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COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ AMS3/05	Course name: Atomic and Molecular Spectroscopy
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Based on continuous assessment and test results.	
Learning outcomes: Advanced theoretical and practical knowledge of the methods of atomic and molecular spectroscopy.	
Brief outline of the course: Enhanced information about atomic absorption and emission spectral methods. History of the spectral methods development and their use in analytical practice. Optical analytical methods, principles, classification. Theoretical principles of spectroscopy. Experimental basis of spectral methods. Atomic absorption spectrometry. Atomic emission spectrometry (optical emission spectrometry). Atomic fluorescence spectrometry. Plasma Mass Spectrometry. Mass spectrometry. Spectral methods based on the X-rays observation and observation of the released electrons. Absorption spectroscopy in the visible and UV region. Emission spectroscopy of molecules. Vibration-rotation spectroscopy in analytical chemistry. Infrared and Raman spectrometry, nuclear magnetic resonance, electron paramagnetic resonance: principles, development in analytical chemistry. Automation and miniaturization of spectral methods. Hybrid spectral methods. Organic reagents. Ionic associates with basic dyes.	
Recommended literature: Günzler H., Williams A.: Handbook of Analytical Techniques. Wiley-VCH, 2001. Skoog D. A., et al: Principle of Instrumental Analysis, Thomson Brooks/Cole, 2007. Welz B., Sperling M.: Atomic Absorption Spectrometry, Wiley-VCH, 1998. Rios, A. Escarpa, B. Simonet: Miniaturization of Analytical Systems: Principles, Designs and Applications. Wiley, 2009. D. Harvey: Modern Analytical Chemistry, McGraw-Hill Companies, Inc., 2000. Current journal.	
Course language:	
Notes:	

Course assessment	
Total number of assessed students: 19	
N	P
0.0	100.0
Provides: prof. Dr. Yaroslav Bazel', DrSc., doc. Ing. Viera Vojteková, PhD., prof. Andrii Vyshnikin, PhD.	
Date of last modification: 20.01.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ COK/22	Course name: Certified training course
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Completion of a certified professional/training course.	
Learning outcomes: The PhD student acquires up-to-date scientific knowledge, develops the capabilities of scientific work and familiarizes himself with the methodologies of making scientific knowledge available. He confronts his own knowledge and skills with other course participants, develops the abilities of peer discussion in the given scientific field.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ACM3/05	Course name: Chemometrics and Experiment Metodics
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: On the basis of individual work. On the basis of the continuous assesment and examination.	
Learning outcomes: Learning of the basic methodology of experimentation and statistical evaluation of the measurements.	
Brief outline of the course: The basic methodology of experimentation. The sources of the scientific information. Literature search. Choice and classification of scientific journals. The sample treatment. (sampling, measurements, evaluation of results). Knowledge acquisition of the correct and theoretically-based processing and evaluation of results of chemical analysis: Signal Processing; Calibration, Data Processing. Knowledge acquisition of the methods and methodologies for results evaluation. Decision-making statistics. Information about validation of the method, about metrology, and accreditation of the laboratories. Conception of the uncertainties of results and methods. Practical application of the theoretical knowledge gained during the course.	
Recommended literature: Brereton R. G.: Chemometrics, Wiley, 2003. Günzler H., Wiliams A.: Handbook of Analytical Techniques. Wiley-VCH, 2001. J.N. Miller, J.C. Miller: Statistics and Chemometrics for Analytical Chemistry, Pearson Education Limited, 2010	
Course language: Slovak, English	
Notes:	
Course assessment Total number of assessed students: 27	
N	P
0.0	100.0

