

Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/01-Mgr-A/00	Course title: Academic English Language Preparation (1)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 2.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: intermediate level of English	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars 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 pharmacist. 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 care, the role of a pharmacist, services available in a pharmacy, laboratory equipment.	
Recommended literature: Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992 James, V.D.: Medicine.: London: Prentice Hall, 1989 Course Reader I, Grammar Workbook I	
Languages necessary to complete the course: English language	
Notes: Academic English Language Preparation (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. The contents of these specialized professional courses closely follow the contents of other professional courses taught in the relevant semesters. It is therefore highly recommended to take the courses gradually from	

the 2nd to the 5th semester (including) of the study, i.e. Academic English Language Preparation (1) in the 2nd (summer) semester of study.

Past grade distribution

Total number of evaluated students: 609

A	B	C	D	E	FX
17,08	11,66	17,41	17,24	30,21	6,4

Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Ing. Mgr. Erika Jurišová, PhD., Mgr. Oľga Hollá

Last change: 04.04.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/02-Mgr-A/00	Course title: Academic English Language Preparation (2)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: intermediate level of English	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student is able to understand professional texts, reproduce their content orally and in writing, using English professional terminology from the field of factors influencing health condition. 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: factors influencing our health, pollution of environment, drug abuse and drug addiction, health care, disease transmission.	
Recommended literature: Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992 James, V.D.: Medicine.: London: Prentice Hall, 1989 Course Reader II, Grammar Workbook II	
Languages necessary to complete the course: English language	
Notes: Academic English Language Preparation (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. The contents of these specialized professional courses closely follow the contents of other professional courses taught in the relevant semesters. It is therefore highly recommended to take the courses gradually from	

the 2nd to the 5th semester (including) of the study, i.e. Academic English Language Preparation (2) in the 3rd (winter) semester of study.

Past grade distribution

Total number of evaluated students: 538

A	B	C	D	E	FX
22,12	13,01	17,1	20,07	24,54	3,16

Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Ing. Mgr. Erika Jurišová, PhD., Mgr. Oľga Hollá

Last change: 10.12.2015

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/03-Mgr-A/00	Course title: Academic English Language Preparation (3)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: intermediate level of English	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student is able to understand professional texts, reproduce their content orally and in writing, using English professional terminology from the field of basic chemical terminology and disease prevention. 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: disease prevention, healthy way of life, balanced diet, vitamins, minerals, cosmetics, first aid, treatment in various situations and emergencies.	
Recommended literature: Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992 James, V.D.: Medicine. London: Prentice Hall, 1989 Course Reader III, Grammar Workbook III	
Languages necessary to complete the course: English language	
Notes: Academic English Language Preparation (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. The contents of these specialized professional courses closely follow the contents of other professional courses taught in the relevant semesters. It is therefore highly recommended to take the courses gradually from	

the 2nd to the 5th semester (including) of the study, i.e. Academic English Language Preparation (3) in the 4th (summer) semester of study.					
Past grade distribution					
Total number of evaluated students: 491					
A	B	C	D	E	FX
21,79	12,42	16,5	13,85	29,53	5,91
Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Ing. Mgr. Erika Jurišová, PhD., Mgr. Oľga Hollá					
Last change: 10.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/04-Mgr-A/00	Course title: Academic English Language Preparation (4)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: intermediate level of English	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student is able to understand professional texts, reproduce their content orally and in writing, using English professional terminology from the field of pharmacology. 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: common disorders, home medicine cabinet, drug classification, frequently prescribed drugs, their sources, composition and effects, alternative medicine, healing herbs - their structure and functions.	
Recommended literature: Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992 James, V.D.: Medicine.: London: Prentice Hall, 1989 Course Reader IV, Grammar Workbook IV	
Languages necessary to complete the course: English language	
Notes: Academic English Language Preparation (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. The contents of these specialized professional courses closely follow the contents of other professional courses taught in the relevant semesters. It is therefore highly recommended to take the courses gradually from	

the 2nd to the 5th semester (including) of the study, i.e. Academic English Language Preparation (4) in the 5th (summer) semester of study.

Past grade distribution

Total number of evaluated students: 369

A	B	C	D	E	FX
13,55	12,47	22,22	19,78	21,14	10,84

Lecturers: PaedDr. Viera Žufková, PhD., PhDr. Darina Kližanová, Ing. Mgr. Erika Jurišová, PhD., Mgr. Oľga Hollá

Last change: 10.12.2015

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KJ/15-Mgr-A/17		Course title: Academic English Language Preparation (5)			
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: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: Ing. Mgr. Erika Jurišová, PhD., PhDr. Darina Kližanová, PaedDr. Viera Žufková, PhD., Mgr. Oľga Hollá					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/11-Mgr-A/15	Course title: Academic German 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: 2.	
Educational level: I.II.	
Prerequisites:	
Antirequisites: FaF.KJ/01-Mgr-A/00	
Course requirements: - active participation of students in classroom - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15/85	
Learning outcomes: Students are able to use basic German grammar and practice the basic skills of listening, speaking, reading and writing in the present tense with an emphasis upon correct oral and written expressions and aural comprehension. Students are also introduced to various aspects of German culture in Germany and in German speaking countries focusing on the professional environment of pharmacies.	
Class syllabus: The course is for absolute beginners in German language who would like to obtain basic communication skills and grammar structures needed for everyday life in the academic and professional environment in a German speaking country.	
Recommended literature: Schritte international 1: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau A1/1, Hueber, 2009. Schritte international 2: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau A1/2, Hueber, 2009.	
Languages necessary to complete the course: English language, no previous knowledge of German language is needed for this course.	
Notes: The course is held only in summer semester. It is highly recommended to take the course in the 2nd semester of the study.	

Past grade distribution					
Total number of evaluated students: 12					
A	B	C	D	E	FX
8,33	0,0	0,0	0,0	0,0	91,67
Lecturers: PhDr. Tomáš Hamar, PhD., Ing. Mgr. Erika Jurišová, PhD.					
Last change: 12.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/12-Mgr-A/15	Course title: Academic German 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: 2	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Antirequisites: FaF.KJ/02-Mgr-A/00	
Course requirements: - active participation of students in classroom - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15/85	
Learning outcomes: Students are able to use basic German grammar and practice the basic skills of listening, speaking, reading and writing in the present tense with an emphasis upon correct oral and written expressions and aural comprehension. Students are also introduced to various aspects of German culture in Germany and in German speaking countries focusing on the professional environment of pharmacies.	
Class syllabus: The course is for absolute beginners in German language who would like to obtain basic communication skills and grammar structures needed for everyday life in the academic and professional environment in a German speaking country.	
Recommended literature: Schritte international 2: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau A1/2, Hueber, 2009. Schritte international 3: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau A2/1, Hueber, 2009.	
Languages necessary to complete the course: English language, only minimal previous knowledge of German language is needed for this course.	
Notes: The course is held only in winter semester. It is highly recommended to take the course in the 3rd semester of the study.	

Past grade distribution					
Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PhDr. Tomáš Hamar, PhD., Ing. Mgr. Erika Jurišová, PhD.					
Last change: 12.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/13-Mgr-A/15	Course title: Academic German 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: 2	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Antirequisites: FaF.KJ/03-Mgr-A/00	
Course requirements: - active participation of students in classroom - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15/85	
Learning outcomes: Students are able to use basic German grammar and practice the basic skills of listening, speaking, reading and writing in the present tense with an emphasis upon correct oral and written expressions and aural comprehension. Students are also introduced to various aspects of German culture in Germany and in German speaking countries focusing on the professional environment of pharmacies.	
Class syllabus: The course is for absolute beginners in German language who would like to obtain basic communication skills and grammar structures needed for everyday life in the academic and professional environment in a German speaking country.	
Recommended literature: Schritte international 4: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau A2/2, Hueber, 2009. Schritte international 5: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau B1/1, Hueber, 2009.	
Languages necessary to complete the course: English language, only minimal previous knowledge of German language is needed for this course.	
Notes: The course is held only in summer semester. It is highly recommended to take the course in the 4th semester of the study.	

Past grade distribution					
Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PhDr. Tomáš Hamar, PhD., Ing. Mgr. Erika Jurišová, PhD.					
Last change: 12.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/14-Mgr-A/15	Course title: Academic German Language Preparation (4)
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: 5.	
Educational level: I.II.	
Prerequisites:	
Antirequisites: FaF.KJ/04-Mgr-A/00	
Course requirements: - active participation of students in classroom - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15/85	
Learning outcomes: Students are able to use basic German grammar and practice the basic skills of listening, speaking, reading and writing in the present tense with an emphasis upon correct oral and written expressions and aural comprehension. Students are also introduced to various aspects of German culture in Germany and in German speaking countries focusing on the professional environment of pharmacies.	
Class syllabus: The course is for absolute beginners in German language who would like to obtain basic communication skills and grammar structures needed for everyday life in the academic and professional environment in a German speaking country.	
Recommended literature: Schritte international 5: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau B1/1, Hueber, 2009. Schritte international 6: Deutsch als Fremdsprache / Kursbuch + Arbeitsbuch mit Audio-CD zum Arbeitsbuch und interaktiven Übungen: Niveau B1/2, Hueber, 2009.	
Languages necessary to complete the course: English language, previous knowledge of German language is needed for this course.	
Notes: The course is held only in winter semester. It is highly recommended to take the course in the 5th semester of the study.	

Past grade distribution					
Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PhDr. Tomáš Hamar, PhD., Ing. Mgr. Erika Jurišová, PhD.					
Last change: 12.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KJ/16-Mgr-A/17		Course title: Academic German Language Preparation (5)			
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: 7.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: PhDr. Tomáš Hamar, PhD., Ing. Mgr. Erika Jurišová, PhD.					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/03-Mgr-A/00	Course title: Analysis of Substances in Biological Systems
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 2 / 0 per level/semester: 14 / 28 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 7.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 50/50	
Learning outcomes:	
Class syllabus: The subject is presented as a specialized section of analytical chemistry aimed at the biological systems in their static as well as dynamic state. The elective subject, Analysis of substances in biological systems, is oriented on the analysis of biologically active substances (drugs) and their metabolites in the samples of biological origin as well as on the determination of contaminants in the medicinal herbs and in the environmental parts. The attention is paid to the sample preparation procedures for inorganic as well as organic analytes and various types of the analyses. Student will become skilled at the choice of optimal analytical method (especially within the separation methods) for the given analytical problem. The knowledge of the student are extended in the field of analysis of biological samples by chromatographic and electromigration methods. The latest trends in the analysis of multicomponent mixtures by planar and column chromatographic methods (including gas, liquid and micellar chromatography) and electromigration methods (isotachophoresis, capillary zone electrophoresis and their on-line combination, micellar electrokinetic chromatography, capillary gel electrophoresis, capillary isoelectric focusing, capillary electrochromatography) are presented. Interesting applications of electrochemical methods with the proper sample preparation are included too. Students obtain relevant information concerning advantages and limitations of various analytical methods. They become familiar with the basic principles of a good laboratory practice, the conditions for the sample collection and storage and the work with the scientific literature. The subject is recommended mainly to those which are interested in MSc. thesis at the Department of pharmaceutical analysis and nuclear pharmacy. Laboratory practices are aimed at the utilization of modern instrumental methods (electromigration and chromatographic methods with conventional as well as selective detectors) in the current trace analysis. Syllabus: • Introduction to the bioanalysis. • Enzymatic methods in analytical chemistry. • Immunochemical methods.	

- Polymerase chain reaction (PCR) in bioanalysis.
- Biological and microbiological analytical methods.
- Radionuclides in bioanalysis.
- Nuclear analytical methods in the determination of selected elements in biological samples.
- Biosensors in the determination of biologically important molecules present in body fluids.
- Spectral methods (DAD, LIF, MS, etc.) in bioanalysis.
- Separation methods: Electromigration methods in bioanalysis.
- Separation methods: Chromatographic methods in bioanalysis.
- Hyphenated separation methods with spectral methods in bioanalysis.
- Results evaluation in bioanalysis.

Recommended literature:

Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis.

Bratislava : KARTPRINT, 2012. 217 s. (vedecká monografia)

Tekeľ, J., Mikuš, P.: Analýza látok v biologických systémoch. Bratislava, 2004. 192 s.

Babjuk, J., Perlík, F., Sídlo, Z.: Bioanalytika léků. Praha : Avicenum, 1990. 262 s.

Chromý, V., Fischer, J.: Bioanalytika : analytická chemie v laboratorní medicíně. Brno : MU, 2002. 267 s.

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 171

A	B	C	D	E	FX
14,62	5,85	18,13	23,39	38,01	0,0

Lecturers: prof. RNDr. Peter Mikuš, PhD.

Last change: 08.06.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/01-Mgr-A/00	Course title: Analytical Chemistry (1)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 4 / 0 per level/semester: 28 / 56 / 0 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 20/80	
Learning outcomes:	
Class syllabus: The scope of Analytical chemistry (1), a subject integrating qualitative analysis, is to provide a consistent and sufficiently extensive theoretical and methodical knowledge base for the chemical and instrumental analysis of inorganic as well as organic compounds including drugs. Besides the above-mentioned direct objective, the education of analytical chemistry significantly influences the formation of logical train of thought of incoming pharmacist and his/her orientation in the field. Experimentally skilled student becomes familiar with a wide scale of pharmaceutically important substances and their properties related to biological activity and therapeutic action. Student acquires creativity and principles of a good laboratory practice. Validation of analytical methods is included. The development of all parts of analytical chemistry as a scientific discipline is characterized by emphasis on microanalysis and trace analysis, development of new methods and procedures and their optimisation. From the methodological point of view, the recent trend is based on computer art including data acquisition and processing and automation of analytical operations. These aspects form a theoretical background of education process with relation to the application of chemical and instrumental methods in pharmaceutical practice. Syllabus: Qualitative chemical analysis • General analytical chemistry • Inorganic analysis - o Group, selective and specific reactions of cations with the emphasis on significant physiological and risk toxic elements. - o Group, selective and specific reactions of anions (precipitation, oxidation-reduction). - o Masking of interfering components during chemical proofs of cations and anions. - o Selection of analytical method and procedure for the analysis of unknown sample. • Organic analysis - o Proof and determination of C, H, O, N, S and halogens in organic compounds.	

- o Classification of organic compounds according to the solubility test results as a part of organic sample characterization.
- o Functional group analysis – proof of hydrocarbons, halogen derivatives, active hydrogen, sulphonic acids.
- o Functional group analysis – proof of alcohols (primary, secondary, tertiary).
- o Functional group analysis – proof of phenols (monovalent, aminophenols).
- o Functional group analysis – proof of aldehydes and ketones, compounds with active methyl group - methylketons.
- o Functional group analysis – proof of carboxylic acids, esters, amides, anhydrides.
- o Functional group analysis – proof of amines, nitro- and nitroso compounds.
- Identification methods in the analysis of organic compounds – methods review.
- Derivatization, its role and utilization in analytical chemistry.
- Sample preparation approaches.

Recommended literature:

Mikuš, P., Mikušová, V.: Chemical Analysis Qualitative and Quantitative. Bratislava : UK, 2011. 133 s.

D.G. Watson, Pharmaceutical analysis, A textbook for pharmacy students and pharmaceutical chemists, Elsevier, Churchill Livingstone, London 2005.

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 558

A	B	C	D	E	FX
2,51	6,09	23,48	36,92	25,27	5,73

Lecturers: prof. RNDr. Peter Mikuš, PhD., PharmDr. Katarína Maráková, PhD., RNDr. Svetlana Dokupilová, PhD.

Last change: 08.06.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/02-Mgr-A/00	Course title: Analytical Chemistry (2)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 5 / 0 per level/semester: 28 / 70 / 0 Form of the course: on-site learning	
Number of credits: 8	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 20/80	
Learning outcomes:	
Class syllabus: The scope of Analytical chemistry, a subject integrating quantitative analysis, is to provide a consistent and sufficiently extensive theoretical and methodical knowledge base for the chemical and instrumental analysis of inorganic as well as organic compounds including drugs. Besides the above-mentioned direct objective, the education of analytical chemistry significantly influences the formation of logical train of thought of incoming pharmacist and his/her orientation in the field. Experimentally skilled student becomes familiar with a wide scale of pharmaceutically important substances and their properties related to biological activity and therapeutic action. Student acquires creativity and principles of a good laboratory practice. Validation of analytical methods is included. The development of all parts of analytical chemistry as a scientific discipline is characterized by emphasis on microanalysis and trace analysis, development of new methods and procedures and their optimisation. From the methodological point of view, the recent trend is based on computer art including data acquisition and processing and automation of analytical operations. These aspects form a theoretical background of education process with relation to the application of chemical and instrumental methods in pharmaceutical practice. Syllabus: Quantitative chemical analysis • Volumetric analysis: - o Indication of equivalence point, chemical indicators, their properties and classification. Titration curves, choice of indicators. - o Acidimetry, alkalimetry - o Titrations in non-aqueous medium - o Oxidation-reduction titrations: Permanganometry, Iodometry, Bromatometry and bromometry - o Chelatometry, Mercurimetry - o Precipitation titrations: Argentometry - o Dichromatometry • Gravimetry	

- o Gravimetric determination of cations.
- o Gravimetric determination of anions.
- Instrumental analysis
 - Elektrochemical methods:
 - o Potentiometry
 - o Ion-selective electrodes
 - o Polarography
 - o Amperometric titrations.
 - o Conductometric titrations.
 - o Electrogravimetry and coulometry.
 - Spectral analytical methods:
 - o Emission spectrum analysis.
 - o Fluorescence analysis.
 - o Atomic absorption spectroscopy.
 - o Molecular absorption spectroscopy in the visible and ultraviolet part of the spectrum.
 - o Infrared spectroscopy.
 - o Mass spectrometry.
 - o Refractometry, polarimetry.
 - Chromatographic analytical separation methods:
 - o Planar chromatography
 - o High performance liquid chromatography.
 - o Ion exchange chromatography.
 - o Gas chromatography.
 - Electromigration analytical separation methods:
 - o Electrophoresis in planar arrangement, electromigration techniques in capillary arrangement.
 - o Capillary zone electrophoresis (CE).
 - o Capillary isotachopheresis (ITP).
 - o Micellar electrokinetic chromatography (MEKC).
 - o Capillary gel electrophoresis (CGE).
 - o Isoelectric focusing (IEF).
 - Hyphenation of separation methods with spectral methods. HPLC-MS. CE-MS.
 - Nuclear analytical methods:
 - o Nuclear indicator methods – radiochromatography, isotope dilution analysis, radioimmunoanalysis and their applications.
 - o Nuclear analytical methods based on natural radioactivity.
 - o Activation analysis.
 - o Nuclear analytical methods – non activation interaction analysis.
 - o Beta dispersion analysis
 - o X-ray fluorescence.
 - o Identification of β and γ radiation.
 - Sample preparation, validation in analytical chemistry, principles of good laboratory practice.

Recommended literature:

Mikuš, P., Mikušová, V.: Chemical Analysis Qualitative and Quantitative. Bratislava : UK, 2011. 133 s.

Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis. Bratislava : KARTPRINT, 2012. 217 s.

D.G. Watson, Pharmaceutical analysis, A textbook for pharmacy students and pharmaceutical chemists, Elsevier, Churchill Livingstone, London 2005.

