

Course descriptions

TABLE OF CONTENTS

1. 457-PhD/21	Active Participation in the Scientific Events 1.....	3
2. 458-PhD/21	Active Participation in the Scientific Events 2.....	5
3. 468-PhD/21	Active Participation in the Scientific Events 3.....	7
4. 469-PhD/21	Active Participation in the Scientific Events 4.....	9
5. 504-PhD/11	Analytical Chemistry (state exam).....	11
6. 480-PhD/21	Authorship of Teaching Aids and Texts.....	15
7. 506-PhD/11	Biochemistry (state exam).....	16
8. 478-PhD/21	Citation Other.....	18
9. 477-PhD/21	Citation SCI, SSCI.....	20
10. 702-PhD/11	Clinical Pharmacy (state exam).....	22
11. 481-PhD/21	Co-authorship of Teaching Aids and Texts.....	24
12. 488-PhD/21	Completing Other Subject of the Offer of Other University Faculties.....	25
13. 451-PhD/21	Completing Prescribed Doctoral Lectures and Seminars 1.....	26
14. 452-PhD/21	Completing Prescribed Doctoral Lectures and Seminars 2.....	28
15. 453-PhD/21	Completing Selected Doctoral Lectures and Seminars.....	30
16. 489-PhD/21	Completion of a Defined Stage of the PhD Scientific Program.....	32
17. 705-PhD/21	Current Trends in Preparations in Natural Origin (state exam).....	33
18. 302-PhD/22	Dissertation Thesis and its Defence (state exam).....	34
19. 456-PhD/21	Elaboration of a Manuscript of a Scientific Publication in a Foreign Language as the First Author.....	36
20. 432-PhD/21	English Language and Foreign Language Exam.....	38
21. 470-PhD/21	Individual Study of the Scientific Literature.....	40
22. 455-PhD/21	Introduction to Scientific Research.....	42
23. 454-PhD/21	Introduction to Scientific Writing in English Language.....	44
24. 483-PhD/21	Management of Student Scientific Activities.....	46
25. 473-PhD/21	Obtaining the "Grant FaF UK for Young Scientists" (Principal Investigator).....	48
26. 474-PhD/22	Obtaining the "Grant FaF UK for Young Scientists" (Co-investigator of Grant).....	50
27. 472-PhD/21	Obtaining the "University Grant for Young Researchers" (Co-investigator of Grant).....	52
28. 471-PhD/21	Obtaining the "University Grant for Young Researchers" (Principal Investigator).....	54
29. 476-PhD/21	Other Activities (eg. a Member of the Organizing Committee of the Conference).....	56
30. 475-PhD/22	Participation in the Implementation of Another Research Project.....	58
31. 482-PhD/21	Participation in the Management of the Thesis in Master's Degree.....	60
32. 431-PhD/21	Passing the Dissertation Exam (state exam).....	62
33. 485-PhD/21	Pedagogical Activities - Seminars.....	63
34. 484-PhD/21	Pedagogical Activities - Exercises.....	65
35. 701-PhD/11	Pharmaceutical Botany (state exam).....	67
36. 500-PhD/11	Pharmaceutical Chemistry (state exam).....	68
37. 812-PhD/21	Pharmaceutical Technology (state exam).....	70
38. 700-PhD/11	Pharmacognosy (state exam).....	72
39. 800-PhD/11	Pharmacology (state exam).....	74
40. 703-PhD/11	Plant Molecular Biology (state exam).....	76
41. 479-PhD/21	Presentation at the Conference of Young Scientists.....	77
42. 465-PhD/21	Professional Publication in International or Domestic Journal.....	79

43. 466-PhD/21	Published Abstract in English from a Scientific Event.....	81
44. 487-PhD/21	Reviewing a Bachelor Thesis.....	83
45. 467-PhD/21	Reviewing the Manuscript of an Article Submitted to an Indexed Scientific Journal (Scopus, Wos).....	84
46. 486-PhD/21	Supervision of the Final Bachelor's Thesis.....	86
47. 460-PhD/21	The Original Publication in Current Contents Journal.....	88
48. 459-PhD/21	The Original Publication in Current Contents Journal – First Author.....	90
49. 463-PhD/21	The Original Publication in non-Current Contents International or Domestic Journal Indexed in the SCOPUS Database (EPJ is Recommended).....	92
50. 462-PhD/21	The Original Publication in non-Current Contents Journal with IF (Impact Factor).....	94
51. 461-PhD/21	The Original Publication in non-Current Contents Journal with IF (Impact Factor) - First Author.....	96
52. 464-PhD/21	The Original Scientific Publication in non-Current Contents and non-Indexed International or Domestic Journal or Conference Proceeding.....	98

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/457-PhD/21	Course title: Active Participation in the Scientific Events 1
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the program of scientific events (in which he / she is an active participant) to the supervisor, which is also evidenced by confirmations of the organizers of scientific events about active performance.	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to work scientifically, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event (conference, scientific seminar, congress).	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure participation in a scientific event (conference, scientific seminar, congress), at which he / she will actively present and present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered as another original scientific text and it is inadmissible for the doctoral student to present it repeatedly.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: the language in which the conference is organized	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 17	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/458-PhD/21	Course title: Active Participation in the Scientific Events 2
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the program of scientific events (in which he / she is an active participant) to the supervisor, which is also evidenced by confirmations of the organizers of scientific events about active performance.	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to work scientifically, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event (conference, scientific seminar, congress).	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure participation in a scientific event (conference, scientific seminar, congress), at which he / she will actively present and present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered as another original scientific text and it is inadmissible for the doctoral student to present it repeatedly.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: the language in which the conference is organized	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 28	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/468-PhD/21	Course title: Active Participation in the Scientific Events 3
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the program of scientific events (in which he / she is an active participant) to the supervisor, which is also evidenced by confirmations of the organizers of scientific events about active performance.	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to work scientifically, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event (conference, scientific seminar, congress).	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure participation in a scientific event (conference, scientific seminar, congress), at which he / she will actively present and present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered as another original scientific text and it is inadmissible for the doctoral student to present it repeatedly.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: the language in which the conference is organized	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 13	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/469-PhD/21	Course title: Active Participation in the Scientific Events 4
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the program of scientific events (in which he / she is an active participant) to the supervisor, which is also evidenced by confirmations of the organizers of scientific events about active performance.	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to work scientifically, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event (conference, scientific seminar, congress).	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure participation in a scientific event (conference, scientific seminar, congress), at which he / she will actively present and present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered as another original scientific text and it is inadmissible for the doctoral student to present it repeatedly.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: the language in which the conference is organized	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/504-PhD/11	Course title: Analytical Chemistry
Number of credits: 0	
Educational level: III.	
Course requirements: Successful completion of the exam.	
Learning outcomes: After completing the course, the doctoral student will gain advanced theoretical knowledge in the use of modern instrumental analytical methods chromatographic, electromigration, electrochemical, spectral (MS, NMR, IR, UV-VIS, Fluorescent) and nuclear analytical as well as multidimensional techniques (SPE-HPLC, HPLC- HPLC, CE-CE, MS / MS and combinations thereof) in pharmaceutical and biomedical analysis. An integral part of the acquired knowledge are methods of preparation of pharmaceutical and biological samples as well as environmental samples by conventional (off-line) and advanced (on-line) techniques for the mentioned analytical methods. In connection with the synthesis and structural analysis of (i) new molecules as potential drugs or drug carriers for innovative dosage forms as well as (ii) innovative materials (nanostructures) as part of analytical systems and dosage forms, the doctoral student will gain knowledge and skills also for other specific approaches and techniques such as Raman spectroscopy on-line coupled with microwave synthesis, semi-preparative chromatography, electron microscopy, and light scattering-based structural analysis techniques.	
Class syllabus: Analysis of organic bioactive substances, levels of drugs and their metabolites, degradation products and biomarkers of diseases in biological materials (blood, urine, tissues, etc.). Analysis of new organic molecules (potential drugs and drug carriers for innovative dosage forms) in reaction mixtures from organic syntheses and isolated products. Inorganic analysis of biogenic and toxic elements in individual components of the environment (air, soil, herbal drugs, water). Bioinorganic analysis of new metal complexes in reaction mixtures from organic syntheses and isolated products. Use of modern instrumental techniques: • chromatographic (HPLC, GC) and electromigration separation methods (CZE, ITP, IEF, EKC) and their mutual combinations (2D HPLC, 2D / 3D CE) with integrated sample pretreatment for separation of complex (multicomponent) mixtures of substances • spectral methods UV-VIS, FS and LIF (for rapid quantitative evaluation of substances in simple matrices), MS, MS / MS, NMR, IR, Raman spectroscopy, EPR, XRC / XRD (for detailed structural analysis molecules and their complexes) • combined separation and spectral methods (LC-UV / MS, CE-UV / LIF / MS, etc.) to identify and determine trace levels of analytes in simple and complex (multicomponent) matrices (biological samples, dosage forms, synthetic reaction mixtures, isolated products from reaction mixtures) • electrochemical methods with conventional and advanced sensors (biosensors) for rapid determination of selected substances in simple and complex matrices	

- radioanalytical methods: radionuclide X-ray fluorescence analysis (RRFA) for direct determination of elements in solid materials
- methods of analysis of light scattering and electron microscopy for the analysis of nanostructures (shape, size/dimensions, distribution of nanoparticles)
- methods of (semi) preparative chromatography for separation and isolation of selected components from reaction mixtures

Instrumental analytical methods:

Principle of the method, experimental setup (instrumentation), methods of qualitative and quantitative evaluation, analytical and application potential. Optimization, validation and application of methods.

Electrochemical methods:

Potentiometry

Voltammetry (DPV, SWV, CV)

Ion selective electrodes

Biosensors

FIA

Separation chromatographic analytical methods:

Planar and column chromatography

High performance liquid chromatography.

Ion exchange chromatography.

