

Course descriptions

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COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/01-Bc/24	Course title: Academic English Language Preparation (1)
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: intermediate level of English	
Course requirements: - active presence at seminars - final test with evaluation scale – A (100 – 91%), B (90 – 81%), C (80 – 73%), D (72 – 66%), E (65 – 60%), FX (59 – 0%) - To complete the course, the student must achieve at least 60%. Scale of assessment (preliminary/final): 100 %	
Learning outcomes: After completing the courses a student is able to understand professional texts, reproduce their content orally and in writing, using English professional terminology from the field of human body and the profession of a healthcare professional. Thanks to professional texts a student can use English professional terminology in both professional and non-professional environments.	
Class syllabus: The lessons concentrate on the following topics: the human body, the body systems and their functions, pharmaceutical and medical care, the role of a pharmacist and healthcare professional, services available in in medical device dispensaries and in pharmacies.	
Recommended literature: Hollá, O., Kližanová, D., Žufková, V.: English for Pharmacists I. Bratislava: Vydavateľstvo UK, 2023. 64 s. Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992. 135 s. James, V.D.: Medicine.: London: Prentice Hall, 1989. 150 s. Course Reader I, Grammar Workbook I	
Languages necessary to complete the course: English language	
Notes:	

The courses Academic English Language Preparation (1), (2) and (3) within the Bachelor Study Programme are taught in the range of three semesters. These are narrowly specialized professional seminars that follow the content of professional subjects with their thematic content.

Past grade distribution

Total number of evaluated students: 33

A	ABS	B	C	D	E	FX
24,24	0,0	18,18	15,15	6,06	27,27	9,09

Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Mgr. Natália Kližanová

Last change: 21.05.2025

Approved by: PaedDr. Viera Žufková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/02-Bc/24	Course title: Academic English Language Preparation (2)
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: B2 English level (upper intermediate)	
Course requirements: - active presence at seminars - final test with evaluation scale – A (100 – 91 %), B (90 – 81 %), C (80 – 73 %), D (72 – 66 %), E (65 – 60 %), FX (59 – 0 %) - To complete the course, the student must achieve at least 60%. Scale of assessment (preliminary/final): 100 %	
Learning outcomes: After completing the seminars, students can understand professional texts and reproduce their content orally and in writing, using English terminology from factors influencing health conditions. Students can use the English professional language in professional and non-professional environments thanks to professional texts.	
Class syllabus: The seminars focus on deepening communication skills and learning professional vocabulary. In addition to selected texts from textbooks, promotional materials, manuals, and magazines are used. The lessons concentrate on the following topics: factors influencing our health, pollution of the environment, drug abuse and drug addiction, health care, and the use of selected medical and diagnostic devices in the therapeutic process.	
Recommended literature: Hollá, O., Kližanová, D., Žufková, V.: English for Pharmacists II. Bratislava: Vydavateľstvo UK, 2020. 65 s. Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992. 135 s. James, V. D.: Medicine.: London: Prentice Hall, 1989. 150 s. Course Reader II, Grammar Workbook II	
Languages necessary to complete the course: English language	

Notes:						
Past grade distribution Total number of evaluated students: 9						
A	ABS	B	C	D	E	FX
22,22	0,0	22,22	0,0	22,22	33,33	0,0
Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Mgr. Natália Kližanová						
Last change: 02.08.2024						
Approved by: PaedDr. Viera Žufková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/03-Bc/24	Course title: Academic English Language Preparation (3)
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: B2 English level (upper intermediate)	
Course requirements: - active presence at seminars - final test with evaluation scale – A (100 – 91%), B (90 – 81%), C (80 – 73%), D (72 – 66%), E (65 – 60%), FX (59 – 0%) - to complete the course, the student must achieve at least 60%. Scale of assessment (preliminary/final): 100 %	
Learning outcomes: After completing the courses a student is able to understand professional texts, reproduce their content orally and in writing, using English professional terminology from the field of disease prevention and treatment in emergency situations. Thanks to professional texts a student can use English professional terminology in both professional and non-professional environments.	
Class syllabus: The seminars focus on deepening communication skills and learning professional vocabulary. In addition to selected texts from textbooks, promotional materials, manuals, and magazines are used. The lessons concentrate on the following topics: disease prevention, a healthy way of life, a balanced diet, vitamins, minerals, dietetic food, first aid, and the use of selected medical and diagnostic devices to treat various situations and emergencies.	
Recommended literature: Hollá, O., Jurišová, E., Kližanová, D., Žufková, V.: English for Pharmacists III. Bratislava: Vydavateľstvo UK, 2019. 78 s. Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992. 135 s. James, V.D.: Medicine.: London: Prentice Hall, 1989. 150 s. Course Reader III, Grammar Workbook III	
Languages necessary to complete the course: English language	

Notes:

Academic English Language Preparation within Bachelor's Study Programme is carried out in the Slovak study programme in three semesters. These specialised professional courses' contents closely follow other courses taught in the relevant semesters.

Past grade distribution

Total number of evaluated students: 0

A	ABS	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PhDr. Darina Kližanová, PaedDr. Viera Žufková, PhD.

Last change: 02.08.2024

Approved by: PhDr. Darina Kližanová

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/07-Bc/24	Course title: Analytical principles of diagnostic medical devices, their properties and standardization
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 6	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: Continuous assessment: evaluation of the student's knowledge at the beginning of each laboratory practice in written form, evaluation of the assigned tasks for the exercise and written elaboration of the result of experimental work: a total of 10 points / practice. to successfully complete the exercise, it is necessary to achieve at least 60% of the total number of points. Final assessment after successful completion of the exercise – exam in written and oral form. A minimum of 60% is required to pass the exam. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: After completing the exercises, the student will gain an overview of the use of analytical chemistry and analytical methods used in quantitative analysis of substances, laboratory skills in quantitative analysis methods with emphasis on instrumental analytical methods. The student will gain theoretical and practical knowledge about materials and devices for analytical sampling, analytical reaction to evaluate the quality of materials used and reaction to evaluate samples of biological origin in vitro, but also in vivo.	
Class syllabus: <ul style="list-style-type: none"> • Sample preparation for instrumental analysis. • Pre-analytical phase of laboratory diagnostics. • Chemical reactions in diagnostics. Properties of analytical reagents. • In-vitro diagnostic devices for the determination of the most common analytes. • In-vitro diagnostic devices based on immunochemical and enzymatic reactions. • Methods for quality control of in-vitro diagnostic medical devices. • Standardization in diagnostics - statistical evaluation of analytical results. • Validation and Good Laboratory Practice. • Instrumental analytical methods in diagnostics. • Diagnostic tools based on electrochemical analytical techniques. • Optical analytical methods for diagnostics evaluation of the quality of medical devices. • Separation methods in diagnostics and quality control of medical devices. 	

- Nuclear characteristics of radionuclides. Radiopharmaceuticals, their production and properties. Radiopharmaceutical quality evaluation.
- Nuclear analytical methods (determination of basic characteristics of radionuclides, determination and identification of heavy metals by RRFA method).
- Use of radionuclides in diagnostics and therapy.
- Imaging diagnostic methods, examinations of the function of the thyroid gland, liver, skeleton.

Recommended literature:

- Mikuš, P., Piešťanský, J., Dokupilová, S.: Kvapalinová chromatografia, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, VEDA, Bratislava, 2018. 365s.
- Mikuš, P., Piešťanský, J.: Kapilárna elektroforéza, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, Učebnica pre farmaceutické fakulty a fakulty prírodovedného a technického smeru so zameraním na analytickú chémiu a farmaceutickú chémiu, VEDA, Bratislava, 2014. 312 s.
- Havránek, E., a kol. Rádiofarmaká. Bratislava: UK, 2017.
- Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis. Bratislava: KARTPRINT, 2012. 217 s. (vedecká monografia)
- Havránek, E. a kol.: Laboratórne cvičenia z analytickej chémie III : fyzikálno-chemické metódy. Bratislava: UK, 1998. 91 s. (skriptá).

Languages necessary to complete the course:

slovak language

Notes:

Past grade distribution

Total number of evaluated students: 157

A	ABS	B	C	D	E	FX
10,19	0,0	24,2	23,57	17,2	22,29	2,55

Lecturers: RNDr. Svetlana Dokupilová, PhD., doc. PharmDr. Katarína Maráková, PhD., Ing. Ivan Benkovský, PhD.

Last change: 17.02.2025

Approved by: doc. PharmDr. Katarína Maráková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026						
University: Comenius University Bratislava						
Faculty: Faculty of Pharmacy						
Course ID: FaF/01-Bc/24		Course title: Bachelor Thesis Preparation I				
Educational activities: Type of activities: practicals Number of hours: per week: 4 per level/semester: 56 Form of the course: on-site learning						
Number of credits: 3						
Recommended semester: 4.						
Educational level: I.						
Prerequisites:						
Course requirements:						
Learning outcomes:						
Class syllabus:						
Recommended literature:						
Languages necessary to complete the course:						
Notes:						
Past grade distribution Total number of evaluated students: 14						
A	ABS	B	C	D	E	FX
42,86	0,0	35,71	7,14	0,0	0,0	14,29
Lecturers: doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Ivan Malík, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., Mgr. Róbert Šandrik, PhD., Ing. Stanislava Šoralová, PhD., Ing. Jaroslav Galba, PhD., PharmDr. Vladimír Garaj, PhD., PharmDr. Iva Kapustíková, PhD., PharmDr. Matej Maruniak, PhD., PharmDr. Eva Salanci, PhD., PharmDr. Lenka Stopková, PhD., PharmDr. Eva Malíková, PhD., Mgr. Lenka Bies Piváčková, PhD., doc. PharmDr. Marek Máťuš, PhD., doc. PharmDr. Anna Paul Hrabovská, PhD., PharmDr. Gabriel Dóka, PhD., prof. PharmDr. Adriana Duriš Adameová, DrSc., doc. PharmDr. Tomáš Rajtík, PhD., doc. PharmDr. Tatiana Foltánová, PhD., PharmDr. Katarína Hadová, PhD., Mgr. Ondrej Sprušanský, PhD., PharmDr. Csaba Horváth, PhD., doc. Mgr. Peter Vavrinec, PhD., PharmDr. Zuzana Kiliánová, PhD., PharmDr. Eva Veľasová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Stanislava Kosírová, PhD., PharmDr. Eva Kráľová, PhD., doc. PharmDr. Peter Křenek, PhD., Mgr. Ondrej Ďuriška, PhD., prof. Ing. Miroslav Habán, PhD., PharmDr. Milica Molitorisová, PhD., Ing. Silvia Molnárová, Mgr. Klára Oláhová, PharmDr. Kristína Szmicseková, PhD., doc. PharmDr. Daniela Mináriková, PhD., Ing. Mgr. Ingrid Slezáková, MHA, MPH						
Last change:						

Approved by: doc. Mgr. Martina Hřeka Dubníčková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026						
University: Comenius University Bratislava						
Faculty: Faculty of Pharmacy						
Course ID: FaF/02-Bc/24		Course title: Bachelor Thesis Preparation II				
Educational activities: Type of activities: practicals Number of hours: per week: 8 per level/semester: 112 Form of the course: on-site learning						
Number of credits: 8						
Recommended semester: 5.						
Educational level: I.						
Prerequisites:						
Course requirements:						
Learning outcomes:						
Class syllabus:						
Recommended literature:						
Languages necessary to complete the course:						
Notes:						
Past grade distribution Total number of evaluated students: 11						
A	ABS	B	C	D	E	FX
90,91	0,0	9,09	0,0	0,0	0,0	0,0
Lecturers: doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Ivan Malík, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., Mgr. Róbert Šandrik, PhD., Ing. Stanislava Šoralová, PhD., Ing. Jaroslav Galba, PhD., PharmDr. Vladimír Garaj, PhD., PharmDr. Iva Kapustíková, PhD., PharmDr. Matej Maruniak, PhD., PharmDr. Eva Salanci, PhD., PharmDr. Lenka Stopková, PhD., PharmDr. Eva Malíková, PhD., Mgr. Lenka Bies Piváčková, PhD., doc. PharmDr. Marek Mátuš, PhD., doc. PharmDr. Anna Paul Hrabovská, PhD., PharmDr. Gabriel Dóka, PhD., prof. PharmDr. Adriana Duriš Adameová, DrSc., doc. PharmDr. Tomáš Rajtík, PhD., doc. PharmDr. Tatiana Foltánová, PhD., PharmDr. Katarína Hadová, PhD., Mgr. Ondrej Sprušanský, PhD., PharmDr. Csaba Horváth, PhD., doc. Mgr. Diana Vavrinčová, PhD., doc. Mgr. Peter Vavrínek, PhD., PharmDr. Zuzana Kiliánová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Stanislava Kosírová, PhD., PharmDr. Eva Kráľová, PhD., doc. PharmDr. Peter Křenek, PhD., Mgr. Ondrej Ďuriška, PhD., prof. Ing. Miroslav Habán, PhD., Mgr. Klára Oláhová, PharmDr. Kristína Szmicseková, PhD., doc. PharmDr. Daniela Mináriková, PhD., Ing. Mgr. Ingrid Slezáková, MHA, MPH						
Last change:						
Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.						

STATE EXAM DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/300-Bc/22	Course title: Bachelor's Thesis Defense
Number of credits: 2	
Recommended semester: 5., 6..	
Educational level: I.	
State exam syllabus:	
Last change:	
Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.	

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/13-Bc/24	Course title: Basics of Applied Statistics
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 1 / 2 per level/semester: 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: <p>The student is obliged to complete all seminars designated by the teacher and submit a written project plan in the middle of the semester (0-6 points). Substitution of non-participation in classes is regulated by the subject syllabi. The topic of the project is in the field of health science and on the basis of consultation and approval by the teacher. There will be at least two continuous readiness checks (0-4 points) during the semester. The final evaluation of the student at the seminars will be determined as the sum of the average evaluation of the interim reviews and the evaluation for the elaboration of the project plan. To successfully complete the seminars, it is necessary to obtain at least 6 points.</p> <p>The exam of the subject is combined and consists of the elaboration of the project and the presentation of its results in the form of a defense, which the students complete during the examination period. Acceptance of the written elaboration of the project is conditioned by submitting the project plan and obtaining at least 2 points for the plan. The written work of the project must contain, in addition to the formal requirements specified by the teacher, a complete statistical processing of the approved topic: collection of original data, their pre-processing and presentation, calculations of descriptive and survey characteristics and interpretation of these results. Points are awarded for the written work for the topicality of the topic, the scope of the processed data, the adequacy of the methods used, the accuracy of the calculations and the formal processing of the report. Submission of a written project work is a necessary condition for passing the exam. The presentation is evaluated in the categories of readiness of the presenter, comprehensibility of the presentation, ability to argue, ability to respond to questions and graphic design of the presentation. Points in the range of 0-4 are awarded for each of these categories.</p> <p>The overall evaluation of the student for the subject consists of evaluation at seminars (0-10 points), evaluation of written work (0-20 points) and evaluation of presentation (0-20 points) as a simple sum of points. The maximum point value is 50: A 45-50 points, B 40-44 points, C 36-39 points, D 33-35 points, E 30-32 points.</p>	
Learning outcomes: <p>After completing the course, the student has a basic orientation in applied statistical methods of quality assessment of laboratory and production processes, including evaluation and outputs, in</p>	

methods applied in epidemiology and drug policy and finally in applied statistical procedures of health supply and organization management, can design, plan, manage and evaluate basic statistical observation and simple statistical experiment.

Class syllabus:

The curriculum focuses on basic definitions, interpretation of the problem and the most necessary computational relationships, which are explained by a number of practical examples. Students can deepen the theoretical knowledge acquired in lectures at computing seminars, where the solution of model problems occurring is practiced using ICT.

The exam in the subject consists of elaboration and defense of the year's work, according to the interest of the student and in consultation with the teacher, but it must contain a complete statistical processing and interpretation of the selected pharmaceutical problem.

Recommended literature:

Fazekaš, T.: Moderná aplikovaná štatistika pre farmaceutov. 1st ed. Bratislava: UK, 2000.

Hanousek, J., Charazma, P.: Moderní metody spracování dat : matematická statistika pro každého. Praha: Grada, 1992. 216 p.

Meloun, M., Militký, J.: Statistické zpracování experimentálních dat. Praha: Plus, 1994. 23, 839 p.

Languages necessary to complete the course:

Slovak

Notes:

Past grade distribution

Total number of evaluated students: 0

A	ABS	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: RNDr. Tomáš Fazekaš, PhD., RNDr. Alexander Búcsi, PhD.

Last change: 25.06.2024

Approved by: RNDr. Tomáš Fazekaš, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/09-Bc/24	Course title: Basics of Chemistry of Materials I
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 6	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Substitution of non-participation in classes is regulated by the subject syllabi. During the seminar, each student must write 2 mid-term tests (max. 80 points). To meet the conditions for the exam, the student must obtain more than 60% of the total point value of all tests from seminars. The points obtained from seminars are multiplied by a coefficient of 0.3 and their value constitutes 30% of the exam value in case of successful completion of the exam. The obtained coefficient from seminars is valid only in the academic year in which it was obtained. Exam: Subject exams are held exclusively in written form during the exam period. Participation in the exam is conditioned by completion of the full program of seminar teaching, laboratory exercises and obtaining more than 60% of the total point value from the seminar teaching. Successful completion of the exam is conditioned by obtaining more than 60% of the total point value of the written test. Upon successful completion, the point value of the written test is multiplied by a coefficient of 0.7. The total grade of the exam consists of the value obtained from the seminar teaching (30%) and the exam test (70%). Classification scale of the overall exam result (after considering the result of the interim control): A: 90% – 100.00%; B: 82% - 89.9%; C: 74% - 81.9%; D: 66% - 73.9%; E: 60% - 65.9%; Fx: < 60.0%. Scale of assessment (preliminary/final): 30/70	
Learning outcomes: As a follow-up to middle school studies (especially gymnasium), the subject provides comprehensive training in theoretical general, inorganic, and organic chemistry, expands knowledge about chemical bonding, the origin and chemistry of formation, and the properties of materials used to produce medical and diagnostic aids. It determines the most frequent causes and principle of material changes due to the influence of the environment and other factors.	
Class syllabus: The subject Principles of Material Chemistry I is a basic subject in the comprehensive chemical education of students. It includes topics from general, inorganic and organic chemistry: chemical bond - formation, characterization, stability; state of substances - bonding and non-bonding interactions, their nature and meaning; spatial arrangement of inorganic and organic compounds; hybridization and stereochemistry of systems; conformation, E/Z-isomerism and optical isomerism; protolytic and Lewis theory of acids and bases; acidity and basicity - salinity; classification of	

chemical reactions and reactivity; the relationship between the structure and physical properties of compounds as components of materials used to manufacture medical devices; characteristics, properties of selected elements and their compounds (C, H, O, N, X, Si, P, S, metals); selected chapters from systematic inorganic chemistry focused on the issues of preparation, physico-chemical properties and use of materials of inorganic origin; selected chapters from systematic organic chemistry; a basic overview of the reactions of individual groups of organic compounds according to the specification of the material base used for the production of medical and diagnostic aids; basics of polymer chemistry; natural, modified and synthetic polymers; methods of their preparation; the effect of structure modification on performance properties; the causes and nature of material changes due to the environment and other factors. The subject is comprehensively designed and forms a chemical basis with a focus on the accredited bachelor's study field Medical and diagnostic aids.

