



### Syllabus of Lectures and Practicals

| Week                                        | Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     | Practicals                                                                                                                                                                                                                        |                                                             |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
|                                             | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Lecturer                            | Topic                                                                                                                                                                                                                             | Lecturer                                                    |
| <b>Week 1</b><br>16.02.2026 -<br>20.02.2026 | <i>Monday (16.02.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Clinical pharmacy - introduction</b><br>The role of the clinical pharmacist in patient care, position in the medical facility, influence on the global health agenda.<br>Pharmacotherapy in relation to clinical pharmacy.<br>Adherence, compliance, concordance, medication errors                                                                                                                                 | Prof. Ján Klimas                    | <i>Thursday (19.02.2026; 13:00 – 14:40; Room K-238)</i><br><b>Organization of practicals on Clinical Pharmacy and Pharmacotherapy.</b><br>Drug-related problems (DRPs) and pharmacotherapy optimization plan - practical examples | Dr. Gabriel Dóka,<br>Natália Krajčírová,<br>MPharm          |
|                                             | <i>Thursday (19.02.2026; 09:20 – 11:00; Room K-105B)</i><br>"Drug repurposing" - new indications for old drugs thanks to clinical-pharmaceutical research                                                                                                                                                                                                                                                                                                                        | prof. Ján Klimas                    |                                                                                                                                                                                                                                   |                                                             |
| <b>Week 2</b><br>23.02.2026 -<br>27.02.2026 | <i>Monday (23.02.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Pharmaceutical counselling and current treatment options for depression and bipolar disorder</b>                                                                                                                                                                                                                                                                                                                    | Assoc. prof.<br>Stanislava Kosírová | <i>Thursday (26.02.2026; 13:00 – 14:40; Room K-238)</i><br><b>Abdominal, chest and back pain - distinguishing causes based on symptoms, pharmacotherapy as first aid, comprehensive counseling and pharmacist competence</b>      | Assoc. prof.<br>Diana Vavrincová,<br>Jakub Krivý,<br>MPharm |
|                                             | <i>Thursday (26.02.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Pharmacotherapy of neurodegenerative diseases: Parkinson's disease, Alzheimer's disease, dementia</b>                                                                                                                                                                                                                                                                                                             | Assoc. prof.<br>Anna Paul Hrabovská |                                                                                                                                                                                                                                   |                                                             |
| <b>Week 3</b><br>02.03.2026 -<br>06.03.2026 | <i>Monday (02.03.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Therapeutic Drug Monitoring (TDM) in clinical practice</b>                                                                                                                                                                                                                                                                                                                                                          | Dr. Zuzana Kiliánová                | <i>Thursday (05.03.2026; 13:00 – 14:40; Room K-238)</i><br><b>Pharmacotherapy problems in the treatment of anxiety disorders and insomnia</b>                                                                                     | Assoc. prof.<br>Peter Vavrínek                              |
|                                             | <i>Thursday (05.03.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Antibiotics in the therapy of the respiratory and urogenital tract</b><br><i>Invited lecturer: PharmDr. Anna Oleárová, PhD., MPH., LL.M. – clinical pharmacist, Department of Clinical Pharmacology of the University Hospital Bratislava – Ružinov, , <u>president of the European Society of Clinical Pharmacy (ESCP)</u>, chairwoman of the Clinical Pharmacy Section of the Slovak Pharmaceutical Society</i> | Dr. Anna Oleárová                   |                                                                                                                                                                                                                                   |                                                             |



