

**COURSE UNIT DESCRIPTION**

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| **Course unit title** | **Code** |
| **Pharmacology I/II** | **FARM2115**  **FARM2215** |

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| **Lecturer(s)** | **Department(s)** |
| **Coordinating**: Lect. Armantas Gintautas  **Others:** Lect. Dr. Tomas Janušonis | Department of Pathology, Forensic medicine and Pharmacology |

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| **Cycle** | **Level of the course unit** | **Type of the course unit** |
| cycle (integrated studies) |  | Compulsory |

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| **Mode of delivery** | **Period of delivery** | **Language of instruction** |
| Lectures, seminars | 4th semester | English |

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| **Prerequisites and corequisites** | |
| Prerequisites:  A student must have completed the following courses: anatomy, physiology, biochemistry, pathophysiology, microbiology. | **Corequisites (if any):** |

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| **Number of ECTS credits allocated to the course unit** | **Total student’s workload** | **Contact hours** | **Self-study hours** |
| 5 | 134 | 67 | 67 |

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| **Purpose of the course unit**  **Programme competences to be developed** | | |
| To give the basics of pharmacology, drug classification system, main groups of drugs, their mechanism of action, desired and side effects, drug action on pathological processes and drug pharmacokinetics; teach to write drug prescription. After completing the course students will know in which cases it is necessary to assign the appropriate medicines in medical practice. | | |
| **Learning outcomes of the course unit** | **Teaching and learning methods** | **Assessment methods** |
| - Should know what medicines are, the basics of pharmacodynamics and pharmacokinetics  - Should be able to describe these processes for medicines  - Should know principles of drug development and basics of clinical trials | Lectures (virtual learning environment), seminars (problem solving, discussions, demonstration of videos, presentations of students) | Test, closed and open questions, practical tasks (oral, in written, virtual) |
| - Should understand the principles of drug classification, to know classes of drugs and the main members of these classes  - Should understand the reasons of classifying medicines |
| - Should be able to describe mechanism of action of drugs and their classes, indications (based on mechanism of action), adverse drug reactions  - should understand mechanism of drugs interaction (benefits and risks) |
| - Should know the principles how to write medicine prescription  - To be able to find and interpret information about medicine | Practical work, problem solving, prescription writing, search for information |

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| **Topics** | **Contact work hours** | | | | | | | **Time and tasks of self-study** | |
| Lectures | Consultations | Seminars | Practice | Laboratory work | Practical training | **Total contact hours** | **Self-study** | **Tasks** |
| 1. The subject of pharmacology. Pharmaceutical substance and preparation. Development and clinical trials. Dosage and method of use of medicines | 2 |  | 2 | 2 |  |  | **6** | **8** | Preparation for the topic |
| 2. Pharmacodynamics | 2 |  | 1 | 2 |  |  | **5** | **3** | Preparation for the topic |
| 3. Pharmacokinetics, pharmacogenetics | 2 |  | 1 | 2 |  |  | **5** | **3** | Preparation for the topic |
| 4. Drugs acting on cholinergic and adrenergic synapses |  |  | 4 | 2 |  |  | **6** | **6** | Preparation for the topic |
| 5. Local anaesthetics. General anaesthetics. Opioid analgesics. | 2 |  | 2 | 2 |  |  | **6** | **6** | Preparation for the topic |
| 6. Anxiolytics, hypnotics. Antipsychotic drugs | 1 |  | 2 | 2 |  |  | **5** | **5** | Preparation for the topic |
| 7. Antidepressants and drugs for treatment of mania | 1 |  | 2 | 2 |  |  | **5** | **5** | Preparation for the topic |
| 8. Drugs for treatment of neurodegenerative disorders (Alzheimer, Parkinson, Huntington diseases). Antiepileptics | 2 |  | 4 | 4 |  |  | **10** | **10** | Preparation for the topic |
| 9. Drugs acting on metabolism | 4 |  | 6 | 6 |  |  | **16** | **15** | Preparation for the topic |
| 10. Hormones and drugs acting on endocrine system. |  | 1 | 2 |  |  |  | **3** | **6** | Preparation for the topic |
| **Total** | **16** | **1** | **26** | **24** |  |  | **67** | **67** |  |