Recommended literature:

1. Krätšmár-Šmogrovič, J. a kol.: Všeobecná a anorganická chémia. Martin, Osveta 2007. 400s. (učebnica, vybrané kapitoly).
2. Sokolík, J. a kol.: Názvoslovie, výpočty a príprava vybraných anorganických látok. Bratislava, UK 2010. 141 s.
3. Devínsky, F., Ďurinda, J., Lacko, I.: Organická chémia pre farmaceutov. Martin: Osveta, 2013. 750 s. (učebnica, vybrané kapitoly).
4. Mleziva, J., Šňupárek, J.: Polymery : výroba, štruktúra, vlastnosti a použitie. 2. vyd. Praha: Sobotáles, 2000. 544 s. (monografia, vybraná matéria).
5. Čižmáriková, R. a kol.: Laboratórne cvičenia z organickej chémie. Bratislava: UK, 2012. 116 s.
6. F. Devínsky, J. Heger: Názvoslovie organických zlúčenín. Bratislava, Univerzita Komenského 2000 (skriptá).

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 27

A	ABS	B	C	D	E	FX
0,0	0,0	11,11	25,93	44,44	7,41	11,11

Lecturers: RNDr. Roman Mikláš, PhD., Ing. Patrícia Oláh Paračková, PhD.

Last change: 23.07.2024

Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFCh/09-Bc/24	Course title: Basics of Chemistry of Materials II
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: Recommended subject: Basics of Chemistry of Materials I	
Course requirements: Completion of lectures and laboratory practices. Ongoing evaluation. During the semester, there will be two written tests of 20 points each. The student must obtain at least 12 points (60%) from each test. The exam will be written form. The test contains 25 questions. The questions concern definitions and divisions of certain pharmacological groups, physicochemical properties, and biotransformation of drugs, a configuration of isomers, receptors, main groups of chemical drugs, and evaluation of "structure-activity" relationships. Each question is evaluated for 2 points. An unlimited number of students can register for the test no later than 2 days before the exam date. The test lasts 2 hours. To obtain a rating A, it is necessary to get at least 47 points, to obtain an evaluation B at least 44 points, for rating C at least 39 points, for rating D at least 35 points, and an E rating of at least 30 points. Credits will not be awarded to a student who gets less than 30 points. Scale of assessment (preliminary/final): 50/50	
Learning outcomes: The course basics of chemistry of materials II are based on the knowledge taught by the Department of Chemical Theory of Drugs and extends them to the pharmaceutical- chemical aspects of materials - chemical drugs that are accessories to or fixed components of a medical device, which is categorized as a medical device.	
Class syllabus: In this part, the student will learn the theoretical foundations of projection, preparation, and isolation of drugs as they understand the current state of development of pharmaceutical chemistry. Chemical drug development. The subject of study of pharmaceutical chemistry. Development stages. Basics of creating new drugs. Empirical selection of the 1st and 2nd generation drugs. Rational change in the structure of 3rd generation drugs. Computational methods of projection of 4th generation drugs. Hydrophilic and lipophilic factors in drug chemistry. Salt formation. Solubilizers. Derivatives creation. Isosteres, analogues, homologs, isomers. Spatial factors. Biochemical factors. Substrates as medicaments. Drugs as enzyme inducers. Inhibitors as drugs. Receptors. Drugs and their binding	

to proteins. The main groups of chemical drugs. Evaluation of "structure-activity" relationships of selected pharmacological groups: analgesics-antipyretics and nonsteroidal anti-inflammatory drugs, local anaesthetics as part of gels during endoscopic examinations, accessories for medical devices for the implementation of local anaesthesia – anaesthetics in dentistry, ophthalmology, preparations for disinfection and antiseptics, which are categorized as medical devices and are used in all areas of medicine. Reprofiling of selected chemical drugs. Perspectives of chemical drugs.

Recommended literature:

Andriamainty, F., Malík, I.: Farmaceutická chémia. Vybrané liečivá - ich príprava a štúdium fyzikálno-chemických parametrov. Bratislava, UK 2010. 214 s.

Remko, M., Čižmárik, J.: Vybrané kapitoly z farmaceutickej chémie. Molekulové základy vývoja liečiv. Bratislava, UK 1997. 120 s.

Remko, M., Čižmárik, J., Sivý, J.: Teoretické základy farmaceutickej chémie. Bratislava, UK 1999. 150 s. Remko, M.: Základy medicínskej a farmaceutickej chémie, 3. Vyd. Remedia, Bratislava, SR 2019, 480 s.

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 14

A	ABS	B	C	D	E	FX
21,43	0,0	42,86	7,14	21,43	0,0	7,14

Lecturers: doc. Mgr. Fils Andriamainty, PhD., Mgr. Róbert Šandrik, PhD.

Last change: 02.08.2024

Approved by: doc. Mgr. Fils Andriamainty, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/17-Bc/24	Course title: Basics of Management
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Completion of the course is done by a written exam with a minimum success rate of 60%. Rating: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-65%, E = 64-60%, FX = 59% and less.	
Learning outcomes: By completing the course, the student acquires knowledge of the theory of management and marketing with a focus on the specifics of healthcare. The student knows the basic knowledge of general management, managerial functions, and management as a process in the field of healthcare. He gets an overview of strategic, personnel, financial and crisis management and quality management of health care, team leadership and motivation. The student also gains basic knowledge of marketing (market, segmentation, market position, customers, marketing mix - product, price, distribution, marketing communication) in the field of healthcare and pharmacy.	
Class syllabus: The course presents a selection of thematically specific areas from the extensive issues of management and marketing theory with a focus on the specifics of management and marketing in healthcare and pharmacy: <ul style="list-style-type: none"> - General theory in management, manager's thinking, and directions. - Management as a process. - Managerial functions - management, decision-making, planning, control, leadership. - Strategic management. - Financial management. - Organization, organizational structure - personnel management. - Management and quality control. - Team leadership and motivation. - Specifics of healthcare management and managers. - Crisis management in healthcare. - Specifics of management procedures in pharmacy - patient and medical facility management. - Basics of marketing in pharmacy - market, segmentation, market position, customer, marketing mix (product, price, distribution, marketing communication). Advertising in pharmacy. - Marketing of medical devices. 	

- Marketing of medical equipment - pharmacy, dispensary of medical devices.						
Recommended literature: Foltán V. a kol.: Manažment, marketing a lieky, Herba 2010. Ozorovský V. a kol.: Zdravotnícky manažment a financovanie, Bratislava, Wolters Kluwer 2016 Kotler P.: Marketing a management, Grada, 2001 Jakušová V.: Základy zdravotníckeho manažmentu, Osveta Martin, 2010. Sedlák M.: Základy manažmentu, IURA Edition 2008. Karlíček M.: Základy marketingu, Grada 2013 Metyš K., Balog P.: Marketing ve farmácii, Grada 2006 Mináriková D. a kol.: Zdravotnícke pomôcky - legislatíva a regulácia, Osveta 2015 Zákon č. 147/2001 Z.z. o reklame a o zmene a doplnení niektorých zákonov						
Languages necessary to complete the course: Slovak language.						
Notes:						
Past grade distribution Total number of evaluated students: 188						
A	ABS	B	C	D	E	FX
13,83	0,0	17,02	20,74	25,53	18,62	4,26
Lecturers: doc. PharmDr. Daniela Mináriková, PhD., prof. PharmDr. Tomáš Tesař, PhD., MBA						
Last change: 03.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/19-Bc/24	Course title: Basics of Psychology, Medical Ethics and Communication
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: The student completes the lectures and the seminar in full. Compensation for absence is specified in the course syllabus. The exam performed by the written test with a minimum success rate of 60%. The assessment: A: 93-100%, B: 85-92%, C: 77-84%, D: 69-76%, E: 60-68%, Fx:= less than 60%. Scale of assessment (preliminary/final): Intermediate/final grade weighting: 0/100.	
Learning outcomes: After completing the course, the student will gain a basic overview of patient psychology, diseases and pharmacists, information about basic personality types, assertive behaviour, gain knowledge of how to manage conflict situations, stress, how to properly communicate with the elements of verbal and nonverbal communication, how to prepare for public performance, how to communicate with patients, colleagues, other healthcare professionals, the pharmaceutical industry, insurance companies or the media. After completing the course, the student also learns basic terminology and definitions in the philosophy of ethics, morality, and ethics, gains a basic overview of the history of medical ethics and its developmental stages, basic knowledge of biomedical ethics and deontology, the Universal Declaration of Human Rights, and information on the origins, mission and types of ethics committees and the rights of patients and health professionals. The student will learn about ethical issues in gynaecology, paediatrics, and geriatrics.	
Class syllabus: 1. Introduction to health psychology 2. Psychology of the patient and diseases, personality and psychology of the health worker 3. Social interaction and communication 4. Verbal and nonverbal communication in the work of a healthcare professional 5. Stress and how to fight it 6. Conflicts and possible solutions 7. Teamwork in healthcare, team leadership 8. Public speech, job interview, self-presentation 9. Introduction to ethics, basic concepts, and definitions.	

10. History of medical ethics.
11. Universal Declaration of Human Rights.
12. Biomedical ethics.
13. Basic ethical principles in medicine.
14. Code of ethics, deontology.
15. Ethics committees - establishment, mission and types of ethics committees.
16. Rights of patients and health professionals.
17. Ethical problems in gynaecology.
18. Ethical problems in paediatrics, rights of children.
19. Ethical problems in geriatrics.

Recommended literature:

1. Zacharová, E., a kol.: Zdravotnícká psychologie, Praha, Grada 2007, 232 s.
2. Říčan, P.: Psychologie osobnosti. Praha Grada, 2007, 200 s.
3. Kollárik, T.: Sociálna psychológia. Bratislava, UK, 2004, 548 s.
4. Bruno, T., Adamczyk, G.: Řeč těla, Praha, Grada, 2005, 112 s.
5. Morovicsová, E., a kol.: Komunikácia v medicíne, UK Bratislava, 2011, 212 s.
6. Tóth, K., a kol.: Právo a zdravotníctvo, Herba Bratislava, 2008, 388 s.
7. Tóth, K.: Organizácia štátnej správy a správne konanie pre sociálne štúdie. Herba Bratislava, 2011, 80 s.
8. Aktuálna zdravotnícka legislatíva
9. Munzarová M.: Lékařský výzkum a etika, Praha, Grada 2005, 120 s.
10. Munzarová M.: Zdravotnícká etika od A do Z, Praha, Grada 2005, 153 s.
11. Šoltés L.: Pullmann R. a kol.: Vybrané kapitoly z medicínskej etiky, Martn, Osveta 2008, 257 s.
12. Kišš L.: Sociálna etika: Bratislava UK, 2006, 385 s.
13. Šimek, J., Špalek V.: Filozofické základy lékařské etiky, Praha, Grada 2003, 113 s.
14. Kutnohorská J.: Etika v ošetrovatelství, Praha, Grada 2007, 163 s.

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 159

A	ABS	B	C	D	E	FX
36,48	0,0	22,64	23,27	10,69	5,03	1,89

Lecturers: PharmDr. Ľubica Lehocká, PhD., PharmDr. Lucia Masaryková, PhD.

Last change: 03.08.2024

Approved by: doc. PharmDr. Daniela Mináriková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/09-Bc/15	Course title: Basics of the Latin Language for a Healthcare Professional (1)
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: Active participation, taking the final test with a success rate of at least 60%. Grading scale: 100 – 91% = A 90 – 81% = B 80 – 73% = C 72 – 66% = D 65 – 60% = E 59 – 0% = Fx Scale of assessment (preliminary/final): 0/100	
Learning outcomes: By completing the course, the student will acquire theoretical knowledge and cognitive skills in the Latin language, focusing on developing professional medical, anatomical, and clinical–pathological lexis. The student will understand the basics of medical and healthcare terminology and be able to use it competently in practice.	
Class syllabus: The seminars focus on acquiring basic morphological phenomena of Latin grammar with a focus on Latin medical terminology. The following topics are covered: 1. introduction to the study of the Latin language and the structure of professional terms; 2. Latin nouns of 1st to 5th declension; 3. Latin adjectives of 1st to 3rd declension; 4. the conjugation system of Latin verbs; 5. prepositional phrases.	
Recommended literature: <ul style="list-style-type: none"> • KÁBRT, Jan. Latinský jazyk. Martin: Osveta, 2010. ISBN 978-80-8063-353-0. • IVANOVÁ, Alena. Cursus Latinus Medicinalis – Úvod do lekárskej terminológie. Bratislava: Univerzita Komenského, 2013. ISBN 978-80-223-3370-0. • BUJALKOVÁ, Mária. Medicínska terminológia pre nelekárske zdravotnícke odbory. Bratislava: Univerzita Komenského, 2006. ISBN 80-223-2076-5. • ŠIMON, František. Latinská lekárska terminológia. Martin: Osveta, 1990. 80-217-0297-4. 	

Languages necessary to complete the course: Slovak						
Notes:						
Past grade distribution Total number of evaluated students: 409						
A	ABS	B	C	D	E	FX
28,61	0,0	21,03	23,23	11,0	12,22	3,91
Lecturers: Mgr. Nicola Sipekiová, PhD.						
Last change: 03.08.2024						
Approved by: Mgr. Nicola Sipekiová, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/10-Bc/15	Course title: Basics of the Latin Language for a Healthcare Professional (2)
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Type, volume, methods and workload of the student - additional information .	
Number of credits: 2	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Active participation, taking the final test with an overall success rate of at least 60%. Grading scale: 100 – 91% = A 90 – 81% = B 80 – 73% = C 72 – 66% = D 65 – 60% = E 59 – 0% = F _X Scale of assessment (preliminary/final): 0/100	
Learning outcomes: By completing the course, the student will acquire a set of theoretical knowledge and cognitive skills in Latin and partly in Greek, with a focus on acquiring professional medical – anatomical and clinical-pathological – lexis. The student will understand Latin and Greek terminology in the field of medicine and health care and be able to use it competently in practice.	
Class syllabus: The seminars focus on acquiring basic morphological phenomena of Latin grammar with a focus on Latin-Greek medical terminology. The following topics are covered: 1. comparison of adjectives, comparatives, and superlatives in anatomical terminology; 2. adverbs, comparison of adverbs; 3. numerals; 4. Greek nouns; 5. basics of medical prescription terminology; 6. word formation – meaning of prefixes and suffixes; 7. word formation – compound words; 8. structure of the Latin prescription, basic prescription abbreviations.	
Recommended literature: <ul style="list-style-type: none"> • KÁBRT, Jan. Latinský jazyk. Martin: Osveta, 2010. ISBN 978-80-8063-353-0. • IVANOVÁ, Alena. Cursus Latinus Medicinalis – Úvod do lekárskej terminológie. Bratislava: Univerzita Komenského, 2013. ISBN 978-80-223-3370-0. 	

<ul style="list-style-type: none"> • BUJALKOVÁ, Mária. Medicínska terminológia pre nelekárske zdravotnícke odbory. Bratislava: Univerzita Komenského, 2006. ISBN 80-223-2076-5. • ŠIMON, František. Latinská lekárska terminológia. Martin: Osveta, 1990. 80-217-0297-4. 						
Languages necessary to complete the course:						
Slovak						
Notes:						
Past grade distribution						
Total number of evaluated students: 362						
A	ABS	B	C	D	E	FX
25,41	0,0	24,31	21,55	12,15	12,98	3,59
Lecturers: Mgr. Nicola Sipekiová, PhD.						
Last change: 03.08.2024						
Approved by: Mgr. Nicola Sipekiová, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KZT/01-Bc/25	Course title: Classification of Medical Devices
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 6 / 1 per level/semester: 84 / 14 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Attendance at lectures is mandatory. Compensation for non-attendance is regulated by the subject syllabus. During the semester, the student undergoes two intermediate assessments in the form of a test. The semester ends with a semester oral exam. Rating: A: 93.00-100.00%, B 85.00- 92.00%, C: 77.00-84.00%, D: 69.00-76.00%, E: 60.00-68.00%, Fx:59.99% and less. Scale of assessment (preliminary/final): 30/70	
Learning outcomes: The course is an introduction to a field of medical devices and in vitro diagnostic medical devices. By completing the course, the student acquires basic knowledge about the importance of medical devices (MD) and their place in the health system in the field of prevention, diagnosis, treatment, disease screening and monitoring of proper treatment and use of medical devices in accordance with their intended purpose. The student understands and knows how to classify and sort medical devices according to several criteria, risk degrees including. The student acquires basic knowledge of technical requirements and conformity assessment procedures of MD. The aim of the course is to teach student to understand connections between the attribute of quality and safety of MD in a context of its properties, material requirements, functionality, proper handling, the importance of clinical trials, etc. The teaching is enriched using many examples of the most used MDs in preventive and curative care. They shall become familiar with the proper handling of in vitro medical devices (IVD), focusing on errors in the pre-analytical, analytical, and post-analytical phases. The basic knowledge of the course Classification of Medical Devices is specifically aimed on further developed of the student knowledge, skills and capabilities in the following subjects Technological Aspects of Medical Devices I and Technological Aspects of Medical Devices II.	
Class syllabus: The student gains an overall overview of the handling of medical devices from the production process through the requirements for clinical trials, placing on the market, their distribution, storage, reprocessing of medical devices intended for its reuse and up to discard a product out of the market and or to ensure the most ecologic disposal. Specific examples are illustrative as part of the	

introduction. Part of the teaching is become familiar with the applicable legal norms of national and European legislation, which is the main legislative platform for MD and IVD regulation for EU member states.