| Week                                        | Lectures                                                                                                                                                                                                           |                                     | Practicals                                                                                                                                                                          |                                                                   |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
|                                             | Topic                                                                                                                                                                                                              | Lecturer                            | Topic                                                                                                                                                                               | Lecturer                                                          |
| <b>Week 4</b><br>09.03.2026 -<br>13.03.2026 | <i>Monday (09.03.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Pharmacotherapy of viral infections</b>                                                                                                               | Assoc. prof.<br>Diana Vavrinčová    | <i>Thursday (12.03.2026; 13:00 – 14:40; Room K-238)</i><br><b>Analysis of the rational use of antimicrobial drugs</b>                                                               | Dr. Zuzana Kiliánová,<br>Dr. Zolfa Elyasi Gomari                  |
|                                             | <i>Thursday (12.03.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Rational antibiotic treatment and its problems, bacterial resistance nowadays (role of a pharmacist)</b>                                            | Dr. Zuzana Kiliánová                |                                                                                                                                                                                     |                                                                   |
| <b>Week 5</b><br>16.03.2026 -<br>20.03.2026 | <i>Monday (16.03.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Treatment of dyspepsia: heartburn, gastroesophageal reflux disease, peptic ulcers, Helicobacter pylori and drugs inducing hyperacidity and ulcers</b> | Dr. Zuzana Kiliánová                | <i>Thursday (19.03.2026; 13:00 – 14:40; Room K-238)</i><br><b>Pharmaceutical counselling and current treatment options for diarrhea, constipation, and irritable bowel syndrome</b> | Dr. Eva Kráľová                                                   |
|                                             | <i>Thursday (19.03.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Skin protection from external influences</b>                                                                                                        | Assoc. prof.<br>Stanislava Kosírová |                                                                                                                                                                                     |                                                                   |
| <b>Week 6</b><br>23.03.2026 -<br>27.03.2026 | <i>Monday (23.03.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Allergic reactions after medicines</b>                                                                                                                | Assoc. prof.<br>Diana Vavrinčová    | <i>Thursday (26.03.2026; 13:00 – 14:40; Room K-238)</i><br><b>Analysis of the rational use of drugs in dyspepsia</b>                                                                | Dr. Natália Stollárová                                            |
|                                             | <i>Thursday (26.03.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Chronopharmacology and its importance in pharmacotherapy</b>                                                                                        | Assoc. prof.<br>Stanislava Kosírová |                                                                                                                                                                                     |                                                                   |
| <b>Week 7</b><br>30.03.2026 -<br>03.04.2026 | <i>Monday (30.03.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Pharmaceutical counselling in patients with increased cardiovascular risk</b>                                                                         | Assoc. prof.<br>Diana Vavrinčová    | <i>Thursday (02.04.2026)</i><br><b>Pharmaceutical counselling in the treatment of fungal diseases:<br/>e-presentation + e-case + autodidactic test ***</b>                          | Dr. Zuzana Kiliánová                                              |
|                                             | <i>Thursday (02.04.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Rector's/Dean's leave on the Easter holidays</b>                                                                                                    | -                                   |                                                                                                                                                                                     |                                                                   |
| <b>Week 8</b><br>06.04.2026 -<br>10.04.2026 | <i>Monday (06.04.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Rector's/Dean's leave on the Easter holidays</b>                                                                                                      | -                                   | <i>Thursday (09.04.2026; 13:00 – 14:40; Room K-238)</i><br><b>Pharmaceutical counselling in the treatment of diabetes, solving case studies</b>                                     | Assoc. prof.<br>Stanislava Kosírová,<br>Jana Urbánková,<br>MPharm |
|                                             | <i>Thursday (09.04.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Antithrombotic therapy and management of bleeding risk</b>                                                                                          | Dr. Gabriel Dóka                    |                                                                                                                                                                                     |                                                                   |

\*\*\* In the given week, the practical will not be in person, but will take place online in Moodle. The practical will be available in the given week without a time limit and will include an e-lecture followed by an e-case study, which everyone will solve independently. At the end of the practical, there will be a self-study test, the successful completion of which will be electronically recorded and will be a confirmation of completion of the practical.