Languages necessary to complete the course:					
Notes:					
Past grade distribution					
Total number of evaluated students: 523					
A	B	C	D	E	FX
2,49	4,97	17,59	37,28	33,27	4,4
Lecturers: prof. RNDr. Peter Mikuš, PhD., PharmDr. Katarína Maráková, PhD., RNDr. Svetlana Dokupilová, PhD.					
Last change: 08.06.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/01-Mgr-A/00		Course title: Anatomy and Physiology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 0 per level/semester: 28 / 42 / 0 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 612					
A	B	C	D	E	FX
12,58	15,69	24,51	14,38	24,84	8,01
Lecturers: doc. MUDr. Tatiana Stankovičová, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Tatiana Foltánová, PhD., PharmDr. Stanislava Jankyová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Tomáš Rajtík, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/01-Mgr-A/00		Course title: Applied Statistics for Pharmacists			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 2 per level/semester: 0 / 14 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 4.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The curriculum is focused on basic definitions, explication of problems and essential computational relations which are explained by means of many practical examples. The theoretical knowledge acquired on the lectures will be deepened on the computational seminars, where the students solve model problems occurring in pharmaceutical praxis using computer-assisted techniques. The examination from the subject Applied statistics for pharmacists consists of elaboration and defending of a semestral work according to the student's interest and after consulting it with the lecturer. However, it must contain the full statistical treatment and interpretation of the selected pharmaceutical problem.					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 87					
A	B	C	D	E	FX
32,18	11,49	40,23	1,15	2,3	12,64
Lecturers: RNDr. Tomáš Fazekáš, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/22-Mgr-A/14		Course title: Basics of Regulatory Pharmacy			
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: 2					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Recommended prerequisites: FaF.KFT/08-Mgr-A/00 - Pharmacology and Toxicology (1) and FaF.KORF/12-Mgr-A/00 - Social Pharmacy and Pharmacoeconomics					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: prof. PharmDr. Ján Klimas, PhD., MPH					
Last change: 26.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/03-Mgr-A/00	Course title: Biochemistry
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 3 / 4 / 0 per level/semester: 42 / 56 / 0 Form of the course: on-site learning	
Number of credits: 8	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Main condition for the practical exercises recognition is 60% yield as the sum of three semestral tests. The course is completed by examination made up of two parts written and oral.	
Learning outcomes: After completing of biochemistry course the student should manage the basic biochemical analysis including kinetic enzymology studies on cell and molecular level. More over should have a good knowledge about enzyme catalytic activity and subcellular location of some important enzymes what is the basic premise of understanding mechanism effects of drugs.	
Class syllabus: Dynamic picture of the biological function and properties of the higher protein structure. In this context are introduced enzymes,coenzymes,catalytic function, kinetics of enzyme reaction, inhibition, kinetic inhibition parameters and meaning for pharmacy. No less important is aspect relating to the metabolism of nutrients associated with energy generation in ATP form. Of this aspect is discussed the individual metabolic pathways of saccharides, lipids and proteins, their enzyme subcellular equipment including its regulation on signal molecules level. Krebs cycle and oxidative phosphorylation is introduced as a final catabolic process with emphasis on the interconnection both of them through reduced NADH and FADH ₂ coenzymes that are reoxidated via electron and proton transport- processes located in the inner mitochondrial membrane. Conclusion is devoted to basic information on genetic principles,replication, transcription, recombination and regulation of gene expression.	
Recommended literature: Voet D., Voet J.: Biochemistry, John Wiley & Sons, USA, 2004, 3rd ed.Pelley J.: Biochemistry, Mosby Elsevier, 2007. Campbell M.K. Farrel S.O.: Biochemistry. Thomson Brooks-Cole, 2009. Garret R.H., Grisham C.M.: Biochemistry, Saunders College Publ. 1999.	
Languages necessary to complete the course: English language.	
Notes:	

Past grade distribution					
Total number of evaluated students: 532					
A	B	C	D	E	FX
11,84	12,59	19,74	23,5	29,14	3,2
Lecturers: doc. RNDr. Ingrid Pauliková, CSc., PharmDr. Veronika Mikušová, PhD., Ing. Ľudmila Pašková, PhD., Mgr. Ivana Holková, PhD., PharmDr. Andrea Balažová, PhD., RNDr. František Bilka, PhD., doc. PharmDr. Marek Obložinský, PhD., PharmDr. Katarína Šišková, PhD., PharmDr. Renáta Kollárová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/01-Mgr-A/00	Course title: Bioorganic Chemistry
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: Recommendation: Organic Chemistry 1	
Course requirements: a) To prepare a seminar paper b) Pass the written test. For passing the exam it is required to achieve more than 50 % of the points. Scale of assessment (preliminary/final): 20/80	
Learning outcomes: The basic aim of the course Bioorganic Chemistry lies in the understanding of biological processes at the level of organic reaction mechanisms and identifying the basic parameters that govern these processes. Bioorganic Chemistry then is to deal with the problems of living nature in which chemical factors play an important role.	
Class syllabus: Bioorganic Chemistry follows the course of Organic Chemistry. Due to the fact that biological objects represent complex systems, their study requires an interdisciplinary approach. The course in the form of lectures is focused on those areas of bioorganic chemistry which are related to the structure of biomolecules, their spatial arrangement and relationships to biological functions. The emphasis is laid not only on the compounds with dominant position in living objects, such as aminoacids, peptides, proteins, heterocyclic bases, mono- and polysaccharides, nucleotides and nucleic acids, lipids but also the on the knowledge of known mechanisms of chemical reactions taking place in a biological system. Watching the rules of creating of macromolecular structure of organisms and their mutual interactions also with other molecules belong to other areas to be studied by bioorganic chemistry. The detailed knowledge of the structure and chemical processes occurring in a biological system allow to create bio-analogical chemical systems operating on a similar principle as in living nature (biomembranes, enzymatic catalysis, etc...) for practical use.	
Recommended literature: 1. Devínsky F. et al. Organic Chemistry for Pharmacy Students. Comenius University Press, Bratislava, 2010	

2. Van Vranken, D., Weiss, G.: Introduction to Bioorganic Chemistry and Chemical Biology, Garland Science 2013
3. McMurry, J.W., Begley, T.P.: The Organic Chemistry of biological Pathways, W. H. Freeman, 2nd ed., 2015
4. Voet D., Voet J.: Biochemistry, John Wiley & Sons, 3rd ed., 2004

Languages necessary to complete the course:

English language

Notes:

The course is held only in winter semester.

Teachers: Assoc. prof. PharmDr. Jindra Valentová, PhD.

Past grade distribution

Total number of evaluated students: 9

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

Lecturers: doc. PharmDr. Jindra Valentová, PhD.

Last change: 25.09.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/02-Mgr-A/00	Course title: Biophysics
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 2 per level/semester: 0 / 14 / 28 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus: Biophysics is that branch of knowledge that applies the principles of physics and chemistry and the methods of mathematical analysis and computer modeling to understand how the mechanisms of biological systems work. It seeks to explain biological function in terms of the molecular structures and properties of specific molecules. The educational background of pharmacy students from physics, physical chemistry and biochemistry is thus used and further widened. The teaching is problem-oriented and the importance of selected biophysical problems for pharmacy is stressed. The individual work of students and their active participation in seminars is emphasized. The subject is divided into two parts – lectures and seminars. In the first part, the students are acquainted with the basics of the subject. In the beginning of semester, each student must individually choose the theme of seminar essay and consult it with the teacher. During the semester, the student searches and studies individually the literature related to the theme and writes an essay about the theme based on the literature. In the second part of semester, the student presents results of his/her work in the form of a short talk at the seminar. Fellow students discuss the theme after presentation.	
Recommended literature: Hoppe, W. et al. (editors): Biophysics, Springer, Berlin 1983 Volkenstein, M.V.: General Biophysics, Academic Press, New York 1983 Rontó, G, Tarján, I.: Introduction to Medical Biophysics, Akademiai Kiadó, Budapest 1994 Kukurová, E.: Biophysical Elixir, Palaestrum, Bratislava 1997 Cotterill R.: Biophysics: An Introduction, Wiley, New York 2002 Glaser, R.: Biophysics, Springer, Berlin 2010 Srivastava, P.K.: Elementary Biophysics, Alpha Science International Ltd., London 2011 Dillon P.F.: Biophysics: A Physiological Approach, Cambridge University Press, Cambridge 2012 http://www.biophysics.org/education/resources.htm	
Languages necessary to complete the course:	
Notes:	

Past grade distribution					
Total number of evaluated students: 45					
A	B	C	D	E	FX
42,22	15,56	8,89	2,22	13,33	17,78
Lecturers: prof. RNDr. Daniela Uhríková, CSc., Mgr. Silvia Huláková, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/03-Mgr-A/00	Course title: Biophysics of voltage dependent membrane channels
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 2 / 1 per level/semester: 0 / 28 / 14 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 7.	
Educational level: I.II.	
Prerequisites:	
Course requirements:	
Learning outcomes:	
Class syllabus: Lipid composition of cell membrane, interactions of transmembrane proteins with lipid bilayer. Methods of detection of voltage dependent channels, method of voltage fixation and current fixation, techniques of isolation of single types of channels. Biophysics and pharmacology of voltage dependent sodium channels and hereditary diseases caused by mutations of these channels. Biophysics and pharmacology of voltage dependent calcium channels. L-type channels, neuronal channels and T-type channels. Hereditary diseases caused by mutations of these channels. Biophysics and pharmacology of voltage dependent potassium channels. Channels with inward and outward rectification. Channels modulated by ATP, G-proteins, cyclic nucleotides and by calcium. Repolarization of cardiac action potential by voltage dependent potassium channels. Hereditary diseases caused by mutations of voltage dependent potassium channels.	
Recommended literature: Catterall et al., Pharmacol Rev 57:397-409, 2005 Catterall et al., Pharmacol Rev 57:411-425, 2005 Lacinova, Gen Physiol Biophys 24:Suppl 1:1-78, 2005 Perez-Reyes, Physiol Rev 83:117-61, 2003 Pietrobon, Mol Neurobiol 25:31-50, 2002 Ashcroft, J Clin Invest 115:2047-2058, 2005 Nerbonne and Kass, Physiol Rev 85:1205-1253, 2005 Biel et al., Trends Cardiovasc Med 12:206-213, 2002 L. Lacinova, D. Uhrikova: Voltage dependent ion channels in excitable membranes, Comenius University, Bratislava 2011, in print	
Languages necessary to complete the course:	
Notes:	

Past grade distribution					
Total number of evaluated students: 0					
A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0
Lecturers: prof. RNDr. Daniela Uhríková, CSc., doc. RNDr. Ľubica Lacinová, DrSc.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/04-Mgr-A/00	Course title: Biotechnology
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 1 / 0 per level/semester: 14 / 14 / 0 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Course requirements: 100% participation on all forms of education. The final test has a writing form and for successful completion it is necessary to obtain minimal 50%.	
Learning outcomes: After attending lectures the student will get a theoretical knowledge about the new drugs development by biotechnological processes, based on the manipulation of nucleic acids and exploiting of recombinant DNA. He will get knowledge about the different cloning and expression vectors, and their application in the production of biopharmaceuticals (e.g. r-hormones, r-cytokines, r-vaccines, r-enzymes and monoclonal antibodies). The latest therapeutic trends are summarized in the lectures dealing with gene therapy, therapeutic cloning and the use of stem cells for treatment of people. After attending of practical exercises the student will learn the basics of work in the molecular biology lab, for example manipulation of nucleic acids, the preparation of recombinant plasmids and the use of PCR for identification of bacteria.	
Class syllabus: INTRODUCTION AND HISTORY OF BIOTECHNOLOGY: differences between classical and molecular biotechnology; relationship between biotechnology and other scientific disciplines, the application of biotechnology in different economic sectors (pharmaceutical and chemical industry, agriculture and others). Manipulation OF NUCLEIC ACIDS: isolation of NAs, DNA sequencing, restriction endonucleases, restriction maps, genome analysis, polymerase chain reaction. methods of Recombinant DNA: (preparation of recombinant DNA, cloning and expression vectors, plasmids and bacteriophages, DNA and cDNA libraries, hybridization of NAs). Plant biotechnology: development and application of transgenic plants, biopharmaceuticals produced by transgenic plants, GMO plants. BIOTECHNOLOGY in pharmacy: biopharmaceuticals, their advantages, expression systems, "upstream" and "downstream" phase of biopharmaceutical production. Biopharmaceuticals: Recombinant cytokines, enzymes, hormones (insulin, somatotropin, the gonadotrophic hormones), monoclonal antibodies and vaccines. Gene therapy and diagnostic: target diseases, the use of biotechnology in the preparation of vectors, gene therapy in vitro and in vivo, examples of human gene therapy, e.g. SCID, ornithine transcarbamylase deficiency, hemophilia, cystic fibrosis, cancers. Therapeutic cloning: differences between reproductive and therapeutic cloning, options, benefits and risks of reproductive cloning of animals, reproductive cloning of	