Gas chromatography.

Multidimensional techniques (2D HPLC, SPE-HPLC)

Combining HPLC with advanced detection techniques (HPLC-MS, HPLC-MS / MS)

Separation analytical methods of electromigration:

Electrophoresis in planar arrangement, electromigration techniques in capillary arrangement.

Capillary zone electrophoresis (CZE).

Capillary isotachopheresis (ITP).

Isoelectric focusing (IEF).

Electrokinetic chromatography (EKC).

Capillary gel electrophoresis (CGE).

Capillary electrochromatography (CEC).

Multidimensional techniques (2D CE, 3D CE)

CE coupling with advanced detection techniques (CE-LIF, CE-MS, CE-MS / MS).

Separation preparative chromatographic and electromigration methods:

(semi) preparative liquid chromatography.

Preparative isotachopheresis.

Spectral analytical methods:

Emission spectral analysis

Fluorescence analysis

Atomic absorption spectrophotometry

Molecular absorption spectroscopy in the visible and ultraviolet region of the spectrum

Infrared spectroscopy

Raman spectroscopy.

Mass spectrometry.

Nuclear magnetic resonance.

Non-spectral optical methods:

Refractometry.

Polarimetry.

X-ray crystallographic and diffraction analysis (XRC, XRD).

Electron paramagnetic resonance (EPR).
 Detectors:
 Optical spectrometric detectors - absorption, fluorescence, MS, non-spectrometric
 Electrochemical detectors,
 Radiometric detectors
 Nuclear analytical methods:
 Nuclear analytical indicator methods - radiochromatography, isotope dilution analysis, radioimmunoassay and their use.
 Nuclear analytical methods based on natural radioactivity.
 Activation analysis.
 Nuclear analytical methods - non-activation interaction analysis.
 Beta-dispersion analysis.
 Radionuclide X-ray fluorescence analysis.
 Identification of β and γ radiation.
 Other analytical methods:
 Methods based on light scattering analysis.
 Electron microscopy.
 Statistical processing of analytical results and validation of analytical methods and procedures:
 Validation parameters (precision, accuracy, linearity, sensitivity, LOD, LLOQ, LOQ, selectivity, robustness, stability, recovery, matrix effect, sample throughput, carry over).
 Testing statistical hypotheses.
 Validation protocols (ICH, FDA).

State exam syllabus:

Recommended literature:

Mikuš, P., Piešťanský, J., Dokupilová, S.: Kvapalinová chromatografia, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, VEDA, Bratislava, 2018. 365s.
 Mikuš, P., Piešťanský, J.: Kapilárna elektroforéza, hmotnostná spektrometria a ich kombinácie vo farmaceutickej a biomedicínskej analýze, VEDA, 2014. 310 s.
 Mikuš, P., Maráková, K.: HYPHENATED ELECTROPHORETIC TECHNIQUES IN ADVANCED ANALYSIS, Bratislava, KARTPRINT, 2012. 217 s.
 Mikuš, P., Hanko, M., Piešťanský, J., Maráková, K., Dokupilová, S., Mikulová, M.: Analytical chemistry: Instrumental analysis. Bratislava : VEDA, in preparation.
 Mikuš, P., Mikušová, V.: Analytical chemistry: Chemical analysis. Bratislava : VEDA, 2022.
 Tekel', J., Mikuš, P.: Vybrané kapitoly z analytickej chémie. Analýza látok v biologických systémoch. Bratislava : UK, 2004, 192 s
 Světlík, J.: Molekulová spektroskopia a optické metódy. Bratislava : UK, 2006. 81 s.
 Garaj, J., Bustín, D., Hladký, Z.: Analytická chémie. Bratislava, Alfa 1989. 740 s.
 Havránek, E. a kol.: Laboratórne cvičenia z analytickej chémie III. Fyzikálno-chemické metódy. Bratislava : UK, 2007. 91 s.
 Křenek, P.: Analýza organických látok. Bratislava : UK, 2007. 80 s.
 Vybrané kapitoly budú poskytnuté v elektronickej forme.

Languages necessary to complete the course:

Slovak language

Notes:

Teacher: prof. RNDr. Peter Mikuš, PhD., prof. RNDr. Emil Havránek, CSc., PharmDr. Katarína Maráková, PhD., PharmDr. Juraj Piešťanský, PhD.

Last change: 03.04.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/480-PhD/21	Course title: Authorship of Teaching Aids and Texts
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 20	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the teaching aid or text (source cover, circulation letters with ISBN or ISSN) to the supervisor.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to work in the preparation and writing of teaching aids and texts.	
Class syllabus: The doctoral student, after consultation with the supervisor, works on the preparation and writing of teaching aids with the co-authors and the editorial staff.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/506-PhD/11	Course title: Biochemistry
Number of credits: 0	
Educational level: III.	
Course requirements: Successful completion of the exam.	
Learning outcomes: After completing selected chapters in biochemistry, the PhD.-student can manage (i) basic biochemical and molecular-biological analyzes, (ii) methodical procedures related to protein analysis techniques, and (iii) enzymological studies on cellular and molecular levels. The student will obtain knowledge about metabolic pathways and their regulation at the level of (i) signaling molecules, (ii) localization at a subcellular level, and (iii) monitoring of gene expression, which creates the precondition for studying the drug mechanism of individual pharmacotherapeutic groups.	
Class syllabus: # Dynamic concept of properties and functions of the biological system. # DNA, RNA: composition, bonds and stability, biological significance. # Biomembranes, respiratory chain, generation of energy. # Metabolism of nutrients – interrelationship, thermodynamic aspect, energetical aspect, biological oxidations. # Enzymology of nutrient metabolism – catabolism and anabolism – carbohydrates, simple and complex lipids, amino acids, nucleotides, proteins. # Enzyme kinetics. # Basic issues of xenobiochemistry and its attributes. # Integration of metabolism in terms of physiological and pathological conditions of the organism. # Experimental techniques with animal and plant cell cultures. # Plant biochemistry: nitrogen metabolism, enzymology of secondary metabolites, signalling cascades.	
State exam syllabus:	
Recommended literature: D. Voet, J. Voet: Biochemistry, 4th ed., John Wiley & Sons, 2010. D. Dobrota a kol.: Lekárska biochémia, Osveta, Martin, 2016. G. Litwack: Human Biochemistry, 1st ed., Elsevier, 2017. Selected chapters will be provided in electronic form.	
Languages necessary to complete the course: Slovak language	
Notes: Lecturers: doc. Mgr. Andrea Bilková, PhD.; doc. Mgr. Martina Hřeka Dubničková, PhD.; doc. PharmDr. Marek Obložinský, PhD.; RNDr. František Bilka, PhD.; Ing. Ľudmila Pašková, PhD.	

Last change: 11.04.2022
Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/478-PhD/21	Course title: Citation Other
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 3	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the sections (source cover, circulation letters with ISBN or ISSN, source content, paper), in which there is another citation of the doctoral student's scientific work such as SCI and SSCI.	
Learning outcomes: the doctoral student under the guidance of a supervisor has demonstrated the ability of quality scientific work and self-presentation.	
Class syllabus: As part of his / her scientific work, the doctoral student establishes cooperation with scientific authorities of domestic and foreign origin and supports the promotion of the results of his / her own scientific publishing activity in the scientific area, while monitoring the citation of his / her outputs in other databases except SCI and SSCI.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 18.04.2022	

Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/477-PhD/21	Course title: Citation SCI, SSCI
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with credit value after submitting the sections (source cover, circulation letters with ISBN or ISSN, source content, paper), which contains a citation of the doctoral student's scientific work defined as SCI and SSCI.	
Learning outcomes: the doctoral student under the guidance of a supervisor has demonstrated the ability of quality scientific work and self-presentation.	
Class syllabus: As part of his / her scientific work, the doctoral student establishes cooperation with scientific authorities of domestic and foreign origin and supports the promotion of the outputs of his / her own scientific publishing activity in the scientific area, while monitoring the citation response of his / her outputs in the relevant databases.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 16	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	

Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/702-PhD/11	Course title: Clinical Pharmacy
Number of credits: 0	
Educational level: III.	
Course requirements: Passing of the exam.	
Learning outcomes: The PhD students will expand and deepen their expertise of the latest knowledge of clinical pharmacy in connection with the effects of medicines and with the reduction of pharmacotherapeutic risk, medication errors and pharmacotherapeutic problems. Students will learn how to apply the acquired knowledge in real-world practice at various levels related to pharmacotherapy in cooperation with physicians.	
Class syllabus: The focus is on one or more of the following areas of clinical pharmacy: - pre-clinical and clinical evaluation of new medicines, - regulatory measures in this area in relation to the registration of medicinal products, - clinical pharmacokinetics, - symptomatology and pharmacotherapy of acute and chronic diseases, - the effect of the disease process on the effects of medicines, - monitoring of pharmacotherapy and drug levels, - interpretation of laboratory results with respect to pharmacotherapy, - the most serious pharmacotherapeutic problems related to - adverse drug reactions, including allergic drug reactions, - drug interactions, - medication errors, - patient safety during treatment, - pharmacovigilance, - rational use of medicines in high-risk groups of patients, - compliance, adherence to therapy and concordance, - oral and parenteral nutrition, - lifestyle medicines.	
State exam syllabus:	
Recommended literature: Kuželová, M., Švec, A., Švec, P.: Kapitoly zo všeobecnej klinickej farmakológie pre farmaceutov. Bratislava : Farmaceutická fakulta UK, 2011. 196 s. Kuželová, M., Švec, A., Švec, P.: Vybrané kapitoly z klinickej farmakológie pre farmaceutov. Bratislava : Farmaceutická fakulta UK, 2010. 152 s. Nathan A: Managing symptoms in the pharmacy. Pharmaceutical Press. 2008. 257 p. Walker R, Whittlesea C: Clinical Pharmacy and Therapeutics. Fifth edition. Churchill Livingstone. Elsevier. 2012. 983 p.	