| Week                                         | Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                | Practicals                                                                                                                                                                       |                                               |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
|                                              | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Lecturer                       | Topic                                                                                                                                                                            | Lecturer                                      |
| <b>Week 9</b><br>13.04.2026 -<br>17.04.2026  | <i>Monday (13.04.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Pharmaceutical counseling for vascular diseases – venous insufficiency, varicose veins, hemorrhoids, angiopathy, edema of the lower limbs</b>                                                                                                                                                                                                                                                                                  | Assoc. prof.<br>Peter Vavrinec | <i>Thursday (16.04.2026; 13:00 – 14:40; Room K-238)</i><br><b>Preparation and administration of parenteral drugs in clinical practice - examples from the oncology institute</b> | Dr. Boris Dudík                               |
|                                              | <i>Thursday (16.04.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Pharmacist activities within oncology team</b>                                                                                                                                                                                                                                                                                                                                                                               | Dr. Boris Dudík                |                                                                                                                                                                                  |                                               |
| <b>Week 10</b><br>20.04.2026 -<br>24.04.2026 | <i>Monday (20.04.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Pharmaceutical counselling and principles of pharmacotherapy of chronic heart failure</b>                                                                                                                                                                                                                                                                                                                                      | Dr. Gabriel Dóka               | <i>Thursday (23.04.2026; 13:00 – 14:40; Room K-238)</i><br><b>Pharmaceutical counselling in patients with increased cardiovascular risk – case reports</b>                       | Dr. Zuzana Kiliánová, Dr. Zolfa Elyasi Gomari |
|                                              | <i>Thursday (23.04.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Pharmaceutical counselling and principles of pharmacotherapy of hypertension</b>                                                                                                                                                                                                                                                                                                                                             | Dr. Gabriel Dóka               |                                                                                                                                                                                  |                                               |
| <b>Week 11</b><br>27.04.2026 -<br>01.05.2026 | <i>Monday (27.04.2026; 11:10 – 12:50; Room K-105B)</i><br><b>Medical documentation – structure of a medical record, basic diagnoses and their symptomatology, drug history in the context of the patient's personal history</b>                                                                                                                                                                                                                                                             | Assoc. prof.<br>Peter Vavrinec | <i>Thursday (30.04.2026; 13:00 – 14:40; Room K-238)</i><br><b>Analysis of the rational use of drugs affecting the cardiovascular system.</b>                                     | Dr. Gabriel Dóka, Natália Krajčírová, MPharm  |
|                                              | <i>Thursday (30.04.2026; 09:20 – 11:00; Room K-105B)</i><br><b>Pharmacotherapeutic problems related to the administration of drugs in relation to oral, enteral and parenteral nutrition, drug incompatibilities</b><br><i>Presentation by invited lecturer: PharmDr. Anna Oleárová, PhD., MPH., LL.M. – clinical pharmacist, <u>president of the European Society of Clinical Pharmacy (ESCP)</u>, Department of Clinical Pharmacology of the University Hospital Bratislava – Ružinov</i> | Dr. Anna Oleárová              |                                                                                                                                                                                  |                                               |



|                                    | Lectures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           | Practicals                                                                                                                                                         |                                              |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Week                               | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Lecturer                                  | Topic                                                                                                                                                              | Lecturer                                     |
| Week 12<br>04.05.2026 - 08.05.2026 | Monday (04.05.2026; 11:10 – 12:50; Room K-105B)<br><b>Drug abuse and misuse, „lifestyle drugs“</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Assoc. prof.<br>Diana Vavrincová          | Thursday (07.05.2026; 13:00 – 14:40; Room K-238)<br><b>Pharmacotherapy problems in the treatment of bleeding disorders and prevention of thromboembolic events</b> | Dr. Eva Kráľová                              |
|                                    | Thursday (07.05.2026; 09:20 – 11:00; Room K-105B)<br><b>Role of pharmacists in vaccination: efficacy and safety of vaccines, administration of vaccines in pharmacy, situation and perspectives in Europe and Slovakia</b><br><i>Presentation by invited speaker PharmDr. Miroslava Snopková, PhD. - vice-dean of the Faculty of Pharmacy UK Bratislava for cooperation with practice, specialized studies and information technologies, assistant professor at the Department of Pharmacy Organization and Management, head pharmacist of the Faculty Pharmacy, vice-president of the Slovak Chamber of Pharmacy, member of the expert and working group for certification training for vaccination by pharmacists</i> | Dr. Miroslava Snopková                    |                                                                                                                                                                    |                                              |
| Week 13<br>11.05.2026 - 15.05.2026 | Monday (11.05.2026; 11:10 – 12:50; Room K-105B)<br><b>Pharmaceutical counseling related to dizziness, vertigo, motion sickness, hypotension and syncope</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Dr. Gabriel Dóka                          | Thursday (14.05.2026; 13:00 – 14:40; Room K-238)<br><b>Identification and solving of pharmacotherapeutic problems in complex case studies</b>                      | Dr. Gabriel Dóka,<br>Mgr. Natália Krajčírová |
|                                    | Thursday (14.05.2026; 09:20 – 11:00; Room K-105B)<br><b>Interactive lecture - methods for solving complex patient cases and drug-related problems. Integration of knowledge and skills from clinical pharmacy</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Dr. Zuzana Kiliánová,<br>Dr. Gabriel Dóka |                                                                                                                                                                    |                                              |
| Week 14<br>18.05.2026 - 22.05.2026 | Date reserved for replacement of practicals and consultations before the beginning of the exam period                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                           |                                                                                                                                                                    |                                              |