1. Terminology and definitions of medical devices with examples
2. Life cycle of the medical device
3. Classification, regulations, approval, registration/notification, distribution of medical devices to healthcare institutions,
4. Quarantine, decommissioning and disposal of MD
5. Division of medical devices according to several criteria: medical device, in vitro diagnostic medical device, special medical material, medical imaging technology, software, etc.
6. The role of the medical device in preventive and curative and nursing healthcare
7. Vigilance — safety, quality and purpose surveillance system for medical devices, medical device malfunctions, accidents, and failures
8. Rules for classifying medical devices according to the degree of risk of infection
9. Disposable medical device
10. Medical device intended by the manufacturer for repeated use in preventive and curative care
11. Custom-made medical device
12. Importance of medico-economic analysis
13. Use of the National Information System in relation to a medical device
14. In vitro diagnostic medical devices for self-monitoring

Recommended literature:

Trnava: Typi Universitatis Tyrnaviensis, 2021, 256 s. ISBN 978-80-568-0246-5

Foltán, V. 2010. Sociálna farmácia a zdravotníctvo. Martin: Osveta, 2010. 1. vyd., 203 s. ISBN 978-80-8063-333-2

Ecker, W. 2019. Medical Devices and IVDs. Market Access under the new EU-Regulations. National Library of Germany. Edition by Dr. Wolfgang Ecker, 2nd. edition, Feb 2019. 239 p. ISBN 978-3-7481-3746-7

Ecker, W., Labek, G., Mittermayr, T. et al. 2020. Clinical Evaluation and Investigation of Medical Devices under the new EU-regulation. National Library of Germany. Edition by Michael Ring, 2020. 260 p. ISBN 978-3-7519-3766-5

Kolář, J., Malý, J. 2005. Zdravotnícké prostriedky 1. Třídění zdravotníckých prostriedků podle charakteru materiálů. Veterinárná a Farmaceutická Univerzita Brno, Farmaceutická Fakulta, 2005. 142 s. ISBN 80- 7305-545-7

Mináriková, D., et al. 2015. Zdravotnícke pomôcky. Legislatíva a regulácia. Vysokoškolská učebnica. Martin: Osveta, 2015. 1. vyd., 222 s. ISBN 978-80-8063-418-6

Kudlejová M., a kol.: Inštrumentovanie, princípy, techniky, zásady a postupy Martin 2014, Osveta ISBN 978-80-8063-423-0

Čižmariková M., Takáč P.: Liekové formy a aplikačné cesty podávania liekov so zameraním na ich význam v humánnej medicíne, Košice 2019 Šafárik Press, ISBN 978-80-8152-753-1.

Kozierová B., a kol.: Ošetrovateľstvo I a II, Martin, Osveta 2004 ISBN 8021705280

Sádecká J, Netriová J: Analytické metódy v klinickej chémii vydavateľstvo STU Bratislava 2022. ISBN 9788022751681

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution						
Total number of evaluated students: 0						
A	ABS	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PharmDr. Janka Kubíková, PhD., MPH, PharmDr. Milica Molitorisová, PhD., Ing. Silvia Molnářová, PharmDr. Zuzana Bařová, PhD., PhDr. Iveta Béressová, PharmDr. Attila Kulcsár, PhD., PharmDr. Eva Rybářová						
Last change: 30.05.2025						
Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.						

STATE EXAM DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/100-Bc/22	Course title: Diagnostic Devices
Number of credits: 2	
Recommended semester: 5., 6..	
Educational level: I.	
<p>Course requirements: Conditions for passing the state exam: Successful completion of all compulsory subjects of the recommended Bc. study plan with a minimum number of 174 credits for subjects taken during the study Scale of assessment (preliminary/final): 0/100</p>	
<p>Learning outcomes: After completing the course, the student gains an overview of the use of analytical chemistry and the analytical methods used in quantitative analysis of substances, laboratory skills in methods of quantitative analysis with an emphasis on instrumental analytical methods. The student gains theoretical and practical knowledge of materials and aids for analytical sampling, has got a know how to carry out analytical reactions allowing evaluation of the quality of the materials used, reactions for the evaluation of samples of biological origin in vitro, as well as in vivo.</p>	
<p>Class syllabus: The content of the state subject Diagnostic Devices includes knowledge and basics in analytical methodology of 17 thematic areas:</p> <ol style="list-style-type: none"> 1. Analyzed samples in laboratory diagnostics. 2. Preparation of samples for instrumental analysis, their collection, transport, adjustment for analysis, prevention of deterioration of samples, analysis protocol. 3. Pre-analytical phase of laboratory diagnostics and devices in the pre-analytical phase of laboratory diagnostics 4. Types of reactions most often used in diagnosis (chemical, enzymatic, RIA methods). Features of analytical reagents. 5. Standardization in chemical diagnostics, errors of analytical methods, statistical evaluation of the results of analysis. 6. Methods and procedures in diagnosis according to the level of reliability. Definitive methods, reference methods, routine methods. Reference materials used in laboratory diagnostics. 7. Diagnostic kits (one- and two-stage method) and their manufacture. Diagnostic strips, visual evaluation, evaluation by instrumental methods. Automatic analyzers in clinical biochemical laboratories. 8. Chemical diagnostic aids in the determination of the most common analytes. 9. Use of in vitro medical diagnostic devices in clinical biochemistry. 10. Instrumental analytical methods in diagnosis. 11. Electrochemical methods (electrochemical methods of element analysis). Potentiometry, principle. The use of ion-selective electrodes in diagnostics. 12. Spectral methods (use of optical methods to evaluate the quality of diagnostic and medical devices) 	

13. Instrumental analytical methods of element analysis (RFA, AAS, AES), principle and their application.
14. Separation methods in the evaluation of chemical and diagnostic devices (chromatographic methods with UV and VIS detection, electromigration methods with spectrometric evaluation).
15. Nuclear characteristics of radionuclides. Nuclear analytical methods (determination of the basic characteristics of radionuclides, determination and identification of heavy metals by RRFA).
16. Radiopharmaceuticals, their production and properties. Characteristics and significance of radiopharmaceuticals, quality evaluation of radiopharmaceuticals.
17. Use of radionuclides of labeled substances in research, diagnosis and therapy. Imaging of organs and investigation of organ functions using radiopharmaceuticals (in vivo).

State exam syllabus:

The content of the state exam of the Diagnostic Devices results from the syllabus related to analytical methodology of 17 thematic areas:

1. Analyzed samples in laboratory diagnostics.
2. Preparation of samples for instrumental analysis, their collection, transport, adjustment for analysis, prevention of deterioration of samples, analysis protocol.
3. Pre-analytical phase of laboratory diagnostics and devices in the pre-analytical phase of laboratory diagnostics
4. Types of reactions most often used in diagnosis (chemical, enzymatic, RIA methods). Features of analytical reagents.
5. Standardization in chemical diagnostics, errors of analytical methods, statistical evaluation of the results of analysis.
6. Methods and procedures in diagnosis according to the level of reliability. Definitive methods, reference methods, routine methods. Reference materials used in laboratory diagnostics.
7. Diagnostic kits (one- and two-stage method) and their manufacture. Diagnostic strips, visual evaluation, evaluation by instrumental methods. Automatic analyzers in clinical biochemical laboratories.
8. Chemical diagnostic aids in the determination of the most common analytes.
9. Use of in vitro medical diagnostic devices in clinical biochemistry.
10. Instrumental analytical methods in diagnosis.
11. Electrochemical methods (electrochemical methods of element analysis). Potentiometry, principle. The use of ion-selective electrodes in diagnostics.
12. Spectral methods (use of optical methods to evaluate the quality of diagnostic and medical devices)
13. Instrumental analytical methods of element analysis (RFA, AAS, AES), principle and their application.
14. Separation methods in the evaluation of chemical and diagnostic devices (chromatographic methods with UV and VIS detection, electromigration methods with spectrometric evaluation).
15. Nuclear characteristics of radionuclides. Nuclear analytical methods (determination of the basic characteristics of radionuclides, determination and identification of heavy metals by RRFA).
16. Radiopharmaceuticals, their production and properties. Characteristics and significance of radiopharmaceuticals, quality evaluation of radiopharmaceuticals.
17. Use of radionuclides of labeled substances in research, diagnosis and therapy. Imaging of organs and investigation of organ functions using radiopharmaceuticals (in vivo).

Recommended literature:

- Mikuš, P., Piešťanský, J., Dokupilová, S. 2018. Kvapalinová chromatografia, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, VEDA, Bratislava, 2018. 365 s.

- Mikuš, P., Piešťanský, J. 2014. Kapilárna elektroforéza, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, Učebnica pre farmaceutické fakulty a fakulty prírodovedného a technického smeru so zameraním na analytickú chémiu a farmaceutickú chémiu, VEDA, Bratislava, 2014. 312 s.
- Chromý, V. a kol. 2002. Bioanalytika, Analytická chemie v laboratorní medicíně. Masarykova Univerzita v Brně, 2002. 267 s.
- Králová, B., Fukal, L., Rauch, P. 2001. Bioanalytické metody. Praha : Vysoká škola chemickotechnologická, 2001. S. 254.
- Tekeľ, J., Mikuš, P. 2005. Vybrané kapitoly z analytickej chémie: analýza látok v biologických systémoch. Bratislava, Vydavateľstvo UK 2005, s. 194.

Last change: 30.08.2022

Approved by: doc. Mgr. Martina Hrčka Dubníčková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/10-Bc/24	Course title: Diagnostic Immunonology
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: During the semester there will be 2 written tests, for successful completion it is necessary to obtain at least 60% of points from each of them. The student can have justified max. 2 exercises, the preparation of which will be tested. The student must submit correctly prepared and evaluated protocols from all completed exercises. The final exam will be in written and oral form and for its successful completion it is necessary to obtain at least 60% of points.	
Learning outcomes: The student will gain knowledge about the function of the immune system and get acquainted with the diagnosis of the human immune profile, diagnostic methods, and preparations for the examination of cellular and humoral immunity. He/She will understand the principles of immunochemical techniques used to isolate and evaluate selected immune factors, procedures used in the preparation and purification of vaccines, immunosera and other immunological diagnostics.	
Class syllabus: The course deals with the immune system and diagnostic methods used to evaluate it. It deals with the preparation and purification of antigens and antibodies for diagnostics, evaluation of cellular and humoral immunity factors and immunochemical techniques. The course deals with the latest modern techniques for the preparation of recombinant and subunit vaccines, monoclonal antibodies, and immunodiagnostic kits. A separate part consists of immunoanalytical techniques used for the detection of antigens and antibodies.	
Recommended literature: Kiňová Sepová H., Bilková A., Hrčka Dubničková M., Dudík B.: Imunologické metódy: princípy a návody na cvičenia. Bratislava: UK, 2021. 147 s. Buc, M: Základná a klinická imunológia. Bratislava : Veda, 2012. 831 s. Kolektív autorov: Vyšetrovacie metódy v imunológii. Bratislava: UK 2014. 190 s.	
Languages necessary to complete the course: Slovak language.	
Notes:	

Past grade distribution						
Total number of evaluated students: 13						
A	ABS	B	C	D	E	FX
7,69	0,0	0,0	30,77	30,77	15,38	15,38
Lecturers: doc. Mgr. Andrea Bilková, PhD., PharmDr. Hana Kiňová Sepová, PhD., doc. Mgr. Martina Hřčka Dubničková, PhD., Mgr. Jana Hricovíniová, PhD., Mgr. Eva Drobná, PhD., PharmDr. Gabriela Greifová, PhD.						
Last change: 28.04.2025						
Approved by: PharmDr. Hana Kiňová Sepová, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFT/15-Bc/24	Course title: First Aid
Educational activities: Type of activities: practicals / lecture Number of hours: per week: 1 / 1 per level/semester: 14 / 14 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements:	
Learning outcomes: First aid should be a natural part of general care of persons affected by a sudden damage to their health. Pharmacists as healthcare workers must master the basics of first aid and, if necessary, they must be able to provide expert first aid treatment to an affected person before the arrival of a doctor of medicine.	
Class syllabus: Characteristics of the subject, basic concepts, aims of the subject, legislation. Motivational background of first aid provision (personal and legal). Basic life functions. Respiratory system, heart and blood circulation, relation to first aid. Transport of oxygen. Diagnostics of the basic life functions. Basic life-saving procedures. General principles of first aid provision. Basic support of life functions. Cardiopulmonary resuscitation. Automatic external defibrillation. Acute coronary syndrome - prevention and first aid. Sudden stroke - prevention and first aid. Disturbances of respiration, suffocation, first aid. Convulsive states. Unconsciousness, intoxications. Severe injuries. Injuries, bleeding. Shock - causes, symptoms, first aid. Burns and scalding. Effects of extreme temperatures (hypothermia, overheating, heatstroke). Injury due to electrical current. Accidents with a mass injury of persons. Practice of resuscitation.	
Recommended literature: Kalig K.: Prvá pomoc pre tých, čo ju poskytujú, a pre tých, čo ju potrebujú. Rescue Man, 2008 Van de Velde S et al.: European first aid guidelines, Resuscitation, 2006 Miriana Pištejová, Dušan Kraus: Prvá pomoc v praxi, Rokus 2017 Robin Šin, Petr Štourač a Jana Vidunová: Lékařska první pomoc, Galén 2019 Viliam Dobiaš: Volali ste záchranku? Dixit 2020 Viliam Dobiaš: 5P. Prvá pomoc pre pokročilých poskytovateľov. II. rozšírené vydanie. Dixit 2022 Masár O a kol.: PRVÁ POMOC PRE MEDIKOV. Univerzita Komenského v Bratislave, 2012. ISBN 978-80-223-3257-6. Online https://www.fmed.uniba.sk/fileadmin/lf/sluzby/akademicka_kniznica/PDF/Elektronicke_knihy_LF_UK/Prva_pomoc_pre_medikov.pdf	

International First Aid and Resuscitation Guidelines 2020. International Federation of Red Cross and Red Crescent Societies, Geneva, 2020. 1303500 05/2016 E. Online: https://www.ifrc.org/sites/default/files/2022-02/EN_GFARC_GUIDELINES_2020.pdf

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 13

A	ABS	B	C	D	E	FX
46,15	0,0	30,77	7,69	7,69	0,0	7,69

Lecturers: PharmDr. Dominika Dingová, PhD., doc. PharmDr. Tomáš Rajtík, PhD., PharmDr. Csaba Horváth, PhD., MUDr. Karol Kálig, CSc.

Last change: 25.06.2024

Approved by: doc. PharmDr. Tomáš Rajtík, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/27-Bc/22	Course title: Fundamentals of Law for Healthcare Professionals
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 1 / 2 per level/semester: 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: During the semester, two practical cases will be solved using uncommented legislation of 25 points each. Credits will not be awarded to a student who obtains less than 12 points from any written test. The minimum success limit for both written tests is 60 %. Evaluation scale: A: 92-100%, B: 83-91%, C: 76-82%, D: 68-75%, E: 60-67%, Fx: 59% and less.	
Learning outcomes: Student receive an overview and practical skills in those areas of law with which he will come into contact after graduation as an economically active person, especially in the field of liability law, civil, labor and administrative law.	
Class syllabus: 1. Introduction to legal disciplines - legal norms, principles, general concepts. 2. Basics of civil law - Act No. 40/1964 Coll. Civil code. 3. Civil, criminal, disciplinary and contractual liability for damage/injury. 4. Introduction to employment law. 5. Employment relationship - pre-contractual relations, commencement and termination of employment. 6. Rights and obligations of the contracting parties. 7. Job description and work discipline. 8. Responsibility in labor law. 9. Decisions, applications. 10. Administrative proceedings - administrative bodies, procedural parties, representation.	
Recommended literature: platné právne normy – najmä zákon č. 40/1964 Zb. občiansky zákonník, zákon č. 71/1967 Zb. správny poriadok a zákon č. 311/2001 Z. z. zákonník práce	
Languages necessary to complete the course: Slovak language	
Notes:	

Past grade distribution						
Total number of evaluated students: 5						
A	ABS	B	C	D	E	FX
60,0	0,0	20,0	0,0	20,0	0,0	0,0
Lecturers: prof. PharmDr. Tomáš Tesař, PhD., MBA						
Last change: 02.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFT/20-Bc/24	Course title: Fundamentals of Pharmacology (1)
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: It is required that the students attend lectures and practicals, pass a written exam, with a result of minimum 60%. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Student shall adopt an overview of pharmacology in general, learn about mechanisms of drug action as well as their fate in the body, learn about therapeutic and adverse effects of drugs and gain a basic overview of drugs acting on central and peripheral nerve systems, skeletomusculst system and smooth muscle.	
Class syllabus: Pharmacology and toxicology, general terms, placement in the system of sciences. Terminology, drug, medicine, nomenclature. Pharmacokinetics. Pharmacodynamics, drug actions and their mechanisms. Development of new drugs and medicines. Risks associated with the use of drugs, interactions. Drugs acting on the nerve systems. Toxicology of drugs. Drug abuse, addiction. Psychoactive drugs. Drugs acting on peripheral nerve systems. Drugs acting on pain. Drugs influencing skeletomuscular system. Drugs acting on smooth muscle.	
Recommended literature: Votava M, Slíva J: Farmakologie v kostce. Triton 2021. ISBN 9788075538932 Mirossay L, Mojžiš J. a kolektív: Základná farmakológia a farmakoterapia, Equilibria s.r.o., Košice 2021	
Languages necessary to complete the course: Slovak	
Notes:	

Past grade distribution						
Total number of evaluated students: 26						
A	ABS	B	C	D	E	FX
0,0	0,0	19,23	34,62	30,77	11,54	3,85
Lecturers: doc. PharmDr. Peter Křenek, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. PharmDr. Adriana Duriš Adameová, DrSc., doc. Mgr. Diana Vavrincová, PhD., PharmDr. Gabriel Dóka, PhD., Mgr. Izabela Jarabicová, PhD., PharmDr. Kristína Szmicseková, PhD.						
Last change: 22.07.2024						
Approved by: doc. PharmDr. Peter Křenek, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026						
University: Comenius University Bratislava						
Faculty: Faculty of Pharmacy						
Course ID: FaF.KFT/21-Bc/24			Course title: Fundamentals of Pharmacology (2)			
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning						
Number of credits: 2						
Recommended semester: 4.						
Educational level: I.						
Prerequisites:						
Course requirements: The requirement for passing the subject is the presence at lectures and practical exercises, passing a written test at the exercises with a minimum of 60% success rate, passing a written exam during the examination period, with a minimum of 60%.						
Learning outcomes: The students shall adopt an overview of drugs influencing the blood, cardiovascular system, gastrointestinal system, endocrine glands and their diseases, during practical exercises, they shall become acquainted with principles of pharmacodynamics and pharmacokinetics, medical devices used for the therapeutic monitoring of diabetes and hypertension.						
Class syllabus: Drugs influencing blood and its functions. Drugs acting on the cardiovascular system. Drugs acting on the gastrointestinal system. Antimicrobial drugs. Pharmacology of hormones. Antihypertensives. Antidiabetic drugs. Anticancer drugs. Biological drugs. Locally acting drugs.						
Recommended literature: Votava M, Slíva J: Farmakologie v kostce. Triton 2021. ISBN 9788075538932 Mirossay L, Mojžiš J. a kolektív: Základná farmakológia a farmakoterapia, Equilibria s.r.o., Košice 2021						
Languages necessary to complete the course: Slovak language						
Notes:						
Past grade distribution Total number of evaluated students: 167						
A	ABS	B	C	D	E	FX
9,58	0,0	24,55	16,77	19,16	25,75	4,19

Lecturers: doc. PharmDr. Peter Křenek, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. PharmDr. Adriana Duriš Adameová, DrSc., PharmDr. Eva Veľasová, PhD., PharmDr. Kristína Szmicseková, PhD., doc. Mgr. Peter Vavrínek, PhD., doc. Mgr. Diana Vavrincová, PhD.

