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### თბილისის ჰუმანიტარული სასწავლო უნივერსიტეტი

**TBILISI HUMANITARIAN TEACHING UNIVERSITY**

**Syllabus**

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| **Name of the course /module** | **Pharmacology** |
| **Code of the course** | **PhM0415DM** |
| **Status of the course**  **(elective/compulsory)** | **C**ompulsory course  for the one-cycle higher educational Programme-Dentistry |
| **ECTS** | **4 credits.Total:100 hours**  Contact Hours–49 hours (Class Meeting Time Period:15L/30Gr.Work.) + 4 hours (Midterm:2h and Final Examinations 2h):  Individual Work -51 hours |
| **Authors (lecturer)** | Imeda Rubashvili-Ph.D - Chemical, THTU associated professor ,  Tel. 593 56 0245, email-rubashvili@ yahoo.ft  Consultation days: according to consultation schedule |
| **Aim of the course** | The goal of the course is the finding of relationship between the basic disciplines and introduction of module principles in practical medicine for the purpose of a proper choice and using of the drugs.  During the study course the students will acquire the knowledge regarding drugs used during cardiovascular diseases, drugs that used to treat diseases of the blood, inflammation, drugs acting on gastrointestinal tract and endocrin system and basic principles of chemotherapy. |
| **Program prerequisits** | Medical Chemistry |
| **Assessment system and criteria** | **Assessment system of the Tbilisi Humanitarian Teaching University's** is divided into the following components:  The total marks of the mid term Out of the overall assessment (100 points ) is 60 points, which includes three kinds of grades:  **Student’s activity during a semester;**  **One-midterm exam;**  **Final exam.**  Theminimum competence requirement for mid termevaluation components is at least 18 points in total.  **The minimum competence requirement of the final evaluation is 50% of the total mark from final evaluation that means 20 points out of 40.**  Evaluation System includes:  I. Five Forms of Positive Assessment:  (A) Excellent – 91% and more from maximum evaluation  (B) Very good – 81-90% from maximum evaluation  (C) Good – 71-80% from maximum evaluation  (D) Satisfactory – 61-70% from maximum evaluation  (E) Sufficient – 51-60% from maximum evaluation  II. Two Forms of Negative Assessment:  (A)(FX) Fail (Not passed ) - 41-50 from maximum evaluation score, which means that the student will need to work more and to retake the test after additional independent work;  (B) (F) Fail – A student gets 40 points, or less from maximum evaluation, which means that the work done by him/her is not sufficient and s/he has to retake the course from the beginning.  1. One of the negative assessment: In case of not passing, the University fixes additional exam at least in 5 days, after the announcement of final examination results, which must be published in the examination table.  2. The grades, which student gets after additional test is a student's final grades, in which is not considered the negative points of the major examination.  If a student receives from 0 to 50 points after additional test, in the final exam sheet is formed (F) -0 for the student. |
| **Course description** | appendix 1 |
| **Assessment system/activities, methods**  **and criteria** | * **Activities – 30 points** * **Midterm exam - 30 points** * **Final Exam -40 points**   **Activities** (Participation and attendance) - maximal 20 **points** is calculated in accordance *with the level of being active during 10* practices. *Type of activities can be answering questions, participation in discussion* is equal **1 points**.  2,0 points - s/she is active during classes, obtains perfect knowledge of the ongoing topic, answers all questions completely.  0 - s/he is less active during classes/group works, does not present perfect knowledge of the ongoing topic, does not answer any questions.  **Analysis –6 points.** is held twice, assessed by 3 points,  Rubric:  Determination of drug action – 1 point.  Determination of pharmacokinetics and pharmacodynemics – 1 point.  Determination of side effects – 1 point.  **Quiz – 4 points**, it consists of 10closed questions,Each closed question is followed by 4 answers. She/he must point out the correct one, each correct answer earns 0,5 point.  **Midterm exam - 30 points,**administered in written (the computer test, administered in written form (the test), the number of questions– 60, there are given four options, and the best one should be chosen. The correct answer is worth 0.5 points).)  **Final Exam - 40 points**  The examination is conducted by a combination of written(computer test) and verbal exam and includes:  A) The computer test -**20 points;** The number of questions– 40, there are given four options, and thebest one should be chosen. The correct answer is worth 0.5 points.  B) Verbal task -**20 points** / 4briefbrief topics, each is equal 5points  Criteria of assessment of verbal topics are :  **5 points –**The answer is complete; student obtains perfect knowledge of the topic, s/he coveres of the material fluently, summarises core and additional literature.  **4 points** -The answer is not absolutely complete; student obtains knowledge of the topic, without important mistakes, s/he coveres of the material fluently, summarises core literature.  **3 points -** The answer is not complete; student obtains satisfactory knowledge of the topic, s/he coveres of the material by mistakes, summarises core literature, reveales less of critical thinking and logical analysis.  **2 points** - The answer is weak; student obtains satisfactory knowledge of the topic, makes mistakes, doenot summarises core literature, cant make critical thinking and logical analysis.  **1 points -** The answer is substantially incorrect. Set out in the relevant material of the individual fragments. The student is not able to analyze the material. |
| **Core literature:** | 1. 1.Bertram G Katzung – Basic and Clinical Pharmacology – 12th edition 2. 2. Bennett, PN., Brown, MJ. Clinical Pharmacology. 9th Edition. Edinburgh:Churchill Livingstone. 3. 3.R.Walker,C.Edwards- Clinical Pharmacy and Therapeutics. |
| **Additional literature** | * Color Atlas of Pharmacology - 3rd edition, revised and expanded - Heinz Lüllmann, M.D.; Klaus Mohr, M.D.; Lutz Hein, M.D.; DetlefBieger, M.D.; 2005. * St. John’s, Newfoundlandalker R, Edwards C. Clinical Pharmacy and Therapeutics 2003 (3rd Edition). Churchill Livingstone, Scotland, UK (ISBN: 0443 071373, international Edition: 0443 071381) |
| **Learning outcomes, competences**  **(general and field specific)** | **Knowledge**   1. Student describes basic principles of pharmacodynamics and pharmacokinetics 2. Student explains pharmacologic properties of drugs acting on cardiovascular system, drugs that used to treat diseases of the blood, inflammation, drugs acting on gastrointestinal tract and endocrine system and basic principles of chemotherapy. 3. Student identifies of required dose and administration route, specification of beneficial and toxic effects of the drug.   **Skills**   1. Student determines the correlative link between essential pharmacologic indices and analyse them 2. Student determines drug indication, contraindication, drug interaction and possible adverse reactions 3. Student can delivering and defending of own position in the envirement of specialists and non specialists.   **Responsibilities**   1. Student defines of topics for further education. 2. Student outlines the importance and value of appropriate pharmacotherapy for good health. |
| **Teaching methods** | * **Lecture/ practical** * **Individual/Group work** * **Verbal teaching method** * **Demonstration of study materials** * **Presentation** * **Explanation methods** * **Discussion/debate** * **Pbl/Case study** * Brainstorming. |