**Complete list of lecturers, teachers of practicals and e-lecture contributors:**

- prof. PharmDr. Ján Klimas, PhD., MPH (subject guarantor, lectures)
- doc. PharmDr. Stanislava Kosírová, PhD. (lectures and practicals)
- doc. PharmDr. Anna Paul Hrabovská, PhD. (lectures)
- doc. Mgr. Diana Vavrincová, PhD. (lectures and practicals)
- doc. Mgr. Peter Vavrínek, PhD. (lectures and practicals)
- PharmDr. Gabriel Dóka, PhD. (lectures and practicals)
- PharmDr. Boris Dudík, PhD. (lectures and practicals)
- PharmDr. Mária Göböová, PhD. (e-lectures)
- MUDr. PharmDr. Zuzana Javorová Rihová, PhD. (e-lectures)
- PharmDr. Zuzana Kiliánová, PhD. (lectures and practicals)
- PharmDr. Hajnalka Komjáthy, PhD. (e-lectures)
- PharmDr. Eva Kráľová, PhD. (practicals)
- PharmDr. Anna Oleárová, PhD., MPH., LL.M. (invited lectures)
- PharmDr. Miroslava Snopková, PhD. (e-lectures)
- PharmDr. Natália Stollárová, PhD. (practicals)
- MUDr. Zolfa Elyasi Gomari (practicals)
- Mgr. Natália Krajčírová (practicals)
- Mgr. Jakub Krivý (practicals)
- Mgr. Jana Urbánková (practicals)



### e-Lectures

| Availability | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Lecturer              |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Moodle       | <b>Polypharmacy and its management in practice, deprescribing. Activities of a clinical pharmacist in a hospital</b><br><i>Presentation by invited speaker: PharmDr. Hajnalka Komjáthy, PhD. – head pharmacist of the hospital pharmacy AGEL Hospital Komárno, chief clinical pharmacist of AGEL SK, active member of the European Association of Hospital Pharmacists (EAHP), vice-chairman of the Slovak Chamber of Pharmacists Hospital Pharmacists Section</i> | Dr. Hajnalka Komjáthy |

# Additional e-lectures and study materials can be added to Moodle during the teaching part of the semester.



## **Requirements for passing the subject and for final exam**

### **1. General organization:**

- lectures and practicals will be held **in person** according to the valid schedule. In the case there is a change in the organization of the teaching process during the semester based on current measures and regulations, practicals and/or lectures may be changed to online teaching in MS Teams in a direct oral form between the teacher and students. Students will be informed in time about any change.
- Handout materials from lectures and practicals (syllabi, subject requirements, presentations, recommended literature, case reports' solutions, case studies, etc.) will be published for course participants on the official E-Learning website (Moodle).
- **In case of illness, suspected contagious disease or in case of a close contact with an infected person**, the student should not endanger his health or the health of others and should therefore observe social distancing. From isolation, the student will communicate electronically (by e-mail or via MS Teams) with the relevant teacher, especially the ones responsible for respective practicals, and consult about the method of completing the course in this subject - the form of substitution will be determined by the teacher.