Last change: 23.07.2024

Approved by: doc. PharmDr. Peter Křenek, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/05-Bc/22	Course title: Health Economics
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 5.	
Educational level: I.	
Prerequisites:	
Course requirements: 1. Obligatory participation in seminars. Absence on the seminar must be proved by the reason for absence and the seminar must be replaced in agreement with the teacher. 2. Continuous test with a minimum success rate of 60%. In the case of 59% and less, the student has one alternative attempt. 3. Only students who have met the above conditions are accepted for the exam (required participation in seminars, continuous test at least 60%). Completion of the course is done by a written exam with a minimum success rate of 60%. Rating: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-65%, E = 64-60%, FX = 59% and less.	
Learning outcomes: By completing the course, the student will gain basic theoretical knowledge of economics in health care, understand the system of health care financing, the principles of health insurance, pricing, and reimbursement of medical devices.	
Class syllabus: 1. Health economics and healthcare. Healthcare delivery systems in Slovakia and the EU. 2. Basic concepts of health systems. Basic models of health systems. 3. Health care reforms in the Slovak Republic. Provision of health care in the Slovak Republic. Management and supervision of health care in the Slovak Republic. 4. Health care financing. Financial flows, sources, and methods of health care financing. Types of financing health care providers in the Slovak Republic. 5. Health insurance in the Slovak Republic. Revenues and redistribution of public health insurance. Health care expenditure. 6. Principles of pricing and reimbursement of medical devices in the Slovak Republic. 7. Pharmacoeconomics as a part of health care cost regulation. Health policy and evaluation of health technologies. Medical and economic analysis of medical devices. 8. Cross-border health care in the Slovak Republic. 9. DRG system and its implementation in Slovakia. 10. Enterprise (dispensary for medical devices) as an economic unit. Principles of financial planning of the organization. Budget. Basics of accounting.	

Recommended literature:

1. Ozorovský, V., Vojteková I. a kol. 2016. Zdravotnícky manažment a financovanie. 1. vyd. Bratislava: Wolters Kluwer, 2016, 344 s. ISBN 978-80-8168-522-4.
2. Mináriková, D. a kol. 2015. Zdravotnícke pomôcky – legislatíva a regulácia. Martin: Osveta, 2015, 223 s. ISBN 978-80-8063-418-6.
3. Mináriková, D. a kol. 2018. Zdravotnícke pomôcky - princípy úhradovej kategorizácie. Bratislava: Univerzita Komenského, 2018. Dostupné online, ISBN 978-80-223-4479-1.
4. Foltán, V. 2010. Sociálna farmácia a zdravotníctvo. Martin: Osveta, 2010, 203 s. ISBN 978-80-8063-333-2.
5. Barták, M. 2010. Ekonomika zdravia. 1. vyd. Praha: Wolters Kluwer ČR, 2010. 224 s. ISBN 978-80-7357-503-8.
6. Current legislation.

Languages necessary to complete the course:

Slovak language.

Notes:**Past grade distribution**

Total number of evaluated students: 159

A	ABS	B	C	D	E	FX
29,56	0,0	15,09	23,9	12,58	18,24	0,63

Lecturers: doc. PharmDr. Daniela Mináriková, PhD., prof. PharmDr. Tomáš Tesař, PhD., MBA

Last change: 02.08.2024

Approved by: doc. PharmDr. Daniela Mináriková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/21-Bc/24	Course title: Health Informatics I
Educational activities: Type of activities: practicals / lecture Number of hours: per week: 1 / 2 per level/semester: 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: There are two tests during the semester. At least 60% must be obtained for their successful completion. 100 - 95%: A 94-85%: B 84-75%: C 74-65%: D 64 - 60%: E <59% FX Scale of assessment (preliminary/final): 0/100	
Learning outcomes: After completing the course, the student can work independently with information systems of drugs and drugs, interpret data on drugs and drugs in their wide range of pharmaceutical and clinical issues. Upon successful completion of this course, students are qualified to use procedures and techniques of working with pharmaceutical databases and understand the flow of information in the field of drugs and medicines, including the ability to work with bibliographic databases.	
Class syllabus: <ul style="list-style-type: none"> · Information system as a central concept of pharmacoinformatics, · Pharmaceutical computing, · Computer as a means of realizing the pharmacist's professional requirements for handling professional pharmaceutical data and media, · Current information systems, drug and drug databases, · Compatibility of pharmaceutical data, their current types and shapes. · Drugs and medicines, their properties in terms of their IT specificity and with regard to needs formulated by the information process, · Local and network technologies in the field of medicines and drugs and work with them, · Seminars are active and individual communication with the computer on workstations computer laboratories in solving pharmacoinformatics problems, · Creation of abilities, knowledge and skills in solving theoretical and practical information 	

problems with medicines and drugs, · Knovel, virtual libraries, bibliographic databases.						
Recommended literature: Literature is constantly being updated on exercises using protocols. Due to the need for permanent updating, students are provided with texts on individual issues.						
Languages necessary to complete the course: Slovak language, English language.						
Notes: The course is taught only in the summer semester.						
Past grade distribution Total number of evaluated students: 183						
A	ABS	B	C	D	E	FX
22,95	0,0	6,01	19,13	10,93	39,89	1,09
Lecturers: prof. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Zuzana Koblišková, PhD.						
Last change: 02.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/22-Bc/24	Course title: Health Informatics II
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: There are two tests during the semester. At least 60% must be obtained for their successful completion. Grade: 100 – 95%: A, 94 – 85%: B, 84 – 75%: C, 74 – 65%: D, 64 – 60%: E, < 59%: Fx. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: After completing the course, the student can work independently and creatively in the field of data collection, processing, and evaluation in electronic form. Student is independently oriented in this area and can use procedures and techniques of working with data, understands data organization and is able to use current versions of standard application software in their professional activities.	
Class syllabus: The content of the course is an update of the student's abilities and skills to communicate with the means of computer technology at the level of the so-called standard application equipment as a result of intensive development in the technical and program area, which is an organic part of professional pharmaceutical activities in all branches of pharmaceutical sciences and practice. <ul style="list-style-type: none"> · Qualified communication of the user with the computer, knowledge of working with devices, peripherals and media of computer technology. · Data organization and its means, work with archive files (zip, rar, etc.) and their current tools, · Word processing, creation and operations with text files, creation of tables and calculations in them, conversion to rtf, pdf formats. · Spreadsheet and its user functions, including mathematical and statistical, graphing. · Creation of presentations as specific document formats. 	
Recommended literature: Literature is constantly being updated on exercises using protocols. Due to the need for permanent updating, students are provided with texts on individual issues.	
Languages necessary to complete the course: English language, English language	
Notes:	

Past grade distribution						
Total number of evaluated students: 4						
A	ABS	B	C	D	E	FX
50,0	0,0	50,0	0,0	0,0	0,0	0,0
Lecturers: prof. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Zuzana Koblišková, PhD.						
Last change: 02.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/24-Bc/24	Course title: History of Medical Devices
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: The evaluation of students takes place in the form of a written exam (70% of the final evaluation) and mandatory is elaboration of a seminar paper in the form of an essay as well (30% of the final evaluation). Minimum success rate: 60%. Rating: A: 100-92%, B: 91-85%, C: 84-78%, D: 77-70%, E: 69-60%, FX: 59% and less. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: By completing the study course, the student acquires basic information about the historical development of medical devices in the context of social development, focusing on the territory of Europe and Slovakia. They will get acquainted with changes in the social status of pharmacy, drugs and medicines, medical devices in the perception of health and disease in different times and cultures. Completion of this course also contributes to the formation of professional ethical opinions and professional pride of students.	
Class syllabus: 1. History of pharmacy as a scientific field, basic terminology. 2. Periodization of the history of pharmacy. 3. Prehistoric medicine. 4. Medicine in ancient cultures. 5. Separation of pharmaceutical function from medicine. 6. Pharmacy as a relatively separate field. Pre-classical and classical pharmacy. 7. Differentiation of pharmacy – development of pharmaceutical sciences. 8. Differentiation of pharmacy – development of pharmaceutical branches (industry, wholesale distribution, pharmacy, education, research, control). 9. Pharmaceutical associations and organizations - development with a focus on the territory of Slovakia. 10. History of drugs, medicines and medical devices.	
Recommended literature: Rusek, V. – Kučerová, M.: Úvod do studia farmacie a dějiny farmacie. Praha: Avicenum, 1983.	

Bartunek, A.: Dejiny slovenského lekárnictva I. (do roku 1918). Prešov: AB Art Gallery, 2012.
Bartunek, A.: Osobnosti slovenského lekárnictva. Martin: Osveta, 2001.
Broncová, D. (ed.): Historie farmacie v českých zemích. Praha: Milpo Media, 2003.
Rusek, V. a kol.: Kapitoly z dějin československé farmacie. Bratislava: SPN, 1970.
Smečka, V. – Rusek, V. – Kolář, J. : Lékarenství I. Vývojové kroky československých lékáren se zřetelem k činnosti výdejní. Brno: VFU, 2008

Languages necessary to complete the course:

Slovak language

Notes:

The course is taught only in the winter semester

Past grade distribution

Total number of evaluated students: 26

A	ABS	B	C	D	E	FX
53,85	0,0	23,08	19,23	0,0	0,0	3,85

Lecturers: prof. PharmDr. Tomáš Tesař, PhD., MBA, Ing. Mgr. Ingrid Slezáková, MHA, MPH

Last change: 15.07.2024

Approved by: doc. PharmDr. Daniela Mináriková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFT/02-Bc/00	Course title: Human Anatomy and Physiology
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: 1) 100% presence at practical exercises. Justified absence (max 2x) is compensated by: a) substitute exercise b) written work 2) sufficiently proven readiness for practical exercises 3) successful passing of the final exam in the form of a written test, with a minimum of 60% success rate	
Learning outcomes: After successfully ending the tuition process, the student should be able to master the basics of human anatomy and physiology. At the same time, the students should know the basic imaging methods, the most commonly determined biochemical parameters of select systems of the human body, the devices most commonly used for the examination of major physiological processes in the human body.	
Class syllabus: - Basic terminology in anatomy and physiology. Anatomy of the nervous system. Protection and nutrition of the CNS. - physiology of the nervous system (sensory, motor, integration system) - anatomy and physiology of muscles (smooth, striated and heart muscle; neuromuscular junction) - anatomy of the cardiovascular system (heart, vessels, systemic and pulmonary circulation) - physiology of the heart and circulation (cardiac cycle, blood supply of the heart, ECG, blood pressure, arterial and venous hemodynamics, microcirculation, portal circulation) - blood components, coagulation and immune system (blood cells and their functions, non-cellular components of blood, basics of blood coagulation) - anatomy and physiology of respiration (respiratory system, mechanics of breathing, transport and exchange of gasses, control of respiration) - anatomy and physiology of the gastrointestinal system. Basics of digestion, secretory functions, enterohepatic circulation. - anatomy and physiology of the urological system (anatomy, physiology of the kidneys and urinary tract, urine and basic mechanisms of its formation)	

- reproductive system, sex hormones, reproduction and pregnancy (anatomy, physiology of the male and female sex organs, function of sex hormones, fertilization, prenatal development)
- endocrine system and hormonal control of the body (hormones and their feedback systems, hypothalamus-pituitary system, thyroid hormones, homeostasis hormones)
- general osteology (bone tissue, development and growth of bones, bone as an organ. Functions of bone and its relation to bone composition)

Recommended literature:

Andrea Čalkovská: Fyziológia človeka pre nelekárské študijné odbory, Vydavateľstvo Osveta, 2010
 Stefan Silbernagl, Agamemmn Despopoulos: Atlas fyziologie člověka, Vydavateľstvo Grada, 2004

Javorka K. a kol.: Lekárska fyziológia. Vydavateľstvo Martin Osveta, 2009

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 460

A	ABS	B	C	D	E	FX
13,91	0,0	12,61	20,22	18,26	23,04	11,96

Lecturers: PharmDr. Eva Kráľová, PhD., doc. PharmDr. Tomáš Rajtík, PhD., PharmDr. Zuzana Kiliánová, PhD., PharmDr. Attila Kulcsár, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Stanislava Kosírová, PhD., Mgr. Linda Bartošová, PhD.

Last change: 09.12.2021

Approved by: doc. PharmDr. Tomáš Rajtík, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFT/05-Bc/24	Course title: Human Biology
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: Student assessment consists of two written parts. Control test - exercises - the result is 20% of the total evaluation of the subject. Exam - written test - the result is 80% of the total evaluation of the course. In each written part, the student must achieve at least 60% success rate Grade Rating (%) A 100.00 - 92.00 B 91.99 - 84.00 C 83.99 - 76.00 D 75.99 - 68.00 E 67.99 - 60.00 FX <60.00	
Learning outcomes: By completing the course the student acquires basic information about the position of molecular and cell biology in the pharmaceutical study and the scientific field of Pharmacy. The acquired knowledge is the basis for related medical disciplines: physiology, pathology, biochemistry, immunology, microbiology, molecular and general pharmacology, clinical disciplines and forms the basis for understanding the effects of biologically active molecules - drugs.	
Class syllabus: <ul style="list-style-type: none"> - Chemical composition of living matter, biologically active macromolecules - carbohydrates, lipids, proteins, nucleic acids - Basic cell structure, cell theory, phylogeny, origin of cells and multicellular organisms. Prokaryotic and eukaryotic cell. Non-membrane cell structures - cytology in terms of cell morphology and structure - Cell membrane, membrane organelles, their structure and function - Membrane transport, cell connections - Biocommunication, cellular receptors - DNA replication and DNA repair mechanisms - Gene expression - basic principles and regulation of transcription and translation 	

<ul style="list-style-type: none"> - Cell division and cell cycle, cell death - Germ cells, sexosomes, insemination. Ontogenesis. Stem cells - Chromatin, chromosomes, HUGO project. Introduction to genetics, Mendel' laws, investigative methods in genetics, human genetics, mutations, genetic engineering - Cellular and molecular biology of cancer, oncogenes, tumor suppressor genes, metastases 																				
<p>Recommended literature:</p> <ul style="list-style-type: none"> - Alberts, Bruce, et al. Essential cell biology. Garland Science, 2015. - Alberts, Bruce, et al. Molecular biology of the cell. WW Norton & Company, 2017. - Lodish, Harvey, et al.: Molecular Cell Biology, eight edition, W.H.Freeman and Company, 2016. - Kyselovič, J., Musil, P .: General Biology - Theoretical and Practical Instructions for Exercises: Stimul Bratislava, 2008, 124p. 																				
<p>Languages necessary to complete the course: Slovak</p>																				
<p>Notes:</p>																				
<p>Past grade distribution Total number of evaluated students: 33</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>A</th> <th>ABS</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>FX</th> </tr> </thead> <tbody> <tr> <td>0,0</td> <td>0,0</td> <td>12,12</td> <td>21,21</td> <td>39,39</td> <td>12,12</td> <td>15,15</td> </tr> </tbody> </table>							A	ABS	B	C	D	E	FX	0,0	0,0	12,12	21,21	39,39	12,12	15,15
A	ABS	B	C	D	E	FX														
0,0	0,0	12,12	21,21	39,39	12,12	15,15														
<p>Lecturers: Mgr. Ondrej Sprušanský, PhD., PharmDr. Katarína Hadová, PhD., PharmDr. Csaba Horváth, PhD., PharmDr. Nikola Chomaničová, PhD.</p>																				
<p>Last change: 15.07.2024</p>																				
<p>Approved by: Mgr. Ondrej Sprušanský, PhD.</p>																				