**Appendix 1**

**Course description:**

**Topics of the lecture, practical classes/laboratory work/working group, literature**

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| **Week №** | **Type of**  **the class** | **Topics** | **Contact hours** | **Literature** |
| **I** | Lect. | Basic Principles of Pharmacology | 1 h | 1,2, |
| Group working | Basic principles of pharmacology. Introduction. Pharmacology, links to other disciplines. Terminology. Drug names. Basic and clinical evaluation of new drugs - methods, phases, biomedical ethics. | 2h | 1,2 |
| **II** | Lect. | Drug Receptors and Pharmacokinetics&Pharmacodynamics | 1h | 1,2 |
| Group working | Basic principles of pharmacodynamics. Types of receptor effector linkage (ionotropic receptor, metabotropic – G-protein coupled, kinase link receptors, nuclear receptors). Types of transducers, effectors and second-messengers. Drugs and receptors interaction. Up-regulation, down-regulation, desensitization of receptors. Agonist-antagonist relationships. Full agonist, partial agonist, antagonist (competitive, non-competitive, irreversible, reversible). | 2h | 1,2 |
| **III** | Lect. | Drugs used in the treatment of infections and cancer. Basic principles of chemotherapy. The molecular basis of chemotherapy. Resistance to antibacterial drugs. Antimicrobial agents that act of cell wall synthesis. | 1h | 1,2 |
| Group working | Drugs used in the treatment of infections and cancer. Basic principles of chemotherapy. The molecular basis of chemotherapy. Resistance to antibacterial drugs. Antimicrobial agents that act of cell wall synthesis. | 2h | 1,2 |
| **IV** | Lect. | Antimicrobial agents that act on bacterial protein synthesis. Sulfonamides, Trimethoprim. Quinolones. Miscellaneous antimicrobial agents.Disinfectants, antiseptics. Antimycobacterial and antisyphilitic drugs. Antiprotozoal drugs. Cancerchemotherapy. | 1h | 1,2 |
| Group working | Antimicrobial agents that act on bacterial protein synthesis. Sulfonamides, Trimethoprim. Quinolones. Miscellaneous antimicrobial agents.Disinfectants, antiseptics. Antimycobacterial and antisyphilitic drugs. Antiprotozoal drugs. Cancerchemotherapy. | 2h | 1,2 |
| **V** | Lect. | Local anesthetics. | 1h | 1,2 |
| Group working | Pharmacodynamics and Pharmacocinetics of local anesthetics; | 2h | 1,2 |
| **VI** | Lect. | Nonsteroidal Anti-Inflammatory Drugs, Disease-Modifying  Antirheumatic Drugs, Nonopioid Analgesics; Drugs Used in Gout | 1h | 1,2 |
| Group working | Nonsteroidal Anti-Inflammatory Drugs, Disease-Modifying  Antirheumatic Drugs, Nonopioid Analgesics; Drugs Used in Gout | 2h | 1,2 |
| **VII** | Lect. | Anti-allergies. Immunosuppressants. Antihistamines. Immunomodulators | 1h | 1,2 |
| Group working | Anti-allergies. Immunosuppressants. Antihistamines. Immunomodulators | 2h | 1,2 |
| **VIII** |  | **Midterm** | 2h |  |
| **IX** | Lect. | Cardiovascular drugs. Introduction. Drugs used to treat congestive heart failure.Drugs used to treat of arrhythmias.  Drug used in ischemic heart disease. | 1h | 1,2 |
| Group working | Cardiovascular drugs. Introduction. Drugs used to treat congestive heart failure.Drugs used to treat of arrhythmias.  Drug used in ischemic heart disease. | 2h | 1,2 |
| **X** | Lect. | Drugs used to treat of hypertension | 1h | 1,2 |
| Group working | Drugs used to treat of hypertension (General principles of therapy, classification – drugs that alter sympathetic nervous system function. Vasodilators and Diuretics. Pharmacodynamics and Pharmacokinetiks). | 2h | 1,2 |
| **XI** | Lect. | Endocrine drugs. The pituitary and drugs used in therapy. Steroidal drugs. Endocrine drugs. Diabetes mellitus and drugs used in treatment.Drugs used in diseases of the thyroid | 1h | 1,2 |
| Group working | Endocrine drugs. The pituitary and drugs used in therapy. Steroidal drugs. Endocrine drugs. Diabetes mellitus and drugs used in treatment.Drugs used in diseases of the thyroid | 2h | 1,2 |
| **XII** | Lect. | Drugs that act on the gastrointestinal system.  Anthelmintic drugs. | 1h | 1,2 |
| Group working | Drugs that act on the gastrointestinal system (gastric secretion, vomiting, motility of GI tract, drugs for chronic inflammatory bowel disease, drugs affecting the biliary system. Anthelmintic drugs. | 2h | 1,2 |
| **XIII** | Lect. | Agents Used in Anemias; Hematopoietic Growth Factors drugs used in anemias. Drugs that act on the coagulation cascade, platelet adhesion and activation, fibrinolysis. | 1h | 1,2 |
| Group working | Agents Used in Anemias; Hematopoietic Growth Factors drugs used in anemias. Drugs that act on the coagulation cascade, platelet adhesion and activation, fibrinolysis. | 2h | 1,2 |
| **XIV** | Lect. | Use fluorine, calcium, arsenic preparations in dentistry. | 1h | 1,2 |
| Group working | Use fluorine, calcium, arsenic preparations in dentistry. | 2h | 1,2 |
| **XV** | Lect. | The drugs of oral mucous membrane diseases (stomatitis). | 1h | 1,2 |
| Group working | The drugs of oral mucous membrane diseases (stomatitis). | 2h | 1,2 |
| **XVI** | Lect. | Vitamins, microelements, polyvitamins. | 1h | 1,2 |
| Group working | Vitamins, microelements, polyvitamins. | 2h | 1,2 |
| **XVII-XVIII** |  | **Final Exam** | 2h |  |
| **XIX-XX** |  | **Additional exam** |  |  |