Bond Ch. Evidence-based pharmacy. Pharmaceutical Press. 2006. 226 p.
 Barber N., Willson A: Clinical pharmacy. Churchill Livingstone, 2007 - 502 s.
 Wiffen P, Mitchell M, Snelling M, Stoner N: Oxford Handbook of Clinical Pharmacy (2 ed.)
 Oxford University Press, 2012, 704 p.
 Kriška, M. a kol.: Memorix klinickej farmakológie. Bratislava : SAP, 2002. 879 s.
 Kriška, M. a kol.: Riziko liekov v medicínskej praxi. Bratislava : SAP, 2000. 474 s.
 Kuželová M., Kováčsová B., Švec P.: Farmakológia antiinfekčných liečiv. Osveta, 2010. 184s.
 Katzung BG, Masters SB, Trevor AJ: Basic and clinical pharmacology. The McGraw-Hill
 Companies, Inc. 2012, 1245 p.
 Ritter JM, Lewis LD, Mant TGK, Ferro M: A Textbook of Clinical Pharmacology and
 Therapeutics. Hodder Arnold Hachette Livre UK. 2008. 476 p

Languages necessary to complete the course:

Slovakia, English

Notes:

Teachers:

prof. PharmDr. Ján Klimas, PhD., MPH., prof. RNDr. Magdaléna Kuželová, CSc., doc. PharmDr.
 Anna Paul Hrabovská, PhD., PharmDr. Gabriel Dóka, PhD., PharmDr. Stanislava Kosírová, PhD.

Last change: 02.04.2022

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/481-PhD/21	Course title: Co-authorship of Teaching Aids and Texts
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the teaching aid or text (source cover, circulation letters with ISBN or ISSN) to the supervisor.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to cooperate and co-participate in the preparation and writing of teaching aids and texts.	
Class syllabus: The doctoral student, after consultation with the supervisor, participates in the preparation and writing of teaching aids with the author and other co-authors.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/488-PhD/21	Course title: Completing Other Subject of the Offer of Other University Faculties
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 0	
Recommended semester: 1., 2., 3., 4..	
Educational level: III.	
Prerequisites:	
Course requirements: Upon presentation of confirmation of completion of the course at another faculty of the university, the doctoral student is evaluated according to the specific credit evaluation of the course at the faculty.	
Learning outcomes: The doctoral student will gain knowledge of the subject at another faculty of the university.	
Class syllabus: The doctoral student will complete a designated subject at another faculty of the university at which he / she did not complete his / her second degree.	
Recommended literature: Current sources on the presented issues	
Languages necessary to complete the course: Slovak language, English language	
Notes:	
Past grade distribution Total number of evaluated students: 8	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 13.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/451-PhD/21	Course title: Completing Prescribed Doctoral Lectures and Seminars 1
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, distance learning	
Number of credits: 10	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting a written version of the list of completed prescribed doctoral lectures and seminars, which thematically correspond to the topic of the dissertation and the subjects of the dissertation examination to the supervisor. The supervisor will give the evaluation to the doctoral student in the AIS and in the study report.	
Learning outcomes: Expansion and deepening of basic knowledge of doctoral students in scientific disciplines, which will be used in formulating hypotheses as a basis for the analytical part of the dissertation and in formulating conclusions for practice resulting from the results achieved.	
Class syllabus: The doctoral student completes the designated lectures and seminar teaching in the range of subjects approved by the guarantor of the study program, from the offer of subjects for doctoral study. The choice of subjects depends on the flexibility of learning trajectories and the achievement of learning outcomes. There are topics to choose from: - Analytical chemistry - Analytical monitoring of drug levels in practice - Inorganic chemistry - Applied biochemistry - Biochemistry - Pharmaceutical botany - Pharmaceutical chemistry - Pharmacognosy - Pharmacology - Pharmaceutical technology - Physical chemistry - Physiology - Immunology - Clinical pharmacy	

- Clinical pharmacology and pharmacotherapy - Retail pharmacy and social pharmacy - Molecular biology - Molecular biology of plants - Current trends in preparations of natural origin - Organic chemistry - Pathological physiology - Biological drug technology - Toxicology - Public health and pharmaceutical care	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes:	
Past grade distribution Total number of evaluated students: 18	
ABS	NEABS
100,0	0,0
Lecturers: doc. PharmDr. Szilvia Czigle, PhD., prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD., doc. PharmDr. Silvia Bittner Fialová, PhD., prof. Ing. Vladimír Frečer, DrSc., prof. Ing. Miroslav Habán, PhD., PharmDr. Katarína Maráková, PhD., prof. Ing. Milan Nagy, CSc., doc. PharmDr. Juraj Piešťanský, PhD., doc. Mgr. Fils Andriamainty, PhD., PharmDr. Vladimír Garaj, PhD., Ing. Ladislav Habala, PhD., doc. PharmDr. Ivan Malík, PhD., doc. Ing. Martin Pisárčík, CSc., doc. PharmDr. Miroslava Sýkorová, PhD., doc. PharmDr. Marek Mátuš, PhD., PharmDr. Veronika Mikušová, PhD., doc. PharmDr. Daniela Mináriková, PhD., doc. PharmDr. Anna Paul Hrabovská, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA, RNDr. František Bilka, PhD., doc. Mgr. Andrea Bilková, PhD., PharmDr. Gabriel Dóka, PhD., doc. Mgr. Martina Hrčka Dubníčková, PhD., doc. PharmDr. Peter Křenek, PhD., doc. PharmDr. Marek Obložinský, PhD., doc. PharmDr. Miloš Lukáč, PhD., RNDr. Alexander Búcsi, PhD., doc. RNDr. Jana Gallová, CSc., Mgr. Mária Klacsová, PhD., prof. RNDr. Daniela Uhríková, CSc., Dr.h.c. prof. RNDr. Jozef Čižmárik, PhD., prof. RNDr. Emil Havránek, PhD., Ing. Ľudmila Pašková, PhD., doc. RNDr. Miroslava Šupolíková, PhD., doc. Mgr. Peter Vavrínek, PhD., doc. PharmDr. Stanislava Kosírová, PhD., Mgr. Ondrej Sprušanský, PhD., doc. Mgr. Diana Vavrincová, PhD., PharmDr. Eva Kráľová, PhD., PharmDr. Tomáš Rajtík, PhD.	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Ján Klimas, PhD., MPH, prof. PharmDr. Adriana Duriš Adameová, PhD., prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/452-PhD/21	Course title: Completing Prescribed Doctoral Lectures and Seminars 2
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, distance learning	
Number of credits: 10	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting a written version of the list of completed prescribed doctoral lectures and seminars, which thematically correspond to the topic of the dissertation and the subjects of the dissertation examination to the supervisor. The supervisor will give the evaluation to the doctoral student in the AIS and in the study report.	
Learning outcomes: Expansion and deepening of basic knowledge of doctoral students in scientific disciplines, which will be used in formulating hypotheses as a basis for the analytical part of the dissertation and in formulating conclusions for practice resulting from the results achieved.	
Class syllabus: The doctoral student completes the designated lectures and seminar teaching in the range of subjects approved by the guarantor of the study program, from the offer of subjects for doctoral study. The choice of subjects depends on the flexibility of learning trajectories and the achievement of learning outcomes. There are topics to choose from: - Analytical chemistry - Analytical monitoring of drug levels in practice - Inorganic chemistry - Applied biochemistry - Biochemistry - Pharmaceutical botany - Pharmaceutical chemistry - Pharmacognosy - Pharmacology - Pharmaceutical technology - Physical chemistry - Physiology - Immunology - Clinical pharmacy - Clinical pharmacology and pharmacotherapy - Retail pharmacy and social pharmacy - Molecular biology - Molecular biology of plants - Current trends in preparations of natural origin - Organic chemistry - Pathological physiology - Biological drug technology - Toxicology - Public health and pharmaceutical care	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes:	

Past grade distribution	
Total number of evaluated students: 6	
ABS	NEABS
100,0	0,0
Lecturers: RNDr. František Bilka, PhD., doc. Mgr. Andrea Bilková, PhD., doc. PharmDr. Marek Obložinský, PhD., Ing. Ludmila Pašková, PhD., doc. Mgr. Martina Hrčka Dubničková, PhD., prof. RNDr. Peter Mikuš, PhD., doc. PharmDr. Juraj Piešťanský, PhD., PharmDr. Katarína Maráková, PhD., doc. PharmDr. Silvia Bittner Fialová, PhD., doc. PharmDr. Szilvia Czigele, PhD., RNDr. Peter Gál, PhD., MBA, prof. Ing. Miroslav Habán, PhD., prof. PharmDr. Pavel Mučaji, PhD., prof. Ing. Milan Nagy, CSc., doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., Dr.h.c. prof. RNDr. Jozef Čižmárik, PhD., Ing. Jaroslav Galba, PhD., PharmDr. Vladimír Garaj, PhD., doc. PharmDr. Ivan Malík, PhD., prof. RNDr. Daniela Uhríková, CSc., RNDr. Alexander Búcsi, PhD., doc. RNDr. Jana Gallová, CSc., Mgr. Mária Klacsová, PhD., Mgr. Norbert Kučerka, DrSc., Mgr. Ondrej Sprušanský, PhD., doc. PharmDr. Marek Máťuš, PhD., doc. Mgr. Diana Vavrincová, PhD., doc. Mgr. Peter Vavrinec, PhD., PharmDr. Gabriel Dóka, PhD., doc. PharmDr. Anna Paul Hrabovská, PhD., prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Tomáš Rajtík, PhD., doc. PharmDr. Stanislava Kosírová, PhD., PharmDr. Eva Kráľová, PhD., doc. PharmDr. Peter Křenek, PhD., doc. RNDr. Miroslava Šupolíková, PhD., PharmDr. Veronika Mikušová, PhD., Ing. Ladislav Habala, PhD., doc. Ing. Martin Pisárčik, CSc., doc. PharmDr. Jindra Valentová, PhD., doc. PharmDr. Miloš Lukáč, PhD., doc. PharmDr. Daniela Mináriková, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA, prof. RNDr. Magdaléna Kuželová, CSc., prof. Ing. Vladimír Frečer, DrSc.	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/453-PhD/21	Course title: Completing Selected Doctoral Lectures and Seminars
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, distance learning	
Number of credits: 10	
Recommended semester: 3.	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting a written version of the list of completed prescribed doctoral lectures and seminars, which thematically correspond to the topic of the dissertation and the subjects of the dissertation examination to the supervisor. The supervisor will give the evaluation to the doctoral student in the AIS and in the study report.	
Learning outcomes: Expansion and deepening of knowledge of doctoral students in scientific disciplines, which will be used in formulating hypotheses as a basis for the analytical part of the dissertation and in formulating conclusions for practice resulting from the results achieved.	
Class syllabus: The doctoral student completes the designated lectures and seminar teaching in the range of subjects approved by the guarantor of the study program, from the offer of subjects for doctoral study. The choice of subjects depends on the flexibility of learning trajectories and the achievement of learning outcomes. There are topics to choose from: - Analytical chemistry - Analytical monitoring of drug levels in practice - Inorganic chemistry - Applied biochemistry - Biochemistry - Pharmaceutical botany - Pharmaceutical chemistry - Pharmacognosy - Pharmacology - Pharmaceutical technology - Physical chemistry - Physiology - Immunology - Clinical pharmacy	