Provides: doc. Ing. Viera Vojteková, PhD.
Date of last modification: 20.01.2022
Approved: prof. Dr. Yaroslav Bazel', DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CHR3/05	Course name: Chromatographic Separation Methods
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: distance, present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 2.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Individual work. Solving the problem of chromatography according to the assignment Examination.	
Learning outcomes: Basic and advanced theory of chromatographic separation methods and their possibilities and use in research and analytical practice.	
Brief outline of the course: Basic principles of chromatography. Chromatographic resolution, optimization of chromatographic parameters. Theory of liquid chromatography, classification. Stationary phases. Selectivity, sensitivity of HPLC detectors.. Fast LC chromatography. UPLC. Combined LC techniques. Comprehensive and multidimensional LC methods. Applications.	
Recommended literature: Skoog D.A., Leary J.J., Principles of Instrumental Analysis, Saunders, 1997. Lehotay J., Separáčné metódy v analytickej chémii, STU Bratislava 2009. Scientific journal literature.	
Course language: Slovak language	
Notes:	
Course assessment Total number of assessed students: 18	
N	P
0.0	100.0
Provides: doc. RNDr. Tat'ána Gondová, CSc.	
Date of last modification: 24.11.2021	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CZC/22	Course name: Citation in the International Scientific Journal
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Obtained citation in a foreign scientific journal.	
Learning outcomes: Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 7	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CDC/22	Course name: Citation in the Local Scientific Journal
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Citation in a national scientific journal	
Learning outcomes: Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ CM/22	Course name: Citation in the Monograph
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Obtained citation registered in SCI or Scopus.	
Learning outcomes: Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/SPAV/22	Course name: Co-investigator of the applied research project
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Co-investigator of the applied research project	
Learning outcomes: The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective of applied research and to take responsibility for assigned tasks. By solving an applied research project, he acquires the ability to implement the project objective according to the established procedure, to follow the project schedule, to coordinate his own activities with colleagues, to participate in the creation of applied research outputs. The PhD student gains valuable experience from the practical course of a grant project with a focus on applied research.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazef, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/SDP/22	Course name: Co-worker of a Local Project
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Co-investigator of the domestic project	
Learning outcomes: The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective and to take responsibility for the assigned tasks. By solving the domestic project, he acquires the ability to implement the project intention according to the established procedure, to follow the project schedule, to coordinate his own activities with colleagues, to participate in the creation of outputs. The PhD student gains valuable experience from the practical course of the grant project.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 37	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SMPR/04	Course name: Co-worker of an International Project
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Membership in the research team of an international project.	
Learning outcomes: Active involvement by solving a specific task within a team of international project solvers. The PhD student demonstrates the ability to work in a team, take responsibility for the assigned task, adhere to the time schedule and fulfill the project outputs. The PhD student gains personal experience from the implementation of an international project, participation in its key stages, creation of measurable outputs, grant funding of science.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 42	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ODZP/2014/15	Course name: Defence of Doctoral Thesis
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 30	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: The Dissertation thesis is the result of the student's own scientific research. It must not show elements of academic fraud and must meet the criteria of correct research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavel Jozef Šafárik University in Košice and its constituents. Fulfillment of the criteria is verified mainly in the process of supervising and in the process of the thesis defense. Failure to do so is grounds for disciplinary action.	
Learning outcomes: The Dissertation thesis has elements of a scientific work and the student demonstrates extensive mastery of the theory and professional terminology of the field of study, acquisition of knowledge, skills and competences in accordance with the declared profile of the graduate of the field of study, as well as the ability to apply them in an original way in solving selected problems of the field of study. The student demonstrates the ability of independent scientific work in terms of content, formal and ethical aspects. Further details of the Dissertation thesis are determined by Directive no. 1/2011 on the essential prerequisites of final theses and by the Study Rules of Procedure at UPJŠ in Košice for doctoral studies. The doctoral student demonstrated the ability and readiness for independent scientific and creative activity in the field of study of philology in accordance with the expectations of the relevant qualification framework and the profile of the graduate.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 69	
N	P
0.0	100.0

Provides:
Date of last modification: 08.11.2022
Approved: prof. Dr. Yaroslav Bazel', DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VPZP/22	Course name: Elaboration of reviewer report
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Elaboration of reviewer report	
Learning outcomes: The PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly recommend another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ EACH/21	Course name: Electroanalytical chemistry
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 2., 4.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Theoretical and practical knowledge in field of electroanalytical methods. Successful completion of the final test or oral exam.	
Learning outcomes: Getting knowledge in the field of advanced techniques of electroanalytical methods, the latest trends in miniaturization and automation of electrochemical analytical methods.	
Brief outline of the course: Advanced techniques of electroanalytical methods, electrochemical measurements in flow systems, miniaturization of electrochemical analytical methods, new trends in this field of analytical chemistry. Instrumentation. Working electrodes. Electrode requirements. Principles and more detailed description of measuring technique. Potentiometry. Voltammetry. Linear and cyclic voltammetry. Pulse voltammetry. Stripping voltammetry. Voltammetric titrations. Amperometry and titrations with polarizable electrodes. Coulometry. Potentiostatic coulometry. Coulometric titration. Conductometry. Electroanalytical measurements in flow devices. Miniaturization of electrochemical analytical methods. Current trends in this area. Selected applications of electroanalytical methods such as quality control in the analysis of technological products, in bioanalytical applications, analysis of foreign substances in the environment, in diagnostic and clinical analysis, in forensic science, etc.	
Recommended literature: 1. J. Labuda a kol. Analytická chémia, STU, Bratislava 2014. 2. Allen J. Bard, Cynthia G. Zoski. Electroanalytical Chemistry. A Series of Advances: Volume 26. Taylor&Francis, 2015. 3. D. Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000. 4. Aktuálna časopisecká literatúra.	
Course language:	
Notes:	