people. The application of stem cells in therapy: differences between embryonic and adult stem cells, stem cells of umbilical cord blood, ethics, examples of application.					
Recommended literature: Wink M.: An Introduction to Molecular Biotechnology. WILEY-VCH Verlag GmbH Co. KGaA, Weinheim, Germany, 2006.					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 198					
A	B	C	D	E	FX
24,24	27,78	25,76	11,11	8,08	3,03
Lecturers: doc. Mgr. Andrea Bilková, PhD., doc. Mgr. Martina Hřčka Dubníčková, PhD., PharmDr. Hana Kiňová Sepová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/11-Mgr-A/00		Course title: Clinical Pharmacology and Pharmacotherapy (1)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 2 per level/semester: 28 / 0 / 28 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 7.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 507					
A	B	C	D	E	FX
12,03	13,41	20,12	25,25	28,99	0,2
Lecturers: doc. RNDr. Eva Račanská, CSc., prof. RNDr. Magdaléna Kuželová, CSc., PharmDr. Stanislava Jankyová, PhD., Mgr. Diana Vavrincová, PhD., Mgr. Peter Vavrinec, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Tatiana Foltánová, PhD., PharmDr. Elena Ondriašová, CSc., Mgr. Gabriel Dóka, PhD., PharmDr. Zuzana Kiliánová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/12-Mgr-A/00		Course title: Clinical Pharmacology and Pharmacotherapy (2)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 3 / 0 / 2 per level/semester: 42 / 0 / 28 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 477					
A	B	C	D	E	FX
19,92	22,64	23,9	17,4	12,16	3,98
Lecturers: prof. RNDr. Magdaléna Kuželová, CSc., doc. RNDr. Eva Račanská, CSc., PharmDr. Elena Ondriašová, CSc., PharmDr. Eva Kráľová, PhD., PharmDr. Stanislava Jankyová, PhD., Mgr. Peter Vavrínek, PhD., Mgr. Diana Vavrincová, PhD., PharmDr. Tatiana Foltánová, PhD., Mgr. Gabriel Dóka, PhD., PharmDr. Zuzana Kiliánová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/14-Mgr/A/00		Course title: Computer Data Processing			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 536					
A	B	C	D	E	FX
28,36	8,58	25,56	11,19	23,69	2,61
Lecturers: doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Ladislav Dubán, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/300-Mgr-A/15	Course title: Defense of Diploma Thesis
Number of credits: 4	
Educational level: I.II.	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KBMBL/05-Mgr/A/16		Course title: Diploma Thesis Preparation KBMBL (1)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 84 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 43					
A	B	C	D	E	FX
97,67	2,33	0,0	0,0	0,0	0,0
Lecturers: PharmDr. Andrea Balažová, PhD., doc. Mgr. Martina Hrčka Dubničková, PhD., doc. Mgr. Andrea Bilková, PhD., doc. MUDr. Helena Hupková, PhD., doc. RNDr. Marián Bukovský, PhD., Mgr. Ivana Holková, PhD., prof. RNDr. Dušan Mlynarčík, DrSc., doc. RNDr. Lýdia Bezáková, CSc., PharmDr. Katarína Šišková, PhD., PharmDr. Hana Kiňová Sepová, PhD., doc. PharmDr. Marek Obložinský, PhD., RNDr. Hyacinta Májeková, PhD., RNDr. František Bilka, PhD., doc. RNDr. Ingrid Pauliková, CSc., Ing. Ľudmila Pašková, PhD., PharmDr. Renáta Kollárová, PhD., Mgr. Eva Drobná, PhD.					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KBMBL/06-Mgr/A/16		Course title: Diploma Thesis Preparation KBMBL (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 51					
A	B	C	D	E	FX
82,35	5,88	9,8	1,96	0,0	0,0
Lecturers: PharmDr. Andrea Balažová, PhD., doc. Mgr. Martina Hrčka Dubníčková, PhD., doc. Mgr. Andrea Bilková, PhD., doc. MUDr. Helena Hupková, PhD., doc. RNDr. Marián Bukovský, PhD., Mgr. Ivana Holková, PhD., prof. RNDr. Dušan Mlynarčík, DrSc., doc. RNDr. Lýdia Bezáková, CSc., PharmDr. Katarína Šišková, PhD., PharmDr. Hana Kiňová Sepová, PhD., doc. PharmDr. Marek Obložinský, PhD., RNDr. Hyacinta Májeková, PhD., RNDr. František Bilka, PhD., doc. RNDr. Ingrid Pauliková, CSc., Ing. Ľudmila Pašková, PhD., PharmDr. Renáta Kollárová, PhD., Mgr. Eva Drobná, PhD.					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KChTL/02-Mgr-A/16		Course title: Diploma Thesis Preparation KCHTL (1)			
Educational activities: Type of activities: laboratory practicals / seminar Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 51					
A	B	C	D	E	FX
94,12	5,88	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Ružena Čižmáriková, CSc., doc. RNDr. Mária Kohútová, CSc., RNDr. Roman Mikláš, PhD., doc. PharmDr. Miloš Lukáč, PhD., doc. PharmDr. Jindra Valentová, PhD., Mgr. Natalia Lucia Miklášová, PhD., Ing. Ladislav Habala, PhD., Mgr. Lucia Lintnerová, PhD., Mgr. Peter Herich, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KChTL/03-Mgr-A/16		Course title: Diploma Thesis Preparation KCHTL (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 53					
A	B	C	D	E	FX
86,79	13,21	0,0	0,0	0,0	0,0
Lecturers: doc. RNDr. Mária Kohútová, CSc., doc. PharmDr. Jindra Valentová, PhD., Mgr. Natalia Lucia Miklášová, PhD., RNDr. Roman Mikláš, PhD., Ing. Ladislav Habala, PhD., doc. RNDr. Ružena Čižmáriková, CSc., doc. PharmDr. Miloš Lukáč, PhD., Mgr. Lucia Lintnerová, PhD., Mgr. Peter Herich, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFANF/04-Mgr-A/16		Course title: Diploma Thesis Preparation KFANF (1)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 84 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature: Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis. Bratislava : KARTPRINT, 2012. 217 s. Tekel', J., Mikuš, P.: Analýza látok v biologických systémoch, Univerzita Komenského, Bratislava 2004. D.G. Watson, Pharmaceutical analysis, A textbook for pharmacy students and pharmaceutical chemists, Elsevier, Churchill Livingstone, London 2005. web pages with appropriate key words and their combinations (spectral methods, spectrometry, spectroscopy, absorption, fluorescence, UV, IR, MS, NMR, electrochemical methods, polarography, biosensors, separation methods, electrophoresis, chromatography)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 45					
A	B	C	D	E	FX
64,44	8,89	17,78	6,67	2,22	0,0
Lecturers: RNDr. Svetlana Dokupilová, PhD., prof. RNDr. Peter Mikuš, PhD., PharmDr. Katarína Maráková, PhD., Ing. Oľga Lukačovičová, PhD.					
Last change: 08.06.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFANF/05-Mgr-A/16		Course title: Diploma Thesis Preparation KFANF (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature: Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis. Bratislava : KARTPRINT, 2012. 217 s. Tekel', J., Mikuš, P.: Analýza látok v biologických systémoch, Univerzita Komenského, Bratislava 2004. D.G. Watson, Pharmaceutical analysis, A textbook for pharmacy students and pharmaceutical chemists, Elsevier, Churchill Livingstone, London 2005. web pages with appropriate key words and their combinations (spectral methods, spectrometry, spectroscopy, absorption, fluorescence, UV, IR, MS, NMR, electrochemical methods, polarography, biosensors, separation methods, electrophoresis, chromatography)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 44					
A	B	C	D	E	FX
36,36	31,82	20,45	6,82	4,55	0,0
Lecturers: prof. RNDr. Peter Mikuš, PhD., RNDr. Svetlana Dokupilová, PhD., Ing. Oľga Lukačovičová, PhD., PharmDr. Katarína Maráková, PhD.					
Last change: 08.06.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/01-Mgr-A/16		Course title: Diploma Thesis Preparation KFB (1)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 84 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 23					
A	B	C	D	E	FX
73,91	21,74	4,35	0,0	0,0	0,0
Lecturers: prof. Ing. Milan Nagy, CSc., prof. PharmDr. Pavel Mučaji, PhD., doc. PharmDr. Szilvia Czigle, PhD., Mgr. Jaroslav Tóth, PhD., PharmDr. Silvia Bittner Fialová, PhD., PharmDr. Ivana Šušániková, PhD., doc. Ing. Miroslav Habán, PhD., Mgr. Ondrej Ďuriška, PhD., PharmDr. Vladimír Forman, PhD., RNDr. Ingrid Mistríková, CSc.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/02-Mgr-A/16		Course title: Diploma Thesis Preparation KFB (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 22					
A	B	C	D	E	FX
68,18	18,18	9,09	4,55	0,0	0,0
Lecturers: prof. PharmDr. Pavel Mučaji, PhD., doc. PharmDr. Szilvia Czigle, PhD., prof. Ing. Milan Nagy, CSc., PharmDr. Silvia Bittner Fialová, PhD., Mgr. Jaroslav Tóth, PhD., doc. Ing. Miroslav Habán, PhD., Mgr. Ondrej Ďuriška, PhD., PharmDr. Vladimír Forman, PhD., RNDr. Ingrid Mistríková, CSc.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFCh/03-Mgr-A/16		Course title: Diploma Thesis Preparation KFCH (1)			
Educational activities: Type of activities: laboratory practicals / seminar Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 22					
A	B	C	D	E	FX
68,18	13,64	4,55	9,09	4,55	0,0
Lecturers: prof. PharmDr. Josef Jampílek, PhD., doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Ivan Malík, PhD., doc. RNDr. Eva Sedlářová, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., PharmDr. Vladimír Garaj, PhD., PharmDr. Iva Kapustíková, PhD., PharmDr. Jiří Kos, PhD., PharmDr. Matej Maruniak, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFCh/04-Mgr-A/16		Course title: Diploma Thesis Preparation KFCH (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 22					
A	B	C	D	E	FX
54,55	4,55	18,18	22,73	0,0	0,0
Lecturers: prof. PharmDr. Josef Jampílek, PhD., doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Ivan Malík, PhD., doc. RNDr. Eva Sedlářová, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., PharmDr. Vladimír Garaj, PhD., PharmDr. Iva Kapustíková, PhD., PharmDr. Jiří Kos, PhD., PharmDr. Matej Maruniak, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/04-Mgr-A/16		Course title: Diploma Thesis Preparation KFCHL (1)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 6 per level/semester: 84 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 16					
A	B	C	D	E	FX
81,25	0,0	6,25	0,0	0,0	12,5
Lecturers: prof. RNDr. Daniela Uhríková, CSc., RNDr. Mária Vojteková, CSc., Ing. Jarmila Oremusová, CSc., Mgr. Mária Klacsová, PhD., RNDr. Tomáš Fazekaš, PhD., doc. RNDr. Jana Gallová, CSc., doc. Ing. Vladimír Frečer, DrSc., RNDr. Alexander Búcsi, PhD., doc. RNDr. Ľubica Lacinová, DrSc., Mgr. Lukáš Hubčík, PhD., Mgr. Silvia Huláková, PhD.					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/05-Mgr-A/16		Course title: Diploma Thesis Preparation KFCHL (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
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	B	C	D	E	FX
28,57	21,43	21,43	7,14	21,43	0,0
Lecturers: prof. RNDr. Daniela Uhríková, CSc., RNDr. Mária Vojteková, CSc., Ing. Jarmila Oremusová, CSc., Mgr. Mária Klacsová, PhD., RNDr. Tomáš Fazekaš, PhD., doc. RNDr. Jana Gallová, CSc., doc. Ing. Vladimír Frečer, DrSc., RNDr. Alexander Búcsi, PhD., doc. RNDr. Ľubica Lacinová, DrSc., Mgr. Lukáš Hubčík, PhD., Mgr. Silvia Huláková, PhD.					
Last change:					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/06-Mgr-A/16		Course title: Diploma Thesis Preparation KFT (1)			
Educational activities: Type of activities: laboratory practicals / seminar Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 115					
A	B	C	D	E	FX
69,57	15,65	9,57	3,48	1,74	0,0
Lecturers: prof. RNDr. Magdaléna Kuželová, CSc., doc. RNDr. Eva Račanská, CSc., doc. MUDr. Tatiana Stankovičová, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Adriana Duriš Adameová, PhD., doc. PharmDr. Peter Křenek, PhD., PharmDr. Elena Ondriašová, CSc., PharmDr. Tatiana Foltánová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Stanislava Jankyová, PhD., PharmDr. Marek Máľuš, PhD., Mgr. Ondrej Sprušanský, PhD., PharmDr. Tomáš Rajtík, PhD., PharmDr. Adrián Szobi, PhD., Mgr. Gabriel Dóka, PhD., Mgr. Lenka Piváčková, PhD., Mgr. Jasna Šrankova, PhD., PharmDr. Zuzana Kiliánová, PhD., Mgr. Diana Vavrincová, PhD., Mgr. Peter Vavrínek, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/07-Mgr-A/16		Course title: Diploma Thesis Preparation KFT (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 115					
A	B	C	D	E	FX
40,0	30,43	17,39	7,83	4,35	0,0
Lecturers: doc. RNDr. Eva Račanská, CSc., prof. RNDr. Magdaléna Kuželová, CSc., doc. MUDr. Tatiana Stankovičová, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Adriana Duriš Adameová, PhD., doc. PharmDr. Peter Křenek, PhD., PharmDr. Elena Ondriašová, CSc., PharmDr. Tatiana Foltánová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Stanislava Jankyová, PhD., PharmDr. Marek Mátuš, PhD., Mgr. Ondrej Sprušanský, PhD., PharmDr. Tomáš Rajtík, PhD., PharmDr. Adrián Szobi, PhD., Mgr. Jasna Šrankova, PhD., Mgr. Diana Vavrincová, PhD., Mgr. Peter Vavrinec, PhD., Mgr. Gabriel Dóka, PhD., PharmDr. Zuzana Kiliánová, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KGF/03-Mgr-A/16		Course title: Diploma Thesis Preparation KGF (1)			
Educational activities: Type of activities: laboratory practicals / seminar Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 19					
A	B	C	D	E	FX
89,47	0,0	10,53	0,0	0,0	0,0
Lecturers: PharmDr. Mária Čuchorová, PhD., PharmDr. Desana Matušová, PhD., Mgr. Martina Čierna					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KGF/04-Mgr-A/16		Course title: Diploma Thesis Preparation KGF (2)			
Educational activities: Type of activities: laboratory practicals Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 17					
A	B	C	D	E	FX
70,59	5,88	23,53	0,0	0,0	0,0
Lecturers: PharmDr. Mária Čuchorová, PhD., PharmDr. Desana Matušová, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/02-Mgr-A/16		Course title: Diploma Thesis Preparation KORF (1)			
Educational activities: Type of activities: practicals / seminar Number of hours: per week: 4 / 2 per level/semester: 56 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 118					
A	B	C	D	E	FX
81,36	13,56	3,39	0,85	0,85	0,0
Lecturers: PharmDr. Ľubica Lehocká, PhD., PharmDr. Anna Oleárová, PhD., MPH, doc. PharmDr. Daniela Mináriková, PhD., JUDr. Mgr. Petra Capandová, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Ladislav Dubán, PhD., PharmDr. Miroslava Snopková, PhD., PharmDr. Zuzana Haramiová, PharmDr. Zuzana Koblišková, PharmDr. Lucia Masaryková, PhD., PharmDr. Milica Molitorisová, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/03-Mgr-A/16		Course title: Diploma Thesis Preparation KORF (2)			
Educational activities: Type of activities: independent work Number of hours: per week: 25 per level/semester: 350 Form of the course: on-site learning					
Number of credits: 16					
Recommended semester: 10.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 118					
A	B	C	D	E	FX
67,8	17,8	5,08	1,69	7,63	0,0
Lecturers: PharmDr. Ľubica Lehocká, PhD., PharmDr. Anna Oleárová, PhD., MPH, PharmDr. Miroslava Snopková, PhD., doc. PharmDr. Daniela Mináriková, PhD., JUDr. Mgr. Petra Capandová, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Ladislav Dubán, PhD., PharmDr. Zuzana Haramiová, PharmDr. Zuzana Koblišková, PharmDr. Lucia Masaryková, PhD., PharmDr. Milica Molitorisová, PhD.					
Last change: 09.06.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFCh/01-Mgr-A/00	Course title: Drug Analysis
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 3 / 3 / 0 per level/semester: 42 / 42 / 0 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 7.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: FaF.KFCh/06-Mgr-A/00 - Pharmaceutical Chemistry (2)	
Course requirements:	
Learning outcomes: The aim of subject Drug analysis is to teach students in theory and practically the principles of methods and tests of drugs evaluation in accordance with applicable regulations – The European Pharmacopoeia 9th Ed. Course content is based on the requirements of The European Pharmacopoeia as the legal norm of a set of technical requirements – among other things, to evaluate the quality of drugs which has to be observed by anyone who treats with medicines, uses them in providing health care, or carries out state supervision in the field of pharmacy.	
Class syllabus: Course content is based on the requirements of The European Pharmacopoeia as the legal norm of a set of technical requirements – among other things, to evaluate the quality of drugs which has to be observed by anyone who treats with medicines, uses them in providing health care, or carries out state supervision in the field of pharmacy.	
Recommended literature: 1) The European Pharmacopoeia. 9th Ed. Strasbourg: Council of Europe, 2017. 2) Pedersen, O.: Pharmaceutical Chemical Analysis: Methods for Identification and Limit Tests, Taylor & Francis Group, New York, 2006. 3) Hansen, S., Pedersen-Bjergaard, S., Rasmussen, K.: Introduction to Pharmaceutical Chemical Analysis, John Wiley & Sons, Chichester, 2012.	
Languages necessary to complete the course:	
Notes:	

Past grade distribution					
Total number of evaluated students: 492					
A	B	C	D	E	FX
6,5	15,24	25,0	17,48	32,52	3,25
Lecturers: PharmDr. Iva Kapustíková, PhD., PharmDr. Pavol Ježko, PhD.					
Last change: 13.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/19-Mgr-A/00		Course title: General Biology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 657					
A	B	C	D	E	FX
7,31	9,59	17,5	20,7	41,7	3,2
Lecturers: Mgr. Ondrej Sprušanský, PhD., Mgr. Jasna Šrankova, PhD., Mgr. Lenka Piváčková, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/06-Mgr-A/00	Course title: General and Inorganic Chemistry
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 2 per level/semester: 28 / 42 / 28 Form of the course: on-site learning	
Number of credits: 8	
Recommended semester: 1.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Seminars: The student is required during the semester to complete all the seminars. During the course each student must write 3 interim tests (max 20 points each). To fulfill the conditions for the examination the student has to reach more than 50% of the total point score from all tests. Laboratory exercises: During the semester, the student is required to complete all laboratory exercises. According to the study programme he/she has to write one test from the laboratory techniques (0-40 points) and independently perform one synthetic work (0-10 points). To fulfill the conditions required for the examination the student has to reach more than 50% from the laboratory exercises of the total point score. The points reached within the seminars and laboratory work are multiplied by the factor of 0,3 and their value is 30% of the exam value in case of a successful completion of the exam. The coefficient obtained from the seminars applies solely to the academic year in which it was obtained. Examination: The course examinations are held exclusively in written form during the examination period. Participation at the exam is subject to the full completion of the seminars and laboratory exercises programme and to the acquisition of more than 50% of the total point score from the seminars and more than 50% of the total point score from the laboratory exercises. The written examination consists of two parts, A and B. Successful completion of the test is conditional on obtaining more than 50% from each section of the written test. At the successful completion the test's average point value obtained from both parts is multiplied by the factor of 0,7. The total mark of the exam is created by the value obtained from seminars and laboratory exercises (30%) and the examination test (70%). Grading scale of the overall result of the exam (after taking into account the outcome of the interim control): A: 87,01 % – 100,00 %; B: 77,01 % – 87,00 %; C: 67,01 % – 77,00 %; D: 57,01 % – 67,00 %; E: 50,01 % – 57,00 %; Fx: ≤ 50,00 %. Scale of assessment (preliminary/final): 30/70	
Learning outcomes: The aim of the course is to acquire the basic knowledge of general and inorganic chemistry. In the context of teaching the course will give students basic laboratory skills and carry out the synthesis of selected types of inorganic compounds. The gained knowledge and skills are necessary for the	

completion of the other chemical courses, such as Organic Chemistry 1, 2 and are also needed for the pharmaceutically oriented courses, e.g. Pharmaceutical Chemistry.

Class syllabus:

The course of General and Inorganic Chemistry is the first principal subject in the complex chemical preparation of students of pharmacy. The first part – general chemistry – includes topics such needed as the theoretical base of the follow up courses of chemical, pharmaceutical, biological and medical orientation. Great attention is paid to the issue of the chemical bond and the structure of substances, in particular to their relevance in explaining the characteristics of pharmaceutical compounds, including their pharmacotherapeutic effects. In the second part of the course – systematic inorganic chemistry – the chemistry of elements and their compounds is presented according to their rational division into the groups of the periodic system of elements. Alongside with the interpretation of the nature of the chemical reactivity of elements and their compounds, emphasis is laid on their use in pharmacy and medicine on the basis of their function, place and importance in biological systems. Needed attention shall be paid to the environmental education. The course is comprehensively designed, focusing on Master Degree accredited study programme of Pharmacy. Further pharmaceutically significant knowledge from the systematic inorganic chemistry is supplemented in the course of Selected Chapters in Inorganic Chemistry.

Recommended literature:

1. C. E. Housecroft, A. G. Sharpe: Inorganic Chemistry, 4th Edition, Pearson Publ. 2012.
2. J. C. Kotz, P. M. Treichel, J. R. Townsend: Chemistry & Chemical Reactivity, 7th Edition, Brooks/Cole 2010.
3. K. A. Strohfeldt: Essentials of Inorganic Chemistry for Students of Pharmacy, Pharmaceutical Sciences and Medicinal Chemistry, Wiley 2015

Languages necessary to complete the course:

English language

Notes:

The course is held only in winter semester.

Teachers: Ing. Ladislav Habala, PhD.; Assoc. prof. RNDr. Mária Kohútová, CSc.; Mgr. Lucia Lintnerová, PhD.; Natalia Miklášová, PhD.; Assoc. prof. Ing. Martin Pisárčík, CSc.

Past grade distribution

Total number of evaluated students: 680

A	B	C	D	E	FX
3,38	10,59	30,0	30,44	15,29	10,29

Lecturers: doc. RNDr. Mária Kohútová, CSc., Mgr. Natalia Lucia Miklášová, PhD., Ing. Ladislav Habala, PhD., Mgr. Lucia Lintnerová, PhD.

Last change: 20.09.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/22-Mgr-A/00	Course title: Health Psychology
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 1 per level/semester: 0 / 14 / 14 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 7.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Student has to attend all lectures and seminars to be allowed to take the oral examination.	
Learning outcomes: After finishing the course student will gain basic overview in the following topics: social psychology, psychology of patients, psychology of diseases and psychology of healthcare professional, information on basic types of personalities, assertive behaviour, abilities to handle conflict situations, stress, how to communicate correctly and use the verbal and nonverbal communication, how to get ready for public presentation, how to communicate with patients, colleagues, other healthcare professionals, representatives of pharmaceutical industry, insurance companies and/or media. Students through various tests can find out information on themselves (what kind of personalities they are, what should they focus on while solving of stress and conflict situations, and how they can improve their communication abilities).	
Class syllabus: 1. Introduction to Health Psychology . 2. Psychology in disease. Relationship patient – healthcare professional in psychology. 3. Personality, forming of personality and its position in social group. 4. Social interaction and communication. 5. Verbal communication in the work of pharmacists. 6. Non-verbal communication in the work of pharmacists. 7. Optimal communication in the work of pharmacists. 8. Conflict in community pharmacy and its resolution in team of co-workers. 9. Stress situations in community pharmacy. 10. Public requirements for pharmacist's personality. 11. Basic types and characteristics of problematicl customers of pharmacy. 12. Cooperation within a team of co-workers in healthcare, leadership. 13. Public presentation, job interview and presentation of self.	
Recommended literature: 1. Veatch, R.M., Haddad, A.: Case studies in pharmacy ethics, Oxford, Univesity Press, 2008, 331 p.	

2. Bissel, P., Traulsen, J.M.: Sociology and pharmacy practice, London, Pharmaceutical Press, 2005, 226 p.
3. Wingfield, J., Badcott, D.: Pharmacy ethics and decision making, London, Pharmaceutical Press, 2007, 313 p.
4. Appelbe, G.E., Wingfield, J.: Dale and Appelbe's Pharmacy Law and Ethics, London, Pharmaceutical Press, 2005, 593 p.
5. Hungman, B.: Healthcare Communication, London, Pharmaceutical Press, 2009, 304 p.

Languages necessary to complete the course:

English language.

Notes:

Past grade distribution

Total number of evaluated students: 160

A	B	C	D	E	FX
39,38	28,75	8,13	10,0	8,13	5,63

Lecturers: PharmDr. Anna Oleárová, PhD., MPH, PharmDr. Ľubica Lehocká, PhD.