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| **Assessment strategy** | **Weight (%)** | **Assessment period** | **Assessment criteria** |
| Assessment of knowledge and skills during every seminar (X) | 20 | During semesters | Preparation for seminar is assessed, as well as ability to use knowledge and facts in practice and problem solving, ability to choose right medicine for certain indication (disease or clinical situation), write a prescription. Knowledge of topics is assessed every seminar based on methodology agreed in department of pharmacology: test, closed and open questions, practical tasks (oral, in written, virtual). |
| Colloquiums (two in 4th semester); (Y). | 20  (colloquiums and control work) | First colloquium - from 1-4 topics, second colloquium – from 5-8 topics. Colloquiums dates are announced at the beginning of 4th semester (during first lecture and seminar). | Only if all seminars and practical classes are attended and knowledge level is acceptable (based on assessment score of each seminar and practical class), student is eligible to take the colloquium. Knowledge is assessed by methodology agreed in department of pharmacology: test, closed and open questions, practical tasks (oral, in written, virtual).  Every colloquium consists of two parts: multi choice questions and open questions (the format could be changed with remaining assessing methods). Totally, 75 points may be collected. Final number of points is based on correct (correct answer is evaluated as positive point) and incorrect (incorrect answer is evaluated as negative point) answers, and is converted to the final score according methodology agreed in department of pharmacology (evaluation policy) and the official scheme of Vilnius university (≥ 92% of correct points – score is 10, 82 - 91% - score is 9, 74 - 81% - score is 8, 66 - 73% - score is 7, 58 - 65% - score is 6, 50 - 57% - score is 5).  Passing score of colloquiums is not less than 5. If student doesn’t pass or doesn’t attend the colloquium duo serious reasons (ex. disease), it can be retaken once during the semester (written). Overall colloquium can be retaken three times. If student retakes the colloquium a third time, assessment will be oral and/or with commission. |
| Control work (one in 4th semester); (Y). | 20  (colloquiums and control work) | One until the end of May | Only if all seminars of control work topics are attended and knowledge level is acceptable (based on assessment score of each seminar), student is eligible to take the control work. Knowledge is assessed by methodology agreed in department of pharmacology: test, closed and open questions, practical tasks (oral, in written, virtual).  Control work consists of multi choice questions, open questions and practical tasks (the format could be changed with remaining assessing methods).  Passing score of control work is not less than 5. If student doesn’t pass or doesn’t attend the control work duo serious reasons (ex. disease), it can be retaken once during the semester (written). Overall control work can be retaken three times. If student retakes the control work a third time, assessment will be oral and/or with commission. |
| End of 4th semester |  | May 31st (cumulative) | Student gets pharmacology credit of 4th semester if both 4th semester colloquiums and control work are passed. If student doesn’t have pharmacology credit of 4th semester he/she is not eligible to continue pharmacology studies in 5th semester. |

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| **Author** | **Year of publication** | **Title** | **No of periodical**  **or vol. of publication** | **Publication place and publisher**  **or Internet link** |
| **Required reading** | | | | |
| Rang H.P. et al. | 2019  2015 | Pharmacology | 9 ed.  8 ed. | Elsevier  Churchill Livingstone |
| Katzung B.G. | 2018 | Basic and clinical pharmacology. | 14 ed. | McGraw Hill |
| Richard A., Harvey Karen Whalen Pharm D | 2018  2014 | Pharmacology | 7 ed.  6 ed. | Lippincot Illustrated Reviews |
| **Recommended reading** | | | | |
| Laurence L., Brunton, Bruce A. Chabner, Björn C. Knollmann | 2018 | Goodman & Gilman’s The Pharmacological basis of therapeutics | 13 ed. | McGraw-Hill |
| **Vilnius University Library Electronic resources – subscribed databases:** ClinicalKey Student, 5MinuteConsult, AccessMedicine, European Pharmacopoeia, MedicinesComplete  **Selected publications relevant for particular topic (provided by lecturer)** | | | | |