### **2. Lectures and e-lectures:**

- attendance at all lectures is mandatory, the presence can be verified by the teachers.
- if necessary, for organizational reasons, selected lectures will be held online in MS Teams. Students will be informed in time about this eventuality.
- **e-lectures** are audiovisual and/or electronic written materials that will be available in Moodle for self-study. For each e-lecture, a space for consultations and student questions will be created in Moodle, which should complement the experience of the lecture to a similar extent as for face-to-face lectures.
- e-lectures are a regular part of the subject syllabus, they will also be part of the final exam.
- **In the case of lectures by invited lecturers, students' attendance will always be recorded in the attendance list.** An absence from such a lecture will be considered as an absence from a practical = the missed topic will have to be substituted in the same way as in the case of non-attendance at a practical. The method of substitution of absence will be determined by Dr. Dóka and Dr. Kiliánová.

### **3. Practical:**

- attendance at all practicals is mandatory, 100 % presence rate is required!
- every student completes the practicals on the date officially listed in the schedule in AIS2. A conflict in the schedule is resolved exclusively by the Study Department.
- **students must substitute every missed practical.** The student should contact the teacher of the relevant missed practical as soon as possible (in person or in writing from the university email) and request a replacement. The teacher will determine the form, requirements and date of the replacement of the practical (e.g. preparation of a seminar work with/without an oral presentation, an oral or a written examination, etc.). The practical is considered to be replaced only if the assigned replacement is deemed adequately fulfilled by the relevant teacher.
- every student must successfully replace all practicals no later than May 22, 2026 (inclusive).



#### 4. Preparation for the practicals:

- the content of the practicals will be focused primarily on the solving of case studies from practice with a minimum of theoretical introduction. For this reason, all participants are required to be adequately prepared for the topic covered, which includes (but is not limited to):
  - o recall of knowledge from previous subjects: physiology, pathophysiology, pathology, biochemistry, pharmacology, clinical pharmacology and pharmacotherapy
  - o recommended topics for home studying are also listed in the appendix to this syllabus.
- the purpose of these recommendations for readiness is to develop discussion within the group during lessons as well as the ability to communicate constructively about the professional topics covered.
- **readiness for the topic covered can be verified by the teacher** in form of an oral examination or a short test. In the case the teacher evaluates the student's readiness as insufficient, the student will be required to substitute the practical as in the case of absence.
- we recommend, that students take advantage of the opportunity to **consult** with teachers to supplement their knowledge and skills. You can consult any clinically oriented question or ambiguity from the course after your adequate previous preparation for a discussion with teachers in the subject. Arrange consultations in advance via email or in person with your chosen teacher. Consultations are an excellent tool for obtaining more detailed and personalized information, answers to your specific questions, links to suitable additional resources as well as the possibility of more direct contact with teachers. Consultations are perceived by teachers as an effort to improve and are not taken into account in the evaluation of the subject, that is, neither positively nor negatively.

#### 5. Final exam:

- students are eligible for the final exam only if all previous requirements have been met. It is the responsibility of each student to check the fulfillment of requirements as well as the recorded Continuous Assessment in AIS2.
- students register for the exam on available dates in AIS2. Further organizational instructions for the exam will be published in Moodle well in advance.
- **the final exam will have 2 parts: an exam test and an oral exam consisting of a case study solving.**
- both parts of the exam form one unit. Therefore, if a student does not meet the minimum conditions of at least one part of the exam, he/she will have to repeat the exam as a whole, i.e. again both the written and the oral part.
- **examination test:** it will take place in electronic form or in writing. The content of the test are questions from the topics of lectures, e-lectures, and practicals. If the situation does not allow it based on the official regulations and measures, the exam test will be organized online under stricter conditions.
- students must achieve at least 60% of the examination test to be admitted to the oral examination.
- **oral exam will consist of solving a case study:** only students who have passed the examination test are allowed to the oral exam.
- The oral exam will be organized in following manner:
  - o students will randomly choose a complex case study.
  - o to solve the case report, students will be allowed to use the internet on selected computers present in the examination room. Students will NOT be allowed to use their own devices, materials, handouts, notes of any kind, any artificial intelligence (AI) tools, nor the Moodle system. Communication with other people in any form (in person or via electronic media, via social network or via email) is strictly prohibited. Independent activity of students will be essential during the evaluation of their skills and competences.
  - o the oral part of the exam will take place in the form of a discussion on the solution of the case study and related questions between the examiner and the students.