Last change: 30.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/07-Mgr/A/00	Course title: Hygiene of Pharmaceutical Facilities
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Course requirements: For credits is required successful completion of two pre-tests during the semester with a minimum success rate of 50% from each of tests and subject is terminated by the writing form with a minimum success rate of 60%.	
Learning outcomes: The subject focuses mainly on the explanation of the facts that are most important for the pharmacist. The rules used for compliance with hygiene air, water and waste in environment will be the first information to topic. The aim of environmental health is to inform students about how to improve the health status of the population, how to create conditions in environment that will ensure, respectively contributed to the protection of human health, its healthy development, physical and mental well-being. Food hygiene and tools general use is a field which studies the process of nutrition and addresses how their ensure for the physiological needs of man . Nutrition can increase the overall fitness of the organism, however, if it is irrational, causes the emergence of the widespread outbreak of civilization diseases (obesity, diabetes , cardiovascular disease, tumours). Health risks associated with food are caused by foreign substances contained in food. Therefore, following to the basic rules of nutrition learn students the adverse effects of contaminants in food and their prevention against them . In terms of experts, pharmacist obtains in the last part of the subject the necessary knowledge and information about observing the rules of hygiene, of the pharmaceutical equipment, of the work in these facilities and the hygiene in the preparation of pharmaceuticals, which requires discipline , knowledge of the dangerous factors and basic knowledge of effective measures necessary to achieve the health security in terms of microbiological contamination of pharmaceutical equipments.	
Class syllabus: The first part Hygiene pharmaceutical facilities engages in the basic constituents of the environment and its effects on human health - specifically, is it the position of hygiene and its role in the health and environmental hygiene air, water and waste. In the second part, students learn the basic rules of nutrition - specifically food hygiene. The third part emphasizes occupational hygiene, pharmaceutical facilities and rules of hygiene in the preparation of drugs. The basic contents of Hygiene pharmaceutical facilities is based on the current status of the individual disciplines relating to hygiene and environment specific rules or methods used in practice - requirements for	

hygiene in pharmacy, manipulation with medicines and drugs and evaluation of microbial products of the pharmaceutical industry in terms of requirements sterility and non-sterility according to Pharmacopoeia.					
Recommended literature: Ághová Ľ. and contributors: Hygiene (Environmental medicine), Comenius University, Bratislava 1997 textbook, pp.200. European Pharmacopoeia - selected chapters. Riddley R. John and Channing John: Occupational Health and Hygiene, Butterworth-Heinemann Ltd., Oxford, UK, 1999, pp. 241.					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 204					
A	B	C	D	E	FX
28,43	21,57	19,12	12,25	17,65	0,98
Lecturers: doc. Mgr. Martina Hrčka Dubničková, PhD., doc. Mgr. Andrea Bilková, PhD., RNDr. Hyacinta Májeková, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/08-Mgr-A/00	Course title: Immunodiagnostics
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 1 / 0 per level/semester: 14 / 14 / 0 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Course requirements: During the semester there will be 2 written exams for 20 points each. To obtain an A rating, a total of at least 37 points is required. To obtain a B rating, a total of at least 33 points is required. Requirements for the remaining ratings are as follows: C - at least 28 points, D - at least 24 points and E - at least 20 points. Credits shall not be granted to a student who scores less than 20 points on these written tests. A student may be excused from a maximum of 2 laboratory exercises. The student must submit duly completed and evaluated protocols of all completed exercises. To pass examination based on these exercises, students need to get at least 12 points out of 20.	
Learning outcomes: Students will become familiar with the diagnosis of the human immune profile, cellular and humoral factors of immunity, as well as serological and immunochemical techniques used to evaluate the immune profile. They will gain knowledge about the isolation, purification and preparation of vaccines and immune sera, as well as diagnosis of immune factors which are encountered in pharmaceutical practice.	
Class syllabus: The subject of Immunodiagnostics builds on the knowledge of basic immunology and clinical immunology. It deals with the human immune profile, the status of cellular and humoral immunity and the immunochemical techniques used to evaluate it. It deals in detail with the latest training techniques, recombinant DNA and subunit vaccines, detailed preparation of monoclonal antibodies and immunodiagnostic preparations. A separate section is devoted to modern immunoassay techniques for detection of antigens and antibodies, without which the modern diagnosis of diseases would be unimaginable.	
Recommended literature: Ferenčík, M. : Hanbook of Immunochemistry, Chapman & Hall, London, New York, 1993. Buc. M.: Basic and Clinical Immunology , Comenius University, Bratislava, 2008.	
Languages necessary to complete the course: English language.	
Notes:	

Past grade distribution					
Total number of evaluated students: 58					
A	B	C	D	E	FX
13,79	15,52	24,14	12,07	20,69	13,79
Lecturers: doc. RNDr. Marián Bukovský, PhD., doc. Mgr. Andrea Bilková, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/09-Mgr-A/00	Course title: Immunology
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Course requirements: During the semester there will be 2 written exams for 20 points each. To obtain an A rating, a total of at least 37 points is required. To obtain a B rating, a total of at least 33 points is required. Requirements for the remaining ratings are as follows: C - at least 28 points, D - at least 24 points and E - at least 20 points. Credits shall not be granted to a student who scores less than 20 points on these written tests. A student may be excused from a maximum of 2 laboratory exercises. The student must submit duly completed and evaluated protocols of all completed exercises. To pass examination based on these exercises, students need to get at least 12 points out of 20.	
Learning outcomes: Students completing the subject should understand the mechanisms and function of the immune system and its fundamental importance to human life. They should understand that the application of drugs in the body influences the cellular and humoral immune mechanisms that are fundamental in the prevention and treatment of all diseases. In addition, they must understand the basic principles of immunodiagnostic methodologies which are encountered in the practice of pharmacy.	
Class syllabus: The subject of Immunology deals with knowledge of basic immunology as well as clinical immunology. The student learns the composition and function of the human immune system, mechanisms of cellular and humoral immunity at the cellular and molecular level, as well as the preventive-therapeutic and practical application of immunology in medicine and in pharmaceutical practice. The basic section of the course deals with inflammation, fever, structure and function of the complement, cytokines, antigens and antibodies. Emphasis is on the preparation and use of monoclonal antibodies in pharmacy and medicine, without which modern diagnosis and therapy of diseases would not have been possible. The clinical immunology section is focused on anti-infective, anti-tumor immunity and transplantation, and also deals with immunopathological diseases, as well as the latest immunostimulatory and immunosuppressive pharmaceuticals, preparation, application and use of vaccines and products for passive immunization for prevention and therapy of diseases. The basic principles of immunodiagnostic methodologies encountered in pharmaceutical practice constitute the final section.	
Recommended literature: Buc. M.: Basic and Clinical Immunology, Comenius University, Bratislava, 2008.	

Coico, R., Sunshine, G., Benjamini, E.: Immunology a Short Course, New York, Wiley-Liss, 2003.

Languages necessary to complete the course:

English language.

Notes:

Past grade distribution

Total number of evaluated students: 590

A	B	C	D	E	FX
6,44	9,15	21,02	16,27	35,59	11,53

Lecturers: doc. RNDr. Marián Bukovský, PhD., doc. Mgr. Andrea Bilková, PhD., doc. Mgr. Martina Hřčka Dubníčková, PhD.

Last change: 02.06.2015

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/09-Mgr-A/15	Course title: Latin Language for Pharmacists (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.II.	
Prerequisites:	
Course requirements: active participation on seminars, writing of two semester tests with the overall grade at least 60%, written and oral exam Scale of assessment (preliminary/final): 15/85	
Learning outcomes: The student achieves a profound knowledge of specialized terminology based on words of Latin and Greek origin in the field of pharmacy. Terminology encompasses terms of pharmacopoeia, names of drugs of botanic origin and their mother plants, chemical substances used in industrial production of medicines and finally medical terms (mostly of anatomy and pathology). He (she) is able to make use of it in daily practice and possibly to create new terms in his (her) research activities.	
Class syllabus: The Latin Lessons concentrate on achieving a thorough knowledge of : 1. professional glossary (pharmaceutical, medical, botanical terms) 2. principles of formation of terminology on the basis of Latin and Greek languages 3. grammar inevitable for correct understanding of specialized texts 4. origin of some most frequent terms and ideas in antiquity	
Recommended literature: Vallová, E., Hamar, T.: Latin Language for Pharmacy Students. Bratislava: Comenius University, 2011 Ozábalová, Ľ., Vallová, E., Hamar, T.: Trojjazyčný latinsko-anglicko-slovenský slovník pre študentov farmácie a medicíny. Bratislava: Univerzita Komenského, 2012	
Languages necessary to complete the course: English language	
Notes: the course is held only in the winter semester	

Past grade distribution					
Total number of evaluated students: 673					
A	B	C	D	E	FX
19,17	27,79	26,45	15,6	9,66	1,34
Lecturers: PhDr. Tomáš Hamar, PhD.					
Last change: 27.11.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KJ/10-Mgr-A/15		Course title: Latin Language for Pharmacists (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: 2					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites: FaF.KJ/09-Mgr-A/15 - Latin Language for Pharmacists (1)					
Course requirements: active participation on seminars, writing of two semester tests with the overall grade at least 60%, written and oral exam Scale of assessment (preliminary/final): 15/85					
Learning outcomes: The student achieves a profound knowledge of specialized terminology based on words of Latin and Greek origin in the field of pharmacy. Terminology encompasses terms of pharmacopoeia, names of drugs of botanic origin and their mother plants, chemical substances used in industrial production of medicines and finally medical terms (mostly of anatomy and pathology). He (she) is able to make use of it in daily practice and possibly to create new terms in his (her) research activities.					
Class syllabus: The lessons concentrate on mediation of profound knowledge of specialized terminology used in pharmacy , on grammatical rules necessary for comprehension of specialized texts and on principles of formation of special terms on the basis of Latin and Greek language.					
Recommended literature: Vallová, E., Hamar, T.: Latin Language for Pharmacy Students. Bratislava: Comenius University, 2011 Ozábalová, L., Vallová, E., Hamar, T.: Trojjazyčný latinsko-anglicko-slovenský slovník pre študentov farmácie a medicíny. Bratislava: Univerzita Komenského, 2012					
Languages necessary to complete the course: English language					
Notes: the course is held only in the summer semester					
Past grade distribution Total number of evaluated students: 615					
A	B	C	D	E	FX
16,75	25,53	29,11	15,77	11,22	1,63

Lecturers: PhDr. Tomáš Hamar, PhD.
Last change: 27.11.2015
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/18-Mgr-A/00	Course title: Management Basics in Pharmacy
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 2 / 1 per level/semester: 0 / 28 / 14 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 4.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Completion of lectures and seminars. Preliminary tests minimum 50% for each one. The exam performed by the written test with a minimum threshold of success 60%. The assessment: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-70%, E = 69-60%, FX = 59% and less.	
Learning outcomes: The subject presents a selection of specific topics from the comprehensive theory of management issues with regard to the specifics management in health care. It gives students the basic knowledge, which the medical staff – and pharmacist too – should be theoretically recognize and practically apply in their manager position. Content of subject includes basic management functions, such as planning, organizing, control, motivation and leadership style, discusses the specifics of management practices in the pharmaceutical and healthcare as well as the basic marketing function in public pharmacy. Subject provides students a foundation for their future management work in different areas of health and pharmacy. Theoretical findings are discussed by practical demonstration in the seminars (presentation and discussion, case studies, management games).	
Class syllabus: 1. General theory of Management, management terminology, managers. 2. Management as process. 3. Functions of Management – organizing, planning, controlling. 4. Motivation and leadership. 5. Health Management and its specifics. 6. Quality Management. 7. Management practices in pharmacy, communication and business ethics. 8. Patient's Management. Patient Empowerment. 9. Pharmaceutical market. Stakeholders and customers related management. SWOT analysis. 10. Marketing – strategy, planning, marketing mix. 11. Marketing in public pharmacy. 12. Communication mix of pharmaceutical products. Public Relations, Advertisement and ethics. 13. Human Resource Management.	
Recommended literature:	

1. Peterson A.M.: Managing Pharmacy Practice, CRC Press LLC, 2004 2. Buchbinder S.B.: Introduction to Health Care Management, J & B Learning, 2007 3. Quin S.: Management Basic, 2010, ISBN 978-87-7681-717-6 4. Philips A.: Healthcare Management Dictionary, Radcliffe Publishing, 2003. 5. Hogg G.: Managing and Marketing Health Services, Cengage Learning EMEA, 2002					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 481					
A	B	C	D	E	FX
21,41	16,42	20,17	14,14	23,7	4,16
Lecturers: doc. PharmDr. Daniela Mináriková, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Zuzana Haramiová, PharmDr. Zuzana Koblišková, PharmDr. Milica Molitorisová, PhD.					
Last change: 30.05.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/09-Mgr-A/00		Course title: Mathematics			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 2 per level/semester: 0 / 14 / 28 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Algebra – expressions, equations, inequations and methods of their solution. Functions – algebraic and transcendent, properties of functions. Differential calculus – limit and derivative, differential and difference. Progressions and series – arithmetical and geometrical, function approximation. Differential equations and their applications. Statistical analysis of sets and dependencies – mean values, measures of variability, correlation and regression.					
Recommended literature: Stancl D.L., Stancl M.L.: Calculus for management and the life and social sciences, Irwin, Boston 1990 Hoffmann L.D., Barney S.S., Bradley G.L.: Applied calculus for business, economics, and the social and life sciences, Expanded edition, McGraw-Hill Science, 2009					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 675					
A	B	C	D	E	FX
21,33	9,48	12,3	22,22	29,48	5,19
Lecturers: doc. Ing. Vladimír Frečer, DrSc.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/06-Mgr-A/00		Course title: Medicinal Plants			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I.II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 20/80					
Learning outcomes:					
Class syllabus: Particular interest in the course Medicinal Plants and to their organs that constitute herbal drugs. Other topics are the field production of important domestic species as well as the possibility of introduction of selected foreign taxa to island conditions, with respect to practical needs.					
Recommended literature: Vaverkova S. et al.: Botany and medicinal plants. Bratislava UK, 1995, 106 pages Burnie G. et al.: Botanica. Gordon Cheers, Publ. Random Australia, 1998, 920 page					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 482					
A	B	C	D	E	FX
74,27	21,37	3,53	0,0	0,0	0,83
Lecturers: doc. Ing. Miroslav Habán, PhD., Mgr. Ondrej Ďuriška, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/11-Mgr-A/00	Course title: Microbiology
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: Biology.	
Course requirements: All laboratory practices completed by reports, running evaluation by a preliminary test (successful in at least 60 %) and final examination (combined test with oral).	
Learning outcomes: By passing through the subject the student acquires the basic knowledge of the world of microorganisms, and their role in infectious diseases, as well as their application in pharmacy.	
Class syllabus: Structure, physiology, biochemistry and genetics of bacterial cell. Comprehensive virology. Interaction of microorganisms with their environment, particularly with host organism. Pathogenicity and infection. Pathogenic bacteria, viruses, fungi and protozoa. Types and mode of action of antibiotics and other antimicrobial agents. Prophylactic vaccines. Mechanisms of bacterial resistance to antimicrobial drugs. Disinfection, sterilization and preservation. Utilization of microorganisms in pharmacy. Ecology of microorganisms in pharmaceutical settings. Microbial contamination of pharmaceutical products and its control.	
Recommended literature: Denyer S. P., Hodges N. A, Gorman S. P.: Hugo & Russell's Pharmaceutical Microbiology, 7th Ed., Blackwell, Oxford 2005, ISBN 0-632-06467-6 - Slonczewski J. L., Foster J. W.: Microbiology. Norton, New York 2009, ISBN 978-0-393-97857-5 Talaro K.P., Chess B.: Foundations in Microbiology, 8th Ed., McGraw Hill, New York 2012, ISBN 978-0-07-131673-6.	
Languages necessary to complete the course: English language.	

Notes:					
Past grade distribution					
Total number of evaluated students: 570					
A	B	C	D	E	FX
6,67	9,82	17,37	13,86	43,68	8,6
Lecturers: Mgr. Eva Drobná, PhD., doc. Mgr. Martina Hřčka Dubníčková, PhD., doc. Mgr. Andrea Bilková, PhD., PharmDr. Hana Kiňová Sepová, PhD.					
Last change: 13.04.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFCh/08-Mgr-A/00		Course title: Molecular Basis of Drug Development			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 1 / 1 / 1 per level/semester: 14 / 14 / 14 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature: Text Books (latest edition): An Introduction to Medical Chemistry, Graham L. Patrick. Principles of Medicinal Chemistry, W.O. Foye, T. L. Lemke, David A Williams. Medicinal Chemistry. Principles and Practice. (F. D. King. Ed)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 82					
A	B	C	D	E	FX
20,73	7,32	15,85	6,1	4,88	45,12
Lecturers: PharmDr. Vladimír Garaj, PhD.					
Last change: 15.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KBMBL/12-Mgr-A/00		Course title: Molecular Biology of Drug Effects			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 5.					
Educational level: I.II.					
Prerequisites:					
Course requirements: 100% participation on all forms of education. The final exam has a writing form and for successful completion it is necessary to obtain minimal 60%.					
Learning outcomes:					
Class syllabus: The flow of genetic information – the influencing possibilities of drugs: replication, transcription, translation and posttranslation modifications. Mutations and DNA repair mechanisms. Intracellular compartments and protein transport. Molecular-biological basis of some diseases. Principles of cell communication (cell signalling system). Networking of proteinkinases and integration of signal processing. Transport processes in the cell. Principles of the DNA recombinant technology. Principles of gene manipulations.					
Recommended literature: Lectures. Elliott W.H., Elliott D.C.: Biochemistry and Molecular Biology. 4th ed. Oxford University Press 2009. Rudge M.S., Patterson C.: Principles of Molecular Medicine, Humana Press, 2006, 2nd ed.					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 173					
A	B	C	D	E	FX
16,18	10,98	17,92	21,39	29,48	4,05
Lecturers: RNDr. František Bilka, PhD., Mgr. Ivana Holková, PhD., doc. PharmDr. Marek Obložinský, PhD., Ing. Ľudmila Pašková, PhD., PharmDr. Andrea Balažová, PhD.					
Last change: 02.06.2015					

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/07-Mgr-A/00		Course title: Natural Remedies			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 20/80					
Learning outcomes:					
Class syllabus: Lectures include only issues of prospective medicinal plants which are not involved in the subject Pharmacognosy (2), for example antiviral, hypoglycaemic, antiprotozoics, Alzheimer's disease therapeutics, influence of hormonal balance. Discussed are the latest findings of research and development based on traditional medicinal plant sources of non-European origin. Contents of the laboratory practices include qualitative analyses of industrially produced remedies containing plant metabolites, chromatographic analyses of possible substitutions of selected pharmacopoeial drugs, correlation of drugs polyphenol content with their antioxidant activity.					
Recommended literature: Journals: Phytochemistry, Journal of Natural Products, Planta Medica, Journal of Ethnopharmacology, Phytotherapy Research, Free Radical Biology and Medicine. European Pharmacopoeia 7th Edition.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 86					
A	B	C	D	E	FX
18,6	17,44	9,3	13,95	8,14	32,56
Lecturers: doc. PharmDr. Szilvia Czigle, PhD., Mgr. Jaroslav Tóth, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/08-Mgr-A/00	Course title: New Trends in Analytical Chemistry
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 2 / 0 per level/semester: 14 / 28 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 30/70	
Learning outcomes:	
Class syllabus: One of the most important role of analytical chemistry in relation to the pharmaceutical control practice is the elaboration and application of modern analytical methods for the quality and quantity evaluation of drugs, analysis of multicomponent mixtures, monitoring of concentration levels of drugs and their degradation products in biological materials. Trends in analytical chemistry should allow for the essential theoretical knowledge and experimental skill for students. The crux of the elective subject Trends in analytical chemistry is laid on the modern instrumental analysis methods with an emphasis on the possibilities of their utilization. Here, the analysis of drugs, multicomponent inorganic analysis of essential and toxic elements in the particular branches of environment (air, soil, plants, water) and the monitoring of drugs and their metabolites in biological fluids are highlighted. The laboratory practices are aimed at the utilization of modern instrumental techniques – the radionuclide X-ray fluorescence analysis (RRFA), atomic absorption spectroscopy (AAS), electrochemical dissolving analysis, nuclear magnetic resonance (NMR), infrared (IR) spectrometry (interpretation of drug spectra), selected separation methods (high performance liquid chromatography, HPLC, gas chromatography, GC, capillary electrophoresis, CE) – mainly in the trace analysis. Obviously, the knowledge and experience obtained after passing this subject are advantageously utilized by students in their MSc. Thesis as well as in the postgraduate study (PhD.). Syllabus: • Sample preparation procedures for the analysis of drugs, biological material and environmental components. • Electrochemical methods: New trends in the theory and instrumentation in the field of electrochemical analytical methods. • Biosensors and current trends of their utilization. • Spectral methods, classification. • X-ray fluorescence analysis – new pharmacopeial method and its utilization in pharmacy.	

- X-ray fluorescence analysis - Determination of selected elements in pharmaceutical formulations and biological samples.
- UV-VIS absorption spectrometry, Fluorescence spectrometry and current trends of their utilization.
- Utilization of IR spectra for the drug identification.
- Fundamentals of NMR spectroscopy, interpretation of NMR spectra, analytical application of NMR.
- Mass spectrometry and current trends of their utilization.
- Separation methods, classification.
- Modern liquid chromatography and its utilization in pharmacy.
- Progress in the field of capillary electromigration methods – ITP, CZE.
- Separation and determination of biologically important compounds and their enantiomers by capillary electrophoresis.
- New trends in hyphenated separation methods.
- Validation of advanced analytical methods.

Recommended literature:

Mikuš, P., Maráková, K.: Hyphenated electrophoretic techniques in advanced analysis.
Bratislava : KARTPRINT, 2012. 217 s. (vedecká monografia)

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 463

A	B	C	D	E	FX
25,05	8,86	20,3	15,55	30,02	0,22

Lecturers: prof. RNDr. Peter Mikuš, PhD.

