|  |  |
| --- | --- |
| **Course title**Basics of pharmacology and drug discovery- ERASMUS  | **ECTS code** |
| **Name of unit administrating study** Faculty Chemistry |
| **Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field of study** | **Type** | **Form** |  |
| Chemistry | Bachelor  | Full-time studies  |  |
| Chemistry | Master | Full-time studies |  |

 |
| **Teaching staff**Dr hab. n. farm. Elżbieta Kamysz, prof. UG |
| **Forms of classes, the realization and number of hours**  | **ECTS credits 4**classes 30 htutorial classes 20 hstudent’s own work 50 hTOTAL: 100 h - 4 ECTS |
| 1. **Forms of classes, in accordance with the UG Rector’s regulations**

lecture |
| 1. **The realization of activities**

In-class or on-line |
| 1. **Number of hours**

30 h - lecture |
| **The academic cycle**summer |
| **Type of course**facultative | **Language of instruction**English |
| **Teaching methods**Lecture with multimedia presentation | **Form and method of assessment and basic criteria for evaluation or examination requirements**  |
| **A. Final evaluation, in accordance with the UG study regulations** course completion (with a grade) |
| **B. Assessment methods**written assessment in the test form (closed and a few open questions) |
| **C. The basic criteria for evaluation** 1. The final assessment on basics of pharmacology and drug discovery will be in the written form. It will consist of test questions covering the lecture material.2. The condition for graduating the subject is to obtain at least a satisfactory grade (at least 51% of the total number of points from the written exam). |
| **Required courses and introductory requirements** no requirements |
| **Aims of education**The aim of the lecture is to familiarize students with basic terms in the field of pharmacology and the effects of drugs on the body, as well as the effects of the body on the drugs. Moreover, various aspects of the drug discovery process will be presented. Special attention will be paid to the role of pharmacology in the drug discovery and development. |
| **Course contents**Definitions and basic terms in the field of pharmacology. Drug sources and targets; modes of drug action. Pharmacokinetics studies the passage of drugsthrough the organism (liberation, absorption, distribution, metabolism, *excretion*) and the most common pharmacokinetic parameters such as clearance, volume of distribution, and bioavailability. Basic forms of drugs. Major steps in the drug discovery process (from idea to market), for example various approaches used to drug design, exploration of a lead compound, the concept of analogue, concepts of a prodrug, pre-clinical and clinical trials, regulatory agencies in EU and USA responsible for drugs approval. Pharmacotherapy of selected diseases of civilization, for example: diabetes, hypertension, mental disorders, overweight and obesity, cancer, inflammatory bowel diseases). Antibacterial and antifungal medicines. Side effects of medicines and their interactions with other medicines, alcohol, and food products.  |
| **Bibliography of literature** ***Literature required to pass the course:**** scientific papers indicated by the lecturer;
* monographic materials indicated by the lecturer.

***Extracurricular readings:**** Rang & Dale: Pharmacology, Elsevier, 2024;
* Graham P.: An Introduction to Medicinal Chemistry, Oxford 2017;
* Ng R., Drugs: from Discovery to Approval, Wiley-Blackwell 2015.
* Kenakin T.: Pharmacology in Drug Discovery and Development: Understanding Drug Response, [Elsevier Ltd. Oxford](https://www.empik.com/szukaj/produkt?publisherFacet=elsevier+ltd.+oxford), 2017.
 |
| **Knowledge*** explain the basic terms and issues in the field of general pharmacology;
* know the main mechanisms of action of drugs;
* have knowledge about the study of new drugs;
* are able to describe the main stages of drug design;
* are able to characterize selected groups of drugs;
* know the procedure of reporting negative side effects;
* have a basic knowledge of the possible interactions between medicines and between medicines and nutrients;
* explain the pre-clinical and clinical trials in drug discovery process.
 |
| **Skills*** use basic pharmacological knowledge regarding the choice of the form and route of administration of medicines, therapeutic effect and side effects;
* are able to use sources of information about medicines;
* describe with understanding each stage of drug discovery process;
* using examples of selected drug groups, they suggest modifications of the structures leading to desired changes in their biological activity profile (e.g. selectivity), ability to overcome biological barriers, chemical stability and susceptibility to metabolism.
 |
| **Social competence*** are aware of the therapeutic and adverse effects of medicines;
* recognize the importance of knowledge in solving cognitive and practical problems;
* seek the opinion of experts in the case of difficulties with solving the problem on your own
* are cautious about accepting information, especially available information in the mass media;
* understand the need for continuous training and development as well as the search for new medicines.
 |