Course method and conditions for completing the course are updated annually at the beginning of the semester.	
Course assessment	
Total number of assessed students: 5	
N	P
0.0	100.0
Provides: RNDr. Jana Šandrejová, PhD., univerzitná docentka	
Date of last modification: 15.11.2021	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/AJD1/07	Course name: English Language for PhD Students 1
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: distance, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Completion of e-course English for PhD Students (lms.upjs.sk), consultations (1-3). Written assignments - Professional/Academic CV, Short Academic Biography.	
Learning outcomes: The development of students' language skills - reading, writing, listening, speaking; improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects; development of pragmatic competence - students acquire skills for effective and purposeful communication, with focus on Academic English and English for specific/professional purposes, level B2.	
Brief outline of the course: Specific aspects of academic and professional English with focus on correct pronunciation, vocabulary development (noun and verb collocations, phrasal verbs, prepositional phrases, word-formation, formal/informal language, etc.), selected aspects of English grammar (prepositions, grammar tenses, passive voice, etc.), academic writing (professional/academic CV, Short Academic Biography).	
Recommended literature: Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017. Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí – cvičebnica. Košice, Vydavateľstvo ŠafárikPress, 2021. Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021. McCarthy, M., O'Dell, F.: Academic Vocabulary in Use. CUP, 2008. Štěpánek, L., J. De Haaf a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011. Armer, T.: Cambridge English for Scientists. CUP, 2011. lms.upjs.sk	
Course language: English, level B2 according to CEFR	
Notes:	

Course assessment					
Total number of assessed students: 777					
N	Ne	P	Pr	abs	neabs
0.0	0.0	45.82	0.0	54.05	0.13
Provides: Mgr. Zuzana Kolaříková, PhD.					
Date of last modification: 11.09.2023					
Approved: prof. Dr. Yaroslav Bazel', DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/AJD2/07	Course name: English Language for PhD Students 2
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: distance, present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course: 2.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Test, oral exam in accordance with the exam requirements (available at the web-site of the LTC and in MS TEAMS)	
Learning outcomes: The development of students' language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can effectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.	
Brief outline of the course: Academic communication (self-presentation, presenting at scientific meetings and conferences). Specific aspects of academic and professional English with focus on vocabulary development (formality, academic word-list), English grammar (passive voice, nominalisation), language functions (expressing opinion, cause/effect, presenting arguments, giving examples, describing graphs/charts/schemes, etc.). Cross-language interference.	
Recommended literature: Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017. Kolaříková, Z., Petruňová, H., Tímková, R.: Angličtina v akademickom prostredí (cvičebnica). UPJŠ Košice, 2021. Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021. McCarthy, M., O'Dell, F.: Academic Vocabulary in Use. CUP, 2008. Štěpánek, L., J. De Haaf a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011. Armer, T.: Cambridge English for Scientists. CUP, 2011.	
Course language: B2 level according to CEFR	
Notes:	