Last change: 08.06.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/04-Mgr-A/00	Course title: Organic Chemistry (1)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 1 per level/semester: 28 / 42 / 14 Form of the course: on-site learning	
Number of credits: 7	
Recommended semester: 2.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Seminars: The student is required during the semester to complete all the seminars. During the course each student must write 4 interim tests (0-20 points) and 1 review test (0-40 points). To fulfill the conditions for the examination the student has to reach more than 50% of the total point score of all tests. The points reached within the seminars are multiplied by the factor of 0,3 and their value is 30% of the exam value in case of a successful completion of the exam. The coefficient obtained from the seminars applies solely to the academic year in which it was obtained. Laboratory exercises: The student is required during the semester to complete all laboratory exercises. According to the study programme, he/she has to write one test from the laboratory techniques (0-40 points) and independently perform four synthetic tasks (0-10 points). To fulfill the conditions needed for the examination the student has to reach more than 50% of the total point score from the laboratory exercises. Gained points are then multiplied by the factor of 0,1 and their value is 10% of the exam value in case of a successful completion of the exam. Examination: The course examinations are held exclusively in written form during the examination period. Participation at the exam is subject to the full completion of the seminars and laboratory exercises programme and equisition of more than 50% of the total point score from the seminars and more than 50% of the total point score from the laboratory exercises. The written examination consists of two parts, A and B. Successful completion of the test is conditional on obtaining more than 50% from each section of the written test. At the successful completion the test's average point value obtained from both parts is multiplied by the factor of 0,6. The total mark of the exam is created by the value obtained from seminars (30%), laboratory exercises (10%) and the examination test (60%). Grading scale of the overall result of the exam (after taking into account the outcome of the interim control): A: 87,01 % – 100,00 %; B: 77,01 % – 87,00 %; C: 67,01 % – 77,00 %; D: 57,01 % – 67,00 %; E: 50,01 % – 57,00 %; Fx: ≤ 50,00 %. Scale of assessment (preliminary/final): 30+10/60	
Learning outcomes: The course provides a comprehensive preparation of theoretical organic chemistry, as well as practical training in the field of organic synthesis focusing on the field of selected pharmaceutically important compounds. The gained knowledge and skills are necessary for the completion of the other chemical courses, such as Organic Chemistry 2, and are also needed for the pharmaceutically	

oriented courses, e.g. Pharmaceutical Chemistry. The course is comprehensively designed, focusing on Master Degree accredited study programme of Pharmacy.

Class syllabus:

The theoretical teaching contains basic principles of chemical bonds origin and the spatial structure of organic compounds with a reflection on their physical-chemical properties. The main attention is paid to the individual sorts of stereoisomerism, electron effects, acid-based characteristics and salt formation, to the development and significance of conjugated and aromatic systems, and, first and foremost in terms of reactivity and behavior in biological systems. It puts the emphasis on their importance in chemistry of pharmaceuticals and other following chemical courses of the pharmaceutical study. Mastering the knowledge of theoretical teaching and their application is the subject of seminars. The modern element in the course teaching is the use of computer technology to molecular modeling of the type organic molecules and molecules of certain medicinal products, as well as the possibility of continuation in elective courses - Principles of Molecular Modeling and Selected Chapters in Organic Chemistry. The aim of practical exercises is to manage the laboratory techniques and organic synthesis, including the identification of products by determining the fundamental constants and evaluation of the results of measurements of physical methods according to the SL-1. The course of Organic Chemistry 1 is one of the fundamental courses in a comprehensive chemical preparation of students of pharmacy. When teaching the subject emphasis is laid on the use of acquired knowledge of organic chemistry in pharmacy and medicine. The course is comprehensively designed, focusing on Master Degree accredited study programme of Pharmacy.

Recommended literature:

1. Devínsky F. et al. Organic Chemistry for Pharmacy Students. Comenius University Press, Bratislava, 2010
2. Čižmáriková R.: Laboratory manual for practice in organic chemistry. Comenius University Press, Bratislava, 2012

Languages necessary to complete the course:

English language

Notes:

The course is held only in summer semester.

Teachers: Assoc. prof. RNDr. Ružena Čižmáriková, CSc.; Assoc. prof. PharmDr. Miloš Lukáč, PhD.; Natalia Miklášová, PhD.; Assoc. prof. PharmDr. Jindra Valentová, PhD.

Past grade distribution

Total number of evaluated students: 589

A	B	C	D	E	FX
5,09	12,56	24,62	36,84	14,09	6,79

Lecturers: doc. PharmDr. Jindra Valentová, PhD., doc. PharmDr. Miloš Lukáč, PhD., doc. RNDr. Ružena Čižmáriková, CSc., Mgr. Natalia Lucia Miklášová, PhD., Mgr. Lucia Lintnerová, PhD., Ing. Ladislav Habala, PhD.

Last change: 20.09.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/05-Mgr-A/00	Course title: Organic Chemistry (2)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 2 per level/semester: 28 / 0 / 28 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: Recommendation: Organic Chemistry 1	
Course requirements: Seminars: The student is required during the semester to complete all the seminars. During the course each student must write 3 interim tests (0-20 points) and 1 review test (0-40 points). To fulfill the conditions for the examination the student is to reach more than 50% of the total point value of all the tests. The points reached within the seminars are multiplied by the factor of 0,4 and their value is 40% of the exam value in case of a successful completion of the exam. The coefficient obtained from the seminars applies solely to the academic year in which it was obtained. Examination: The course examinations are held exclusively in written form in the examination period. Participation at the exam is subject to the full completion of the seminars and equisition of more than 50% of the total point score from the seminars. It is required to pass the exam from Organic Chemistry 1. The written examination consists of two parts, A and B. Successful completion of the test is conditional on obtaining more than 50% from each section of the written test. At the successful completion the test's average point value obtained from both parts is multiplied by the factor of 0,6. The total mark of the exam is created by the value obtained from seminars (40%) and the examination test (60%). Grading scale of the overall result of the exam (after taking into account the outcome of the interim control): A: 87,01 % – 100,00 %; B: 77,01 % – 87,00 %; C: 67,01 % – 77,00 %; D: 57,01 % – 67,00 %; E: 50,01 % – 57,00 %; Fx: ≤ 50,00 %. Scale of assessment (preliminary/final): 40/60	
Learning outcomes: The course provides a comprehensive preparation of theoretical organic chemistry, as well as practical training in the field of organic synthesis focusing on the field of selected pharmaceutically important compounds. The gained skills are necessary for the completion of further chemical and also pharmaceutically oriented courses, such as Pharmaceutical Chemistry. The course is comprehensively designed, focusing on Master Degree accredited study programme of Pharmacy.	
Class syllabus: In theoretical teaching the main attention is paid to systematic organic chemistry. According to each group of compounds the course deals with their physical-chemical characteristics, properties,	

reactivity, types and mechanisms of reactions with emphasis on the importance in chemistry of pharmaceuticals and other following chemical courses of pharmaceutical study. As for natural substances only basic knowledge is provided. Mastering the knowledge of theoretical teaching and their application is the subject of seminars. The course of Organic Chemistry 2 is one of the fundamental courses in a comprehensive chemical preparation of students of pharmacy. When teaching the subject emphasis is placed on the use of acquired knowledge of organic chemistry in pharmacy and medicine. The course is comprehensively designed, focusing on Master Degree accredited study programme of Pharmacy.

Recommended literature:

1. Devínsky F. et al. Organic Chemistry for Pharmacy Students. Comenius University Press, Bratislava, 2010
2. McMurry, J.W., Begley, T.P.: The Organic Chemistry of biological Pathways, W. H. Freeman, 2nd ed., 2015
3. Čižmáriková R.: Laboratory manual for practice in organic chemistry. Comenius University Press, Bratislava, 2012

Languages necessary to complete the course:

English language

Notes:

The course is held only in winter semester.

Teachers: Assoc. prof. RNDr. Ružena Čižmáriková, CSc., Assoc. prof. PharmDr. Miloš Lukáč, PhD., Natalia Miklášová, PhD., Assoc. prof. Jindra Valentová, PhD.

Past grade distribution

Total number of evaluated students: 568

A	B	C	D	E	FX
3,52	10,04	25,35	34,68	12,85	13,56

Lecturers: doc. PharmDr. Jindra Valentová, PhD., doc. PharmDr. Miloš Lukáč, PhD., doc. RNDr. Ružena Čižmáriková, CSc., Mgr. Natalia Lucia Miklášová, PhD.

Last change: 28.09.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KBMBL/13-Mgr-A/00	Course title: Pathobiochemistry
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Assesment: examination /written test + oral examination/. Conditions: 1. Attendance of all practical exercises and seminars. 2. Preparation of protocols from all practical exercises. 3. Summary achievement of at least 60% from tests. The conditions of the preliminary evaluation will be specified in practical exercises. Information about the conditions for the participation on the first date of the final exam will be specified by separate announcement.	
Learning outcomes: After attending the course student will receive informations about the causes of changes in metabolism of main biochemical substrates of different diseases, molecular basis of inflammatory processes and biochemical and molecular basis of malignat processes. In laboratories the student will acquire the skills for determination of clinical-biochemical parameters, especially enzymes, isoenzymes and markers important for diagnosis of diseases. Attending the course is necessary for understanding of molecular basis of pathobiochemistry processes.	
Class syllabus: - Characterization of disorders of metabolic pathways of main biological substrates as a response to pathological processes. - Disorders of regulation of glucose and glycogen metabolism, biochemical picture of diabetes mellitus. - Disorders of lipid metabolism, production of ketone bodlies. - Lipoproteines: transport form of lipids, regulation of cholesterol metabolism, dyslipoproteinemias, metabolism of sphingolipids and lipidosis. - Disorders of protein digestion, absorption of aminoacids, proteolytic enzymes, disorders of aminoacids metabolism. - Disorders of synthesis and degradation of purine and pyrimidine nucleotides, Lesch-Nyhan syndrome. - Disorders of heme metabolism, porphyrias, hemoglobinopathias, metabolism of bilirubin. - Enzymes in diagnosis of diseases, molecular diseases and hereditary enzymes deficiency.	

- Disorders of water metabolism, acidobasic balance and mineral metabolism. - Biochemical principles of inflammation, the role of free radicals and mediators in inflammatory process. - Biochemical and molecular principles of malignant processes and specific markers.					
Recommended literature: Lieberman M., Marks A.D. (2009): Basic Medical Biochemistry, A Clinical Approach. Wolters Kluwer/Lippincott Williams and Wilkins, Philadelphia, 3th edition. Gaw A. et al. (2006): Clinical Biochemistry. Churchill Livingstone, 3th edition, Reprint. Baynes J., Dominiczak M.H. (2004): Medical Biochemistry. Mosby International, New York.					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 525					
A	B	C	D	E	FX
15,62	19,81	28,0	19,05	17,14	0,38
Lecturers: PharmDr. Andrea Balažová, PhD., doc. PharmDr. Marek Obložinský, PhD., RNDr. František Bilka, PhD., Mgr. Ivana Holková, PhD., PharmDr. Renáta Kollárová, PhD., Ing. Ludmila Pašková, PhD., PharmDr. Katarína Šišková, PhD.					
Last change: 24.03.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/13-Mgr-A/00		Course title: Pathology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 2 / 0 per level/semester: 28 / 28 / 0 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 3.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 559					
A	B	C	D	E	FX
17,53	17,17	21,29	15,92	20,93	7,16
Lecturers: doc. MUDr. Tatiana Stankovičová, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Tatiana Foltánová, PhD., PharmDr. Zuzana Kiliánová, PhD., PharmDr. Stanislava Jankyová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Tomáš Rajtík, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/14-Mgr-A/00		Course title: Pathophysiology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 95					
A	B	C	D	E	FX
13,68	13,68	15,79	12,63	31,58	12,63
Lecturers: PharmDr. Tatiana Foltánová, PhD., doc. MUDr. Tatiana Stankovičová, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Stanislava Jankyová, PhD., PharmDr. Eva Kráľová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/03-Mgr-A/00		Course title: Pharmaceutical Botany			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 0 per level/semester: 28 / 42 / 0 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements: Scale of assessment (preliminary/final): 50/50					
Learning outcomes:					
Class syllabus: Main attention in the field of systematic botany and ecology is paid to basic taxonomical units with respect to diacritical characteristic of medicinal plants. In the field of plant cytology the course focuses on morphological and functional differences of plant cells and on cell inclusions that present determinant characteristic in plant/drug description. The anatomy of individual types of plant tissues is detail in accordance with their development stage attributes and function. In the field of organology the course focuses on the anatomy and morphology of particular plant tissues with respect to specific characteristics of pharmaceutically important species.					
Recommended literature: Simpson M.: Plant Systematics. Ed.Amsterdam, Elsevier, 2006, 589 pages Weier E., Stocking R., Barbour M.: Botany an Introduction to plant Biology. Ed. Wilez-Sons Publ. Comp. New York, 1984, 693 pages Vaverkova S. et al.: Botany and medicinal plants. Bratislava UK, 1995, 106 pages					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 620					
A	B	C	D	E	FX
29,68	25,32	22,1	15,97	5,65	1,29
Lecturers: doc. Ing. Miroslav Habán, PhD., RNDr. Ingrid Mistríková, CSc., Mgr. Ondrej Ďuriška, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/500-Mgr-A/15	Course title: Pharmaceutical Chemistry
Number of credits: 4	
Educational level: I.II.	
Prerequisites: (FaF.KFB/03-Mgr-A/00 - Pharmaceutical Botany and FaF.KFT/12-Mgr-A/00 - Clinical Pharmacology and Pharmacotherapy (2) and FaF.KFT/09-Mgr-A/00 - Pharmacology and Toxicology (2) and FaF.KBMBL/09-Mgr-A/00 - Immunology and FaF.KBMBL/11-Mgr-A/00 - Microbiology and FaF.KFT/13-Mgr-A/00 - Pathology and FaF.KFT/01-Mgr-A/00 - Anatomy and Physiology and FaF.KFT/19-Mgr-A/00 - General Biology and FaF.KFANF/09-Mgr-A/00 - Radiopharmaceuticals and FaF.KFCh/01-Mgr-A/00 - Drug Analysis and FaF.KFCh/06-Mgr-A/00 - Pharmaceutical Chemistry (2) and FaF.KFChL/08-Mgr-A/00 - Physical Chemistry and FaF.KFB/05-Mgr-A/00 - Pharmacognosy (2) and FaF.KBMBL/03-Mgr-A/00 - Biochemistry and FaF.KFANF/02-Mgr-A/00 - Analytical Chemistry (2) and FaF.KFANF/01-Mgr-A/00 - Analytical Chemistry (1))	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFCh/05-Mgr-A/00	Course title: Pharmaceutical Chemistry (1)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 1 per level/semester: 28 / 0 / 14 Form of the course: on-site learning	
Number of credits: 5	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: The KCHTL/01-Mgr-A/00 Organic Chemistry (1), KCHTL/02-Mgr-A/00 Organic Chemistry (2) and KBMBL/03-Mgr-A/00 Biochemistry courses have been very strongly recommended to be successfully passed.	
Course requirements: Conditions for Course Completion The conditions for a successful completion of lectures and seminars from the Pharmaceutical Chemistry (1) course: a) The personal attendance at the lectures – students are rigorously required to attend to 80% of the lectures; the personal attendance at the seminars – students are rigorously required to attend to 100% of the seminars. b) The successful course completion based on the successful passing of all semestral preliminary tests. To pass all the scheduled semestral preliminary tests (2 tests, 20 points of an each test would be reached at maximum), the 60% or higher rate must be achieved of each (12 points score or higher of the each test is essential). c) The successful course completion based on the successful passing of a final (written) exam. The final written exam will consist of the set of 25 questions, in which all intended and lectured pharmacotherapeutic groups will be represented. The questions will cover (i) knowledge from a field of „general“ Pharmaceutical/Medicinal Chemistry (ii) a definition and classification (division) of particular pharmacological classes, (iii) a mechanism(s) of action, (iv) chemical structures of particular compounds, (v) structure-activity relationships in detail, and (vi) metabolic pathways related to the compounds. The final written exam from Pharmaceutical Chemistry (1) course will last 120 minutes. An each of the questions will be evaluated by 2 points. The evaluation of the exam will be as follows: 50–47 points (evaluation level A), 46–44 points (B), 43–39 points (C), 38–35 points (D), 34–30 points (level E), less than 30 points (FX, not passed). For the final written exam, an unlimited number of students can be registered, however, 2 days before the exam date at the latest. The registration for the final exam must be done via an interactive AiS2 system only.	
Learning outcomes:	

Results of Education

The Pharmaceutical/Medicinal Chemistry (the Pharmaceutical Chemistry (1) course) is a science unto itself, a central science positioned to provide a molecular bridge between the basic science of biology and the clinical science of medicine (analogous to chemistry being the central science between the traditional disciplines of biology and physics). From a very broad perspective, a drug design may be divided into two phases: a) fundamental concepts about drugs, receptors, and drug–receptor interactions; 2. basic concepts about drug–receptor interactions applied to human disease. The Pharmaceutical/Medicinal Chemistry is multidisciplinary, drawing on theoretical chemistry, organic chemistry, analytical chemistry, molecular biology, pharmacology, and biochemistry. Despite these complexities, the Pharmaceutical/Medicinal Chemistry has a clear „bottom line“ – the design and discovery of drug molecules with a comprehensive definition and characterization of their properties, taking into account (i) a structural integrity of the drug molecules (in pharmaceutical, pharmacokinetic and pharmacodynamic phases), (ii) their structural fragments (pharmacophore, toxicophore, metabophore; interchangeable bioisosteres), (iii) structural properties, (iv) physicochemical features (solubility, surface activity, lipophilicity, acid-base properties), (v) shape properties (geometric, conformational, topological, steric), (vi) stereochemical properties (optical isomers, enantiomers, geometric isomers), (vii) electronic properties. Following that knowledge, structure–(biological) activity relationships are comprehensively investigated.

Class syllabus:

Recommended literature:

Recommended Literature

- Beale, J. M., & Block, J. H. (2011). Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry. 12th Ed. Wolters Kluwer Health (Lippincott Williams & Wilkins), Philadelphia, United States of America, 1022 pp.
- Brown, N. (2012). Bioisosteres in Medicinal Chemistry (Ed. Brown, N.). In: Methods and Principles in Medicinal Chemistry. (Eds. Mannhold, R., Kubinyi, H., & Folkers, G.), Wiley-VCh, Weinheim, Germany, 258 pp.
- Casy, A. F. (1993). Dissymmetric Probes of Pharmacological Receptors. The Steric Factor in Medicinal Chemistry. Springer Science & Business Media, New York, United States of America, 580 pp.
- Coleman, M. D. (2005). Human Drug Metabolism: An Introduction. John Wiley & Sons, Chichester, Great Britain, 277 pp.
- Cruciani, R., & Wieland, T. (2006). Applications in drug discovery and ADME predictions. In: Molecular Interaction Fields. In: Methods and Principles in Medicinal Chemistry. (Eds. Mannhold, R., Kubinyi, H., & Folkers, G.), Wiley-VCh, Weinheim, Germany, 324 pp.
- Eichelbaum, M., Testa, B., & Somogyi, A. (2003). Stereochemical Aspects of Drug Action and Disposition. 1st Ed. Handbook of Experimental Pharmacology Series. 153. (Eds. Eichelbaum, M., Testa, B., & Somogyi, A.), Springer-Verlag, Berlin, Heidelberg, 454 pp.
- Francotte, E., & Lindner, W. (2006). Chirality in Drug Research. (Eds. Francotte, E., & Lindner, W.). In: Methods and Principles in Medicinal Chemistry. (Eds. Mannhold, R., Kubinyi, H., & Folkers, G.), Wiley-VCh, Weinheim, Germany, 361 pp.
- Kubinyi, H. (1993). QSAR: Methods and principles. In: Medicinal Chemistry. Hansch Analysis and Related Approaches. (Eds. Mannhold, R., Krogsgaard-Larsen, P., & Timmerman, H.), VCH Publishers, Weinheim, Germany, 240 pp.
- Lemke, T. L., Williams, D. A., Roche, V. F., & Zito, S. V. (2008). Foye's Principles of Medicinal Chemistry, 6th Ed. Lippincott, Williams and Wilkins, a Wolters Kluwer, Baltimore, United States of America, 1377 pp.

Manallack, D. T. (2007). The pKa distribution of drugs: Application to drug discovery. *Perspectives in Medicinal Chemistry*, 1, p. 25–38.

Mannhold, R. (2006). Calculation of lipophilicity: A classification of methods. In: *Pharmacokinetic Profiling in Drug Research. Biological, Physicochemical, and Computational Strategies*. (Eds. Testa, B., Krämer, S. D., Wunderli-Allenspach, H., & Folkers, G.), Verlag Helvetica Chimica Acta, Zürich, Switzerland, p. 331–352.

Mannhold, R. (2008). Measurement and prediction. In: *Molecular Drug Properties*. (Ed. Mannhold, R.). In: *Methods and Principles in Medicinal Chemistry*. (Eds. Mannhold, R., Kubinyi, H., & Folkers, G.), Wiley-VCh, Weinheim, Germany, 504 pp.