- the minimum score for successfully passing the oral exam is at least 60%.
- **evaluation of the final exam:** the evaluation of the exam test will represent 50% of the final result and the evaluation of the oral part of the exam will represent another 50% of the total result. The calculation will be carried out according to the formula:  
$$\text{final exam evaluation (\%)} = [\text{examination test (\%)} * 0,5] + [\text{oral case report solving (\%)} * 0,5]$$
- the minimum score for successfully passing the entire final exam is 60%. The grade will be determined according to the scale below.
- the students are entitled to one regular and two retake attempts within the available dates published in AIS2. In the case that a student does not appear for the exam date for which he/she was enrolled in AIS2, he/she will be graded Fx in accordance with the Study Regulations.
- all exam dates will be published in AIS2 before the start of the exam period. Students are reminded that additional dates will not be added during the exam period. It is the student's responsibility to plan the exam schedule in advance according to their individual capacities.

Grade scale:

|      |              |
|------|--------------|
| A =  | 100 % - 92 % |
| B =  | 91 % - 84 %  |
| C =  | 83 % - 76 %  |
| D =  | 75 % - 68 %  |
| E =  | 67 % - 60 %  |
| Fx = | < 60 %       |



## 6. Recommended literature and sources:

*Presentations, handouts and materials from lectures, e-lectures and practicals - available in the Moodle of this subject.*

*Online databases:*

- **Lexidrug.** UpToDate Lexidrug Standard. Wolters Kluwer. 2026. Link: <https://online.lexi.com/>
- **European Medicines Agency (EMA).** Link: <https://www.ema.europa.eu/>
- **State Institute for Drug Control Slovak Republic.** (SIDC; Štátny ústav pre kontrolu liečiv). Link: <https://www.sukl.sk/>
- **Cochrane library.** Cochrane. Link: <https://www.cochranelibrary.com/>

*e-books and printed books:*

- **Access Pharmacy.** McGraw Hill. (<https://accesspharmacy.mhmedical.com/>):
  - DiPiro J.T., Yee G.C., Haines S.T., Nolin T.D., Ellingrod V.L., Posey L.M. **DiPiro's Pharmacotherapy: A Pathophysiologic Approach**, 12th Edition. McGraw Hill. 2023 (e-book)
  - Whalen K., Hardin H.C. **Medication Therapy Management: A Comprehensive Approach**, 2nd Edition. McGraw Hill. 2018 (e-book)
- **ProQuest Ebook Central. Proquest – Part of Clarivate.** (<https://ebookcentral.proquest.com/lib/uniba-ebooks/home.action>)
  - Brown M.J., Sharma P., Mir F.A., Bennet P.N.: **Clinical Pharmacology**. 12<sup>th</sup> Edition. Elsevier. 2018 (e-book)
  - McKay G.A., Walters M.R.: **Clinical Pharmacology and Therapeutics**. 9<sup>th</sup> Edition. John Wiley & Sons, Incorporated. 2013 (e-book)
  - Francis S-A, Smith F.J., Malkinson J., Constanti A., Taylor K. **Integrated Pharmacy Case Studies**. Pharmaceutical Press. 2015 (e-book)
  - Nathan A.: **Managing symptoms in the pharmacy**. Second Edition. Pharmaceutical Press. 2012 (e-book)
  - Blenkinsopp A., Paxton P., Blenkinsopp J.: **Symptoms in the Pharmacy: A Guide to the Management of Common Illness**. John Wiley & Sons, Inc. 2008

*Note: other recommended guidelines or relevant resources will be supplemented during lectures and practicals for individual topics/nosological units.*

*Report course-related questions, technical issues with E-Learning related to this course directly to Dr. Dóka or Dr. Kiliánová by email: ([doka@fpharm.uniba.sk](mailto:doka@fpharm.uniba.sk); [kilianova@fpharm.uniba.sk](mailto:kilianova@fpharm.uniba.sk))*

Bratislava, February 6, 2026

prof. PharmDr. Ján Klimas, PhD., MPH  
gestor



### **Recommended prerequisite knowledge for practicals:**

As part of comprehensive preparation for practicals in Clinical Pharmacy and Pharmacotherapy, we recommend that you review the topics listed below. An updated revision of knowledge from previous courses will be helpful to achieve the best possible experience as well as study results.