Course assessment					
Total number of assessed students: 732					
N	Ne	P	Pr	abs	neabs
0.27	0.0	93.72	1.09	4.78	0.14
Provides: Mgr. Zuzana Kolaříková, PhD.					
Date of last modification: 05.02.2024					
Approved: prof. Dr. Yaroslav Bazel', DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/SSOL/04	Course name: Individual Study of Scientific Literature
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion:	
Learning outcomes: Independent work of a doctoral student with books, monographies, databases and source documents, obtaining informations for elaboration of the thesis, for preparation of experiments or preparation of publication, respectively.	
Brief outline of the course: Independent study of literature following the suggestions of the tutor.	
Recommended literature: Books, monographs, Web of Science, SCOPUS, original papers	
Course language: English language.	
Notes:	
Course assessment Total number of assessed students: 213	
abs	n
100.0	0.0
Provides:	
Date of last modification: 05.11.2021	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZC/22	Course name: International Journal
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a foreign journal as an author/co-author.	
Learning outcomes: By publishing in a foreign journal as an author/co-author, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZSP1/22	Course name: International Study Stay less than 30 Days
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Completion of a foreign study stay lasting less than 30 days.	
Learning outcomes: By completing a shorter study stay, the PhD student demonstrates the ability to reflect on research problems and work critically with sources at an expert level and in an interdisciplinary context, while being able to generate new knowledge. He is able to actively communicate at an expert level in more than one language. He acts as a responsible independent scientist, works independently and in a group with the aim of pushing the boundaries of knowledge and transferring them to other areas of research, to practice and to the wider public. He can competently argue and explain his ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 2	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZSP2/22	Course name: International Study Stay more than 30 Days
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Completion of a foreign study stay lasting more than 30 days.	
Learning outcomes: By completing the study stay, the PhD student demonstrates the ability to reflect on research problems and work critically with sources at an expert level and in an interdisciplinary context, while being able to generate new knowledge. He is able to actively communicate at an expert level in more than one language. He acts as a responsible independent scientist, works independently and in a group with the aim of pushing the boundaries of knowledge and transferring them to other areas of research, to practice and to the wider public. He can competently argue and explain his ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 3	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MKZ/22	Course name: International conference abroad
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Active participation in an international conference abroad.	
Learning outcomes: By actively participating in an international scientific conference abroad, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence to use existing theories and concepts in an innovative way, as well as generate new original scientific knowledge and communicate research results to a wider audience by adequate means and through a foreign language.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 22	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/DK/04	Course name: Local Conference
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Active participation in the home conference.	
Learning outcomes: By actively participating in the national scientific conference, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence in using existing theories and concepts in an innovative way, as well as generating new original scientific knowledge and communicating research results to a wider audience using adequate means and through the Slovak language.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 128	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/DKZU/22	Course name: Local Conference with Foreign Participation
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Active participation in a national conference with foreign participation.	
Learning outcomes: By actively participating in a scientific conference, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence to use existing theories and concepts in an innovative way, as well as generate new original scientific knowledge and communicate research results to a wider audience by adequate means and through Slovak or a foreign language.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 15	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ DC/22	Course name: Local Journal
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a national journal as author/co-author.	
Learning outcomes: By publishing in a national journal as an author/co-author, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SIG/22	Course name: Member of the internal project team
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Co-worker of project supported by internal grant schemes (VVGS)	
Learning outcomes: The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective within the internal grant system at UPJŠ. By solving the internal VVGS grant, he acquires the ability to implement the project plan according to the established procedure, adhere to the project schedule, coordinate his own activities with colleagues, and participate in the creation of outputs. The PhD student gains valuable experience from the practical course of the grant project.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 15	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ POVK/22	Course name: Membership in a Conference organizing Committee
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 3	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Work in the organizing committee of the conference	
Learning outcomes: By working in the organizing committee of the conference, the PhD student demonstrates the abilities and competences to organize a scientific or professional event independently or in a team, to manage the implementation in terms of time and content, to communicate effectively verbally and in writing using various technical means as needed, including in a foreign language at a professional level with various types of people, if necessary, correctly recommend solutions or make independent decisions.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MET3/05	Course name: Methodology of the chemical analysis of environmental systems and biological systems
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 4.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Individual work. Examination.	
Learning outcomes: The aim of the course is to obtain information about the methodology of chemical analysis of environmental and biological systems.	
Brief outline of the course: Chemical analysis procedure, measurement in analytical chemistry, reliability, accuracy, precision, repeatability, reproducibility, sensitivity, analytical range, limit of detection (LOD) and limit of quantification (LOQ), detection of systematic errors, nature, sources and elimination of systematic errors. Optimization of chemical analysis process. Recognition of noise sources and its reduction, planning of analytical experiment, improvement of individual modules of measuring equipment. Processing of measured analytical signal, filtration and modulation, smoothing, transformation, prediction. Selection of analytical method for solving specific tasks. Possibilities and limitations of the main chemical, electrochemical, spectral methods of analysis. Influence of experimental conditions on the reliability of analysis results. Peculiarities of treatment of environmental and biological samples before analysis. Automatic multielemental microanalysis of inorganic-organic, organic, environmental and biological samples. Isolation, evidence and determination of selected groups of organic substances and biologically important compounds (amino acids, proteins, lipids, vitamins, enzymes, sugars). Clinical chemistry. Overview of basic chemical tests and recommended methods. Qualitative and quantitative analysis of drugs and their metabolites. Analysis of organic and biologically important substances in the food chain. Analysis of toxic substances for the needs of input and output controls in the production process. Basics of automation in the laboratory. Signal processing. Automation of analytical operations. Automatic analyzers. Automation in environmental monitoring. Analyzers in production processes. Physical methods for checking the purity of very pure substances.	
Recommended literature: 1. Christian G.D. Analytical Chemistry. John Wiley & Sons, Inc. New York – Chichester – Brisbane – Toronto – Singapore 1994. 2. Current journal literature	

Course language: Slovak, english	
Notes:	
Course assessment Total number of assessed students: 15	
N	P
0.0	100.0
Provides: doc. RNDr. Katarína Reiffová, PhD.	
Date of last modification: 20.01.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MAS3/05	Course name: Miniaturization of Analytical Systems
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 1.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Individual work. Examination.	
Learning outcomes: The student will acquire knowledge of miniaturized analytical systems.	
Brief outline of the course: Introduction. Classification of sensors. Chemical sensors. Electrochemical sensors . Potentiometric electrochemical sensors. Electrode with liquid membrane. Biosensors. Optical sensors. Application of biosensors in biotechnology. Biosensors for medicine and environment monitoring. Miniaturization of sensors, equipment and devices. Flow injection analysis .	
Recommended literature: 1. Janata J. Principles of Chemical Sensors, Plenum Press, London, 1989. 2. Narayanaswamy R., Wolfbeis O.S. Optical Sensors, Springer, 2004, 421 p.	
Course language: Slovak, English	
Notes:	
Course assessment Total number of assessed students: 24	
N	P
0.0	100.0
Provides: prof. Mgr. Vasil' Andruch, DSc.	
Date of last modification: 22.07.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MONB/22	Course name: Monograph
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Co-author of the monograph.	
Learning outcomes: By publishing a monograph, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. It demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The doctoral student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MONA/22	Course name: Monograph in a renowned publishing house
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 40	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Co-author of a monograph in a renowned publishing house.	
Learning outcomes: By publishing a monograph in a renowned publishing house, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The doctoral student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ NRZ/22	Course name: Non-Reviewed International or National Proceedings
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: A publication published in a non-reviewed foreign or national journal as an author/co-author.	
Learning outcomes: By publishing in a non-reviewed foreign or national journal as an author/co-author, the PhD student demonstrates the ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to finalize his own thoughts in a written speech.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 9	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PVS/04	Course name: Patents, Inventions, Software
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Patent filed, invention, software product created.	
Learning outcomes: The PhD student demonstrates the ability to create an innovative product in a given scientific field, or with impact on an interdisciplinary scale or in technical practice.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPE/ PgVU/17	Course name: Pedagogy for University Teachers
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 28s Course method: distance, present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: 1. Development of a teaching diary—100% 2. Compulsory active participation and attendance in accordance with the Study Regulations.	
Learning outcomes: Students will be able to: Apply didactic principles, methods, forms, and tools in the teaching of a specialised subject. Specify the educational procedures of a university teacher in subject teaching, pedagogical diagnostics, evaluation of learning outcomes, and self-reflection. Present rationalisation and streamlining possibilities in the teaching of specialised subjects. Apply educational competencies of university teachers taking into account the peculiarities of educating university students.	
Brief outline of the course: The personality of a university teacher. Teaching styles. Student in university education. Student learning styles. Possibilities of adapting teaching styles and student learning styles. University teacher–student interaction and communication in the teaching process. Pedagogical competencies of a university teacher. Didactic analysis of the curriculum; teaching materials and textbooks. Forms of university teaching. Methods of university teaching. Verification methods and student assessment. Creation of a didactic test. Designing university teaching process. University teacher self-reflection.	
Recommended literature: Čapek, R. (2015). Moderní didaktika. Lexikon výukových a hodnoticích metod. Praha, Grada Publishing, a.s. Danek, J. (2014). Pedagogická komunikácia na vysokej škole. Trnava, Univerzita sv.Cyrila a Metoda v Trnave. Dargová, J. (2001). Tvorivé kompetencie učiteľa. Prešov, Privat Press. Dvořáček, J. (2014). Základy pedagogiky. Praha, Oeconomica. Hupková, M., Petlák, E. (2004). Sebareflexia a kompetencie v práci učiteľa. Bratislava, IRIS. Kyriacou, CH. (1996). Klíčové dovednosti učitele. Praha, Portál. Mertin, V. a kol. (2012). Metody a postupy poznávání žáka: pedagogická diagnostika. Praha, Wolters Kluwer. Petty, G. (2013). Moderní vyučování. Praha, Portál.	

Prucha, J. (2013). Moderní pedagogika. Praha, Portál.
 Sirotová, M. (2014). Vysokoškolský učiteľ v edukačnom procese. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
 Slávik, M. a kol. (2012). Vysokoškolská pedagogika. Praha, Grada.
 Šebeň Zaťková, T. (2014). Úvod do vysokoškolskej pedagogiky. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.
 Turek, I. (2014). Didaktika. Bratislava, Wolters Kluwer, s.r.o.
 Zormanová, L. (2014). Obecná didaktika. Praha, Grada.

Course language:

slovak

Notes:

Course assessment

Total number of assessed students: 120

abs	n	neabs
98.33	0.0	1.67

Provides: doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 12.03.2024

Approved: prof. Dr. Yaroslav Bazel', DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ POPV/22	Course name: Popularisation of science
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Active involvement in the popularization of science.	
Learning outcomes: Demonstrated ability to present science to the lay public, use interactive methods of scientific communication, identify the target group and adapt the communication language to the level of professional knowledge. A PhD student is able to arouse interest and motivate specific target groups in the field of his scientific work, but also in the wider context of science	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 16	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VYS/22	Course name: Presentation in Seminar
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Presentation at the seminar	
Learning outcomes: By actively participating in the seminar, the PhD student demonstrates the ability to identify, evaluate, and apply correct scientific methods or research methodology in his field of study. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence in using existing theories and concepts in an innovative way, as well as generating new original scientific knowledge and communicating research results by adequate means and through Slovak or a foreign language	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 4	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZRIG/22	Course name: Principal investigator of an internal grant (VVGS)
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Principal investigator of an internal grant (VVGS)	
Learning outcomes: The PhD student demonstrates the ability to process a successful application for his own research problem within the internal grant system at UPJŠ. Acquires skills with the design of research stages, their time schedule, measurable outputs and adequate distribution of funds. The very solution of the internal VVGS grant acquires the ability to implement the project intention according to the established procedure, to be responsible for achieving the set outputs. As a responsible researcher, the PhD student acquires competencies in project management, its administration, and presentation of results.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 10	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PsVU/17	Course name: Psychology for University Lecturers
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 28s Course method: distance, present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Case study, micro-output, its analysis Current modifications of the course are listed in the electronic bulletin board of the course.	
Learning outcomes: After completing the course, students can: and Understand, summarize and explain selected psychological knowledge from cognitive psychology, emotion and motivation psychology, personality psychology, developmental, social, educational psychology and health psychology. b) apply the above psychological knowledge necessary for the professional, competent performance of university teaching practice of doctoral students c) to create and implement the teaching of a professional topic with applied psychological knowledge d) evaluate their performance and the performance of their classmates, provide feedback	
Brief outline of the course: The content of the course is based on selected psychological knowledge of cognitive psychology, psychology of emotions and motivation, personality psychology, developmental, social, educational psychology and health psychology. Teaching is realized by a combination of lectures with interactive, experiential methods, discussion, open communication with mutual respect, support of independence, activity and motivation of students. Syllabus: University teacher and his work in the teaching process with a focus on: teachers in relation to themselves (cognitive, personal, social and competencies in the use of methods), in relation to students and as part of the teacher-student relationship on the basis of selected areas of cognitive psychology, psychology of emotions and motivation, developmental psychology, social psychology, educational psychology and health psychology with application to the university environment	
Recommended literature: Alexitch, L. R. (2005). Applying social psychology to education. Social Psychology.–Ed.: Schneider F., Gruman J., Coutts L.–Sage Publications, Inc, 205-228. Fry, H., Ketteridge, S., & Marshall, S. (2008). A handbook for teaching and learning in higher education: Enhancing academic practice. Routledge. Mareš, J.: Pedagogická psychologie. Portál, 2013.	

Kniha psychologie. Universum, 2014 Čáp, J., Mareš, J.: Psychologie pro učitele. Praha: Portál 2007. Vágnerová, M.: Školní poradenská psychologie pro pedagogy. Praha: Karolínium 2005.		
Course language: slovak		
Notes:		
Course assessment Total number of assessed students: 87		
abs	n	neabs
98.85	0.0	1.15
Provides: PhDr. Anna Janovská, PhD.		
Date of last modification: 24.06.2022		
Approved: prof. Dr. Yaroslav Bazel', DrSc.		

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q1SA/22	Course name: Q1 journal as co-author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 30	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q1 as co-author.	
Learning outcomes: By publishing in a journal of category Q1 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q11A/22	Course name: Q1 journal as first or corresponding author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 40	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q1 as first or corresponding author.	
Learning outcomes: By publishing in a journal of category Q1 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 2	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q2SA/22	Course name: Q2 journal as co-author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q2 as co-author.	
Learning outcomes: By publishing in a journal of category Q2 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 4	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q21A/22	Course name: Q2 journal as first or corresponding author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 30	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q2 as first or corresponding author.	
Learning outcomes: By publishing in a journal of category Q2 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 11	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q3SA/22	Course name: Q3 journal as co-author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q3 as co-author.	
Learning outcomes: By publishing in a journal of category Q3 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 5	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q31A/22	Course name: Q3 journal as first or corresponding author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 25	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q3 as first or corresponding author	
Learning outcomes: By publishing in a journal of category Q3 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 3	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q4SA/22	Course name: Q4 journal as co-author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q4 as co-author.	
Learning outcomes: By publishing in a journal of category Q4 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ Q41A/22	Course name: Q4 journal as first or corresponding author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Publication accepted in a journal of category Q4 as first or corresponding author.	
Learning outcomes: By publishing in a journal of category Q4 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ RZ/22	Course name: Reviewed International or Local Proceedings
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: A publication published in a peer-reviewed foreign or national proceedings as an author/co-author.	
Learning outcomes: By publishing in a peer-reviewed foreign or national journal as an author/co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 46	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SCI/22	Course name: SCI Citation
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Obtained citation registered in SCI or Scopus.	
Learning outcomes: Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 13	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VPZ/22	Course name: Scientific work after sending to the editorial office
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Scientific work after being sent to the editorial office as an author/co-author.	
Learning outcomes: By sending a manuscript to the editors of a scientific journal as an author/co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to formulate his own ideas in a structured form.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 2	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: Dek. PF UPJŠ/JSD/14	Course name: Spring School for PhD Students
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 4d Course method: distance, present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Active participation in the Spring School of PhD students of UPJŠ.	
Learning outcomes: By actively participating in the Spring School of PhD Students of UPJŠ, the PhD student demonstrates a high level of ability to process the issues of his dissertation for a multidisciplinary audience with an emphasis on clarifying the motivation, scientific problem, processing methodology and own contribution to the solution of the selected topic. The PhD student demonstrates the ability to professionally discuss various research topics, present his own positions and accept a plurality of opinions. Demonstrates the ability to communicate research results to a wider professional audience with adequate means and through the Slovak language.	
Brief outline of the course: 1. Interdisciplinary lectures from the fields of medicine, natural sciences, law, public affairs, humanities. Lecturers - top foreign or national experts from the mentioned fields. 2. Scientific lectures in sections created within related disciplines. Lecturers - top experts from UPJŠ from the mentioned fields. 3. Scientific contributions of PhD students in sections of related fields. 4. Panel discussions on the issue of PhD studies and current trends in the development of scientific disciplines at UPJŠ.	
Recommended literature: Proceedings of the Spring School of Doctoral Students.	
Course language:	
Notes:	
Course assessment Total number of assessed students: 187	
abs	n
100.0	0.0
Provides: doc. RNDr. Marián Kireš, PhD.	