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KZT/05-Bc/25	Course title: Imaging Modalities for Healthcare Professionals
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: Attendance at lectures is mandatory. Compensation for non-attendance is regulated by the subject syllabus. During the semester, the student undergoes two intermediate assessments in the form of a test. The semester ends with a semester oral exam. Rating: A: 93.00-100.00%, B 85.00- 92.00%, C: 77.00-84.00%, D: 69.00-76.00%, E: 60:00-68.00%, Fx:59.99% and less. Scale of assessment (preliminary/final): 30/70	
Learning outcomes: Learning outcomes: The student gains knowledge of imaging methods in medical disciplines. He/she understands the purpose of their use in the prevention and treatment of diseases. In the field of imaging diagnostics, he knows the basic characteristics of interventional angiography examination, computed tomography, which minimizes irradiation and administration of contrast media, he has knowledge of skiascopic systems for needs in skiascopy and radiography. He understands the principle of diagnostics by ultrasound devices and sonography equipment. The teaching is focused mainly on understanding the principles of imaging methods based on X-rays, imaging method based on the principle of a very strong magnetic field, which improve diagnostics by more perfect imaging of individual tissues according to the different amount of hydrogen contained in them, he/she has knowledge of imaging method using the physical properties of ultrasound waves to imaging muscles and internal organs. By completing the course, the student will obtain an overview of the use of radionuclides (radioisotopes) for the diagnosis and treatment of diseases. The student also gains an overview of other diagnostic methods (ECG, EEG, EMG, ERG, audiometry).	
Class syllabus: Characteristics of imaging methods in medical disciplines – a complete overview. The curriculum includes: o Imaging methods based on the principle of X-rays: - skiascopy, skiagraphy, computed tomography for radiation therapy, mammography, seriography, X-ray cinematography, X-ray television,	

- o Magnetic resonance imaging methods using:
 - magneto-resonance tomography, nuclear magnetic resonance, magnetic resonance, spectroscopy, nuclear magnetic resonance tomography.
- o Thermography
- o Ultrasonic Devices
 - Doppler ultrasound technique, 3D (three-dimensional) imaging 4D (four-dimensional) imaging)

Recommended literature:

Ferda, J et al. 2015. Inovativní zobrazovací metody. Galén, 2015, 140 s. ISBN 9788074921865
 Rosina, J. Vránová, J., Kolářová. 2021. Biofyzika. Pro zdravotnické a biomedicínske obory. 2. doplnené vyd. Praha: Grada, 2021, 296 s. ISBN 978-80-271-2526-5
 Šedý, J. 2020. Somatické vyšetření ve stomatologii. Galén, 2020, 263 s. ISBN 9788074920868
 Stanko, P. Dentoalveolární chirurgie 1. Nástroje používané k extrakcii. Kliešte. Available online: www.portal.fmed.uniba.sk

Languages necessary to complete the course:

Slovak language

Notes:

The subject is provided in the summer semester with at least 5 students

Past grade distribution

Total number of evaluated students: 0

A	ABS	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PharmDr. Janka Kubíková, PhD., MPH, Ing. Silvia Molnárová, PharmDr. Milica Molitorisová, PhD., PhDr. Iveta Béressová, M.Sc. Ľudmila Oreská, PhD., PharmDr. Eva Rybárová, PharmDr. Attila Kulcsár, PhD., PharmDr. Kristína Szmicseková, PhD.

Last change: 29.05.2025

Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/VP-3/24	Course title: Internship in the Field of Medical Devices
Educational activities: Type of activities: practice Number of hours: per week: 37,5 per level/semester: 525 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 5.	
Educational level: I.	
Prerequisites:	
Course requirements: Student completes an internship at one of the partner workplaces of the Faculty of Pharmacy of Comenius University Bratislava in one week (37.5 hours). Partnering workplaces include specialized medical facilities, regulatory bodies, higher territorial units, state or private facilities for testing quality control of medical devices, holders of authorizations for the production of medical devices, production of custom-made medical devices, holders of permission for wholesale distribution of medical devices, including special medical supplies, in vitro diagnostic medical devices, holders of authorisations for registration or notification of medical devices, representatives of medical device manufacturers, pharmaceutical companies with a portfolio of medical devices, pharmacies (both public and hospital pharmacies), dispensaries of medical devices, health insurance companies, clinical workplaces in outpatient or institutional health care, workplaces conducting clinical research and/or performance studies of medical devices, specialised medical workplaces for the refurbishment of medical devices. At the end of the internship, the student is obliged to prepare a seminar paper or video report, under the guidance of a responsible person at a partner workplace. The scope and content of the term paper or video report is evaluated by the relevant vice-dean of the Faculty. Rating: A: 93-100%, B: 85-92%, C: 77-84%, D: 69-76%, E: 60-68%, Fx: 59% and less. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Completion of the course will allow the student to get acquainted with the organization of the workplace, technical, material and personnel provision of the workplace, the object of activity of the workplace. He/she can apply his or her knowledge from the study of medical and diagnostic devices with the activities of the workplace; develops his/her future competencies of the medical device technician by oneself, or by joining a team of professional personnel; can adequately use professional sources of information at work; develops professional communication; understands workflow descriptions. The student gains new knowledge and experience from practice. He/she understands the possibilities and opportunities to apply the acquired knowledge, skills, and abilities in real practice.	
Class syllabus:	

<p>Organization of the workplace - technical, material and personnel support of the workplace; the object of activity of the workplace; linking the study outcomes in medical and diagnostic medical devices with the activities of the workplace; development of competencies of future graduates – medical device technicians, as well as other professional profiling in the field of medical devices; expansion of knowledge by new professional sources of information used at practice; opportunity for training professional communication, applying the principals of the code of ethics by health professional; identification and description of relevant operational procedures.</p>																				
<p>Recommended literature: Legislative norms governing the working environment and activities binding the partner at its workplace.</p>																				
<p>Languages necessary to complete the course: Slovak language</p>																				
<p>Notes: The student can complete the internship in the range of 1 week, i.e., 37.5 hours. or in a block or partially during the selected semester. The student can take the subject no more than 1 time during the study.</p>																				
<p>Past grade distribution Total number of evaluated students: 0</p> <table border="1"> <thead> <tr> <th>A</th> <th>ABS</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>FX</th> </tr> </thead> <tbody> <tr> <td>0,0</td> <td>0,0</td> <td>0,0</td> <td>0,0</td> <td>0,0</td> <td>0,0</td> <td>0,0</td> </tr> </tbody> </table>							A	ABS	B	C	D	E	FX	0,0	0,0	0,0	0,0	0,0	0,0	0,0
A	ABS	B	C	D	E	FX														
0,0	0,0	0,0	0,0	0,0	0,0	0,0														
<p>Lecturers:</p>																				
<p>Last change: 24.07.2024</p>																				
<p>Approved by: doc. Mgr. Martina Hrčka Dubníčková, PhD.</p>																				

COURSE DESCRIPTION

Academic year: 2025/2026						
University: Comenius University Bratislava						
Faculty: Faculty of Pharmacy						
Course ID: FaF.KFB/09-Bc/24			Course title: Introduction to Botany and Pharmacognosy			
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning						
Number of credits: 3						
Recommended semester: 3.						
Educational level: I.						
Prerequisites:						
Course requirements:						
Learning outcomes:						
Class syllabus:						
Recommended literature:						
Languages necessary to complete the course:						
Notes:						
Past grade distribution Total number of evaluated students: 27						
A	ABS	B	C	D	E	FX
14,81	0,0	22,22	40,74	14,81	7,41	0,0
Lecturers: prof. PharmDr. Pavel Mučaji, PhD., prof. Ing. Miroslav Habán, PhD., PharmDr. Vladimír Forman, PhD., Mgr. Ondrej Ďuriška, PhD.						
Last change: 25.06.2024						
Approved by: prof. PharmDr. Pavel Mučaji, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/10-Bc/24	Course title: Mathematics for Healthcare Professionals
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 1 / 2 per level/semester: 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: During full-time teaching, students will take 8 to 10 written tests throughout the semester, with a maximum total score of 40 points. The final exam is in written form and has a maximum score of 60 points. Detailed instructions regarding the exam will be provided to students at the beginning of the semester. The final grade is determined based on the sum of points obtained from the continuous assessment tests and the final exam. The total assessment of the subject: A 92-100 %, B 84-91 %, C 76-83 %, D 68-75, E 60-67, FX 59% and less. Scale of assessment (preliminary/final): 40/60	
Learning outcomes: Upon completion of the course, students will have mastered the fundamentals of mathematical methods in the field of algebra, introduction to mathematical analysis and differential calculus, at a level appropriate for studying subsequent specialised courses. They will also acquire the ability to apply the mathematical skills they have gained in practice, particularly in processing, evaluating, and interpreting measured data during laboratory exercises in other specialised subjects. Completing the subject will develop logical and abstract thinking in students and contribute to a better understanding of the interrelationships between concepts.	
Class syllabus: Fundamentals of mathematical logic and introduction to set theory. Linear algebra – expressions, equations and inequalities. Relations and functions – definition and graph of a function of one variable. Functions – properties of functions, elementary real functions. Sequences and series – limit of a sequence, Power series, function approximation. Differential calculus – limits, continuity and derivation, geometric and physical meaning. L'Hopital's Rule, Taylor Series, differential and difference. Derivation and properties of functions – monotonicity, convexity and concavity, inflection point, local extrema. Asymptotes. Lectures in the course Mathematics for Health Sciences are supplemented by a seminar, where students verify theoretical knowledge and gain skills in solving problems focused on natural science applications.	

Recommended literature:

V. Frečer: Matematika pre farmaceutov, UK, Bratislava, 2014.
M. Šabo: Matematika I, STU, Bratislava, 2009.
M. Jasem, Ľ. Horanská: Matematika I. Zbierka úloh, Bratislava, STU, 2010.

Languages necessary to complete the course:

Slovak language

Notes:**Past grade distribution**

Total number of evaluated students: 32

A	ABS	B	C	D	E	FX
43,75	0,0	9,38	15,63	9,38	3,13	18,75

Lecturers: doc. Mgr. Marcela Chovancová, PhD., Mgr. Mária Klacsová, PhD.

Last change: 16.06.2025

Approved by: doc. Mgr. Marcela Chovancová, PhD.

STATE EXAM DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/200-Bc/22	Course title: Medical Devices
Number of credits: 2	
Recommended semester: 5., 6..	
Educational level: I.	
<p>Course requirements: The state examination in the subject Medical Device, part (a) and (b) is carried out orally and in person at the place of residence of the Faculty of Pharmacy of the Comenius University Bratislava. Scale of assessment (preliminary/final): 0/100</p>	
<p>Learning outcomes: By completing the subject, the student has basic theoretical knowledge in the field of financing health care, understands the principles of health insurance, pricing and reimbursement of medical devices. He understands the importance of medical devices (MDs) in healthcare from prevention to monitoring the patient's treatment within different diagnoses. The student gets an overview of a wide range of MDs, she/he can classify and sort them according to the degree of a risk. She/he is familiar with the standards for handling MDs in their entirety, from R&D to clinical trials, placing on the market up to a disposing of them. Based on her/his knowledge of the MDs' materials, functionality and the correct application for patient, she/he can assess their quality and safety and thus ensure their place in the provision of health care at different levels of the health system.</p>	
<p>Class syllabus: a) Medical devices (MDs) in curative-preventive healthcare, definition, classification, standards of preventive and therapeutic procedures, technological aspects (material, manufacturing technology, handling of medical devices throughout the life cycle, including standards for medical devices for clinical investigations, ensuring good manufacturing practice and good distribution practice in MDs, decommissioning and disposal of MDs, including. b) Regulatory aspects, European and national legislation in the field of medical devices, placing on the market of medical devices, regulation of the price and reimbursement of medical devices, handling, procurement and distribution of medical devices, prescription and dispensing of medical devices, vigilance over the safety of medical devices, health economy, financing of healthcare; health insurance system, position of medical devices in the context of social pharmacy, consumption, cost and pharmacoeconomic evaluation of medical devices, basics of public health, population health – position of medical devices in prevention and health promotion, ethics and legal aspects in the provision of health care and the exercise of the medical profession, health management, marketing in health care.</p>	
<p>State exam syllabus: The student demonstrates a comprehensive knowledge of the importance of medical devices (MDs) as an integral part in prevention and curative health care in association with legislative requirements and resulting regulation. She/he deeply understands the definition and purpose of MDs, she/he can classify them, she/he is familiar with the standards of handling MD within the framework of preventive and therapeutic procedures. She/he bases his knowledge on quality and safety of MDs</p>	

on technological aspects - material, production technology, MDs' handling throughout the entire life cycle. He/she has learned the basic principles of good clinical practice regarding MDs to be tested in clinical trials, he/she knows the requirements of good manufacturing practice and good distribution practice of the MDs.

Recommended literature:

- Hegyí L., Bielik I.: Základy verejného zdravotníctva, Herba 2011, s. 288, ISBN 978808917184
- Labudová, M., Puteková, S. 2021. Vybraté kapitoly z vnútorného lekárstva pre nelekárske odbory. Bratislava: Herba, 2021. 142 s. ISBN 978-80-8229-009-0
- Malovecká I., Mináriková D., Foltán V.: Zdravotnícke pomôcky – vybrané úlohy. Výdaj zdravotníckych pomôcok na lekársky poukaz. FaF UK, 2015, on-line katalóg FaF, ISBN 978-80-223-3812-7
- Mináriková, D., et al. 2015. Zdravotnícke pomôcky. Legislatíva a regulácia. Vysokoškolská učebnica. Martin: Osveta, 2015. 1. vyd., 222 s. ISBN 978-80-8063-418-6
- Mináriková, D. a kol. 2018. Zdravotnícke pomôcky - princípy úhradovej kategorizácie. Bratislava: Univerzita Komenského, 2018. Dostupné online, ISBN 978-80-223-4479-1.
- Rosina, J. Vránová, J., Kolářová. 2021. Biofyzika. Pro zdravotnické a biomedicínske obory. 2. doplnené vyd. Praha: Grada, 2021, 296 s. ISBN 978-80-271-2526-5
- Zamborský, R. 2020. problematika úrazov u geriatrického pacienta. Bratislava: Herba, 2020, 56 s. ISBN 978-80-8229-002-1

Last change: 31.08.2022

Approved by: doc. Mgr. Martina Hřčka Dubničková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/23-Bc/24	Course title: Medical Devices – Legislation and Regulation
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 1 / 1 per level/semester: 14 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: Obligatory participation in seminars. Absence on the seminar must be proved by the reason for absence and the seminar must be replaced in agreement with the teacher. Completion of the course is done by a written exam with a minimum success rate of 60%. Rating: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-65%, E = 64-60%, FX = 59% and less.	
Learning outcomes: By completing the course, the student will gain knowledge about the health care system and medical devices in terms of their legislation and regulation.	
Class syllabus: Health care system - basic health laws. Legislation and regulation of medical devices. Basic institutions in the health care system, their scope, and tasks - ŠÚKL, MZ SR, NCZI, health care providers, health insurance companies, ÚDZS, professional and patient organizations. Registration of medical devices. Safety and supervision of medical devices. Legislation and regulation of production and distribution of medical devices. Holder of a medical device manufacturing authorization. Holder of a license for the wholesale distribution of medical devices. Prescription and dispensing of medical devices.	
Recommended literature: 1. Mináriková D. a kol.: Zdravotnícke pomôcky – legislatíva a regulácia, Osveta Martin, 2015, 223 s. ISBN 978-80-8063-418-6. 2. Malovecká I., Mináriková D., Foltán V.: Zdravotnícke pomôcky – vybrané úlohy. Výdaj zdravotníckych pomôcok na lekárske poukaz. FaF UK, 2015, on-line katalóg FaF, ISBN 978-80-223-3812-7 3. Mináriková, D. a kol. 2018. Zdravotnícke pomôcky - princípy úhradovej kategorizácie. Bratislava: Univerzita Komenského, 2018, on-line katalóg FaF, ISBN 978-80-223-4479-1. 4. Aktuálna legislatíva (zákony, vyhlášky a predpisy pre oblasť zdravotníckych pomôcok).	
Languages necessary to complete the course: Slovak language.	

Notes:						
Past grade distribution Total number of evaluated students: 156						
A	ABS	B	C	D	E	FX
14,1	0,0	21,15	25,64	21,79	16,67	0,64
Lecturers: doc. PharmDr. Daniela Mináriková, PhD., prof. PharmDr. Tomáš Tesař, PhD., MBA						
Last change: 02.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/15-Bc/24	Course title: Medical Hygiene
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 1 / 1 per level/semester: 14 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: For credits is required successful completion of two pre-tests during the semester with a minimum success rate of 60% from each test. The subject is terminated by the writing form with a minimum success rate of 60%.	
Learning outcomes: In the first part, Medical hygiene is characterized by the basic components of the environment and their effect on human health. The goal of environmental hygiene is the creation of health-beneficial conditions in the environment. The subject focuses on explaining the facts that are most important for a worker in a healthy state, that is, the rules for air, water and waste hygiene in laboratory conditions. Furthermore, the student must be briefed on the basic rules of nutrition, food handling and hygienic work. As a specialist in medical knowledge, the student will acquire the skills to ensure and evaluate the hygiene of a medical facility, while handling medical devices. The graduate of the course will be theoretically and partially also practically prepared for the requirements of working in a medical facility.	
Class syllabus: The position of hygiene and its role in the field of healthcare, hygiene of air, water, waste, nutrition and work, further the importance, requirements and compliance with hygiene in a healthcare facility, when working with medical devices and during their control, evaluation of the microbiological cleanliness of medical devices in terms of requirements for their sterility and non-sterility. The basic content of Medical Hygiene is based on the current state of individual departments related to the hygiene of a specific environment and the rules or methods used in practice.	
Recommended literature: Dubničková M, Bilková A.: Hygiena pre farmaceutov. Bratislava: UK, 2011, 116 s. Drobná E., Hrčka Dubničková M., Greifová G: Praktické cvičenia z mikrobiológie pre farmaceutov. Bratislava: UK, 2021, 174 s. Podstatová H.: Základy epidemiológie a hygieny. Praha: GALÉN 2009. 158s Ševčíková a kol.: Hygiena. Bratislava: UK, 2006. 328 s.	

Gopfertová D. a kol.: Mikrobiológia, imunológia, epidemiológia a hygiena. Praha: TRITON. 2002. 148s.

Languages necessary to complete the course:

Slovak language.