Nogady, T., & Weaver, D. F. (2005). Basic principles of drug design I – Drug molecules: Structure and properties. In: *Medicinal Chemistry. A Molecular and Biochemical Approach*. 3rd Ed. Oxford University Press, New York, United States of America, p. 9–66.

Patrick, G. L. (2013). *An Introduction to Medicinal Chemistry*. 5th Ed. Oxford University Press, New York, United States of America, 789 pp.

Pearson, P. G., & Wienkers, L. C. (2008) *Handbook of Drug Metabolism*. 2nd Ed. (Drugs and the Pharmaceutical Sciences). CRC Press, New York, United States of America, 616 pp.

Seifert, R., & Wieland, T. (2005). Analysis of activation and constitutive activity. In: *G Protein-Coupled Receptors as Drug Targets*. In: *Methods and Principles in Medicinal Chemistry*. (Eds. Mannhold, R., Kubinyi, H., & Folkers, G.), Wiley-VCh, Weinheim, Germany, 304 pp.

Silverstein, R. M., Webster, F. X., & Kiemle, D. (2005). *Spectrometric Identification of Organic Compounds*. 7th Ed. John Wiley & Sons, Hoboken, United States of America, 512 pp.

Stuart, B. H. (2004). *Infrared Spectroscopy: Fundamentals and Applications*. John Wiley & Sons, Chichester, Great Britain, 244 pp.

Taylor, P. J. (1990). Hydrophobic properties of drugs. In: *Quantitative Drug Design*. (Ed. Ramsden, C. A.). In: *Comprehensive Medicinal Chemistry. The Rational Design, Mechanistic Study & Therapeutic Application of Chemical Compounds. Volume 4*. (Eds. Hansch, C., Sammes, P. G., & Taylor, J. B.), Pergamon, Oxford, Great Britain, p. 241–294.

Testa, B., Crivori, P., Reist, M., & Carrupt, P.-A. (2000). The influence of lipophilicity on the pharmacokinetic behavior of drugs: Concepts and examples. *Perspectives in Drug Discovery and Design*, 19, p. 179–211.

Thomas, G. (2007). *Medicinal Chemistry*. 2nd Ed. John Wiley & Sons, Chichester, Great Britain, 621 pp.

Languages necessary to complete the course:

english

Notes:

Past grade distribution

Total number of evaluated students: 524

A	B	C	D	E	FX
20,23	25,57	28,82	15,27	8,02	2,1

Lecturers: doc. PharmDr. Ivan Malík, PhD., PharmDr. Pavol Ježko, PhD.

Last change: 14.09.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFCh/06-Mgr-A/00		Course title: Pharmaceutical Chemistry (2)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 5 / 0 per level/semester: 28 / 70 / 0 Form of the course: on-site learning					
Number of credits: 7					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Recommended prerequisites: FaF.KFCh/05-Mgr-A/00 - Pharmaceutical Chemistry (1)					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature: 1. G. L. Patrick, An Introduction to Medicinal Chemistry, Fourth Edition, Oxford University Press, 2005. 2. David G. Watson, Pharmaceutical Chemistry, Elsevier - Health Sciences Division, 2011					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 501					
A	B	C	D	E	FX
33,13	19,16	22,75	13,17	11,18	0,6
Lecturers: doc. PharmDr. Ivan Malík, PhD., PharmDr. Jiří Kos, PhD., PharmDr. Jana Čurillová					
Last change: 13.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/06-Mgr-A/00		Course title: Pharmaceutical Informatics			
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.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 441					
A	B	C	D	E	FX
16,78	6,8	29,02	9,75	28,57	9,07
Lecturers: doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Ladislav Dubán, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/07-Mgr-A/00		Course title: Pharmaceutical Propedeutics			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 2 / 0 per level/semester: 0 / 28 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 674					
A	B	C	D	E	FX
27,45	8,31	17,95	12,61	31,45	2,23
Lecturers: doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Milica Molitorisová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/600-Mgr-A/15	Course title: Pharmaceutical Technology
Number of credits: 4	
Educational level: I.II.	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KGF/05-Mgr-A/00	Course title: Pharmaceutical Technology (1)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 4 / 5 / 0 per level/semester: 56 / 70 / 0 Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 7.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: KFCHL/08-Mgr-A/00 Physical Chemistry, KFANF/02-Mgr-A/00 Analytical Chemistry (2) KFB/05-Mgr-A/00 Pharmacognosy (2); KFCH/06-Mgr-A/00 Pharmaceutical Chemistry (2)	
Course requirements: Assessment through a written examination, for successful completion at least 70 %. Assessment A: 95-100%, B: 88-94%, C: 82-87%, D: 76-81%, E: 70-75%. Scale of assessment (preliminary/final): 20/80	
Learning outcomes: By passing the course, the student will have a complex theoretical knowledge of the drugs as dispersion and application systems and practical experience with the preparation of dosage forms.	
Class syllabus: Medicines have dosage form which is given by the necessity of their administration and coexistence of present drugs and additives (pharmaceutical ingredients). Pharmaceutical technology (galenics) is a field of pharmaceutical science dealing with the design and formulation of medicines (dosage form design), the manufacture of these medicines on both a small (compounding) and a large (pharmaceutical technology) scale, evaluation and safety of the medicines. It studies the conditions how drugs and additives (pharmaceutical ingredients) can be converted into medicines, then the regularities which rule the relations between medicines and the effect of administered drugs. In compliance with the given definition of the subject of pharmaceutical technology as a science and as educational discipline "Pharmaceutical technology" concerns these fields: ☐ Drug Technology, biotechnology ☐ The drug as a dispersion and an application system ☐ Systematic classification of the drugs and dosage forms ☐ Technological procedures and equipments for the preparation and production of the drugs ☐ Pharmaceutical adjuvants - excipients ☐ Colloidal dispersion systems, lyophobic and lyophilic colloids ☐ Dispersion system liquid in liquid and solid in liquid ☐ Preparations obtained by extraction methods ☐ Liquid preparations for oral use ☐ Preparations for inhalation	

- ☐ Parenteral preparations - injections, infusions – production, use
- ☐ Parenteral controlled release drug delivery systems
- ☐ Eye and nasal preparations
- ☐ Liposomes and microemulsion as a new drug delivery systems

Recommended literature:

Aulton, M. E.: Aulton's Pharmaceutics: the design and manufacture of medicines. Edinburgh: Churchill Livingstone, 2007

European Pharmacopoeia 8 th Ed. Strasbourg: EDQM, 2013

Lectures from Pharmaceutical technology

Tichý E., Starýchová L., Čuchorová M.: Solid dosage forms – Laboratory practices, Bratislava UK, 2015

Languages necessary to complete the course:

English

Notes:

Past grade distribution

Total number of evaluated students: 517

A	B	C	D	E	FX
9,28	13,93	18,76	24,56	32,11	1,35

Lecturers: PharmDr. Alžbeta Lengyelová, PharmDr. Desana Matušová, PhD., PharmDr. Eduard Tichý, PhD., PharmDr. Mária Čuchorová, PhD., PharmDr. Katarína Bauerová, DrSc., PharmDr. Veronika Šimunková, PhD.

Last change: 11.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KGF/06-Mgr-A/00	Course title: Pharmaceutical Technology (2)
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 4 / 5 / 0 per level/semester: 56 / 70 / 0 Form of the course: on-site learning	
Number of credits: 10	
Recommended semester: 8.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: KFCHL/08-Mgr-A/00 Physical Chemistry, KFANF/02-Mgr-A/00 Analytical Chemistry (2) KFB/05-Mgr-A/00 Pharmacognosy (2); KFCH/06-Mgr-A/00 Pharmaceutical Chemistry (2)	
Course requirements: Assessment through an oral examination. Scale of assessment (preliminary/final): 30/70	
Learning outcomes: By passing the course, the student will have a complex theoretical knowledge of the drugs as dispersion and application systems and practical experience with the preparation of dosage forms.	
Class syllabus: Medicines have dosage form which is given by the necessity of their administration and coexistence of present drugs and additives (pharmaceutical ingredients). Pharmaceutical technology (galenics) is a field of pharmaceutical science dealing with the design and formulation of medicines (dosage form design), the manufacture of these medicines on both a small (compounding) and a large (pharmaceutical technology) scale, evaluation and safety of the medicines. It studies the conditions how drugs and additives (pharmaceutical ingredients) can be converted into medicines, then the regularities which rule the relations between medicines and the effect of administered drugs. In compliance with the given definition of the subject of pharmaceutical technology as a science and as educational discipline "Pharmaceutical technology" concerns these fields: ☐ Semisolids preparations for cutaneous application ☐ Rectal and vaginal preparations ☐ Transdermal therapeutic systems ☐ Solid preparations for oral administration (granules, tablets, coated tablets, capsules) ☐ Controlled release drug delivery systems targeting ☐ Drug microforms ☐ Drug liberation from dosage forms, release kinetics, absorption ☐ Biopharmacy, mechanism of the transport across biological membranes, bioavailability ☐ Stability and stabilization of the preparations ☐ Quality assurance in drug production ☐ Pharmaceutical packaging materials	

Recommended literature: Aulton, M. E.: Aulton's Pharmaceutics: the design and manufacture of medicines. Edinburgh: Churchill Livingstone, 2007 European Pharmacopoeia 9 th Ed. Strasbourg: EDQM, 2013 Lectures from Pharmaceutical technology Tichý E., Starýchová L., Čuchorová M.: Solid dosage forms – Laboratory practices, Bratislava UK, 2015					
Languages necessary to complete the course: English					
Notes:					
Past grade distribution Total number of evaluated students: 481					
A	B	C	D	E	FX
11,85	19,33	23,49	20,17	22,45	2,7
Lecturers: PharmDr. Desana Matušová, PhD., PharmDr. Eduard Tichý, PhD., PharmDr. Katarína Bauerová, DrSc., PharmDr. Alžbeta Lengyelová, PharmDr. Mária Čuchorová, PhD., PharmDr. Veronika Šimunková, PhD., Mgr. Martina Čierna					
Last change: 09.05.2018					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/700-Mgr-A/15	Course title: Pharmacognosy
Number of credits: 4	
Educational level: I.II.	
Prerequisites: (FaF.KFB/03-Mgr-A/00 - Pharmaceutical Botany and FaF.KFT/12-Mgr-A/00 - Clinical Pharmacology and Pharmacotherapy (2) and FaF.KFT/09-Mgr-A/00 - Pharmacology and Toxicology (2) and FaF.KBMBL/09-Mgr-A/00 - Immunology and FaF.KBMBL/11-Mgr-A/00 - Microbiology and FaF.KFT/13-Mgr-A/00 - Pathology and FaF.KFT/01-Mgr-A/00 - Anatomy and Physiology and FaF.KFT/19-Mgr-A/00 - General Biology and FaF.KFANF/09-Mgr-A/00 - Radiopharmaceuticals and FaF.KFCh/01-Mgr-A/00 - Drug Analysis and FaF.KFCh/06-Mgr-A/00 - Pharmaceutical Chemistry (2) and FaF.KFChL/08-Mgr-A/00 - Physical Chemistry and FaF.KFB/05-Mgr-A/00 - Pharmacognosy (2) and FaF.KBMBL/03-Mgr-A/00 - Biochemistry and FaF.KFANF/02-Mgr-A/00 - Analytical Chemistry (2) and FaF.KFANF/01-Mgr-A/00 - Analytical Chemistry (1))	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/04-Mgr-A/00		Course title: Pharmacognosy (1)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 0 per level/semester: 28 / 42 / 0 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 5.					
Educational level: I.II.					
Prerequisites:					
Recommended prerequisites: FaF.KFB/03-Mgr-A/00 - Pharmaceutical Botany and FaF.KChTL/05-Mgr-A/00 - Organic Chemistry (2) and FaF.KFANF/02-Mgr-A/00 - Analytical Chemistry (2) and FaF.KBMBL/03-Mgr-A/00 - Biochemistry and FaF.KFANF/01-Mgr-A/00 - Analytical Chemistry (1)					
Course requirements: Scale of assessment (preliminary/final): 10/90					
Learning outcomes:					
Class syllabus: During lectures the students become familiar with parts of existing pharmacognostical pharmacopoeial monographs with particular plant sources of medicinal substances, with the biogenesis of primary and secondary plant metabolites, their function and significance in the plant body, systems of classification and characteristics of each group of secondary metabolites in terms of their chemical properties. Students will gain an overview of drug use and its main biologically active substances that can be part of mass-produced phytopharmaceuticals. The content of macroscopic and microscopic analysis forms practical exercises with anatomical and morphological characteristics of drugs, drug recognition as macroscopic components of tea mixtures and microscopic identification of the diacritical characteristics.					
Recommended literature: Nagy, M. et al.: Teaching texts from Pharmacognosy. European Pharmacopoeia 7th Edition.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 527					
A	B	C	D	E	FX
17,46	14,04	23,91	22,39	20,68	1,52

Lecturers: prof. PharmDr. Pavel Mučaji, PhD., prof. Ing. Milan Nagy, CSc., doc. PharmDr. Szilvia Czigele, PhD., PharmDr. Silvia Bittner Fialová, PhD., Mgr. Jaroslav Tóth, PhD., Mgr. Antonios Koutsoulas, PharmDr. Vladimír Forman, PhD.
Last change: 13.09.2017
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFB/05-Mgr-A/00		Course title: Pharmacognosy (2)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 5 / 0 per level/semester: 28 / 70 / 0 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Recommended prerequisites: FaF.KFB/04-Mgr-A/00 - Pharmacognosy (1)					
Course requirements: Scale of assessment (preliminary/final): 10/90					
Learning outcomes:					
Class syllabus: Students shall receive informations related to the classification of drugs according to their pharmacological effects, or use in the prevention and treatment of diseases, including basic information on side effects and interactions with the participation of individual active ingredients of natural origin. The emphasis is on drugs and their active substances, which are part of phytopharmaceuticals registered in EU countries, or which are recorded in the current issue of the European Pharmacopoeia. During the chemical part of practical exercises, students are familiarized with the test methodologies of selected pharmacopoeial drugs and with the identification and determination of active substances. They also work out basic procedures of extraction and isolation of substances from plant material with emphasis on chromatographic methods.					
Recommended literature: Nagy M., Mučaji P.: Pharmacognosy. Natural remedies. FPharm CU 2002, 70 p. Mučaji P., Nagy, M.: Pharmacognosy. Analytical and chromatographic practice. FPharm CU 2001, 44 p.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 504					
A	B	C	D	E	FX
21,63	22,62	31,55	13,49	4,96	5,75

Lecturers: prof. Ing. Milan Nagy, CSc., prof. PharmDr. Pavel Mučaji, PhD., doc. PharmDr. Szilvia Czige, PhD., PharmDr. Silvia Bittner Fialová, PhD., Mgr. Jaroslav Tóth, PhD., Mgr. Antonios Koutsoulas, PharmDr. Vladimír Forman, PhD., Mgr. Michaela Barkociová, Mgr. Eva Trajčíková
Last change: 13.09.2017
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFChL/16-Mgr-A/16	Course title: Pharmacokinetic modelling and drug development
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: 8.	
Educational level: I.II.	
Prerequisites:	
Course requirements: During semester students will pass 2 written tests worth 15 points each. During the examination another written test worth 50 points will be given, followed by an oral examination. Points from seminar tests and current examination test will be added together. To obtain the grade A students need to collect a total of at least 65 test points, to obtain grade B at least 60 points, to obtain grade C at least 55 points, to obtain grade D at least 50 points. To obtain grade E a total of at least 40 points is needed.	
Learning outcomes: The course is suitable for students of Pharmacy program who are aiming to pursue a research carrier. Students will hear about mathematical models of disposition kinetics of chemicals in the body and will master physicochemical principles of relationships between pharmacokinetic profile and molecular structure of potential drugs. After passing the course the students will be familiar with methods of determination and in silico prediction of transport properties of drugs. They will obtain a broader picture of the complex issue of research and optimization of properties of compounds undergoing pharmaceutical development. The student will be able to use the acquired skills in drug discovery programs.	
Class syllabus: Phenomenological approach to transport and fate of a drug in the organism. Principles and mathematical models of kinetics of absorption, disposition and biological effect of a drug. Pharmacokinetic compartmental models of distribution based on the physiology of human body. Kinetic parameters and their significance in drug design. Methods for prediction of physicochemical properties and kinetic parameters of bioactive compounds from their molecular structure. Optimization of biological screening tests and interpretation of experimental data.	
Recommended literature: M. Boroujerdi: Pharmacokinetics: Principles and Applications, McGraw-Hill, New York, NY, U.S.A., 2002. E. H. Kerns, L. Di: Drug-like Properties: Concepts, Structure Design and Methods, Elsevier, Burlington, MA, U.S.A., 2008. G. Keserü, D. C. Swinney: Thermodynamics and Kinetics of Drug Binding, Vol. 65, Series: Methods and Principles in Medicinal Chemistry, Wiley-VCH Verlag, Weinheim, Germany, 2015. G. L. Patrick: An Introduction to Medicinal Chemistry, 5th Ed., Oxford University Press, Oxford, UK, 2013.	

Languages necessary to complete the course: English					
Notes: The capacity of the course is restricted to 10 - 15 students. Priority will be given to students with better grades (superior weighted study average determined according to the Study Code of the Faculty of Pharmacy). Please consult the teacher before signing up for this course.					
Past grade distribution Total number of evaluated students: 5					
A	B	C	D	E	FX
60,0	20,0	20,0	0,0	0,0	0,0
Lecturers: doc. Ing. Vladimír Frečer, DrSc.					
Last change: 19.07.2016					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/800-Mgr-A/15	Course title: Pharmacology
Number of credits: 4	
Educational level: I.II.	
Prerequisites: (FaF.KFB/03-Mgr-A/00 - Pharmaceutical Botany and FaF.KFT/12-Mgr-A/00 - Clinical Pharmacology and Pharmacotherapy (2) and FaF.KFT/09-Mgr-A/00 - Pharmacology and Toxicology (2) and FaF.KBMBL/09-Mgr-A/00 - Immunology and FaF.KBMBL/11-Mgr-A/00 - Microbiology and FaF.KFT/13-Mgr-A/00 - Pathology and FaF.KFT/01-Mgr-A/00 - Anatomy and Physiology and FaF.KFT/19-Mgr-A/00 - General Biology and FaF.KFANF/09-Mgr-A/00 - Radiopharmaceuticals and FaF.KFCh/01-Mgr-A/00 - Drug Analysis and FaF.KFCh/06-Mgr-A/00 - Pharmaceutical Chemistry (2) and FaF.KFChL/08-Mgr-A/00 - Physical Chemistry and FaF.KFB/05-Mgr-A/00 - Pharmacognosy (2) and FaF.KBMBL/03-Mgr-A/00 - Biochemistry and FaF.KFANF/02-Mgr-A/00 - Analytical Chemistry (2) and FaF.KFANF/01-Mgr-A/00 - Analytical Chemistry (1))	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/08-Mgr-A/00		Course title: Pharmacology and Toxicology (1)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 3 / 0 per level/semester: 28 / 42 / 0 Form of the course: on-site learning					
Number of credits: 8					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 519					
A	B	C	D	E	FX
4,24	15,8	36,42	25,63	15,03	2,89
Lecturers: doc. RNDr. Eva Račanská, CSc., Mgr. Peter Vavrínek, PhD., Mgr. Diana Vavrincová, PhD., PharmDr. Marek Máťuš, PhD., doc. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Peter Křenek, PhD., PharmDr. Zuzana Kiliánová, PhD., PharmDr. Adrián Szobi, PhD., Mgr. Gabriel Dóka, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/09-Mgr-A/00		Course title: Pharmacology and Toxicology (2)			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 4 / 3 / 0 per level/semester: 56 / 42 / 0 Form of the course: on-site learning					
Number of credits: 6					
Recommended semester: 7.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 503					
A	B	C	D	E	FX
13,32	20,87	23,86	22,27	17,89	1,79
Lecturers: prof. RNDr. Magdaléna Kuželová, CSc., doc. RNDr. Eva Račanská, CSc., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Elena Ondriašová, CSc., doc. PharmDr. Adriana Duriš Adameová, PhD., doc. PharmDr. Peter Křenek, PhD., PharmDr. Marek Mátuš, PhD., Mgr. Diana Vavrinčová, PhD., Mgr. Peter Vavrínek, PhD., PharmDr. Zuzana Kiliánová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/08-Mgr-A/00		Course title: Physical Chemistry			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 3 / 3 / 0 per level/semester: 42 / 42 / 0 Form of the course: on-site learning					
Number of credits: 7					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject Physical chemistry is aimed on the following fields: Structure of matter and grounds of spectral methods (UV-VIS, fluorescence, IR, Raman, NMR spectroscopy). Chemical thermodynamics – fundamental laws, phase equilibrium, solutions and liquid mixtures, condensed systems. Electrochemistry – solvents and solutions of electrolytes, strong and weak electrolytes, acid- base equilibrium, ampholytes, potentiometry. Chemical kinetics – reaction rates and orders, diffusion and kinetics of heterogeneous processes, rate of dissolution. Colloids and surfaces – surface phenomena, adsorption, membranes and membrane phenomena. The lectures from physical chemistry are supplemented by practical exercises, where the students verify their theoretical knowledge in practice.					
Recommended literature: Atkins, P. W.: Physical Chemistry, 6th edition, Oxford University Press, 1998 Connors, K. A.: Thermodynamics of Pharmaceutical Systems : an Introduction for Students of Pharmacy. Hoboken : Wiley Interscience, 2002. 344 s. Amiji M.M., Sandmann B.J.: Applied Physical Pharmacy. New York : McGraw-Hill, 2003. 462 s. Laboratory Manual for Physical Chemistry, compiled by teachers of the Department of Physical Chemistry of Drugs.					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 640					
A	B	C	D	E	FX
4,06	7,97	14,22	21,88	39,06	12,81

Lecturers: prof. RNDr. Daniela Uhríková, CSc., doc. Ing. Vladimír Frečer, DrSc., Ing. Jarmila Oremusová, CSc., RNDr. Tomáš Fazekas, PhD., Mgr. Tomáš Kondela, RNDr. Alexander Búcsi, PhD., Mgr. Lukáš Hubčík, PhD., Mgr. Silvia Huláková, PhD.