Date of last modification: 08.11.2022
Approved: prof. Dr. Yaroslav Bazel', DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VPSV/22	Course name: Supervision of a Students Scientific Work
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Supervision of Student's Scientific Activity	
Learning outcomes: By guiding a student within the SOČ or ŠVOČ, the PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly propose another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 4	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PPC1/22	Course name: Teaching activities 1 h/s
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Direct teaching activity 1 semester hour	
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 8	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PPC2/22	Course name: Teaching activities 2 h/s
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Direct teaching activity 2 semester hours	
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 9	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PPC3/22	Course name: Teaching activities 3 h/s
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Direct teaching activity 3 semester hours	
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PPC4/22	Course name: Teaching activities 4 h/s
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Direct teaching activity 4 semester hours	
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 7	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ TZAC3/05	Course name: Theoretical basics of analytical chemistry
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28 Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course: 1.	
Course level: III.	
Prerequisites:	
Conditions for course completion: Written work.	
Learning outcomes: To expand and deepen knowledge about the theoretical foundations of modern analytical chemistry.	
Brief outline of the course: Analytical chemistry. Relationship between analytical chemistry and other scientific branches. History of analytical chemistry. Problems and trends in recent analytical chemistry. Objects of analysis. Instrumental equipment of a modern analytical laboratory. Research analytical chemistry and analytical practice. Validation of analytical methods. Factors important to bear in mind when choosing a proper method. Reasons of improper analytical results. Modern, highly selective methods of analysis. Speed and factors affecting the speed of analysis. Test and screening methods. Field analysis. Primary X-ray spectrometry, microprobe. Non-destructive methods of analysis, principle, utility. Distance analysis. Automation of analysis, examples. Flow analysis – FIA and SIA. Miniaturization of analytical measurements. Economic aspects of analysis. Analytical reaction, chemical equilibrium in solutions. Gravimetric. Volumetric. Instrumental methods of qualitative and quantitative determination of analytes. Absorption and emission spectroscopy, UV-VIS spectrometry, fluorescence and phosphorescence spectrophotometry, emission and atomic absorption spectroscopy, infrared spectrometry, Raman spectroscopy, Roentgen spectroscopic methods, radiochemical methods, NMR spectroscopy, mass spectrometry. Electroanalytical methods (voltamperometry, potentiometry, electroseparation, coulometry and conductometry). Thermal analysis. Kinetic methods of analysis. Separation methods. Microextraction techniques (DLLME, SDME, SPME). Gas chromatography. Liquid chromatography, TLC, HPLC.	
Recommended literature: 1. D. Harvey, Modern Analytical Chemistry, 2000, McGraw-Hill Companies, Inc. 2. D. Harvey D. Analytical Chemistry 2.1. LibreText. 2021. 3. H.H. Willard, L.L. Merritt, J.A. Dean, F.A. Settle, Instrumental Methods of Analysis, 1988, Wadsworth Publ. Co. 4. A. Rios, A. Escarpa, B. Simonet, Miniaturization of Analytical Systems, 2009, John Wiley & Sons, Ltd. 5. J. Ružicka, E. Hansen, Flow Injection Analysis, 1988, John Wiley & Sons.	

6. J. Dean, Extraction Techniques in Analytical Sciences, 2009, John Wiley & Sons.	
7. Current journal literature.	
Course language: Slovak, English.	
Notes:	
Course assessment Total number of assessed students: 30	
N	P
0.0	100.0
Provides: prof. Dr. Yaroslav Bazel', DrSc.	
Date of last modification: 28.10.2021	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ KZP/22	Course name: Thesis consultant
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Final thesis consultant.	
Learning outcomes: By consulting the final thesis, the PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly propose another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 30	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ VZP/22	Course name: Thesis supervising
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 8	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Supervisor of the final thesis.	
Learning outcomes: By supervising the final thesis, the PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly propose another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 1	
abs	n
100.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PDS/22	Course name: Writing Dissertation Work
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present	
Number of ECTS credits: 20	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisites:	
Conditions for course completion: Obtaining the required number of credits in the prescribed composition according to the UPJŠ study regulations, preparation and defense of the thesis, successfully completed dissertation examination.	
Learning outcomes: The PhD student demonstrated the prerequisites for successful continuation of the study by fulfilling the conditions prescribed by the study regulations for the study and scientific part of the doctoral study related to the topic of the dissertation.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 8	
N	P
0.0	100.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. Dr. Yaroslav Bazel', DrSc.	