Notes:

Past grade distribution

Total number of evaluated students: 186

A	ABS	B	C	D	E	FX
31,72	0,0	31,18	21,51	8,06	6,99	0,54

Lecturers: doc. Mgr. Martina Hrčka Dubníčková, PhD., doc. Mgr. Andrea Bilková, PhD., Mgr. Eva Drobná, PhD., PharmDr. Hana Kiňová Sepová, PhD., PharmDr. Gabriela Greifová, PhD., Mgr. Jana Hricovíniová, PhD.

Last change: 28.04.2025

Approved by: doc. Mgr. Martina Hrčka Dubníčková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/16-Bc/24	Course title: Medical and Diagnostic Devices and Biological Environment
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 1 / 1 per level/semester: 14 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 5.	
Educational level: I.	
Prerequisites:	
Course requirements: Assessment and completion of the course: written exam Continuous assessment: the condition of practical exercises is the fulfillment of the assigned tasks of practical exercises and passing a control test. As part of the continuous evaluation, it is necessary to obtain at least 60% of the maximum number of points, which is a requirement for the exam. Scale of assessment (preliminary/final): Evaluation of written test: Grade A corresponds to obtaining min. 92% of the maximum number of points, B – 84%, C – 76%, D – 68%, E – 60%, Fx less than 60%.	
Learning outcomes: Students obtain information about the metabolic transformations of basic biological substrates and their involvement in cellular metabolism, the principles of enzymology and regulation of biochemical processes, as well as the causes of changes in metabolic processes in pathological conditions. Laboratory practices are focused on the acquirement of basic skills associated with the implementation of biochemical and clinical-biochemical determinations of selected biochemical parameters and the evaluation of pathological status.	
Class syllabus: <ul style="list-style-type: none"> - Organism and environment, their interactions, the basis of internal balance, basic biological substrates carbohydrates lipids, amino acids and proteins, their structure, properties and significance. - Hormonal regulation of blood glucose levels, diabetes mellitus, glucose tolerance test. - Protein digestion, amino acid absorption, digestive and absorption disorders, fate amino acids in the body, degradation of amino acids, formation of ammonia and its detoxification, ornithine cycle. - Lipid transport forms - lipoproteins, dislipoproteinemia, relation to atherosclerosis. - Enzymes, catalytic ability, mechanism of action, specificity of enzymes, enzyme complex substrate, Km, Vmax, activation, inhibition, pH effect, temperatures, zymogens. Biological significance. Coenzymes. - Amino acid metabolism, congenital genetic disorders in amino acid metabolism. Plasma proteins, their importance and function. 	

- Clinical enzymology, isoenzyme spectra, enzymopathy, molecular diseases.
- Biochemical and molecular aspects of the inflammatory response, cells of the inflammatory process, respiratory burst and formation of reactive oxygen species, mediators of early and delayed inflammatory phases.
- The importance of phospholipids and arachidonic acid in the inflammatory process.

Recommended literature:

Balažová, A., Obložinský, M.: Vybrané kapitoly z patobiochémie, Univerzita Komenského v Bratislave

2019 http://stella.uniba.sk/texty/AB_MO-kpt-patobiochemia.pdf

Bezáčková, L. a kol.: Praktické cvičenia z patobiochémie a molekulárnej biológie. Bratislava: UK, 2010.(skriptá)

Štern, P. a kol.: Obecná a klinická biochemie pro bakalářské obory studia, Karolinum, 2011

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 158

A	ABS	B	C	D	E	FX
19,62	0,0	27,22	25,95	18,35	8,86	0,0

Lecturers: doc. PharmDr. Marek Obložinský, PhD., PharmDr. Andrea Balažová, PhD., Mgr. Ivana Holková, PhD., RNDr. František Bilka, PhD., Ing. Ľudmila Pašková, PhD., PharmDr. Renáta Kubíková, PhD.

Last change: 28.04.2025

Approved by: PharmDr. Andrea Balažová, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/11-Bc/24	Course title: Microbiology
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: The condition is to obtain 60% of the test points in the continuous evaluation. Completion of all practical exercises, handing over lab reports. The exam of the subject has an oral form. Rating A: 100-93%, B: 92-85%, C: 84-77%, D: 76-68%, E: 67-60%.	
Learning outcomes: The result of the education should be the acquisition of basic knowledge about microorganisms, their positive and negative significance for human health, the control of harmful microorganisms and to get acquainted with the methods of working with microorganisms and microbiological diagnostics in laboratory exercises.	
Class syllabus: Characteristics of microorganisms and their properties, characteristics of bacteria, fungi, protozoa, viruses and prions, basics of biochemistry and genetics of microorganisms, interaction of microorganisms with the environment and host, pathogenicity and virulence, fight against unwanted microorganisms, pharmaceuticals in prophylaxis and therapy of infectious diseases. LECTURES: 1. Introduction to the subject of microbiology, basic concepts, the occurrence of microorganisms in the environment and the importance of microorganisms for humans. 2. Prokaryotic cell structure and morphology. 3. Genetics and reproduction of microorganisms 4. Relationship between microorganisms and the host. Pathogenicity, infection and virulence of microorganisms. 5. Taxonomy, classification and nomenclature of bacteria. Special bacteriology. Overview of the most pharmaceutically and medically important bacteria: Spirochetes, Chlamydia, Proteobacteria. 6. Characteristics of pharmaceutically and medically important species of gram-positive bacteria. 7. Protozoa and microscopic fungi, characteristics of the most pharmaceutically and medically important genera and species. 8. General virology - structure of the virus particle, replication of viruses, taxonomy of viruses. 9. Characteristics of viruses pathogenic to humans.	

10. Antibiotics - the effect of antibiotics and chemotherapeutics on microorganisms.
 11. Resistance of microorganisms to antimicrobial drugs, vaccines - active immunization.
 12. Sterilization, disinfection and preservation. Physical and chemical methods. Mechanism of induction, influencing factors, control of induction and effectiveness.
 13. Contamination of pharmaceutical preparations and medical devices by microorganisms.
- PRACTICAL EXERCISES:**
- 1/2: Basics of work in a microbiological laboratory. Work safety in a microbiological laboratory. Isolation of pure culture, bacterial cell shape.
 - 3/4: Preparation of fixed slides, Gram staining. Staphylococci.
 - 5/6: Cultivation of aerobic and anaerobic microorganisms.
 - 7/8: Determination of susceptibility of selected microorganisms to antibiotics and chemotherapeutics.
 - 9/10: Microscopic and macroscopic observation and identification of fungi. CONTROL TEST 1.
 - 11/12: Methods for identification of bacteria from the Enterobacterales family.
 - 13: Corrective tests

Recommended literature:

Mlynarčík, D., Májeková, H., Dubničková, M.: Farmaceutická mikrobiológia, Univerzita Komenského, Bratislava 2017, 422 s., ISBN 978-80-223-4102-8.

Schindler, J.: Mikrobiologie pro studenty zdravotnických oborů. Grada 2009, 223 s., ISBN 978-80-247-3170-4

Štefkovičová M. a kol.: Dezinfekcia a sterilizácia - teória a prax - II, vyd. VRANA, Žilina, 2007, 164 s. ISBN 978-80-968248-3-0

Štefanovič J., Hanzen J.: Mikroorganizmy človeka v zdraví a chorobe. HPL Servis s. r. o., Bratislava 2012, 190 s. ISBN 978-80-971151-0-4

Languages necessary to complete the course:

Slovak language.

Notes:

Past grade distribution

Total number of evaluated students: 23

A	ABS	B	C	D	E	FX
4,35	0,0	0,0	21,74	21,74	43,48	8,7

Lecturers: Mgr. Eva Drobná, PhD., doc. Mgr. Martina Hrčka Dubničková, PhD., PharmDr. Hana Kiňová Sepová, PhD., PharmDr. Gabriela Greifová, PhD., Mgr. Jana Hricovíniová, PhD.

Last change: 28.04.2025

Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFT/13-Bc/24	Course title: Pathology
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 6	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: Personal attendance at all lectures and practical classes and sufficiently demonstrated readiness for practical exercises, justified absence (max 2x) is replaced according to the instructions of the teacher (a) replace absence from exercise or b) elaboration of a written work; to pass 2 scheduled pre-tests, each minimally 60% rate. The final exam test is completed by students in computer by written form (distant) of examination. To pass the final exam test by students in minimally 60% rate. Evaluation (mark and score): A 91-100%, B 81-90%, C 71-80%, D 66-70%, E 60-65%, FX < 60%. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The graduate of the course will obtain concise general and transparent knowledge about structural, morphological and functional disorders at the level of cells, tissues, organs and systems of pathologically altered organism, which will allow him to create a comprehensive picture of individual diseases. Understand the causes, pathomechanisms, symptoms of pathological disturbances and subsequent complications. The acquired knowledge about the anatomical and functional changes of the individual's body is a necessary basis for the graduate, who in the future will focus on providing medical devices, medical accessories and home medical devices to the affected individual persons.	
Class syllabus: The graduate of the course will obtain concise general and transparent knowledge about structural, morphological and functional disorders at the level of cells, tissues, organs and systems of pathologically altered organism, which will allow him to create a comprehensive picture of individual diseases. Understand the causes, pathomechanisms, symptoms of pathological disturbances and subsequent complications. The acquired knowledge about the anatomical and functional changes of the individual's body is a necessary basis for the graduate, who in the future will focus on providing medical devices, medical accessories and home medical devices to the affected individual persons. Course description: Pathology - introduction, basic terminology. Disease – characterization, classification of diseases. Causes and mechanisms of diseases – environmental factors, genetic abnormalities, congenital diseases. Alterations in metabolism and nutrition. Causes and	

mechanisms of cellular injury. Inflammation. Mechanisms of alteration in blood circulation. Pathophysiology of pain. Selected diseases of nervous system - alterations in blood flow, Disturbances in the sleep, memory disturbances, pathophysiology of ANS. anxiety and personality disorders, depression, bipolar disorder, schizophrenia, Epilepsy, neurodegenerative disorders (Alzheimer Disease, Parkinson Disease). Loss of conscious. Alterations in haemostasis and haemocoagulation. Anemias. Alterations in immune response. Pathophysiology of endocrine system. Pathophysiology of vessels - alterations in blood flow and pressure. Shock. Pathophysiology of heart – alterations in coronary circulation, myocardial diseases, congenital defects, complications rhythm disturbances, failure. Pathophysiology of respiratory system – disturbances in ventilation -perfusion relation, respiratory insufficiency. Pathophysiology of gastrointestinal system – basic symptoms of gastrointestinal disturbances. Ulcer disease. Liver diseases. Pathophysiology of kidney – glomerular disturbances, obstructive disorders, incontinency. Alterations in genital and reproductive function Disturbances in homeostasis. Alterations in musculoskeletal structure and functions. Infectious diseases – epidemiology, transfer, pathomechanisms, microbial microflora, resistency. Tumors – classification, biology of tumor cells, invasion, metastases, symptoms. Practical part is focused on basic developmental periods of human life and disorders. Pathological disturbances in histology, alterations in growth, homeostasis, adaptation mechanisms to the influence of various pathogens and changes in the external environment. Selected symptoms of diseases. General symptomatology, symptomatology of individual systems. Seminars about selected disorders. Diets in selected diseases of CVS, GIT, excretory system and selected symptoms and syndromes of individual systems. Alterations in integumentary system. Skin manifestations in diseases of various systems. Disorders of the Sensory System

Recommended literature:

Mohan H: Patológia. ·Vydavateľstvo: Balneotherma, Bratislava, 2011. ISBN: 9788097015664
 Plank, J. Hanáček J. a kol.: Patologická anatómia a patologická fyziológia. ·Vydavateľstvo: Osveta, Martin, 2007 ISBN: 8080632410
 S. Sibernagl, F. Lang: Atlas patofyziologie.: Vydavateľstvo: Grada, Praha 2001.
 Lecture and exercise handouts will be available in Moodle's online system 2220,2021.

Languages necessary to complete the course:

Slovak

Notes:

the course is available only in summer semester

Past grade distribution

Total number of evaluated students: 17

A	ABS	B	C	D	E	FX
0,0	0,0	5,88	29,41	5,88	41,18	17,65

Lecturers: doc. PharmDr. Stanislava Kosírová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Attila Kulcsár, PhD., PharmDr. Zuzana Kiliánová, PhD., doc. PharmDr. Tomáš Rajtík, PhD., Mgr. Izabela Jarabicová, PhD.

Last change: 05.08.2025

Approved by: PharmDr. Eva Kráľová, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KTV/01-Bc/24	Course title: Physical Education (1)
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 1	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: - activity, 100% attendance - passing physical performance testing Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Lectures provide knowledge about the importance of health prevention through active physical movement of adult individuals. Practical exercises to give it ownership of the skills and practical guides.	
Class syllabus: Level of knowledge - PE and sport as a significant social phenomenon, knowledge of the other links courses (anatomy and human physiology, biology) to understand the structure of movement in sport. Relationship of health and vigorous physical activity. Motor level - prevention hypokinesia, movement skills in sports, tourist and recreational activities, guidance on physical exercise for maintaining health.	
Recommended literature: - Cornacchia, L. et al. Serious strength training. Champaign, IL: Human Kinetics, 2003. ISBN 0-7360-4266-0. - Delavier, F. 2001. Strength Training Anatomy. Human Kinetics, 2001. ISBN 0- 7360-4185-0. - Chek, Pl. How to Eat, Move and Be Healthy. 2. Vyd. C.H.E.K Institute: 2004. ISBN 978-1583870068. - Masaryková, D. 2014. Vzdelávacia oblasť - Zdravie a pohyb. Metodická príručka, s. 38, ISBN 978-80-8052-891-1 - Tibenská, M.; Ludvig, D.; Nagyová, L.; Tokár, M. 2022. Pohyb a zdravie – zdravie v pohybe. Učebnica pre vysoké školy, Univerzita Komenského v Bratislave, Farmaceutická fakulta, Katedra telesnej výchovy a športu, 1. vyd. 117 s., ISBN 978-80-223-5501-8.	
Languages necessary to complete the course: Slovak language	

Notes:**Past grade distribution**

Total number of evaluated students: 17

A	ABS	B	C	D	E	FX
88,24	0,0	0,0	0,0	0,0	0,0	11,76

Lecturers: Mgr. Dalibor Ludvig, PhD., PaedDr. Martina Tibenská, PhD., Mgr. Lenka Nagyová, PhD., Mgr. Michal Tokár, PhD.**Last change:** 03.08.2024**Approved by:** PaedDr. Martina Tibenská, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KTV/02-Bc/24	Course title: Physical Education (2)
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: - activity, 100% attendance - passing physical performance testing Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Lectures provide knowledge about the importance of health prevention through active physical movement of adult individuals. Practical exercises to give it ownership of the skills and practical guides.	
Class syllabus: Level of knowledge - PE and sport as a significant social phenomenon, knowledge of the other links courses (anatomy and human physiology, biology) to understand the structure of movement in sport. Relationship of health and vigorous physical activity. Motor level - prevention hypokinesia, movement skills in sports, tourist and recreational activities, guidance on physical exercise for maintaining health.	
Recommended literature: - Cornacchia, L. et al. Serious strength training. Champaign, IL: Human Kinetics, 2003. ISBN 0-7360-4266-0. - Delavier, F. 2001. Strength Training Anatomy. Human Kinetics, 2001. ISBN 0- 7360-4185-0. - Chek, Pl. How to Eat, Move and Be Healthy. 2. Vyd. C.H.E.K Institute: 2004. ISBN 978-1583870068. - Masaryková, D. 2014. Vzdelávacia oblasť - Zdravie a pohyb. Metodická príručka, s. 38, ISBN 978-80-8052-891-1 - Tibenská, M.; Ludvig, D.; Nagyová, L.; Tokár, M. 2022. Pohyb a zdravie – zdravie v pohybe. Učebnica pre vysoké školy, Univerzita Komenského v Bratislave, Farmaceutická fakulta, Katedra telesnej výchovy a športu, 1. vyd. 117 s., ISBN 978-80-223-5501-8.	
Languages necessary to complete the course: Slovak language	

Notes:						
Past grade distribution Total number of evaluated students: 13						
A	ABS	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PaedDr. Martina Tibenská, PhD., Mgr. Lenka Nagyová, PhD., Mgr. Dalibor Ludvig, PhD., Mgr. Michal Tokár, PhD.						
Last change: 03.08.2024						
Approved by: PaedDr. Martina Tibenská, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KTV/03-Bc/24	Course title: Physical Education (3)
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 1	
Recommended semester: 5.	
Educational level: I.	
Prerequisites:	
Course requirements: - activity, 100% attendance - passing physical performance testing Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Lectures provide knowledge about the importance of health prevention through active physical movement of adult individuals. Practical exercises to give it ownership of the skills and practical guides.	
Class syllabus: Level of knowledge - PE and sport as a significant social phenomenon, knowledge of the other links courses (anatomy and human physiology, biology) to understand the structure of movement in sport. Relationship of health and vigorous physical activity. Motor level - prevention hypokinesia, movement skills in sports, tourist and recreational activities, guidance on physical exercise for maintaining health.	
Recommended literature: - Cornacchia, L. et al. Serious strength training. Champaign, IL: Human Kinetics, 2003. ISBN 0-7360-4266-0. - Delavier, F. 2001. Strength Training Anatomy. Human Kinetics, 2001. ISBN 0- 7360-4185-0. - Chek, Pl. How to Eat, Move and Be Healthy. 2. Vyd. C.H.E.K Institute: 2004. ISBN 978-1583870068. - Masaryková, D. 2014. Vzdelávacia oblasť - Zdravie a pohyb. Metodická príručka, s. 38, ISBN 978-80-8052-891-1 - Tibenská, M.; Ludvig, D.; Nagyová, L.; Tokár, M. 2022. Pohyb a zdravie – zdravie v pohybe. Učebnica pre vysoké školy, Univerzita Komenského v Bratislave, Farmaceutická fakulta, Katedra telesnej výchovy a športu, 1. vyd. 117 s., ISBN 978-80-223-5501-8.	
Languages necessary to complete the course: Slovak language	