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Week 1 | <b><u>Drug-related problems and pharmacotherapy optimization plan</u></b> <ul style="list-style-type: none"><li>- classification of pharmacotherapeutic problems:</li><li>- "Classification for Drug-related problems. V9.1 (PCNE)<br/><a href="https://www.pcne.org/upload/files/417_PCNE_classification_V9-1_final.pdf">https://www.pcne.org/upload/files/417_PCNE_classification_V9-1_final.pdf</a></li><li>- medical records (see seminars from winter semester: Clinical pharmacology and pharmacotherapy)</li></ul>                                                                                                                                                                                                                                                                                                                       |
| Week 2 | <b><u>Abdominal, chest and back pain</u></b> <ul style="list-style-type: none"><li>- pathology of common causes of abdominal pain with emphasis on various organ systems, typical symptoms</li><li>- distinguishing the causes of abdominal pain based on accompanying symptoms</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Week 3 | <b><u>Pharmacotherapeutic problems in the treatment of anxiety disorders and insomnia</u></b> <ul style="list-style-type: none"><li>- sleep physiology and sleep disorders</li><li>- anxiety disorders</li><li>- pharmacology: hypnotics, anxiolytics</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Week 4 | <b><u>Analysis of the rational use of antimicrobial drugs</u></b> <ul style="list-style-type: none"><li>- Microbiology: classification Gram-negative/ Gram-positive bacteria, properties of cell walls</li><li>- Pharmacology of antimicrobial drugs registered in the EU (bactericidal/ bacteriostatic action, mechanism of action, indications, typical side effects and contraindications): beta-lactam antibiotics, macrolides, tetracyclines, aminoglycosides, peptide antibiotics, quinolones, sulfonamides</li><li>- Lectures Clinical pharmacology and pharmacotherapy (Winter term 2022):<ul style="list-style-type: none"><li>- Rational antibiotic treatment and its problems, bacterial resistance today (the pharmacist's role)</li><li>- Antibiotics in the treatment of the respiratory and urogenital tract</li></ul></li></ul> |
| Week 5 | <b><u>Treatment options for diarrhea, constipation, and irritable bowel syndrome</u></b> <ul style="list-style-type: none"><li>- anatomy and physiology of the small and large intestine, absorption of electrolytes in the GIT</li><li>- etiopathology of diarrhea and constipation</li><li>- pharmacology of antidiarrheals, laxatives, antispasmodics</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Week 6 | <b><u>Analysis of the rational use of drugs in dyspepsia</u></b> <ul style="list-style-type: none"><li>- Pharmacology of drugs in the groups listed below – mechanism of action, active substances in registered drugs in the EU/SR, indications, typical side effects and contraindications:<ul style="list-style-type: none"><li>- Antacids, H2-antihistamines, Proton pump inhibitors, Prokinetics</li><li>- Eradication of <i>Helicobacter pylori</i></li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                   |