- Clinical pharmacology and pharmacotherapy - Retail pharmacy and social pharmacy - Molecular biology - Molecular biology of plants - Current trends in preparations of natural origin - Organic chemistry - Pathological physiology - Biological drug technology - Toxicology - Public health and pharmaceutical care	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes:	
Past grade distribution Total number of evaluated students: 17	
ABS	NEABS
100,0	0,0
Lecturers: RNDr. František Bilka, PhD., doc. Mgr. Andrea Bilková, PhD., doc. PharmDr. Marek Obložinský, PhD., Ing. Ľudmila Pašková, PhD., doc. Mgr. Martina Hrčka Dubničková, PhD., prof. RNDr. Peter Mikuš, PhD., doc. PharmDr. Juraj Piešťanský, PhD., prof. RNDr. Emil Havránek, PhD., PharmDr. Katarína Maráková, PhD., doc. PharmDr. Silvia Bittner Fialová, PhD., doc. PharmDr. Szilvia Czigle, PhD., RNDr. Peter Gál, PhD., MBA, prof. Ing. Miroslav Habán, PhD., prof. PharmDr. Pavel Mučaji, PhD., prof. Ing. Milan Nagy, CSc., Dr.h.c. prof. RNDr. Jozef Čižmárik, PhD., prof. Ing. Ferdinand Devínsky, DrSc., prof. RNDr. Magdaléna Kuželová, CSc., doc. Mgr. Fils Andriamainty, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., Ing. Jaroslav Galba, PhD., PharmDr. Vladimír Garaj, PhD., doc. PharmDr. Ivan Malík, PhD., prof. RNDr. Daniela Uhríková, CSc., RNDr. Alexander Búcsi, PhD., doc. RNDr. Jana Gallová, CSc., Mgr. Mária Klacsová, PhD., Mgr. Norbert Kučerka, DrSc., Mgr. Ondrej Sprušanský, PhD., doc. PharmDr. Marek Mátuš, PhD., doc. Mgr. Diana Vavrinčová, PhD., doc. Mgr. Peter Vavrinec, PhD., doc. PharmDr. Anna Paul Hrabovská, PhD., prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, PharmDr. Tomáš Rajtík, PhD., doc. PharmDr. Stanislava Kosírová, PhD., doc. PharmDr. Peter Křenek, PhD., doc. RNDr. Miroslava Šupolíková, PhD., PharmDr. Veronika Mikušová, PhD., Ing. Ladislav Habala, PhD., doc. Ing. Martin Pisárčík, CSc., doc. PharmDr. Jindra Valentová, PhD., doc. PharmDr. Miloš Lukáč, PhD., doc. PharmDr. Daniela Mináriková, PhD., doc. PharmDr. Tomáš Tesař, PhD., MBA	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/489-PhD/21	Course title: Completion of a Defined Stage of the PhD Scientific Program
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value upon submission of all required outcomes achieved during the doctoral study.	
Learning outcomes: After evaluating the results achieved, the doctoral student demonstrates the supervisor's ability to perform scientific work, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event and demonstrates the ability to cooperate with domestic and foreign scientific authorities.	
Class syllabus: After consulting with the supervisor, the doctoral student will present the achieved results of his / her study, which meet the criteria of professionalism, scientific knowledge and methodological relevance in the given field of study.	
Recommended literature:	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 18	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/705-PhD/21	Course title: Current Trends in Preparations in Natural Origin
Number of credits: 0	
Educational level: III.	
Course requirements: successful completion of the exam.	
Learning outcomes: Upon successful completing the educational process, the PhD student should have extensive knowledge of Pharmacognosy, supplementing the overview of medicinal plants and natural substances contained in medicines, food, beverages, or cosmetics. Student get information about current research on natural remedies and their path to medicine. The acquired knowledge should expand the PhD student's knowledge about research and development possibilities of potential herbal medicines.	
Class syllabus: Lectures are devoted to current topics on natural substances and medicinal plants. It deals with themes that are not fully covered in Pharmacognosy 1 and 2. The PhD student will meet with important information about current research of natural products, about psychoactive plants and their constituents, about the Influence of the intestinal microbiome on the activity of natural substances, about plant antioxidants in the prevention of various diseases (e.g. Alzheimer's, Parkinson's), about vegetables, fruits, and spices with therapeutic potential, about known beverages, and natural substances from non-vascular land plants or sea plants. Attention will also be paid to important natural substances with antimicrobial effects, natural dyes, and plant metabolites currently used in pharmacotherapy.	
State exam syllabus:	
Recommended literature: Nagy-Grančai-Mučaji: Farmakognózia – Biogenéza prírodných látok, 1. vyd. Nagy-Mučaji-Grančai: Farmakognózia – Biologicky účinné rastlinné metabolity a ich zdroje, 2. vyd. European Medicines Agency (https://www.ema.europa.eu/en/medicines) Databázy: ScienceDirect, Scopus, PubMed, SciFinder, GoogleScholar	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: doc. PharmDr. Silvia Bittner Fialová, PhD.	
Last change: 03.04.2022	
Approved by:	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/302-PhD/22	Course title: Dissertation Thesis and its Defence
Number of credits: 30	
Educational level: III.	
Recommended prerequisites: Defined in the individual study plan of the doctoral student and in the Study Regulations of FPHARM CU.	
Course requirements: The doctoral student will obtain the rating completed with credit value after successfully defending the dissertation thesis. Fulfillment of required conditions according to regulations and submission of dissertation thesis.	
Learning outcomes: after a successful defense he / she will obtain a title PhD.	
Class syllabus: 1) The doctoral student will prepare a dissertation thesis. Through the dissertation, the student demonstrates the ability and readiness for independent scientific and creative activity in the field of research or development or for independent theoretical and creative activity. It should be characterized by a high degree of analysis and synthesis of knowledge, as well as a sufficient overview of the existing literature. The work must be original, created by the author in compliance with the rules of working with information sources. The school work must not have the character of plagiarism, nor must it infringe the copyrights of other authors. The author is obliged to thoroughly cite the information sources used, to name the specific and specific research results of other authors or authors, by citing the relevant source, to accurately describe the methods and working procedures of other authors or collectors, to document laboratory results and field research of other authors or collectives. The citation technique is guided by the practice in the given scientific field, respecting the relevant standards and norms. 2) The doctoral student will briefly state the essential content of his / her dissertation, its concept, results and contribution in the defense of the dissertation. 3) The doctoral student will take a position on the opinions of the opponents, in particular he will comment on all objections and comments and answer their questions. 4) During the discussion, the doctoral student will answer all questions and take a stand on all suggestions and objections of its participants.	
State exam syllabus:	
Recommended literature: Current sources on the studied issues	
Languages necessary to complete the course: Slovak language, in case of the consent of the dean and the consent of the chairman of the committee of the doctoral study on the proposal of the doctoral student also in another world language, preferably English.	
Last change: 18.04.2022	

Approved by:

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/456-PhD/21	Course title: Elaboration of a Manuscript of a Scientific Publication in a Foreign Language as the First Author
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 5., 6..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the manuscript of the scientific work in a foreign language to the supervisor, which documents the ability to create a scientific text for publication in a journal with IF. The student is the first author in the manuscript	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts in a foreign language (English language is recommended) that meet the criteria of professionalism, scientific and methodological relevance. 2. The scientific text of the manuscripts consists of the basic parts: - abstract - introduction - material and methods - results and discussion - literature. 3. The doctoral student respects the ethics of publishing, each scientific text is original.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: foreign language, English is recommended	
Notes: Lecturer: supervisor	

Past grade distribution	
Total number of evaluated students: 18	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/432-PhD/21	Course title: English Language and Foreign Language Exam
Educational activities: Type of activities: seminar Number of hours: per week: 2 per level/semester: 28 Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student will receive a credit value evaluation after successfully passing the foreign language exam (min. 60%).	
Learning outcomes: The doctoral student will gain knowledge of academic language preparation in English at a terminological and grammatical level.	
Class syllabus: Demonstration of academic language competences at level B2 (according to the Common European Framework of Reference for Languages) in English in written and oral form. Academic texts and tasks are focused on pharmacy practice, the role of pharmacist in contact with patient, description of basic laboratory equipment, knowledge of terminology of vitamins and minerals, first aid, hereditary factors, addictions, theoretical aspects of pharmacology and drug therapy and complementary medicine.	
Recommended literature: English for Pharmacists I. – IV.	
Languages necessary to complete the course: English language	
Notes:	
Past grade distribution Total number of evaluated students: 18	
ABS	NEABS
100,0	0,0
Lecturers: PhDr. Darina Kližanová, PaedDr. Viera Žufková, PhD.	
Last change: 07.06.2022	

Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/470-PhD/21	Course title: Individual Study of the Scientific Literature
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 2	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting a written version thematically corresponding to the topic of the dissertation, research, theoretical introduction or project to the supervisor, the doctoral student obtains the evaluation completed with a credit value. The supervisor provides the evaluation to the doctoral student by making an entry into the AIS and in the study records.	
Learning outcomes: The doctoral student under the guidance of the supervisor will demonstrate the ability to develop a search, theoretical introduction or project that thematically corresponds to the topic of the dissertation.	
Class syllabus: 1. The doctoral student prepares a research, theoretical introduction or project corresponding to the main topic of the dissertation under the guidance of the supervisor 2. The doctoral student presents a case study corresponding to the main topic of the dissertation in the presence of the supervisor	
Recommended literature: Current sources on the studied issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes:	
Past grade distribution Total number of evaluated students: 42	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	

Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/455-PhD/21	Course title: Introduction to Scientific Research
Educational activities: Type of activities: seminar Number of hours: per week: 1 per level/semester: 14 Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1.	
Educational level: III.	
Prerequisites:	
Course requirements: - active participation in seminars – seminar work (40%) - final test (60%). The student must achieve at least 60% of the total assessment to complete the course. Scale of assessment (preliminary/final): 40/60	
Learning outcomes: After completing the seminars, the students can formulate their ideas, search for arguments, and conduct scientific interviews. They will learn to deal with evidence, be creative, inform, analyse, and understand the meaning of scientific research.	
Class syllabus: The focus covers the following areas of scientific research and education: - University education - Doctoral studies and PhD degree. - Science, research and observation - Selection of a scientific problem - Scientific research and experience - Experiment and experimenter - The meaning of scientific research - Scientific problem and its solution - Objectives and methods of scientific research - From observation to experiment - Ethics in scientific work - Science, pharmacy and clinical monitoring	
Recommended literature: Hulín I., Ostatníková D. et al. O vedeckom bádání v medicíne, Bratislava, AEPress 2014, p. 240. Bielik L. Methodology of Science an Introduction, Bratislava, Comenius University in Bratislava, 2019, p. 232.	
Languages necessary to complete the course: Slovak language, English language	

Notes:	
Past grade distribution	
Total number of evaluated students: 15	
ABS	NEABS
100,0	0,0
Lecturers: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, doc. PharmDr. Miloš Lukáč, PhD., prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD., prof. RNDr. Daniela Uhríková, CSc.	
Last change: 07.06.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/454-PhD/21	Course title: Introduction to Scientific Writing in English Language
Educational activities: Type of activities: seminar Number of hours: per week: 1 per level/semester: 14 Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 2.	
Educational level: III.	
Prerequisites:	
Course requirements: - active participation in seminars - midterm test (15%) - final test (85%). The student must achieve at least 60% of the total assessment to complete the course. Scale of assessment (preliminary/final): 15/85	
Learning outcomes: After completing the seminars, the students can formulate their ideas, search for arguments, and conduct scientific interviews through academic writing. They will learn to deal with evidence, be creative, inform, analyse, use professional terminology if necessary.	
Class syllabus: The seminars follow the deepening of communicative skills and the acquisition of specific terminology. In addition to selected texts from textbooks, texts from promotional materials, manuals and magazines are used. The following topics are covered: writing professional articles, reports, interviews, lectures, emails, creating abstracts and summaries, presentations on assigned topics.	
Recommended literature: Rejharová, V.: Letter – Writer. Praha: Academia, 1972, Bates, M., Dudley, T.: Nucleus: General Science. London: Longman, 1992, Havlíčková, I., Dostálová, Š., Katerová, Z.: English for Pharmacy and Medical Bioanalytics. Karolinum Press, 2014, James, V. D.: Medicine. London: Prentice Hall, 1989	
Languages necessary to complete the course: English language	
Notes:	
Past grade distribution Total number of evaluated students: 8	
ABS	NEABS
100,0	0,0
Lecturers: PaedDr. Viera Žufková, PhD.	

Last change: 07.06.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/483-PhD/21	Course title: Management of Student Scientific Activities
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The course is successfully completed upon presentation of a certificate of management of student scientific activities. The confirmation will be issued by the supervisor.	
Learning outcomes: the doctoral student will gain experience and acquire the skills necessary for the presentation of scientific work on selected professional issues in the academic space at the 1st and 2nd level of university study in the field.	
Class syllabus: 1. The doctoral student prepares the assignment, during the whole supervision of the work the doctoral student is responsible for the administration of all requisites related to this type of activity. 2. The doctoral student methodically and professionally guides the student from the choice of topic to the successful presentation of results. 3. The doctoral student will prepare a certificate of conducting the student's scientific work, which can be confirmed by the head of the department. The abstract of the presentation must be attached to the confirmation and the confirmation signed by the head of the department serves as proof of successful completion of the conditions for the supervisor, who on the basis of it will award an rating (completed).	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 2	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/473-PhD/21	Course title: Obtaining the "Grant FaF UK for Young Scientists" (Principal Investigator)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 15	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the acquisition of the grant.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to create, implement and administer a scientific project for young people.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, will develop and submit a research project registered by the Faculty of Pharmacy Comenius University Bratislava. In the submitted author's project, the doctoral student appears as a principal investigator. 2. The doctoral student is obliged to inform the head of the department about the submitted project. 3. The doctoral student respects and complies with the currently valid Directive on the approval, registration and archiving of grant projects at Faculty of Pharmacy Comenius University Bratislava.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 16	
ABS	NEABS
100,0	0,0
Lecturers:	

Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/474-PhD/22	Course title: Obtaining the "Grant FaF UK for Young Scientists" (Co-investigator of Grant)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the acquisition of the grant.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to participate in the creation, implementation and administration of a scientific project for young people.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, co-authored in the elaboration and submission of a scientific project registered at Faculty of Pharmacy Comenius University Bratislava. The doctoral student appears as a co-investigator in the submitted author's project. 2. The doctoral student is obliged to inform the head of the department about the submitted project. 3. The doctoral student respects and complies with the currently valid Directive on the approval, registration and archiving of grant projects at Faculty of Pharmacy Comenius University Bratislava.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	

Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/472-PhD/21	Course title: Obtaining the "University Grant for Young Researchers" (Co-investigator of Grant)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the acquisition of the grant.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to participate in the creation, implementation and administration of a scientific project for young people.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, co-authored in the elaboration and submission of a scientific project registered at Comenius University Bratislava. The doctoral student appears as a co-investigator in the submitted author's project. 2. The doctoral student is obliged to inform the head of the department about the submitted project. 3. The doctoral student respects and complies with the currently valid Directive on the approval, registration and archiving of grant projects at Comenius University Bratislava.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	

Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/471-PhD/21	Course title: Obtaining the "University Grant for Young Researchers" (Principal Investigator)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 20	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the acquisition of the grant.	
Learning outcomes: the doctoral student under the guidance of the supervisor demonstrated the ability to create, implement and administer a scientific project for young people.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, will develop and submit a research project registered by the Comenius University Bratislava. In the submitted author's project, the doctoral student appears as a principal investigator. 2. The doctoral student is obliged to inform the head of the department about the submitted project. 3. The doctoral student respects and complies with the currently valid Directive on the approval, registration and archiving of grant projects at Comenius University Bratislava.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 12	
ABS	NEABS
100,0	0,0
Lecturers:	

Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/476-PhD/21	Course title: Other Activities (eg. a Member of the Organizing Committee of the Conference)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 3	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with credit value after submitting an invitation to the conference (in which he is a member of the scientific conference organizing committee) and a separate published article on the successful implementation of the conference or a copy of the published summary of papers at the scientific event in the form of proceedings. source cover, circulation letters with ISBN or ISSN, source content, contribution), or the doctoral student obtains the rating completed with a credit value after submitting a confirmation from the head of the pharmacy about the completion of practice in a pharmacy. Completion of pharmacy practice is possible with the holder of a permit to provide pharmacy care, which is a legal entity, and which is also a university providing higher education in the field of pharmacy. The student can complete the subject even if he participates in an internship at a workplace that operates in the field of pharmacy or medicine. A student can be awarded a grade for having passed while representing the faculty at various events organized by the faculty or the university.	
Learning outcomes: The doctoral student under the guidance of the supervisor will demonstrate the ability to prepare, organize and conduct a scientific conference, or the doctoral student under the guidance of a pharmacist or doctor demonstrates the ability to work professionally and scientifically in a pharmacy or in a workplace that operates in the field of pharmacy or medicine or the doctoral student demonstrates the ability to professionally and scientifically present studies and scientific activities carried out at the Faculty of Pharmacy of the Comenius University Bratislava.	
Class syllabus: The doctoral student shall actively participate in the preparation, organization and implementation of the conference in the position of chairman or member of the organizing committee of the scientific conference. 2. After the successful implementation of the conference, the doctoral student will prepare an article with photo documentation, which presents and promotes a scientific event in a journalistic, scientific periodical or proceedings. If a doctoral student completes an internship in a pharmacy, he actively participates in its operation and actively solves scientific questions related to the prescription and dispensing of medicines. If a doctoral student participates in an internship	

at a workplace that operates in the field of pharmacy or medicine, he actively solves professional and scientific topics that the workplace deals with. A doctoral student representing the faculty at events organized by the faculty or the university informs about the studies and scientific research activities carried out at the faculty. The student acquires skills in presenting professional topics.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 10	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 19.03.2024	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/475-PhD/22	Course title: Participation in the Implementation of Another Research Project
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 3	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting the participation in the grant.	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to create, implement and administer a scientific project.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, collaborates as an author on the elaboration and submission of a scientific project registered by the Ministry of Education, Science, Research and Sport of the Slovak Republic. The doctoral student appears as a co-investigator in the submitted author's project. 2. The doctoral student has the obligation to inform the head of the department about the solution of partial tasks on the project. 3. The doctoral student respects and complies with the currently valid Directive on the approval, registration and archiving of grant projects at Comenius University Bratislava.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 30	
ABS	NEABS
100,0	0,0
Lecturers:	

Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/482-PhD/21	Course title: Participation in the Management of the Thesis in Master's Degree
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The course is successfully completed if the trained student in AIS-2 is enrolled in the evaluation of the course: Preparation of Diploma Thesis 1 or Preparation of Diploma Thesis 2 or Preparation of Diploma Thesis 3.	
Learning outcomes: The doctoral student will gain experience and acquire the skills necessary for leading the final work of a selected professional issue in the academic space at the 2nd level of university study within the field of study.	
Class syllabus: 1. The doctoral student methodically and professionally guides the undergraduate student from the choice of topic to the successful defense of the final (diploma) thesis under the supervision of the thesis supervisor. 2. During the entire supervision of the final (diploma) thesis, the doctoral student is responsible for the administration of all requisites related to the final (diploma) thesis in AIS under the supervision of the thesis supervisor. 3. The doctoral student will prepare a certificate of completion of the final (diploma) thesis, which can be confirmed by the head of the department. The evaluation must be accompanied by evaluation assessments of the works. The confirmation signed by the head of the department serves as proof of successful fulfillment of the conditions for completing the course for the supervisor, who consequently will award the evaluation (graduated) to the doctoral student in AIS and in the study report.	
Recommended literature: Current sources on the studied issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 57	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 13.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/431-PhD/21	Course title: Passing the Dissertation Exam
Number of credits: 20	
Educational level: III.	
Recommended prerequisites: Defined in the individual study plan of the doctoral student and in the Study Regulations of FPHARM CU.	
Course requirements: The doctoral student will obtain the rating completed with credit value after successfully passing the dissertation exam with the result passed	
Learning outcomes: At the dissertation exam, the student must demonstrate not only knowledge of the specified subjects of the exam, but also the ability under the supervision of the supervisor to submit a dissertation project proposal, method of solving experimental procedures, ability to form conclusions based on results and defend their project proposal before a committee of the doctoral study.	
Class syllabus: 1) The dissertation examination consists of a part consisting of a discussion of the written work for the dissertation examination - project proposal. 2) The dissertation examination consists of a part in which the doctoral student has to demonstrate theoretical knowledge in the specified subjects of the dissertation examination. 3) The subjects of the dissertation examination consist of the main subject and secondary subjects according to the characteristics of the study program of the doctoral degree in the field of study.	
State exam syllabus:	
Recommended literature: Current sources on the studied issues	
Languages necessary to complete the course: Slovak language, in case of the consent of the dean and the consent of the chairman of the committee of the doctoral study on the proposal of the doctoral student also in another world language, preferably English.	
Last change: 18.04.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/485-PhD/21	Course title: Pedagogical Activities - Seminars
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 7	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: After submitting a certificate of completion of pedagogical activities, the doctoral student obtains the rating completed according to the specific credit evaluation of the subject.	
Learning outcomes: the doctoral student will gain experience and acquire the skills necessary for the presentation of selected professional issues in the academic space at the 1st or 2nd level of university studies within the field.	
Class syllabus: 1. The doctoral student prepares seminars, provides teaching and assessment at the end of the semester. 2. The doctoral student is responsible for the administration of pedagogical outputs in the AIS system. 3. In his / her pedagogical activities, the doctoral student respects and adheres to the valid guidelines applicable to all teachers of FPHARM CU Bratislava in the current academic year. 4. The full-time doctoral student implements pedagogical activities in full-time study to the extent specified by the implementing regulations of FPHARM CU Bratislava for doctoral studies, but if the course is also implemented in external form, the full-time doctoral student will ensure its implementation free of charge. 5. A doctoral student of an external form of study may carry out pedagogical activities without the right to a fee, while the form and scope of this activity shall be agreed with the management of FPHARM CU Bratislava. 6. The doctoral student will prepare a confirmation of the implementation of pedagogical activities. The confirmation signed by the head of the department where the pedagogical activity took place serves as proof of successful fulfillment of the conditions for completing the course for the supervisor, who on the basis of it will award (graduate) the doctoral student to AIS and to the study report.	
Recommended literature: Current resources on the topic of pedagogical activities.	

Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 20	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/484-PhD/21	Course title: Pedagogical Activities - Exercises
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: After submitting a certificate of completion of pedagogical activities, the doctoral student obtains the rating completed according to the specific credit evaluation of the subject.	
Learning outcomes: the doctoral student will gain experience and acquire the skills necessary for the presentation of selected professional issues in the academic space at the 1st or 2nd level of university studies within the field.	
Class syllabus: 1. The doctoral student prepares exercises, provides teaching and evaluation at the end of the semester. 2. The doctoral student is responsible for the administration of pedagogical outputs in the AIS system. 3. In his / her pedagogical activities, the doctoral student respects and adheres to the valid guidelines applicable to all teachers of FPHARM CU Bratislava in the current academic year. 4. The full-time doctoral student implements pedagogical activities in full-time study to the extent specified by the implementing regulations of FPHARM CU Bratislava for doctoral studies, but if the course is also implemented in external form, the full-time doctoral student will ensure its implementation free of charge. 5. A doctoral student of an external form of study may carry out pedagogical activities without the right to a fee, while the form and scope of this activity shall be agreed with the management of FPHARM CU Bratislava. 6. The doctoral student will prepare a confirmation of the implementation of pedagogical activities. The confirmation signed by the head of the department where the pedagogical activity took place serves as proof of successful fulfillment of the conditions for completing the course for the supervisor, who on the basis of it will award (graduate) the doctoral student to AIS and to the study report.	
Recommended literature: Current resources on the topic of pedagogical activities.	

Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 63	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/701-PhD/11	Course title: Pharmaceutical Botany
Number of credits: 0	
Educational level: III.	
Course requirements: Successful passing of the exam	
Learning outcomes: After successful completion of the course, the student should know the anatomical and morphological structure of plant organs with special emphasis to important medicinal plant species, know selected plant species with medicinal effects and classify them within the botanical system.	
Class syllabus: Plant systematics and taxonomy of pharmaceutically important plant species. Plant cytology - morphological and functional features of the cell, cell inclusions, Identification features of pharmaceutically important plants. Anatomical structure and tissue types according of developmental stage and function. Specific features of pharmaceutically important species.	
State exam syllabus:	
Recommended literature: Habán M, 2022: Farmaceutická botanika - prednášky v elektronickej forme (dostupné cez MS Teams). Habán M., Ďuriška O., Mistríková I., 2022: Vybrané kapitoly z laboratórnych cvičení v elektronickej forme (dostupné cez MS Teams). Siphunov A. 2020: Introduction to botany. Peciar M., Bielik M., Gajdoš M., 2019. Farmaceutická botanika. Nové Mesto n. Váhom , 369 s. ISBN 978-80-570-0762-3.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: doc. Ing. M. Habán, PhD.	
Last change: 11.04.2022	
Approved by:	

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/500-PhD/11	Course title: Pharmaceutical Chemistry
Number of credits: 0	
Educational level: III.	
Course requirements: Successful passing of the exam	
Learning outcomes: Expansion and intensification of knowledge from pharmaceutical chemistry that can be used by the student to formulate scientific hypotheses to create a basis for the analytical part of the dissertation and to formulate conclusions following the obtained results.	
Class syllabus: Pharmaceutical/Medicinal Chemistry is a science unto itself, a central science positioned to provide a molecular bridge between basic science of biology and clinical science of medicine (analogous to chemistry being the (central) science between traditional disciplines of biology and physics). From a very broad perspective, a drug design may be divided into two phases fundamental concepts about: a) drugs, receptors, and drug–receptor interactions; b) drug–receptor interactions applied to human disease. Pharmaceutical/Medicinal Chemistry is interdisciplinary, drawing very suitably on Theoretical Chemistry, Organic Chemistry, Analytical Chemistry, Molecular Biology, Pharmacology, and Biochemistry. Despite these complexities, Pharmaceutical/Medicinal Chemistry has its own clear line – the design and discovery of drug molecules with a comprehensive and precise definition and characterization of their properties, taking into account i) structural integrity of the drug molecules (in pharmaceutical, pharmacokinetic and pharmacodynamic phase, respectively), ii) their structural fragments (pharmacophore, toxicophore, metabophore, biophore, etc.; interchangeable bioisosteres), iii) structural properties, iv) physicochemical features (solubility, surface activity, acid-base and lipohydrophilic properties, stability), v) shape properties (geometric, conformational, topological, steric), vi) stereochemical properties (optical isomers, enantiomers, geometric isomers), estimation of binding affinities (in vitro ligand binding assays) and impact of the drugs - enantiomers and isomers to relevant biological targets), vii) electronic properties. Following that knowledge, structure–biological activity relationships and/or structure-pharmacokinetics relationships and/or structure-toxicity relationships are comprehensively investigated (SAR, STR, QSAR).	
State exam syllabus:	
Recommended literature: Chackalamannil, S., Rotella, D., & Ward, S. (2017). Comprehensive Medicinal Chemistry III, 3. Vyd. Elsevier, Amsterdam, Holandsko, 4536 s. Patrick, G.L. (2017). An Introduction to Medicinal Chemistry. 6. Vyd. Oxford University Press, New York, USA, 832 s. Remko, M. (2019). Základy medicínskej a farmaceutickej chémie, 3. Vyd. Remedika, Bratislava, SR, 480 s.	