Last change: 02.06.2015

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KTV/01-Mgr-A/00		Course title: Physical Education and Sport (1)			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 644					
A	B	C	D	E	FX
61,02	19,88	9,63	3,11	1,09	5,28
Lecturers: Mgr. Lenka Nagyová, PhD., PaedDr. Martina Tibenská, PhD., Mgr. Dalibor Ludvig, PhD., Mgr. Vladimír Čechovič, Mgr. Michal Tokár, PhD.					
Last change: 30.05.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KTV/02-Mgr-A/00		Course title: Physical Education and Sport (2)			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 599					
A	B	C	D	E	FX
49,92	29,38	11,19	2,0	2,17	5,34
Lecturers: Mgr. Lenka Nagyová, PhD., Mgr. Dalibor Ludvig, PhD., PaedDr. Martina Tibenská, PhD., Mgr. Vladimír Čechovič, Mgr. Michal Tokár, PhD.					
Last change: 31.05.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KTV/03-Mgr-A/00		Course title: Physical Education and Sport (3)			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 3.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 521					
A	B	C	D	E	FX
45,87	33,01	11,9	3,65	0,38	5,18
Lecturers: PaedDr. Martina Tibenská, PhD., Mgr. Dalibor Ludvig, PhD., Mgr. Lenka Nagyová, PhD., Mgr. Vladimír Čechovič, Mgr. Michal Tokár, PhD.					
Last change: 31.05.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KTV/04-Mgr-A/00		Course title: Physical Education and Sport (4)			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 499					
A	B	C	D	E	FX
51,1	28,46	7,41	4,81	3,21	5,01
Lecturers: Mgr. Lenka Nagyová, PhD., Mgr. Dalibor Ludvig, PhD., PaedDr. Martina Tibenská, PhD., Mgr. Vladimír Čechovič, Mgr. Michal Tokár, PhD.					
Last change: 31.05.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/06-Mgr-A/00		Course title: Physics			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 2 / 0 per level/semester: 28 / 28 / 0 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject Physics is taught by means of lectures and laboratory exercises. The lectures are aimed on the following fields of physics – mass point mechanics, hydrostatics and hydrodynamics, thermodynamics, electricity and magnetism, radiation. The content of the subject Physics is formulated so that the students acquire basic knowledge about physics and understand basic principles of natural phenomenon. The lectures are supplemented by practical exercises, where the students verify their theoretical knowledge in practice. During the laboratory exercises the students acquire basic habits and practical skills which are necessary for experimental work. Practical exercises include particularly experimental methods described in European Pharmacopoeia, e.g. density measurement of liquids and solids, measurement of viscosity, refractive index, optical activity, conductance, and so on. Emphasis is also put on the treatment and interpretation of measured data. An addition to the subject Physics is the subject Problem solving in physics where the students verify their theoretical knowledge in solving examples.					
Recommended literature: Lectures downloaded from the website http://www.fpharm.uniba.sk/index.php?id=2850 K. F. Kuhn: Basic Physics: A Self-Teaching Guide. John Wiley & Sons, 1996. Study materials for Practical Exercises from Physics from the website http://www.fpharm.uniba.sk/index.php?id=2850					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 663					
A	B	C	D	E	FX
15,84	19,0	21,12	16,44	23,68	3,92

Lecturers: RNDr. Alexander Búcsi, PhD., doc. RNDr. Jana Gallová, CSc., Mgr. Tomáš Kondela, Ing. Jarmila Oremusová, CSc., RNDr. Tomáš Fazekas, PhD.
Last change: 02.06.2015
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/08-Mgr-A/00	Course title: Practice in Community Pharmacy (1)
Educational activities: Type of activities: practice Number of hours: per week: per level/semester: 4t Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 8.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: KORF/12- Mgr-A/00 Social Pharmacy and Pharmacoeconomics	
Course requirements: Assessment of students is done electronically during practice and in written form in the end of practice (written assessment is made by pharmacy where the student took practice). The final evaluation is arithmetical average of both, the electronic and written assessment. Grading A: 100-93 %, B: 92-85 %, C: 84-77 %, D: 76-69 %, E: 68-60 %, Fx: 59 % and less.	
Learning outcomes: Getting acquainted with the real pharmacy environment, basic knowledge of the pharmacy's assortment of drugs, mastering of basic pharmaceutical activities under supervision of assigned professional in the pharmacy.	
Class syllabus: Characteristics of medical prescription, pharmaceutical dispensing, assortment of drugs in the pharmacy, handling pharmaceutical software, individually and mass prepared medicines, dispensing care, informing, consulting and counseling activities in providing of pharmaceutical care, selftreatment (drugs dispensed without medical prescription, nutritional additives, additional assortment), medical devices, basic economic knowledge, ethical aspects of the pharmacist's profession, ethical codex of a healthcare professional.	
Recommended literature: 1. Hungman, B.: Healthcare Communication, London, Pharmaceutical Press, 2009, 304 p. 2. Veatch, R.M., Haddad, A.: Case studies in pharmacy ethics, Oxford, Univesity Press, 2008, 331 p. 3. Bissel, P., Traulsen, J.M.: Sociology and pharmacy practice, London, Pharmaceutical Press, 2005, 226 p. 4. Wingfield, J., Badcott, D.: Pharmacy ethics and decision making, London, Pharmaceutical Press, 2007, 313 p. 5. Appelbe, G.E., Wingfield, J.: Dale and Appelbe s Pharmacy Law and Ethics, London, Pharmaceutical Press, 2005, 593 p.	

6. Sexton, J., Nickless G., Green, Ch.: Pharmaceutical Care Made Easy, London, Pharmaceutical Press, 2006, 178 p.
7. Edwards, C., Stillman, P.: Minor Illness or Major Disease? The clinical pharmacist in the community. Fourth edition, London, Pharmaceutical Press, 2006, 285 p.
8. Stephens, M.: Hospital Pharmacy, London, Pharmaceutical Press, 2006, 285 p.
9. Harman, R.J.: Patient Care in Community Practice, London, Pharmaceutical Press, 2002, 203 p.
10. Harman, R.J.: Handbook of Pharmacy Health Education, second edition, London, Pharmaceutical Press, 2001, 299 p.
11. European Pharmacopoeia – Ph. Eur. 8th Edition

Languages necessary to complete the course:

English language

Notes:

e-Protocol of the practice is a formal evidence of undertaking of the mandatory extent of professional pharmaceutical practice according to Council Directive 85/432/EHS, 85/433/EHS, 2001/19/ES – requirements for study of pharmacy and for recognition of professional qualifications.

One week of practice is a time span characterized by five calendar days with 8 working hours per day.

Time period for the practice is set for a period of 25.04.2016 – 20.05.2016.

Past grade distribution

Total number of evaluated students: 465

A	B	C	D	E	FX
93,76	5,38	0,65	0,0	0,0	0,22

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

Last change: 30.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/09-Mgr-A/15	Course title: Practice in Community Pharmacy (2)
Educational activities: Type of activities: practice Number of hours: per week: per level/semester: 20t Form of the course: on-site learning	
Number of credits: 20	
Recommended semester: 9.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: KORF/12- Mgr-A/00 Social Pharmacy and Pharmacoeconomics, KORF/10- Mgr-A/00 Retail Pharmacy, Legislation and Ethics	
Course requirements: Assessment of students is done electronically during practice and in written form in the end of practice (written assessment is made by pharmacy where the student took practice). The final evaluation is arithmetical average of both, the electronic and written assessment. Grading A: 100-93 %, B: 92-85 %, C: 84-77 %, D: 76-69 %, E: 68-60 %, Fx: 59 % and less.	
Learning outcomes: Getting acquainted with the real pharmacy environment, basic knowledge of the pharmacy's assortment of drugs, mastering of basic pharmaceutical activities under supervision of assigned professional in the pharmacy.	
Class syllabus: Characteristics of medical prescription, pharmaceutical dispensing, assortment of drugs in the pharmacy, handling pharmaceutical software, individually and mass prepared medicines, dispensing care, informing, consulting and counseling activities in providing of pharmaceutical care, self-medication (drugs dispensed without medical prescription, nutritional additives, additional assortment), medical devices, basic economic knowledge, ethical aspects of the pharmacist's profession, ethical codex of a healthcare professional.	
Recommended literature: 1. Hungman, B.: Healthcare Communication, London, Pharmaceutical Press, 2009, 304 p. 2. Veatch, R.M., Haddad, A.: Case studies in pharmacy ethics, Oxford, Univesity Press, 2008, 331 p. 3. Bissel, P., Traulsen, J.M.: Sociology and pharmacy practice, London, Pharmaceutical Press, 2005, 226 p. 4. Wingfield, J., Badcott, D.: Pharmacy ethics and decision making, London, Pharmaceutical Press, 2007, 313 p. 5. Appelbe, G.E., Wingfield, J.: Dale and Appelbe s Pharmacy Law and Ethics, London, Pharmaceutical Press, 2005, 593 p.	

6. Sexton, J., Nickless G., Green, Ch.: Pharmaceutical Care Made Easy, London, Pharmaceutical Press, 2006, 178 p.
7. Edwards, C., Stillman, P.: Minor Illness or Major Disease? The clinical pharmacist in the community. Fourth edition, London, Pharmaceutical Press, 2006, 285 p.
8. Stephens, M.: Hospital Pharmacy, London, Pharmaceutical Press, 2006, 285 p.
9. Harman, R.J.: Patient Care in Community Practice, London, Pharmaceutical Press, 2002, 203 p.
10. Harman, R.J.: Handbook of Pharmacy Health Education, second edition, London, Pharmaceutical Press, 2001, 299 p.
11. European Pharmacopoeia – Ph. Eur. 8th Edition

Languages necessary to complete the course:

Notes:

e- Protocol of the practice is a formal evidence of undertaking of the mandatory extent of professional pharmaceutical practice according to Council Directive 85/432/EHS, 85/433/EHS, 2001/19/ES – requirements for study of pharmacy and for recognition of professional qualifications.

One week of practice is a time span characterized by five working days with 8 working hours per day. To fulfill the requirements of Council Directive 85/432/EHS, 85/433/EHS, students must complete 120 days of practice with 8 working hours per day.

Time period for the practice is set for a period of 01.08.2015 – 31.12.2015.

Past grade distribution

Total number of evaluated students: 457

A	B	C	D	E	FX
33,04	40,04	25,82	1,09	0,0	0,0

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

Last change: 30.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KChTL/10-Mgr-A/00		Course title: Principles of Molecular Modelling			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 1 / 0 per level/semester: 14 / 14 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I.II.					
Prerequisites:					
Course requirements: interim evaluation: project elaboration final evaluation: project defense and final test Scale of assessment (preliminary/final): 40/60					
Learning outcomes: The course shall notify the students with the basic principles used in the methods of computer aided molecular design (CAMD).					
Class syllabus: Tuition consists of several blocks of lectures and individual work with the computer. To master the subject Principles of Molecular Modeling at a sufficient level, knowledge of the subject Organic Chemistry 1 is required. The students work with the programmes available at the Department of Chemical Theory of Drugs – ALCHEMY, CHEMWIND, RASMOL, CHEMDRAW, WORD, with the use of the INTERNET computer network and available databases (PDB). Primarily they work on the tasks in the field of medicines, such as finding the optimal conformation of the molecule, electron division, the relationship between the structure and properties of a molecule. They learn how to browse the Brookhaven Protein database. During the tuition they shall work out the project the defense of which is part of the exam.					
Recommended literature: Alan Hinchliffe : Molecular Modeling for Beginners, Wiley, 2003.					
Languages necessary to complete the course: English language					
Notes: Teachers: Mgr. Lucia Lintnerová, PhD; Assoc. prof. Ing. Martin Pisárčik, CSc.					
Past grade distribution Total number of evaluated students: 15					
A	B	C	D	E	FX
33,33	26,67	26,67	0,0	6,67	6,67

Lecturers: Mgr. Lucia Lintnerová, PhD., doc. Ing. Martin Pisárčík, CSc., Mgr. Peter Herich, PhD.
Last change: 27.11.2017
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/11-Mgr-A/00		Course title: Problem Solving in Physical Chemistry			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: Students will improve their theoretical knowledge obtained at lectures on Physical Chemistry by solving problems from various parts of physical chemistry such as radioactivity, spectroscopy, chemical thermodynamics esp. phase equilibriums and solutions, electrochemistry and acid-base equilibriums, chemical kinetics, colloids and surfaces.					
Recommended literature: Atkins P., dePaula J.: Physical Chemistry. 7th ed., Oxford university Press, 2001. Atkins, P.W.: Student's Solutions Manual for Physical Chemistry. STU Bratislava 2002. Laboratory Manual for Physical Chemistry, compiled by teachers of the Department of Physical Chemistry of Drugs (Chapter 11) and presentations from the Department website (http://www.fpharm.uniba.sk/fileadmin/user_upload/english/Physical_Chemistry/Physchem.pdf)					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 272					
A	B	C	D	E	FX
32,35	29,04	12,87	13,97	5,88	5,88
Lecturers: doc. Ing. Vladimír Frečer, DrSc.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFChL/12-Mgr-A/00		Course title: Problem Solving in Physics			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 1.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus: The subject Problem solving in physics is intended especially for those students who want to deepen their knowledge of physics and for those who want to be good prepared for the examination in Physics, because solving exercises is one part of this examination. The subject is taught by means of seminars on which the students solve problems from the following fields of physics: mass point mechanics, circular motion, work and energy, mass point dynamics, deformation, friction, hydrostatics, surface tension, capillarity, hydrodynamics (ideal fluid flow, real fluid flow), viscosity, calorimetry, thermal expansion, thermodynamics – work and heat, internal energy, enthalpy, entropy, phase transitions, diffusion, electrostatics, direct current circuits, alternating current circuits, magnetic field and radiation. The effort of teachers is to select problems with pharmaceutical and medical themes.					
Recommended literature: Presentations from Problem solving in Physics may be downloaded from the website http://www.fpharm.uniba.sk/index.php?id=2850					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 279					
A	B	C	D	E	FX
45,16	22,22	11,47	7,17	6,45	7,53
Lecturers: Mgr. Tomáš Kondela, RNDr. Alexander Búcsi, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/25-Mgr-A/14	Course title: Promoting Public Health
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: 7.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Completion of lectures and seminars. Written test. The exam performed by the written test with a minimum threshold of success 55%. The assessment: A = 100-95%, B = 94-85%, C = 84-75%, D = 74-70%, E = 69-60%, FX = 59% and less.	
Learning outcomes: Course will enable to students required specific knowledge of promoting and protecting public health and the health education within the practical implementation of public pharmaceutical service-oriented patient. The student will obtain an overview about active health promotion by healthy lifestyle, the role of nutrition and physical activity in health promotion and disease prevention, about position of dietary supplements as an essential part of pharmaceutical care. Also the student will obtain the basic orientation work with EBM information, learn to work with relevant scientific sources of official and Professional institutions. The interactive training should handle professional communication and counselling with patients in self-medication, focussed on the major health risks of community (obesity, cancer, cardiovascular diseases). In the wider context the subject complements the professional profile of pharmacist as expert about medicines and drugs management, but also as an expert in proactive promotion of primary prevention and health promotion in the provision of pharmaceutical care and for society integration of pharmacist as expert in public health tasks.	
Class syllabus: 1. Public health in Slovakia and Europe – legislation, content, characterisation. The basic mutual principles of health policy and public health. 2. Health education - content and form of implementation. Health promotion and its possibilities in the public pharmaceutical services. 3. Public health and its assessment - basic epidemiological parameters in the selected health problem. 4. Prevention as part of health care - general and in public pharmacies. Prevention of selected civilization diseases (oncological and cardiovascular diseases). 5. Basic principles of nutrition. Biologically active food ingredients and their significance for human health. 6. The pharmacist and his possibilities to influence public lifestyle.	

7. Complementary and alternative medicine as part of health care and pharmaceutical care.
8. Dietary Supplements / (nutraceuticals) - general characteristics, legislative, regulatory market entry, inspection, labelling, availability. Specifics legislation supplements, Food Act and the Codex Alimentarius. Nutrition and health claims.
9. Self-medication and the use of non-prescription medicines (OTC) and dietary supplements. Minimum dispensing pharmacist.
10. Information sources and systems relating to dietary supplements. Search for relevant information, free web and free information resource for pharmacists and the general public.
11. Other areas pharmacist active role in the protection and promotion of health (smoking, alcohol, sexual health).
12. Promotion and protection of health in society. Programs, education and application in practical conditions.

Recommended literature:

1. Carter J., Slack M: Pharmacy in Public Health: Basics and Beyond, ASHP 2010
2. Lubotsky BL, Hurd PD, Hanson A: Introduction to Public Health in Pharmacy, Jones & Bartlett Learning, 2008
3. Manson P: Dietary Supplements, Pharmaceutical Press, 2011
4. Talbott SM, Hughes K: The Health Professional's Guide to Dietary Supplements, 2006
5. National Centre for Complementary and Integrative Health
6. Rovers et al: A practical guide to pharmaceutical care - A clinical skills primer, 3rd ed. Am. Pharmacists Ass. 2007
7. Debrincat M: Patient Perspectives to Self-medication: Community Pharmacy, AAP, 2014
8. Material from lectures

Languages necessary to complete the course:

English

Notes:

Past grade distribution

Total number of evaluated students: 11

A	B	C	D	E	FX
81,82	18,18	0,0	0,0	0,0	0,0

Lecturers: doc. PharmDr. Daniela Mináriková, PhD.