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| Week 7  | <b><u>Treatment of fungal diseases</u></b> <ul style="list-style-type: none"><li>- microbiology - morphology of fungal and yeast cells</li><li>- pathology - types and symptomatology of fungal infections</li><li>- pharmacology of antifungal drugs</li></ul> <i>The e-case report will be published in Moodle</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Week 8  | <b><u>Pharmaceutical counseling in the treatment of diabetes, solving case studies</u></b> <ul style="list-style-type: none"><li>- Physiology of the pancreas:<ul style="list-style-type: none"><li>- mechanism and release of insulin</li><li>- effect of insulin and glucagon</li><li>- regulation of blood glucose level</li></ul></li><li>- Adipokines</li><li>- Determination of glycemia OGTT, HbA1c</li><li>- Pathology of type 1 and 2 diabetes - pathogenesis, symptoms, complications</li><li>- Metabolic syndrome, obesity</li><li>- Pharmacology: insulin, oral antidiabetics</li></ul>                                                                                                                                                                                                                                                                                                                                                 |
| Week 9  | <b><u>Preparation and administration of parenteral drugs in clinical practice - examples from the oncology institute</u></b> <ul style="list-style-type: none"><li>- Lecture Clinical pharmacy and pharmacotherapy: <b>Pharmacist activities within the oncology team</b> (week 7)</li><li>- Resolution CM/Res(2016)2 on good reconstitution practices in health care establishments for medicinal products for parenteral use (<a href="https://www.edqm.eu/en/d/162941">https://www.edqm.eu/en/d/162941</a>)</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Week 10 | <b><u>Pharmaceutical counseling in patients with increased cardiovascular risk</u></b> <ul style="list-style-type: none"><li>- Pharmacology of following drug groups (including their mechanism of action, indications, typical side effects and contraindications): antihypertensives, hypolipidemics</li><li>- Lecture Clinical Pharmacy and pharmacology: Prevention of cardiovascular diseases, lifestyle counseling (week 8)</li><li>- Canada's 2020 hypertension guidelines for pharmacists: An update<br/><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7863283/pdf/10.1177_1715163520975809.pdf">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7863283/pdf/10.1177_1715163520975809.pdf</a></li></ul> <p>2021 ESC Guidelines on cardiovascular disease prevention in clinical practice <a href="https://academic.oup.com/eurheartj/article/42/34/3227/6358713">https://academic.oup.com/eurheartj/article/42/34/3227/6358713</a></p> |
| Week 11 | <b><u>Analysis of the rational use of drugs affecting the cardiovascular system</u></b> <p>Pharmacology of drugs in the groups listed below – mechanism of action, active substances in registered drugs in the EU/SR, indications, typical side effects and contraindications:</p> <ul style="list-style-type: none"><li>- angiotensin-converting enzyme inhibitors</li><li>- angiotensin II receptor blockers</li><li>- calcium channel blockers</li><li>- beta blockers</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



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|         | <ul style="list-style-type: none"><li>- diuretics</li><li>- antihypertensives (peripherally and centrally acting antiadrenergics)</li><li>- peripheral vasodilators</li><li>- cardiac therapy group (including antiarrhythmics, cardiac glycosides, ...)</li><li>- lipid modifying agents (hypolipidemics)</li><li>- antithrombotics</li></ul> <p>Selected guidelines focusing on pharmacotherapy and risk reduction:</p> <ul style="list-style-type: none"><li>- Dyslipidaemia: "2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk" (<a href="https://doi.org/10.1093/eurheartj/ehz455">https://doi.org/10.1093/eurheartj/ehz455</a>)</li><li>- Heart failure: "2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure" (<a href="https://doi.org/10.1093/eurheartj/ehab368">https://doi.org/10.1093/eurheartj/ehab368</a>)</li><li>- Hypertension: "2023 ESH Guidelines for the management of arterial hypertension" (<a href="https://journals.lww.com/jhypertension/toc/2023/12000">https://journals.lww.com/jhypertension/toc/2023/12000</a>)</li><li>- Angina: "2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes" (<a href="https://doi.org/10.1093/eurheartj/ehz425">https://doi.org/10.1093/eurheartj/ehz425</a>)</li></ul> |
| Week 12 | <p><b><u>The treatment of bleeding disorders and prevention of thromboembolic events</u></b></p> <ul style="list-style-type: none"><li>- physiology of blood clotting - coagulation, aggregation</li><li>- pathophysiology of blood clotting disorders, thromboembolic conditions</li><li>- pharmacology of antihemorrhagic drugs, antithrombotics</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Week 13 | <p><b><u>Identification and solving of drug-related problems in a complex case study</u></b></p> <ul style="list-style-type: none"><li>- integration of knowledge and skills from the topics addressed in the subject of Clinical Pharmacy</li><li>- drug-related problems - PCNE classification</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |