criteria (5 points)

5 points - The answer is comprehensive. Student's thinking ability is clearly visible. The topic is precisely and fully presented. The terminology is duly used. The student masters the

material regarded by the program on a proper level. He/she has fully and profoundly learnt main as well as supplementary literature.
4 points - The student answers all questions, but independent thinking ability is not clearly visible. The terminology is correctly used. No major errors can be found. The student masters the material regarded by the program on a proper level. He/she has learnt the main literature.
3 points - The answer is incomplete. The topic is presented on satisfactory level but it lacks the
thinking ability and is rather based on memorizing. The terminology is scarcely used. The student masters the material regarded by the program but a few errors can be detected.
2 points - The answer is incomplete. The terminology is incompletely used. The material is partially presented. The student masters the main literature on insufficient level. A few major errors can be detected.
1 point - Student's answer is not complete. The terminology is not used or is used in a wrong way. The
Answer is mainly erroneous. The topic is presented in a fragmented fashion.
0 point - The answer does not correspond to the question or it is not presented at all.

Final Exam Case analysis (5 points)
Students will discuss/analyze clinical cases according to study materials individually in a written manner.

Points Grading Scale

5 interpretation of examination results are correct, diagnosis is defined correctly, is evidence based, knows etiology, pathogenesis, clinical flow, treatment plan is defined correctly;

4 interpretation of examination results are correct, diagnosis is defined correctly, is evidence based, knows etiology, pathogenesis, clinical flow, treatment plan is not correct;

3-2 interpretation of examination results are correct, diagnosis is defined correctly, is evidence based, does not know etiology, pathogenesis, clinical flow, treatment plan is not correct;

1 interpretation of examination results are correct, diagnosis is incorrect, treatment plan is not correct;

0 Interpretation of examination results are incorrect, diagnosis is incorrect, and treatment plan is incorrect.

Prerequisite for Final Exam are:

- Prerequisite for Final Exam is the situation when at least 11 points of the current assessment level is achieved.

	The exam is considered being passed by the student if he /she receives **60% or more** out of the highest evaluation for the exam (40x60/100=24 points). When the total evaluation of the student (current evaluation + midterm exams' evaluations + final exam evaluation) is more that 40 but less than 51 points, even though the exam grade threshold is passed, the learning course is considered not being covered and the student is given the right to exam retake during the additional examination period. If the final evaluation for the Learning Course, after taking the additional exam, (current evaluation + midterm exams evaluation + final exam evaluation) is less than 51%, the learning course is not considered covered and it must be taken again. In summary, the student is awarded the credit in case he/she accumulates minimum 51% out of 100%. **Positive scores:** ● (A) Excellent- 91 or more points; ● (B) Very Good- 81-90 points; ● (C) Good- 71-80 points; ● (D) Satisfactory- 61-70 points; ● (E) Enough- 51-60 points; **Negative scores:** (FX) Failure - 41-50 points: the student needs more independent work and is granted a single attempt of exam retake; (F) Fail - 40 points or less: the student's conducted work is not sufficient and needs to take the course again. After the results of final exams are available, students with FX assessment have a right to retake an exam during an additional exam week in the same semester. An interval between a final and a corresponding additional exam must be at least 5 days after the results of a final exam become available
The core literature	1. **Basic & Clinical Pharmacology-** Katzung, Bertram G; Mc- Graw Hill Education. 14th. ed; 2018;
The auxiliary literature	1. **Clinical Pharmacology of Sleep**-S. R. Pandi-Perumal, Jaime M. Monti; Birkhauser Verlag; 2006; e-book; 2. **Pediatric Clinical Pharmacology**-Hannsjörg W. Seyberth; Anders Rane; Springer; 2011; e-book; 3. **Clinical ocular pharmacology**- Jimmy D. Bartlett; Siret D. Jaanu; Elsevier; 5th.ed. 2008; e-book;

Learning Outcomes

NQF*	COURSE LEARNING OUTCOMES	PROG. LO	LECTURE	SEMINAR	TEACHING IN SIMULATION ENVIRONMENT	TEACHING IN CLINICAL ENVIRONMENT	MIDTERM EX.	FINAL EXAM	ASSES. METH.
KNOWLEDGE AND AWARENESS	● Defines information about clinical pharmacology ● Describes theories of drug-receptor concept, structure & action of receptors, dose-response relationships, potency and efficacy. ● Defines the current pharmacologic modalities available to treat diseases (such as aphthous lesions, herpetic lesions, candidiasis, ulcerative lichen planus, pemphigoid mucous membrane, and pemphigus vulgaris) ● Explains the concepts of pharmacogenetics and personalized medicine ● Explains monitoring and evaluating the effectiveness of drug therapy ● Describes the unique features, mechanisms of action, uses, and side effects of various antimicrobial agents that are usually prescribed in dentistry. ● Recognizes the drugs that are used by dental patients for treatment of various diseases such as depression, schizophrenia, epilepsy, asthma and diabetes mellitus and thus ● Explains pharmacological interactions that occur between drugs used for various diseases	**6,1**	**X**	**X**			**X**	**X**	**CBL** **PBL** **MCQ** **Oral Exam**

	and those drugs that are commonly prescribed for dental patients. ● Understands appropriate methods of pain control.								
SKILL	● Selects drugs and dose regimens rationally based on individual factors. ● Uses scientific literature concerning pharmacotherapy; ● Alert to patients the possibility that clinical events might be drug-related. ● Recognize the need for individualization of therapy when necessary. ● Respects patient/ subject autonomy, the primacy of safety of the subject and other principles of ethics.	**8,1 9.4**		**X**					**CBL** **PBL**
RESPONSIBILITY AND AUTONOMY	● has the ability to renew learning ● has ability to make decisions and think critically	**11.5 11.3**		**X**				**X**	**CBL** **PBL** **Oral Exam**

Supplement 1

Course Content

№	Topics	Lecture (hrs.)	Seminar
I	Introduction to Pharmacology; Molecular basis of drug action; Mechanism of drug action; Dose-response relations and effective therapeutic dose	1	1
II	The general and dental uses, mechanisms, and side effects of Cotrimoxazole Pharmacology , penicillin, cephalosporin, quinolones, tetracycline and metronidazole	2	1
III	Distribution of Drugs in the Body; Pharmacokinetics, making simple pharmacokinetic calculations	1	1
IV	Cardiovascular drugs: Drugs used in congestive heart failure. Antiarrhythmic drugs, vasodilators and treatment of angina,	2	1
V	Drugs used in hypertension, diuretic drugs,	2	1
VI	Drugs that act in the central nervous system Sedative-hypnotic drugs , alcohols, antiepileptic	1	1
VII-VIII	**Midterm exam**		
IX	Antidepressants and antipsychotic drugs, Anxiolytics and hypnotics	1	1
X	Drug with important actions on blood, Drugs used in coagulation disorders Autocoids	1	1
XI	Opioid analgesics. Analgesic-antipyretics. Nonsteroidal anti-inflammatory drugs. Pharmacotherapy of urgent inflammatory conditions in dental medicine.	1	2
XII	Antiseptics and disinfectants (Oxidants, halogens, detergents – mechanism of action, application, toxicity, drug preparations. Phenols, aldehydes, alcohols - mechanism of action, application, toxicity, drug preparations. Preparations for oral hygiene and therapy.)	2	2
XIII	Basic principles of antimicrobial chemotherapy,	1	1
XIV	Endocrine drugs, corticosteroids and immune depressants	1	1
XV	Broncho dilatators and other drugs used in asthma;	1	1

	Drugs used in gastrointestinal disorders		
XVI	Special topics General and local anesthetics, skeletal muscle relaxants, Drug Abuse and Addiction	1	1
XVII	Adverse Effects of Drugs, Drug interactions Prevention and Treatment; Cancer chemotherapy (principles of cancer chemotherapy, classification of anti-cancer drugs, oral and dental problems associated with cancer chemotherapy)	2	1
XVIII-XXII	**Final Exam**	2	