Last change: 30.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KFANF/09-Mgr-A/00	Course title: Radiopharmaceuticals
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning	
Number of credits: 4	
Recommended semester: 5.	
Educational level: I.II.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 20/80	
Learning outcomes:	
Class syllabus: The subject provides theoretical knowledge and experimental skills in preparation and analytical characterization of radiopharmaceuticals in accordance with a good laboratory practice and basic rules for safety and radiation protection. Education process of Radiopharmaceuticals redounds to obtain theoretical rudiments essential for the utilization of radionuclides in production, preparation of radiopharmaceuticals, their standardization and control. As open emitters are used, a good laboratory practice and basic rules for safety and radiation protection are important to implement into working habits. Scope and extent of the subject follow the role of graduate pharmacist in preparation of application forms of radiopharmaceuticals and his sole responsibility for the quality of radiopharmaceuticals in accordance with Pharmacopoeia requirements. Syllabus: • Radiopharmaceuticals, characteristics, importance. • Protection against ionizing radiation. • Detection of nuclear radiation. • Production of radionuclides - cyclotron, nuclear reactor • Production of radionuclides - radionuclide generators • Substances for labeling - preparation of radiopharmaceuticals. • Properties of radiopharmaceuticals and methods of quality control of radiopharmaceuticals. • Radioactive drugs I. - The European Pharmacopoeia. • Radioactive drugs II. - The European Pharmacopoeia • Radiopharmaceuticals in medical practice and the use of radionuclide -labeled substances in health research. • .Sign radiopharmaceuticals, GMP and GLP radiopharmacy. • Dosimetry - methods, significance.	
Recommended literature:	

Sýkorová, M., Havránek E.: Rádiofarmaká. Laboratórne cvičenia pre farmaceutov. Bratislava : UK, 2009, 96 s.
 Květina, J. a kol.: Rádiofarmaka. Praha : Avicenum, 1987. 105 s.
 Schiller, P. a kol.: Nukleárna farmácia. Bratislava : Alfa, 1980. 287 s.
 Slovenský liekopis 1. Zväzok I a Zväzok V, Bratislava : Herba, 1999-2002
 European Pharmacopoeia. 7th Edition. Strasbourg: Council of Europe, EDQM, 2007
 Zákony a vyhlášky o požiadavkách na zabezpečenie radiačnej ochrany uverejnené v Zz. (www.zbierka.sk)
 Sampson, Ch.B.: Textbook of Radiopharmacy: Theory and Practice. Amsterdam : Gordon and Breach Science Publishers, 1999

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 514

A	B	C	D	E	FX
16,93	27,63	19,26	16,93	17,7	1,56

Lecturers: Ing. Oľga Lukačovičová, PhD., PharmDr. Mária Bodnár Mikulová

Last change: 08.06.2017

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KORF/10-Mgr-A/15	Course title: Retail Pharmacy, Legislation and Ethics
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: 8.	
Educational level: I.II.	
Prerequisites:	
Recommended prerequisites: KORF/12- Mgr-A/00 Social Pharmacy and Pharmacoeconomics	
Course requirements: During semester there will be two written examinations with 100 points each, for grade A it is necessary to score at least 93 points, for grade B at least 85 points, for grade C at least 77 points, for grade D at least 69 points, and for grade E at least 60 points. Student, who scores less than 59 points from either examination will get no credits.	
Learning outcomes: After finishing the study course „Retail Pharmacy“ students must have knowledge and skills in the pharmaceutical care, and understand the overall content of the course, role of retail pharmacy in the pharmaceutical practice, which focuses on work with medicines and their disposing to patients under certain conditions. They will be able to work with a medical prescription and information gained from it and also with information gained from literature and electronic databases. They will understand means of storage of substances and medicines , preparing of individually prepared medicines and basics of control of pharmaceutical raw materials. After successful finishing of this educational process students have to be able to responsibly and efficiently withstand in all aspects of pharmaceutical care.	
Class syllabus: Retail pharmacy is a basic subject of pharmacy that in theoretical and practical way deals with providing of pharmaceutical care to general public. This subject has close connection with subject Social pharmacy. These two subjects are interconnected by basic categories like active substance and medicine and their place in pharmacy, in society, as well as within pharmaceutical care. Social pharmacy – Retail pharmacy as a whole is a study subject at the Faculty for doctoral study and approved specialization program of pharmacy for postgraduate study. Teaching of subject Retail pharmacy is done by means of lectures and seminars. Syllabus of lectures and seminars consists of the following topics: Legislature in retail pharmacy, pharmaceutical operations, controlling, preparatory, dispensing, supplying, administrative, public and hospital pharmacies economies, information and consulting activities. Quality of doctor’s communication with a pharmacist. Development of e-prescribing. Electronic drug card. Document creation and processing.	

Recommended literature:

1. Hungman, B.: Healthcare Communication, London, Pharmaceutical Press, 2009, 304 p.
2. Veatch, R.M., Haddad, A.: Case studies in pharmacy ethics, Oxford, Univesity Press, 2008, 331 p.
3. Bissel, P., Traulsen, J.M.: Sociology and pharmacy practice, London, Pharmaceutical Press, 2005, 226 p.
4. Wingfield, J., Badcott, D.: Pharmacy ethics and decision making, London, Pharmaceutical Press, 2007, 313 p.
5. Appelbe, G.E., Wingfield, J.: Dale and Appelbe s Pharmacy Law and Ethics, London, Pharmaceutical Press, 2005, 593 p.
6. Sexton, J., Nickless G., Green, Ch.: Pharmaceutical Care Made Easy, London, Parnaceuticl Press, 2006, 178 p.
7. Edwards, C., Stillman, P.: Minor Illness or Major Disease? The clinical pharmacist in the community.Fourth edition, London, Pharmaceutical Press, 2006, 285 p.
8. Stephens, M.: Hospital Pharmacy, London, Pharmaceutical Press, 2006, 285 p.
9. Harman, R.J.: Patient Care in Community Practice, London, Pharmaceutical Press, 2002, 203 p.
10. Harman, R.J.: Handbook of Pharmacy Health Education, second edition, London, Pharmaceutical Press, 2001, 299 p.
11. European Pharmacopoeia – Ph. Eur. 8th Edition

Languages necessary to complete the course:

English language.

Notes:

Obligatory course taught in the 8th semester of study only.

Past grade distribution

Total number of evaluated students: 481

A	B	C	D	E	FX
13,93	23,28	22,25	19,96	19,96	0,62

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

Last change: 30.05.2016

Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/07-Mgr-A/00	Course title: Selected Chapters in Inorganic Chemistry
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 0 per level/semester: 0 / 14 / 0 Form of the course: on-site learning	
Number of credits: 1	
Recommended semester: 1.	
Educational level: I.II.	
Prerequisites:	
Course requirements: final evaluation: examination in form of the summary test Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The aim of the course is to apply basic knowledge of bioinorganic and biocoordination chemistry in the field of pharmacy.	
Class syllabus: Metal ions under in vivo conditions. Brief basics of coordination chemistry of metal complexes. Stereochemistry of coordination compounds. Which metal ions react with which ligands (creation of complexes). Biologically significant complex compounds. The role and importance of transitional metals in biological systems. Bioinorganic chemistry of oxygen. Trace element in living organisms – their deficiency and excess. Trace element supplementation. Antitumor activity of some metal complexes and their stereochemical requirements. Bioinorganic chemistry and its essential pharmaceutical applications.	
Recommended literature: 1. W. Kaim, B. Schwederski, A. Klein: Bioinorganic Chemistry - Inorganic Elements in the Chemistry of Life. 4th Edition, Wiley 2013. 2. E. Crabb, E. A. Moore: Metals and Life. RSC Publishing 2010 3. E.-I. Ochiai: Bioinorganic Chemistry. Elsevier 2008 4. G. A. Lawrance: Introduction to Coordination Chemistry. Wiley 2009	
Languages necessary to complete the course: English language	
Notes: The course is held only in winter semester. Teachers: Ing. Ladislav Habala, PhD., Assoc.prof. Martin Pisárčik, CSc	

Past grade distribution					
Total number of evaluated students: 206					
A	B	C	D	E	FX
60,68	25,24	7,77	3,88	0,0	2,43
Lecturers: Ing. Ladislav Habala, PhD., doc. Ing. Martin Pisárčík, CSc.					
Last change: 20.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KChTL/08-Mgr-A/00	Course title: Selected Chapters in Organic Chemistry
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 1 / 0 per level/semester: 0 / 14 / 0 Form of the course: on-site learning	
Number of credits: 1	
Recommended semester: 2.	
Educational level: I.II.	
Prerequisites:	
Course requirements: final evaluation: examination in form of the summary test Scale of assessment (preliminary/final): 0/100	
Learning outcomes: The course provides a comprehensive preparation in the field of stereochemistry of organic and pharmaceutically significant compounds in pharmacy.	
Class syllabus: Stereochemistry as a phenomenon. Nomenclature and notation of stereoisomers. Conformation of acyclic and cyclic organic molecules. Chirality of molecules with asymmetric substituted tetrahedral centers. Optical activity. Enantiomers, racemates. Diastereoisomers. Meso compounds. Chirality of the systems not containing stereogenic carbon atom. Axial chirality of allen and biaryl types. Helical structures. Chirality of pharmaceuticals and biological activity. Stereoisomerism on bonds with hampered rotation. Stereoisomerism on a double bond. E/Z isomerism and nomenclature of the respective type of isomers. Cis/trans isomerism of cyclic systems. Stereochemistry of some polymers. Carbohydrates, proteins and nucleic acids. Synthetic polymers. Stereochemistry and organic synthesis. Chiral pool. Techniques and procedures used in separation of stereoisomers. Asymmetric organic synthesis – chiral natural compounds, chiral agents and catalysts.	
Recommended literature: 1. Devínsky F. et al. Organic Chemistry for Pharmacy Students. Comenius University Press, Bratislava, 2010 2. Čižmáriková R.: Laboratory manual for practice in organic chemistry. Bratislava, Comenius University, 2012. 3. Buxton, S.R., Roberts, S. M.: Guide to Organic Stereochemistry. London : Longman, 1996	
Languages necessary to complete the course: English language	
Notes: The course is held only in winter semester. Teachers: Assoc. prof. RNDr. Ružena Čižmáriková, CSc., Assoc. prof. PharmDr. Miloš Lukáč, PhD.; Assoc. prof. PharmDr. Jindra Valentová, PhD.	

Past grade distribution					
Total number of evaluated students: 147					
A	B	C	D	E	FX
25,17	21,77	17,69	18,37	6,8	10,2
Lecturers: doc. RNDr. Ružena Čižmáriková, CSc., doc. PharmDr. Miloš Lukáč, PhD.					
Last change: 28.09.2017					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/05-Mgr-A/00	Course title: Slovak Language for Foreign Students (1)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.II.	
Prerequisites:	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student obtains basic communication skills and grammar structures needed for everyday life in Slovakia.	
Class syllabus: The lessons concentrate on the following topics: slovak alphabet, social phrases, greetings and farewells, basic dialogues, interior (house, flat, office), countries.	
Recommended literature: Kamenárová, R. a kol.: Krížom-krážom, Slovenčina A1. Bratislava: Univerzita Komenského, 2007 Ivorníková, H. a kol.: Krížom-krážom, Slovenčina A1 + A2, Cvičebnica. Bratislava: Univerzita Komenského, 2009	
Languages necessary to complete the course: Slovak and English languages	
Notes: Slovak Language for Foreign Students (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. It is recommended to take the courses gradually from the 1st to the 4th semester of the study, i.e. Slovak Language for Foreign Students (1) in the 1st (winter) semester of study.	

Past grade distribution					
Total number of evaluated students: 671					
A	B	C	D	E	FX
30,25	17,14	17,44	15,8	16,99	2,38
Lecturers: PhDr. Darina Kližanová, PhDr. Tomáš Hamar, PhD.					
Last change: 10.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/06-Mgr-A/00	Course title: Slovak Language for Foreign Students (2)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 2.	
Educational level: I.II.	
Prerequisites:	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student obtains basic communication skills and grammar structures needed for the work in a pharmacy.	
Class syllabus: The lessons concentrate on the following topics: Bratislava - capital city of Slovakia, life in the town and the country, professions, shopping, pharmacy.	
Recommended literature: Kamenárová, R. a kol.: Krížom-krážom, Slovenčina A1. Bratislava: Univerzita Komenského, 2007 Ivorníková, H. a kol.: Krížom-krážom, Slovenčina A1 + A2, Cvičebnica. Bratislava: Univerzita Komenského, 2009	
Languages necessary to complete the course: Slovak and English languages	
Notes: Slovak Language for Foreign Students (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. It is recommended to take the courses gradually from the 1st to the 4th semester of the study, i.e. Slovak Language for Foreign Students (2) in the 2nd (summer) semester of study.	

Past grade distribution					
Total number of evaluated students: 579					
A	B	C	D	E	FX
21,59	16,41	19,69	15,89	20,21	6,22
Lecturers: PhDr. Darina Kližanová, PhDr. Tomáš Hamar, PhD.					
Last change: 10.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF.KJ/07-Mgr-A/00	Course title: Slovak Language for Foreign Students (3)
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning	
Number of credits: 2	
Recommended semester: 3.	
Educational level: I.II.	
Prerequisites:	
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%	
Learning outcomes: After completing the seminars a student obtains basic communication skills and grammar structures useful for formal oral and written communication.	
Class syllabus: The lessons concentrate on the following topics: foods, daily routines, telling the time, school system, study at the University, study of pharmacy.	
Recommended literature: Kamenárová, R. a kol.: Krížom-krážom, Slovenčina A1. Bratislava: Univerzita Komenského, 2007 Ivorníková, H. a kol.: Krížom-krážom, Slovenčina A1 + A2, Cvičebnica. Bratislava: Univerzita Komenského, 2009	
Languages necessary to complete the course: Slovak and English languages	
Notes: Slovak Language for Foreign Students (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. It is recommended to take the courses gradually from the 1st to the 4th semester of the study, i.e. Slovak Language for Foreign Students (3) in the 3rd (winter) semester of study.	

Past grade distribution					
Total number of evaluated students: 511					
A	B	C	D	E	FX
11,74	19,96	19,57	19,37	27,2	2,15
Lecturers: PhDr. Darina Kližanová, PhDr. Tomáš Hamar, PhD.					
Last change: 10.12.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KJ/08-Mgr-A/00		Course title: Slovak Language for Foreign Students (4)			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 0 / 2 per level/semester: 0 / 0 / 28 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 4.					
Educational level: I.II.					
Prerequisites:					
Course requirements: - active presence at seminars - midterm test (15%) - final test (85%) To complete the course successfully a student must achieve at least 60%. Scale of assessment (preliminary/final): 15% / 85%					
Learning outcomes: After completing the seminars a student deepens communication skills specific grammar structures.					
Class syllabus: The lessons concentrate on the following topics: work place, correspondance and telephoning, reading newspaper articles.					
Recommended literature: Kamenárová, R. a kol.: Krížom-krážom, Slovenčina A1. Bratislava: Univerzita Komenského, 2007 Ivorníková, H. a kol.: Krížom-krážom, Slovenčina A1 + A2, Cvičebnica. Bratislava: Univerzita Komenského, 2009					
Languages necessary to complete the course: Slovak and English languages					
Notes: Slovak Language for Foreign Students (1-4) within Master Study Programme is obligatory elective and is carried out in English study programme in four semesters. It is recommended to take the courses gradually from the 1st to the 4th semester of the study, i.e. Slovak Language for Foreign Students (4) in the 4th (winter) semester of study.					
Past grade distribution Total number of evaluated students: 480					
A	B	C	D	E	FX
17,5	14,58	20,83	18,13	26,04	2,92

Lecturers: PhDr. Darina Kližanová, PhDr. Tomáš Hamar, PhD.
Last change: 10.12.2015
Approved by: prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KORF/12-Mgr-A/00		Course title: Social Pharmacy and Pharmacoeconomics			
Educational activities: Type of activities: practicals / lecture / seminar Number of hours: per week: 0 / 2 / 2 per level/semester: 0 / 28 / 28 Form of the course: on-site learning					
Number of credits: 5					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 520					
A	B	C	D	E	FX
25,0	12,12	19,62	13,27	28,27	1,73
Lecturers: doc. PharmDr. Tomáš Tesař, PhD., MBA, PharmDr. Milica Molitorisová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/900-Mgr-A/15	Course title: Social Pharmacy and Retail Pharmacy
Number of credits: 4	
Educational level: I.II.	
State exam syllabus:	
Last change:	
Approved by: prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/10-Mgr-A/00		Course title: Tissues Functional Morphology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 1 / 0 / 0 per level/semester: 14 / 0 / 0 Form of the course: on-site learning					
Number of credits: 1					
Recommended semester: 2.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 49					
A	B	C	D	E	FX
81,63	2,04	2,04	2,04	2,04	10,2
Lecturers: doc. MUDr. Tatiana Stankovičová, CSc., Mgr. Lenka Piváčková, PhD., PharmDr. Stanislava Jankyová, PhD., PharmDr. Tomáš Rajtík, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Tatiana Foltánová, PhD., Mgr. Ondrej Sprušanský, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/16-Mgr-A/00		Course title: Toxicology of Xenobiotics			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 1 per level/semester: 28 / 0 / 14 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 157					
A	B	C	D	E	FX
6,37	22,93	21,02	19,11	10,83	19,75
Lecturers: doc. RNDr. Eva Račanská, CSc., Mgr. Ondrej Sprušanský, PhD., PharmDr. Elena Ondriašová, CSc., doc. PharmDr. Peter Křenek, PhD., PharmDr. Marek Mátuš, PhD., Mgr. Peter Vavrínek, PhD., PharmDr. Zuzana Kiliánová, PhD., doc. PharmDr. Adriana Duriš Adameová, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KFT/17-Mgr-A/00		Course title: Veterinary Pharmacology			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 0 / 0 per level/semester: 28 / 0 / 0 Form of the course: on-site learning					
Number of credits: 2					
Recommended semester: 8.					
Educational level: I.II.					
Prerequisites:					
Course requirements:					
Learning outcomes:					
Class syllabus:					
Recommended literature:					
Languages necessary to complete the course:					
Notes:					
Past grade distribution Total number of evaluated students: 26					
A	B	C	D	E	FX
34,62	26,92	23,08	11,54	3,85	0,0
Lecturers: PharmDr. Marek Máťuš, PhD., Mgr. Peter Vavrínek, PhD.					
Last change: 02.06.2015					
Approved by: prof. PharmDr. Pavel Mučaji, PhD.					

COURSE DESCRIPTION

University: Comenius University in Bratislava					
Faculty: Faculty of Pharmacy					
Course ID: FaF.KBMBL/14-Mgr-A/00		Course title: Xenobiochemistry			
Educational activities: Type of activities: lecture / laboratory practicals / seminar Number of hours: per week: 2 / 1 / 0 per level/semester: 28 / 14 / 0 Form of the course: on-site learning					
Number of credits: 4					
Recommended semester: 6.					
Educational level: I.II.					
Prerequisites:					
Course requirements: Basic condition for the practical exercises recognition is 60% yield as the sum of two semestral tests. The course is completed by written examination.					
Learning outcomes: After completing of xenobiochemistry course the student should identify and outline the main biotransformation way of the metabolites production according to the structure of drugs. Moreover should have a good knowledge about CYPs enzyme isoforms particularly their creation, properties and interactions on cellular level.					
Class syllabus: Principles of xenobiotic (drug) metabolism and phases of biotransformation reactions based on chemical structure. Characterization and function of biotransformation enzymes, mechanism of the 1st phase reaction on CYP-450 level, condition of the CYPs isoenzymes creation – substrate, tissue, species and subcellular specificity. Potential impact of CYPs induction or inhibition on pharmacotherapeutical effect, possible interactions or side drug effect. Meaning of the second biotransformation phase – conjugation reactions with endogenic substrates. Knowledge of xenobiochemistry opens a modern view of safe and efficient pharmacotherapy thus helps with research of the new potential structures of drugs.					
Recommended literature: A Handbook of Bioanalysis and Drug Metabolism, Ed. Gary Evans, CRC Press, London, New York, 2004. Bernard Testa and Stefanie D. Kramer: Chemistry and Biodiversity vol.3, Verlag, 2006.					
Languages necessary to complete the course: English language.					
Notes:					
Past grade distribution Total number of evaluated students: 125					
A	B	C	D	E	FX
13,6	14,4	5,6	14,4	11,2	40,8

Lecturers: doc. RNDr. Ingrid Pauliková, CSc., PharmDr. Andrea Balažová, PhD., PharmDr. Katarína Šišková, PhD.
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Approved by: prof. PharmDr. Pavel Mučaji, PhD.