Notes:						
Past grade distribution Total number of evaluated students: 6						
A	ABS	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Mgr. Dalibor Ludvig, PhD., Mgr. Lenka Nagyová, PhD., PaedDr. Martina Tibenská, PhD., Mgr. Michal Tokár, PhD.						
Last change: 03.08.2024						
Approved by: PaedDr. Martina Tibenská, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KTV/04-Bc/24	Course title: Physical Education (4)
Educational activities: Type of activities: practicals Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 1	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Course requirements: - activity, 100% attendance, an absence solution is given by syllabi - passing physical performance testing Scale of assessment (preliminary/final): 0/100	
Learning outcomes: Lectures provide knowledge about the importance of health prevention through active physical movement of adult individuals. Practical exercises to give it ownership of the skills and practical guides.	
Class syllabus: Level of knowledge - PE and sport as a significant social phenomenon, knowledge of the other links courses (anatomy and human physiology, biology) to understand the structure of movement in sport. Relationship of health and vigorous physical activity. Motor level - prevention hypokinesia, movement skills in sports, tourist and recreational activities, guidance on physical exercise for maintaining health.	
Recommended literature: - Cornacchia, L. et al. Serious strength training. Champaign, IL: Human Kinetics, 2003. ISBN 0-7360-4266-0. - Delavier, F. 2001. Strength Training Anatomy. Human Kinetics, 2001. ISBN 0- 7360-4185-0. - Chek, Pl. How to Eat, Move and Be Healthy. 2. Vyd. C.H.E.K Institute: 2004. ISBN 978-1583870068. - Masaryková, D. 2014. Vzdelávacia oblasť - Zdravie a pohyb. Metodická príručka, s. 38, ISBN 978-80-8052-891-1 - Tibenská, M.; Ludvig, D.; Nagyová, L.; Tokár, M. 2022. Pohyb a zdravie – zdravie v pohybe. Učebnica pre vysoké školy, Univerzita Komenského v Bratislave, Farmaceutická fakulta, Katedra telesnej výchovy a športu, 1. vyd. 117 s., ISBN 978-80-223-5501-8.	
Languages necessary to complete the course: Slovak language	

Notes:						
Past grade distribution						
Total number of evaluated students: 3						
A	ABS	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PaedDr. Martina Tibenská, PhD., Mgr. Lenka Nagyová, PhD., Mgr. Dalibor Ludvig, PhD., Mgr. Michal Tokár, PhD.						
Last change: 03.08.2024						
Approved by: PaedDr. Martina Tibenská, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/07-Bc/22	Course title: Physics for Healthcare Professionals
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 3 per level/semester: 28 / 42 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: Student is obliged to perform all laboratory experiments prescribed by the teacher and hand in all reports (assessment 0-8 points per report). Replacement of non-participation in teaching is governed by the syllabus of the subject. Students will write at least two tests during semester regarding preparedness to experiment (assessment 0-6 points per test). Problem solving is a part of laboratory practical. Presentation of a problem solving is evaluated by 0-6 points. The final assessment of laboratory practical is the sum of the average value of reports, average value of tests plus average value of problem solving presentation. Laboratory practical is successfully completed when the student achieves at least 10 points, the highest evaluation is 20 points. The examination has a form of a written test. The assessment of this test (max. value is 80 points) is added to the assessment of the laboratory practical and this sum determines the mark. Students will obtain details of the exam during the first week of the semester. The total assessment of the subject: A 92-100%, B 84-91%, C 76-83%, D 68-75%, E 60-67%, Fx 59% and less. Scale of assessment (preliminary/final): 20/80	
Learning outcomes: By the completion of the subject Physics for Healthcare Professionals, students achieve basic knowledge from these areas of physics that are necessary for understanding logical relationships in other subjects. Students acquire information on physical properties of various materials and knowledge inevitable for understanding principles of diagnostic methods.	
Class syllabus: Lectures: Physical quantities and units. Kinematics and dynamics of mass point. Mechanical work and power. Energy. Solid body mechanics. Hydrostatics and Hydrodynamics. Heat and temperature. Heat and temperature. Electrostatics. Magnetism. Electromagnetic radiation. Acoustics. List of laboratory exercises: Weighing on the analytical balance. Humidity measurement. Density determination by pycnometer. Density determination by densimeter. Polarimetry. Conductometry – determination of the conductivity of acetic acid solutions. Boiling point and melting point. Surface tension of liquids	

measured by stalagmometer. Determination of viscosity using Höppler viscosimeter. Determination of viscosity using capillary viscosimeter. Calorimetry. Refractometry.

Recommended literature:

Oremusová J., Sárka K., Vojteková M.: FYZIKA. Laboratórne cvičenia pre farmaceutov. Bratislava, Univerzita Komenského, 2009. 102 s. (skriptá)

Videa z laboratórnych cvičení prístupné cez MS Teams

Prednášky prístupné na MS Teams

Kopecký, F.: Prehľad fyziky pre farmaceutov I. (Mechanika, hydromechanika a náuka o teple). 4. vydanie, Bratislava, Univerzita Komenského, 1999. 184 s. (skriptá, <http://www.fpharm.uniba.sk/index.php?id=2665>).

Sárka, K., Kopecký, F.: Prehľad fyziky pre farmaceutov II. (Elektrina, magnetizmus a žiarenie). Bratislava, Univerzita Komenského, 1988. 104 s. (skriptá, <http://www.fpharm.uniba.sk/index.php?id=2665>).

Krempaský, J.: Fyzika. Bratislava, Alfa 1982. 752 s.

Halliday D., Resnick R., Walker J: Fyzika. Prometheus. Praha, 2000

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 62

A	ABS	B	C	D	E	FX
3,23	0,0	6,45	19,35	19,35	25,81	25,81

Lecturers: doc. RNDr. Jana Gallová, CSc., Ing. Jarmila Oremusová, CSc., doc. Mgr. Marcela Chovancová, PhD.

Last change: 26.09.2025

Approved by: doc. RNDr. Jana Gallová, CSc.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/26-Bc/24	Course title: Professional Practice in Healthcare Facilities
Educational activities: Type of activities: practice Number of hours: per week: 37,5 per level/semester: 525 Form of the course: on-site learning	
Number of credits: 30	
Recommended semester: 6.	
Educational level: I.	
Prerequisites:	
Course requirements: After completing the semester practice in a healthcare facility, the student is obliged to prepare and send an electronic protocol record (e-protocol) within a specified deadline. Failure to send the e-protocol on time, failure to send the e-protocol at all and failure of the e-protocol to meet the formal and content criteria is considered as failure of the course. The formal and content criteria for the e-protocol are published at the beginning of the summer semester and are available in Moodle or on the course website. At the end of the placement, the healthcare professional responsible for the student's placement will issue a written Assessment of the student's knowledge, skills and activities during the placement (Assessment). The examination is written. Grade A: 100-93%, B: 92-85%, C: 84-77%, D: 76-69%, E: 68-60%, Fx: 59% or less. Passing the exam is subject to submitting the e-protocol via Moodle by the deadline (subject to formal and content criteria) and obtaining at least 60% of the Healthcare Facility Assessment. Scale of assessment (preliminary/final): 0/100	
Learning outcomes: By completing the course, the student uses skills at all levels of health care provision in the dispensary of medical devices, in the pharmacy (public, hospital), in the departments of specialized health care facilities, e.g., in the department of central sterilization, inpatient pharmacy, which includes medical devices. The combination of theoretical and practical training prepares the graduate in a targeted and comprehensive way for the profession of medical device technician.	
Class syllabus: Inventory management, software functionalities for recording inventory and status of medical devices, individually manufactured medical devices, specialised medical supplies, as well as knowledge of the requirements of the medical voucher and prescription record, dispensary care and counselling in the provision of medical devices, including individual assistance with the handling, storage, treatment of medical devices tied to a medical voucher and self-treatment, vigilance practice - monitoring of malfunctions, accidents and medical device failures, complaint possibilities, occupational health and safety, personal data protection, operating rules, hygiene regime and sanitation programme, spatial, material and personnel equipment of a dispensary, pharmacy or department in an institutional health facility, authentication of medical devices (CE	

and UDI code), work with relevant software, including the EUDAMED database. Public health promotion - part of local or national campaigns. Application of basic economic knowledge, skills, and communication, including the application of the principles of the Code of Ethics and legal responsibility and communication in the working place, where the student conducts his/her practice. By completing the course, the student is oriented in the environment of a medical device dispensary/ department, or in a public or institutional pharmacy with a portfolio of medical devices, knows the range and basic operations related to the complex handling of medical devices in the relevant medical facility, in which he/she gains practice and strengthens his/her competencies as a future technician for medical devices.

Recommended literature:

1. Mináriková D. a kol.: Zdravotnícke pomôcky – legislatíva a regulácia, Osveta Martin, 2015, 223 s. ISBN 978-80-8063-418-6.
2. Malovecká I., Mináriková D., Foltán V.: Zdravotnícke pomôcky – vybrané úlohy. Výdaj zdravotníckych pomôcok na lekársky poukaz. FaF UK, 2015, on-line katalóg FaF, ISBN 978-80-223-3812-7
3. Mináriková, D. a kol. 2018. Zdravotnícke pomôcky - princípy úhradovej kategorizácie. Bratislava: Univerzita Komenského v Bratislave, 2018, on-line katalóg FaF, ISBN 978-80-223-4479-1.
4. Aktuálna legislatíva (zákony, vyhlášky a predpisy pre oblasť zdravotníckych pomôcok)

Languages necessary to complete the course:

Slovak language

Notes:

During the internship, the student prepares and sends an e-protocol after the completion of the semester internship through an electronic application (e-learning UK - Moodle). The e-protocol is a formal proof of completion of the professional practice in a health care institution. The practice week is a period characterised by five calendar days, including public holidays and public holidays. Public holidays and public holidays are included in the period of internship, the student does not have to work them.

Past grade distribution

Total number of evaluated students: 1

A	ABS	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PharmDr. Ľubica Lehocká, PhD., PharmDr. Miroslava Snopková, PhD.

Last change: 02.08.2024

Approved by: doc. PharmDr. Daniela Mináriková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/33-Bc/24	Course title: Public Health I
Educational activities: Type of activities: lecture Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: Completion of the course is done by a written exam with a minimum success rate of 60%. Rating: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-65%, E = 64-60%, FX = 59% and less.	
Learning outcomes: By completing the course, the student will gain basic theoretical and practical knowledge about the public health of the population, health determinants, health education and promotion, the prevention of chronic and infectious diseases. The graduate of the course will understand the issues of global disease burden, basic forms of prevention in public health and in the provision of health care, masters the basic principles of epidemiology in public health.	
Class syllabus: Public health - indicators, determinants of health and health status of the population. Basics of epidemiology - methods, studies, indicators. Epidemiology and prevention of infectious diseases - vaccine-preventable diseases, immunization program. Surveillance as a method of work in epidemiology. Epidemiology of non-communicable diseases - risk factors, population impacts, monitoring. Health education and support. Health prevention and protection. Public health programs and interventions - primary prevention, screening. National Health Promotion Program.	
Recommended literature: 1. Šulcová M. a kol.: Verejné zdravotníctvo, Veda 2012, s. 651, ISBN 978-80-224-1283-4 2. Rovný I.: Verejné zdravotníctvo, Herba 2009, s. 125, ISBN 978-80-891-7160-6 3. Hegyi L., Bielik I.: Základy verejného zdravotníctva, Herba 2011, s. 288, ISBN 9788089171842 4. Bražinová A.: Epidemiologické metódy a ich uplatnenie v epidemiológii vybraných ochorení, LF UK v Bratislave 2020, s. 70, ISBN 978-80-223-4982-6 5. Bazovská S. a kol. Špeciálna epidemiológia. UK Bratislava, 2017, s. 337, ISBN 978-80-223-2301-7 6. Bašková M. a kol. Výchova k zdraviu. Martin: Osveta, 2009, s. 226, ISBN 978-80-806-3320-2 7. Zákon NR SR č. 355/2007 Z.z. o ochrane, podpore a rozvoji verejného zdravia a o zmene a doplnení niektorých zákonov	

8. Zdravie 2020, WHO 2012 9. Aktualizácia Národného programu podpory zdravia v Slovenskej republike, 2014 10. Strategický rámec starostlivosti o zdravie pre roky 2014 – 2030						
Languages necessary to complete the course: Slovak language						
Notes:						
Past grade distribution Total number of evaluated students: 31						
A	ABS	B	C	D	E	FX
9,68	0,0	25,81	25,81	19,35	6,45	12,9
Lecturers: doc. PharmDr. Daniela Mináriková, PhD., prof. PharmDr. Tomáš Tesař, PhD., MBA						
Last change: 02.08.2024						
Approved by: doc. PharmDr. Daniela Mináriková, PhD.						

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/13-Bc/24	Course title: Public Health II
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 2 / 1 per level/semester: 28 / 14 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 2.	
Educational level: I.	
Prerequisites:	
Course requirements: 1. Obligatory participation in seminars. Absence on the seminar must be proved by the reason for absence and the seminar must be replaced in agreement with the teacher. 2. Continuous test without a minimum success rate (2 tests). 3. Completion of the course is done by a written exam with a minimum success rate of 60%. Rating: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-65%, E = 64-60%, FX = 59% and less.	
Learning outcomes: By completing the course, the student will gain basic theoretical and practical knowledge about the public health system and master the legislation used in public health. Understand the organization and delivery of public health at the national and international levels, including emergencies and specific population groups. He has knowledge of basic protective equipment in the context of medical devices.	
Class syllabus: Public health as a part of health care system - legislation, content, content. Act on the protection, support and development of public health - subject to regulation. Organization and performance of public health. Implementation of the prevention of diseases and other health disorders. Measures of state administration bodies in the field of public health care in case of emergencies. Obligations of natural and legal persons in the protection, promotion and development of public health. Execution of state health supervision, offenses and other administrative offenses in the field of public health. Working conditions and personal protective equipment. Local and global public health issues. WHO, ECDC, state and non-governmental organizations in health prevention, protection and promotion. Public Health Authority of the Slovak Republic, Regional Public Health Offices, health counselling offices. Equality in health. Vulnerable groups - woman and child, seniors, Roma population, people addicted to alcohol, drugs and public health. Minority groups - homeless, unemployed, immigrants and public health.	
Recommended literature: 1. Šulcová M. a kol.: Verejné zdravotníctvo, Veda 2012, s. 651, ISBN 978-80-224-1283-4 2. Rovný I.: Verejné zdravotníctvo, Herba 2009, s. 125, ISBN 978-80-891-7160-6	

3. Hegyi L., Bielik I.: Základy verejného zdravotníctva, Herba 2011, s. 288, ISBN 9788089171842
4. Act of the National Assembly of the Slovak Republic No. 355/2007 Coll. on protection, promotion and development of public health and on amendment and supplementation of certain acts.
5. Government Regulation No. 392/2006 Coll. on minimum safety and health requirements for the use of work equipment.
6. Government Regulation No. 395/2006 Coll. on minimum requirements for the provision and use of personal protective equipment.

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 14

A	ABS	B	C	D	E	FX
0,0	0,0	35,71	14,29	21,43	21,43	7,14

Lecturers: doc. PharmDr. Daniela Mináriková, PhD., prof. PharmDr. Tomáš Tesař, PhD., MBA

Last change: 02.08.2024

Approved by: doc. PharmDr. Daniela Mináriková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/06-Bc/24	Course title: Quality Control of the Medical Devices I
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 4 per level/semester: 28 / 56 Form of the course: on-site learning	
Number of credits: 8	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: Continuous assessment: checking the readiness of the student at the beginning of each exercise in writing + achieve min. 60% success in the experimental result; 2 tests of 10 points each - 60% of the possible points (10 points/practice) is required to successfully complete the laboratory practical. Final evaluation: after meeting the conditions of the continuous evaluation (achievement of at least 60% of the points obtained for 2 tests) and successful completion of the experimental part (achievement of 60% of the points in practices), exam (achievement of 60% of the points). Credits will not be assigned to a student who obtains less than 6 points from any written examination. Examination: to get an A grade it is necessary to obtain at least 93 %, to get an B grade at least 85 %, to get a C grade at least 77 %, to get a D grade at least 69 % and to get an E grade at least 60%. Scale of assessment (preliminary/final): 50/50	
Learning outcomes: After completing the exercises, the student will gain an overview of the use of analytical chemistry and analytical methods used in qualitative and quantitative analysis of substances, laboratory skills in methods of qualitative and quantitative volumetric analysis. The student will gain theoretical knowledge and practical skills for comprehensive management of analytical chemistry, necessary for choosing the optimal analytical procedure for the detection, separation and determination of elements and identification of organic compounds occurring in various medical materials in high concentrations and in trace amounts.	
Class syllabus: Comprehensive mastery of analytical chemistry, necessary for the choice of the optimal analytical procedure for the detection, separation and determination of elements and identification of organic compounds present in various medical supplies, both in high concentrations and in trace amounts. Representation of individual branches of analytical chemistry is characterized by emphasis on separation methods, trace analysis and microanalysis in terms of safety of medical supplies with regard to the requirements of the Slovak Pharmacopoeia, European Pharmacopoeia, the Medical Devices Act and relevant standards. Analytical chemistry: essence, meaning, distribution (purpose, methods, amount of analyzed component). Requirements for the analytical reaction: sensitivity and selectivity of the analytical reaction, purity of chemical reagents. General procedure of inorganic	

and organic qualitative analysis, carrying out the proof. Methods for determination of inorganic and organic substances. Chemical methods of determination - gravimetric analysis, volumetric analysis. Instrumental determination methods - electrochemical methods, separation analytical methods, spectral analytical methods. Good laboratory practice. Validation of used analytical methods. Certification of products.