Roche, V.F., Zito, S.V., Lemke, T.L., & Williams, D.A. (2019). Foye's Principles of Medicinal Chemistry, 8. Vyd. Wolters Kluwer Health Adis (ESP), Baltimore, USA, 1168 s.

Silverman, R.B., & Holladay, M.W. (2015). The Organic Chemistry of Drug Design and Drug Action. 3. Vyd. Elsevier, Waltham, USA, 521 s.

Wermuth, C., Aldous, D., Raboisson, P., & Rognan, D. (2015). The Practice of Medicinal Chemistry. 4. Vyd. Academic Press (Elsevier), San Diego, CA, USA; Kidlington, Oxford, Veľká Británia, 903 s

Languages necessary to complete the course:

Slovak language

Notes:

Lecturers: prof. RNDr. Peter Mikuš, PhD, prof. Ing. Vladimír Frečer, DrSc., doc. PharmDr. Ivan Malík, PhD., doc. Mgr. Fils Andriamainty, PhD., Dr.h.c. prof. RNDr. Jozef Čižmárik, PhD., doc. PharmDr. Miroslava Sýkorová, PhD., PharmDr. Vladimír Garaj, PhD.

Last change: 11.04.2022

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/812-PhD/21	Course title: Pharmaceutical Technology
Number of credits: 0	
Educational level: III.	
Course requirements: Successful passing of the exam	
Learning outcomes: By passing the course, the PhD. student will have a complex theoretical knowledge of drugs as dispersion and application systems in terms of theoretical and practical preparation of innovative dosage forms.	
Class syllabus: Pharmaceutical preparations are of a dosage (application) form which depends on the means of administration and coexistence of relevant drugs and excipients. Pharmaceutical technology (galenics) deals with composition, formulation, production, evaluation, and quality assurance of individually prepared and manufactured pharmaceutical preparations. It studies conditions for formulation of drugs and excipients into pharm. preparations, rules governing these processes, relations of the preparation with the effect of contained drugs. The subject of the study are these areas: - Pharm. preparations as systems composed of drugs and excipients (constitutive, stabilizing, corrective, etc.), conditions for coexistence of components in pharm. preparation. - Procedures and devices for preparation and manufacturing of pharm. preparations - Evaluation and quality assurance of pharm. preparations in terms of composition, technology, structure - Relations between the pharm. preparation and bioavailability of administered drugs - Stability of pharm. preparations and its possible ensuring - Containers 'materials, technique for pharm. preparations 'containers, study of interactions between containers and drugs / excipients Current research is oriented to drug carriers (polymeric, lipid - liposomes) in the role of drug delivery systems as nanoparticles. It begins with the synthesis of the carrier, incorporation of the drug, continues with formulation of dosage form, stability studies of formulated particles and in vitro drug release study. At the end of this difficult process the biologic activity and in vivo bioavailability are evaluated in cooperation with other departments/institutions. Also, nanodispersion systems as e.g., micro- and nanoemulsions are studied, especially related to low soluble drugs (e.g., terbinafine, minoxidil, indomethacin, tretinoin) intended for topical application with local or systemic effect e.g., also using the mechanisms of transdermal passage. In the preparation of these systems, various types of polymers (e.g., chitosan, thermosensitive polymers) and specific excipients are used to create a specific structure of given formulation with improved properties (e.g., better bioadhesion, stability, capacity to release the low soluble drugs, improved permeation, and penetration to target tissues in required concentration).	
State exam syllabus:	
Recommended literature: Chalabala, M. a kol.: Technologie léků. 3. vyd. Praha: Galén, 2006. 399 s. Žabka, M. a kol: Moderné lieky vo farmaceutickej technológii. Bratislava: SAP, 1999. s.487 European	

Pharmacopoeia 10 th Ed. Strasbourg: EDQM, 2022 Aulton, M. E.: Aulton's Pharmaceutics: the design and manufacture of medicines - Edinburgh: Churchill Livingstone, 2018 Mikušová, V.; Mikuš, P.: Advances in Chitosan-Based Nanoparticles for Drug Delivery. Int. J. Mol. Sci. 2021, 22, 9652. <https://doi.org/10.3390/ijms22179652>

Languages necessary to complete the course:

Slovak language, English language

Notes:

Lecturers: PharmDr. Veronika Mikušová, PhD., PharmDr. Juraj Piešťanský, PhD., doc. RNDr. Miroslava Šuplíková, PhD.

Last change: 11.04.2022

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/700-PhD/11	Course title: Pharmacognosy
Number of credits: 0	
Educational level: III.	
Course requirements: Successful completion of the exam.	
Learning outcomes: Graduates of Pharmacognosy will acquire the advanced knowledge necessary for their application not only in the professional discipline, but also in other areas of pharmacy in connection with the use of natural resources and individual content substances for therapeutic practice. The student has a broad overview of the biological and chemical processes leading to the formation of secondary metabolites of therapeutic relevance, and is able to use the chemical and biological properties of isolates in their practical use in pharmacy. He can search for new natural sources based on broad chemical, biological screening and also has a broad theoretical knowledge of pharmacognosy and phytochemistry.	
Class syllabus: The PhD student receives information related to the classification of drugs according to their effect on the human their use in prevention and therapy, including basic information on adverse effects and interactions involving individual active ingredients of natural origin. Emphasis is placed on drugs and their active substances that are part of registered phytopharmaceuticals in EU countries or are registered in the current edition of the European Pharmacopoeia. The main topics of the core knowledge of the course are: Biogenesis of natural substances and their classification according to given systems. Relationships of metabolic transformations of natural substances. Search for new sources of biologically active substances based on chemotaxonomic data. Methods of isolation of biologically active metabolites. Physico-chemical methods for determining the structure of natural substances. Evaluation of biological activities of natural isolates by in vivo and in vitro methods. Use of natural substances in therapy and prevention, especially of human diseases.	
State exam syllabus:	
Recommended literature: Nagy - Grančai - Mučaji: Farmakognózia : Biogenéza prírodných látok. - 1. slovenské vydanie. 2011. Liekové interakcie. Mechanizmy a manažment klinicky významných interakcií. (vybrané kapitoly, autori: Czigle, Tóth) Williamson E., Driver S., Baxter K. Stockleys Herbal Medicines Interactions. 2009. Benzie I., Wachtel-Galor S. eds. Herbal medicine. Biomolecular and clinical aspects. 2011. Polya G. Biochemical Targets of Plant Bioactive Compounds. A Pharmacological Reference Guide to Sites of Action and Biological Effects . 2003. Ebadi M. Pharmacodynamic Basis of Herbal Medicine, Second Edition 2006.	

Berger S., Sicker D. Classics in Spectroscopy Isolation and Structure Elucidation of Natural Products. 2009. Katzung B.G. Basic and Clinical Pharmacology 14th Edn. 2018. Huang L-Q. Molecular Pharmacognosy. 2nd Edn. 2019. Carlton R.A. Pharmaceutical Microscopy. 2011. Európský liekopis. (aktuálne vydanie + jeho doplnky)
--

Languages necessary to complete the course:
--

Slovak language, English language

Notes:

Lectures: prof. PharmDr. Pavel Mučaji, PhD., prof. Ing. Milan Nagy, CSc., doc. PharmDr. Szilvia Czige, PhD.

Last change: 26.03.2022

Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/800-PhD/11	Course title: Pharmacology
Number of credits: 0	
Educational level: III.	
Course requirements: Successful passing of the exam	
Learning outcomes: Expansion and intensification of knowledge from pharmacology the can be used by the student to formulate scientific hypotheses to create a basis for the analytical part of the dissertation and to formulate conclusions following the obtained results.	
Class syllabus: The focus is on one or more of the following areas of pharmacology: - pharmacodynamics with respect to the mechanism of action of drugs - pharmacokinetics - pharmacogenomics - adverse effects of drugs - drug overdose - therapeutic use of drugs Special pharmacology - pharmacology of drugs with effect on the central nervous system - pharmacology of drugs with effect on the autonomous nervous system - pharmacology of drugs with effect on the smooth muscles - pharmacology of drugs with effect on the cardiovascular system and kidneys - pharmacology of blood, inflammation - pharmacology of drugs with effect on the respiratory system - pharmacology of drugs with effect on the gastrointestinal system - pharmacology of drugs with effect on the endocrine system - pharmacology of anti-infective drugs - pharmacology of anticancer drugs - new directions of therapy of diseases using biological drugs	
State exam syllabus:	
Recommended literature: Brunton LL, Hilal-Dandan R, Knollmann BC et al. Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e, McGraw-Hill Education 2018 Golan D. E., Tashjian Jr A. H., Armstrong E. J., Armstrong A. Wet al. .: Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy, 3rd 4th Edition. Lippincott Williams&Wilkins, 20172 Katzung BG, Vanderah TW et al. : Basic & Clinical Pharmacology, 15e, McGraw Hill 2021 Rang, H.P., Dale, M.M. a kol.: Rang and Dale's Pharmacology, 7th ed. London, Churchill Livingstone, Elsevier, 2012	

Ritter JM. et al.: Rang and Dale's Pharmacology E-Book, Elsevier, 9th ed., 2018
Languages necessary to complete the course: Slovak language, English language
Notes: Lecturers: prof. PharmDr. Adriana Ďuriš Adameová, PhD.; prof. PharmDr. Ján Klimas, PhD., MPH.; doc. Peter Křenek, PhD.; doc. PharmDr. Anna Paul Hrabovská, PhD.; doc. PharmDr. Marek Mátuš, PhD.; Mgr. Peter Vavrinec, PhD.; Mgr. Diana Vavrincová, PhD
Last change: 11.04.2022
Approved by:

STATE EXAM DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/703-PhD/11	Course title: Plant Molecular Biology
Number of credits: 0	
Educational level: III.	
Learning outcomes: After completing the course, the PhD. student will gain deeper and comprehensive knowledge about the flow of genetic information and the possibilities of its influence, as well as about the cell signaling systems with respect to the mechanisms of drugs action that have plant origin. The student will obtain informations about the possibilities of preparing of new drugs by modern biotechnological procedures based on techniques using recombinant DNA. The student will get acquainted with different types of cloning and expression vectors and their application in the production of specific biopharmaceuticals produced by plants or by plants cell cultures.	
Class syllabus: Flow of genetic information in plant cells – possibilities of drug influence: replication, transcription, translation and post-translational modifications. Mutations and repair mechanisms. Intracellular compartments in plant cells and protein transport. Principles of plant cell communication. Protein kinase networks and signal processing integration. Transport processes in the plant cell. Fundamentals of recombinant DNA technology. Principles of gene manipulation. Use of biotechnological processes in the production of secondary metabolites. Preparation of recombinant DNA, cloning and expression vectors, plasmids and bacteriophages, DNA and cDNA libraries, hybridization. Preparation and use of transgenic plants, biopharmaceuticals produced by transgenic plants and cell cultures, GMO plants.	
State exam syllabus:	
Recommended literature: Odporúčaná literatúra: Obložinský M. a kol.: Molekulárna biológia účinku liečiv a biotechnológia pre farmaceutov. Bratislava: Univerzita Komenského, 2010. Bahadur B., Rajam M.V., Sahijram L., Krishnamurthy K.V.: Plant Biology and Biotechnology. Springer 2015, 764 s. Bowsher C., Tobin A.: Plant Biochemistry. Taylor & Francis 2021, 454 s.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: doc. PharmDr. Marek Obložinský, PhD	
Last change: 12.04.2022	
Approved by:	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/479-PhD/21	Course title: Presentation at the Conference of Young Scientists
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating with a credit value after submitting the program of scientific events (in which he appears as an active participant) to the supervisor, which is also evidenced by confirmations of the organizers of scientific events about active performance	
Learning outcomes: the doctoral student under the guidance of the supervisor has demonstrated the ability to work scientifically, ie to create scientific texts that meet the criteria of expertise, scientific and methodological relevance and then present these texts to the audience at a scientific event (presentation at the event is limited by age).	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. expertise, scientific and methodological relevance. 2. The doctoral student will individually ensure participation in a scientific event for young researchers (conference, scientific seminar, congress), at which he / she will actively present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered as another original scientific text and it is inadmissible for the doctoral student to present it repeatedly.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 7	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/465-PhD/21	Course title: Professional Publication in International or Domestic Journal
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 4	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: the doctoral student, under the guidance of the supervisor, demonstrates the ability to work scientifically, i. e. to create a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in a international or domestic professional peer-reviewed periodical. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	
Past grade distribution Total number of evaluated students: 2	
ABS	NEABS
100,0	0,0

Lecturers:
Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/466-PhD/21	Course title: Published Abstract in English from a Scientific Event
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 3	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting an abstract in English from a scientific event	
Learning outcomes: the doctoral student under the supervision of a supervisor has demonstrated the ability to work scientifically, ie to create scientific texts in English that meet the criteria of expertise, scientific and methodological relevance and then publish these texts as an abstract in a book of abstracts from a scientific event (conference, scientific seminar, congress).	
Class syllabus: 1. The doctoral student, in consultation with the supervisor, shall prepare scientific texts in English that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the sending of the scientific text to the organizers of the scientific event (conference, scientific seminar, congress), at which he / she will actively present the results of his / her own scientific activity. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student presents it only once, while the translation of the content of the original scientific text is not considered another original scientific text and it is inadmissible for the doctoral student to present it repeatedly to be.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: English	
Notes: Teacher: provided by the supervisor Recommended Study Semester: full length of study	

Past grade distribution	
Total number of evaluated students: 21	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/487-PhD/21	Course title: Reviewing a Bachelor Thesis
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The course is successfully completed if the doctoral student submits relevant evidence of the peer review of the bachelor thesis, and the confirmation of entering the review into the AIS-2.	
Learning outcomes: The doctoral student, under the guidance of a supervisor, has demonstrated the ability to review a professional text.	
Class syllabus: 1. The doctoral student will critically evaluate the professionalism of the text of the bachelor thesis. 2. The doctoral student, after consultation with the supervisor, will prepare a report for the bachelor's thesis. 3. The doctoral student enters the bachelor's thesis report into AIS-2.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	
Past grade distribution Total number of evaluated students: 4	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 13.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/467-PhD/21	Course title: Reviewing the Manuscript of an Article Submitted to an Indexed Scientific Journal (Scopus, Wos)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The course is successfully completed if the doctoral student submits relevant evidence of elaboration of the review on the manuscript of the article (e-mail or other confirmation from the editors).	
Learning outcomes: The doctoral student, under the guidance of a supervisor, has demonstrated the ability to review a professional text.	
Class syllabus: 1. The doctoral student will critically evaluate the professionalism of the manuscript. 2. The doctoral student, after consultation with the supervisor, will prepare a review of manuscript. 3. The doctoral student will submit the review to the redaction of the journal.	
Recommended literature: Current sources on the presented issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	
Past grade distribution Total number of evaluated students: 1	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 10.04.2022	

Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/486-PhD/21	Course title: Supervision of the Final Bachelor's Thesis
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 5	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The course is successfully completed if a bachelor's program participant is in AIS-2 is provided with the subject: Preparation of bachelor thesis 1 or Preparation of bachelor thesis 2.	
Learning outcomes: The doctoral student will gain experience and acquire the skills necessary for leading the final work of a selected professional topic in the academic space at the 1st level of university study within the field of study.	
Class syllabus: 1. The doctoral student will prepare in the AIS system, in the section Study records (VSES 057), the assignment of the final (bachelor's) thesis by entering the thesis title and annotation. During the entire supervision of the final (bachelor's) thesis, the doctoral student is responsible for the administration of all requisites related to the final (bachelor's) thesis in AIS. 2. The doctoral student methodically and professionally guides the bachelor's program student from the choice of topic to the successful defense of the final (bachelor's) thesis. 3. The doctoral student will prepare an evaluation of the final (bachelor's) thesis in the AIS, as well as in the form according to the instructions of the head of the corresponding department. 4. The doctoral student will prepare a certificate of completion of the final (bachelor's) thesis, which will be given to the head of the department. The evaluation must be accompanied by evaluation assessments of the works. The confirmation signed by the head of the department serves as proof of successful fulfillment of the conditions for completing the course for the supervisor who, based on the evaluation, provides the doctoral student with the grade "absolved" by entering it into AIS-2 and in the study record.	
Recommended literature: Current sources on the studied issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes:	

Teacher: supervisor	
Past grade distribution	
Total number of evaluated students: 0	
ABS	NEABS
0,0	0,0
Lecturers:	
Last change: 13.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/460-PhD/21	Course title: The Original Publication in Current Contents Journal
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 35	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in a scientifically peer-reviewed periodical registered in the Current Contents database. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	
Past grade distribution Total number of evaluated students: 16	
ABS	NEABS
100,0	0,0

Lecturers:
Last change: 18.04.2022
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/459-PhD/21	Course title: The Original Publication in Current Contents Journal – First Author
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 40	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in a scientifically peer-reviewed periodical registered in the Current Contents database. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text. 4. The doctoral student is the first author of the publication.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	

Past grade distribution	
Total number of evaluated students: 14	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/463-PhD/21	Course title: The Original Publication in non-Current Contents International or Domestic Journal Indexed in the SCOPUS Database (EPJ is Recommended)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 10	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in non current contents international or domestic journal indexed in the SCOPUS database (European Pharmaceutical Journal is recommended) 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/462-PhD/21	Course title: The Original Publication in non-Current Contents Journal with IF (Impact Factor)
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 25	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in a scientifically peer-reviewed periodical with IF (impact factor). 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	

Past grade distribution	
Total number of evaluated students: 2	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/461-PhD/21	Course title: The Original Publication in non-Current Contents Journal with IF (Impact Factor) - First Author
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 30	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains the rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in a scientifically peer-reviewed periodical with IF (impact factor). 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text. 4. The doctoral student is the first author of the publication.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Lecturer: supervisor	

Past grade distribution	
Total number of evaluated students: 3	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	

COURSE DESCRIPTION

Academic year: 2022/2023	
University: Comenius University Bratislava	
Faculty: Faculty of Pharmacy	
Course ID: FaF/464-PhD/21	Course title: The Original Scientific Publication in non-Current Contents and non-Indexed International or Domestic Journal or Conference Proceeding
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Number of credits: 7	
Recommended semester: 1., 2., 3., 4., 5., 6., 7., 8..	
Educational level: III.	
Prerequisites:	
Course requirements: The doctoral student obtains rating completed with a credit value after submitting separate (source cover, circulation letters with ISBN or ISSN, source content, paper) published texts to the supervisor.	
Learning outcomes: a doctoral student under the guidance of a supervisor demonstrates the ability to work scientifically, i. e. a scientific text that meets the criteria of professionalism, scientific and methodological relevance.	
Class syllabus: 1. The doctoral student, after consultation with the supervisor, shall develop scientific texts that meet the criteria of professionalism, scientific and methodological relevance. 2. The doctoral student will individually ensure the publication of the given texts in non current contents and non-indexed international or domestic journal or conference proceeding. 3. The doctoral student respects the ethics of publishing, each scientific text is original and the doctoral student publishes it only once, while the translation of the content of the original text is not considered as another original scientific text.	
Recommended literature: Current sources on published issues.	
Languages necessary to complete the course: Slovak language, English language	
Notes: Teacher: supervisor	

Past grade distribution	
Total number of evaluated students: 5	
ABS	NEABS
100,0	0,0
Lecturers:	
Last change: 18.04.2022	
Approved by: prof. PharmDr. Adriana Duriš Adameová, PhD., prof. PharmDr. Ján Klimas, PhD., MPH, prof. RNDr. Peter Mikuš, PhD., prof. PharmDr. Pavel Mučaji, PhD.	