Outline:

- Analytical chemistry - essence, meaning, division.
 - Analytical reactions, proteolytic, oxidation-reduction, complexing, precipitation, their use and analytical chemistry.
 - Group and selective reactions of cations (NH_4^+ , Ag^+ , Hg_2^{2+} , Pb^{2+} , Hg^{2+} , Cu^{2+} , Bi^{3+} , Fe^{2+} , Fe^{3+} , Ni^{2+} , Al^{3+} , Zn^{2+} , analysis of samples containing alkaline earth ions Ba^{2+} , Ca^{2+} , Mg^{2+} besides heavy metals, verification on known samples), proves in unknown samples. Suppression of interfering components in chemical proves of cations
 - Group and selective reactions of anions (SO_4^{2-} , CO_3^{2-} , AsO_3^{3-} , AsO_4^{3-} , PO_4^{3-} , Cl^- , Br^- , I^- , NO_3^-)
 - Quantitative analysis. Volumetric solutions, standardization. Titration curves, indicators.
 - Quantitative analysis - Quantitative methods based on proteolytic reactions - alkalimetry, acidimetry.
 - Quantitative analysis. Quantitative methods based on redox reactions - manganometry.
 - Quantitative analysis. Quantitative methods based on complexing reactions.
- Chelatometry.
- Quantitative analysis. Quantitative methods based on precipitation reactions.
 - Organic analysis - proof and identification of organic substances.
 - Organic analysis - qualitative elemental analysis, characterization, classification of substances according to solubility.
 - Organic analysis - evidence of functional groups; derivatization; instrumental identification.

Recommended literature:

Majer, J. a kol.: Analytická chémia pre farmaceutov. Martin, Osveta 1989. 363 p.
Pikulíková, A., Dvořáková, E., Riečanská, E.: Laboratórne cvičenia z analytickej chémie I. : chemická analýza. Bratislava: UK, 1999. 273 p.
Křenek, P.: Analýza organických látok. Bratislava: UK, 1997.
Havránek, E. a kol.: Laboratórne cvičenia z analytickej chémie III : fyzikálno-chemické metódy. Bratislava: UK, 1998. 91 p.
Garaj, J., Bustin, D., Hladký, Z.: Analytická chémia. Bratislava: Alfa, 1989. 740 p.
Mikuš, P., Mikušová, V.: Analytical Chemistry: Chemical Analysis. Bratislava : VEDA SAV, 2022. 190 s. (skriptá)
Světlík, J.: Molekulová spektroskopia a optické metódy. Bratislava : UK, 2006. 81 p.

Languages necessary to complete the course:

slovak language

Notes:

Past grade distribution

Total number of evaluated students: 172

A	ABS	B	C	D	E	FX
20,35	0,0	17,44	23,84	21,51	13,95	2,91

Lecturers: RNDr. Svetlana Dokupilová, PhD., Ing. Ivan Benkovský, PhD.

Last change: 02.08.2024

Approved by: prof. RNDr. Peter Mikuš, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFCh/07-Bc/24	Course title: Quality Control of the Medical Devices II
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 4 per level/semester: 28 / 56 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 4.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: Recommended Prerequisite: The Course on Quality Control of the Medical Devices II follows on from obtained knowledge from the course FaF.KFCh/09-Bc/00 Basics of Chemistry of Materials II and FaF.KFANF/06-Bc/15 Quality Control of the Medical Devices I.	
Course requirements: Compulsory participation in all forms of teaching in full extent. Passing two preliminary tests, which consist of questions from laboratory practicals and lectures, with a minimum success rate of 60%. Elaboration of protocols "Quality control of medical devices, excipients and drugs" according to the principles of good laboratory practice in accordance with applicable regulations. Final written examination. The final written examination consists of quality control issues for medical devices, excipients and drugs as parts and accessories of the medical device (identification tests, purity tests, determination of content), in accordance with applicable European Union legislation, the Slovak Republic and validation of these methods. Exam evaluation: 100-92,00% evaluation A, 91,99-84,00% evaluation B, 83,99-76,00% evaluation C, 75,99-68,00% evaluation D, 67,99-60,00% evaluation E, less than 60,00% evaluation FX. Scale of assessment (preliminary/final): 40/60	
Learning outcomes: Medical devices must meet high quality requirements due to their practical use in medical and preventive patient care. At lectures and laboratory practical's, the student will learn the regulations related to the evaluation of the quality of medical devices in accordance with the Slovak and European legislation. Student will learn theoretically and practically methods and tests for verification of identity, purity tests, he/she will learn to prove and evaluate the presence of impurities in individual types of medical devices and determine the content where the relevant standards prescribe it. At the same time, he/she will be able to manage the issue of control of drugs that are accessories of a medical device, or a fixed part of it, or are listed in categorization lists as medical devices.	
Class syllabus:	

1. Content, mission, and importance of the discipline. Quality control and evaluation of medical devices in the Slovak Republic. European Pharmacopoeia. Technical standards.
2. European Pharmacopoeia test methods for identification and purity tests based on physical and chemical principles - flame tests, solubility, melting point, relative density, freezing point, drop point, boiling point, distillation range, viscosity.
3. European Pharmacopoeia test methods for identification and purity tests based on the physicochemical principle - reaction of solution, pH value, conductivity, optical rotation, refractive index - general pharmacopoeial articles.
4. European Pharmacopoeia test methods for identification tests based on the chemical principle - Ions and groups identification tests.
5. Purity tests - general articles in the valid pharmacopoeia - clarity and degree of opalescence of liquids, degree of coloration of liquids, loss on drying, sulfated ash. Limit tests for impurities.
6. European Pharmacopoeia test methods for identification and purity tests - optical and separation instrumental methods - general pharmacopoeial articles.
7. European Pharmacopoeia test methods for identification and purity tests - separation instrumental methods - general pharmacopoeial articles.
8. Determination of content according to valid pharmacopoeia and technical standards.
9. Evaluation of the quality of medical devices according to the current pharmacopoeia and technical standards – surgical suture fibers, cotton wool.
10. Evaluation of the quality of medical devices according to the applicable pharmacopoeia and technical standards - packaging and packaging material - plastics.
11. Evaluation of the quality of medical devices according to the applicable pharmacopoeia and technical standards - packaging and packaging material - glass.
12. Evaluation of the quality of medicinal products that are categorised as a medical device.
13. Evaluation of the quality of medical devices according to the current pharmacopoeia and technical standards of which the medicinal product is incorporated.
14. Interaction of the medical device and the drug administered by it – stability tests.

Recommended literature:

European Pharmacopoeia, Current Edition and Supplements, Strasbourg, Council of Europe, Cedex

Slovenský farmaceutický kódex, aktuálne vydanie.

Slovenský farmaceutický kódex 2015, druhé vydanie.

Aktuálne technické normy pre zdravotnícke pomôcky.

Bezáčková, Ž.: Analýza chemických liečiv : stanovenie obsahu liečiv podľa Slovenského liekopisu I. 1. vyd. Nitra: VA PRINT, 2000. 208 s.

Bezáčková, Ž., a kol.: Základy farmaceutickej analýzy : kvalitatívne hodnotenie chemických liečiv. 1.vyd. Nitra: VA PRINT, 2002.

Bezáčková, Ž.: Kvalita liečiva - zabezpečenie a kontrola. Vydavateľstvo Neografia, Martin, 2007. Slovenský liekopis 1. (SL 1). Zv.I. - Zv. VII. Bratislava: Herba, 1997 - 2004.

Languages necessary to complete the course:

Slovak language

Notes:

Past grade distribution

Total number of evaluated students: 14

A	ABS	B	C	D	E	FX
64,29	0,0	14,29	14,29	0,0	0,0	7,14

Lecturers: doc. PharmDr. Miroslava Sýkorová, PhD., PharmDr. Iva Kapustíková, PhD.
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Last change: 02.08.2024

Approved by: doc. PharmDr. Miroslava Sýkorová, PhD.
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COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KZT/02-Bc/25	Course title: Technological Aspects of Medical Devices in Health Care I
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Course requirements: Attendance at lectures is mandatory. Compensation for non-attendance is regulated by the subject syllabus. During the semester, the student undergoes two intermediate assessments in the form of a test. The semester ends with a semester oral exam. Rating: A: 93.00-100.00%, B 85.00- 92.00%, C: 77.00-84.00%, D: 69.00-76.00%, E: 60.00-68.00%, Fx:59.99% and less. Scale of assessment (preliminary/final): Weight of evaluation interim evaluation/ final evaluation 30/70	
Learning outcomes: The student acquires knowledge about medical devices included in the List of Categorized Medical Devices and the List of Special Medical Material, about their use in health care. He/she will acquire skills in the refurbishment of medical devices (MDs) intended for refurbishment by manufacturers in the form of traineeships in a healthcare facility and by mean of laboratory practical. Student will learn to work according to standards in the quality risk management system. The acquired knowledge can be applied mainly in health care facilities, especially in health care facilities where it is necessary to ensure the medical performance in sterilization of medical devices and the performance in disinfection of medical equipment and accessories. Student will become familiar with basic imaging methods. The teaching is strengthened by laboratory practical related to quality control of the entire sterilization procedure (cleaning, disinfection, and sterilization methods). The complexity of acquired knowledge in the field of sterilization of MDs, in conjunction with education to meet a responsibility for compliance with sanitary-epidemiological regime and hygienic requirements, represent a key prerequisite for reliable operation of any medical facility.	
Class syllabus: 1. Medical devices made of material of organic origin (wood, paper, textiles, rubber) 2. Medical devices made of material of inorganic origin (glass, metal, synthetic polymers) 3. 3D manufactured medical devices 4. Implants 5. Medical devices for simple examination/testing 6. Medical devices for measuring vital functions	

<p>7. List of categorized medical devices - part one</p> <p>8. List of categorised medical devices – second part</p> <p>9. List of categorized special medical materials</p> <p>10. List of customized medical devices</p> <p>11. Medical device as a part of medical technology</p> <ul style="list-style-type: none"> - health problem and use of technology - description and technical characteristics of the technology - clinical efficacy, safety, and functionality of the technology - other aspects of the technology 														
<p>Recommended literature:</p> <p>Boroňová, J. a kol. 2021. Vybrané témy z ošetrovateľskej problematiky – II. časť. I. vydanie. Trnava: Typi Universitatis Tyrnaviensis, 2021, 256 s. ISBN 978-80-568-0246-5</p> <p>Kolář, J., Malý, J. 2005. Zdravotnícké prostriedky 1. Třídění zdravotníckých prostředků podle charakteru materiálů. Veterinárná a Farmaceutická Univerzita Brno, Farmaceutická Fakulta, 2005. 142 s. ISBN 80- 7305-545-7</p> <p>Mináriková, D. a kol. 2015. Zdravotnícke pomôcky. Legislatíva a regulácia. Vysokoškolská učebnica. Martin: Osveta, 2015. 1. vyd., 222 s. ISBN 978-80-8063-418-6</p> <p>Kudlejová M., a kol.: Inštrumentovanie, princípy, techniky, zásady a postupy Martin 2014, Osveta ISBN 978-80-8063-423-0</p> <p>Čižmáriková M. a Takáč P.: Liekové formy a aplikačné cesty podávania liekov so zameraním na ich význam v humánnej medicíne, Košice 2019 Šafárik Press, ISBN 978-80-8152-753-1</p> <p>Kozierová B., a kol.: Ošetrovateľstvo I a II, Martin, Osveta 2004 ISBN 8021705280</p>														
<p>Languages necessary to complete the course:</p> <p>Slovak language</p>														
<p>Notes:</p>														
<p>Past grade distribution</p> <p>Total number of evaluated students: 10</p> <table border="1"> <thead> <tr> <th>A</th> <th>ABS</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>FX</th> </tr> </thead> <tbody> <tr> <td>30,0</td> <td>0,0</td> <td>20,0</td> <td>20,0</td> <td>0,0</td> <td>30,0</td> <td>0,0</td> </tr> </tbody> </table>	A	ABS	B	C	D	E	FX	30,0	0,0	20,0	20,0	0,0	30,0	0,0
A	ABS	B	C	D	E	FX								
30,0	0,0	20,0	20,0	0,0	30,0	0,0								
<p>Lecturers: PharmDr. Janka Kubíková, PhD., MPH, PharmDr. Milica Molitorisová, PhD., Ing. Silvia Molnárová, PharmDr. Zuzana Baťová, PhD., PhDr. Iveta Béressová, M.Sc. Ľudmila Oreská, PhD., PharmDr. Eva Rybárová, PharmDr. Attila Kulcsár, PhD., PharmDr. Kristína Szmicseková, PhD.</p>														
<p>Last change: 29.05.2025</p>														
<p>Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.</p>														

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KZT/04-Bc/25	Course title: Technological Aspects of Medical Devices in Health Care II
Educational activities: Type of activities: lecture / laboratory practicals Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 3.	
Educational level: I.	
Prerequisites:	
Recommended prerequisites: It is recommended to take the course Technological aspects of medical devices in health care I before.	
Course requirements: Attendance at lectures is mandatory. Compensation for non-attendance is regulated by the subject syllabus. During the semester, the student undergoes two intermediate assessments in the form of a test. The semester ends with a semester oral exam. Rating: A: 93.00-100.00%, B: 85.00-92.00%, C: 77.00-84.00%, D: 69.00-76.00%, E: 60.00-68.00%, Fx:59.99% and less. Scale of assessment (preliminary/final): Weight of evaluation interim evaluation/ final evaluation 30/70.	
Learning outcomes: The student acquires knowledge about the materials used for the manufacture of medical devices. He has basic knowledge and production technologies considering the latest innovations in the field of medical technology used in several medical fields, in outpatient as well as in institutional care, e.g., in oncology, neurology, internal medicine, invasive cardiac surgery. A special topic about 3D technology opens for the student an innovative and dynamically developing area of technologies used in the production of medical devices that become part of the provided health care, e.g., in dentistry, orthopaedic prosthetics, cardiology and other medical disciplines. By successfully completing the subject, and ultimately the entire study programme, the graduate of the study programme Medical and Diagnostic Devices acquires the competence for handling medical devices (e.g., treatment, storage), in biochemical examinations and in the measurement of physical parameters, e.g., in a public pharmacy as a place for testing basic biochemical parameters and measuring physical parameters of patients, in the so-called "Point of Care Testing".	
Class syllabus: The core agenda of the course is material technology and technology of production of medical devices in connection with ensuring the quality, safety, and effective use of the medical device to	

achieve the intended purpose. The teaching follows the subject Technological aspects of medical devices in health care I. It includes:

- Material of organic origin for the manufacture of medical devices and their use in clinical practice
- Manufacturing of medical devices from basic raw material of organic origin
- Material of inorganic origin for the manufacture of medical devices and their use in clinical practice
- Production of medical devices from basic raw material of inorganic origin and their use in clinical practice
- Qualitative evaluation of materials according to the use of the medical device
- Material corrosion
- Digital technologies: 3D printing, 3D measurements and CAD/CAM

Recommended literature:

Vojtěch, D.: Materiály a jejich mezní stavy. Vydavatelství VŠCHT Praha 2010, ISBN 978-80-708-074-1,

Boroňová, J. a kol. 2021. Vybrané témy z ošetrovateľskej problematiky – II. časť. I. vydanie. Trnava: Typi Universitatis Tyrnaviensis, 2021, 256 s. ISBN 978-80-568-0246-5

Kolář, J., Malý, J. 2005. Zdravotnické prostředky 1. Třídění zdravotnických prostředků podle charakteru materiálů. Veterinární a Farmaceutická Univerzita Brno, Farmaceutická Fakulta, 2005. 142 s. ISBN 80- 7305-545-7

Kudlejová M., a kol.: Inštrumentovanie, princípy, techniky, zásady a postupy Martin 2014, Osveta ISBN 978-80-8063-423-0

Rosina, J. Vránová, J., Kolářová. 2021. Biofyzika pro zdravotnické a biomedicínske obory. 2. doplnené vyd. Praha: Grada, 2021, 296 s. ISBN 978-80-271-2526-5

Šedý, J. 2020. Somatické vyšetření ve stomatologii. Galén, 2020, 263 s. ISBN 978-807-49-2086-8

STN EN ISO norms

Languages necessary to complete the course:

Slovak language

Notes:

The subject is provided in the winter semester with at least 5 students.

Past grade distribution

Total number of evaluated students: 0

A	ABS	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PharmDr. Janka Kubíková, PhD., MPH, Ing. Silvia Molnárová, PharmDr. Zuzana Baťová, PhD., PhDr. Iveta Béressová, M.Sc. Ľudmila Oreská, PhD., PharmDr. Eva Rybárová, PharmDr. Attila Kulcsár, PhD., PharmDr. Kristína Szmicsková, PhD.

Last change: 29.05.2025

Approved by: doc. Mgr. Martina Hrčka Dubničková, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KZT/03-Bc/25	Course title: Veterinary Medical Devices
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 1 / 1 per level/semester: 14 / 14 Form of the course: on-site learning	
Number of credits: 3	
Recommended semester: 5.	
Educational level: I.	
Prerequisites:	
Course requirements: To be admitted to the exam, student is required to attend all lectures and seminars. The condition for passing the course is passing the final exam test and the oral exam. The test and the oral exam contribute equally to the overall result of the exam and the student must demonstrate mastery of at least 60% of the required knowledge. The exam test result is evaluated on a scale: A (at least 92%), B (at least 83%), C (at least 76%), D (at least 68%), E (at least 60%) and Fx (less than 60% of the maximum number points). Scale of assessment (preliminary/final): 0/100	
Learning outcomes: By completing the course, the student will gain an overview of the specifics of veterinary health care. Student will be familiar with veterinary medical devices and basic operations that are part of veterinary medical practice.	
Class syllabus: Specifics of veterinary medicine - differences from human health care. Veterinary drug forms and routes of administration. Zoonoses, the most common animal diseases. Specific veterinary medical devices that are used in selected situations - application of drugs in bulk and individually; euthanasia; controlled reproduction of livestock; GIT diseases and disorders; skin damage; animal poisoning; disinfection. Veterinary diagnostics.	
Recommended literature: Šnirc J., Sokol J., Seginko J., Hera A. a kol.: Klinická veterinárna farmakológia. Martin; Neografia a. s. 2007:1184. První vydání. ISBN 978-80-88892-75-5.	
Languages necessary to complete the course:	
Notes:	

Past grade distribution						
Total number of evaluated students: 144						
A	ABS	B	C	D	E	FX
36,11	0,0	25,0	16,67	13,19	8,33	0,69
Lecturers: doc. PharmDr. Marek Mátuš, PhD., doc. Mgr. Peter Vavrinec, PhD.						
Last change: 29.05.2025						
Approved by: doc. PharmDr. Marek Mátuš, PhD.						