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University: P. J. Šafá	rik University in Košice						
Faculty: Faculty of Science							
Course ID: CJP/ PFAJAKA/07	Course name: Academic English						
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent						
Number of ECTS cr	edits: 2						
Recommended seme	ster/trimester of the course:						
Course level: I.							
Prerequisities:							
Conditions for cours Active classroom par 1 test (13th week), no Presentation on chose Final evaluation- ave Grading scale: A 93-	ticipation, assignments handed in on time, 2 absences tolerated o retake. en topic rage assessment of test (50%), and presentation (50%). 100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less						
Learning outcomes: The development of so of their linguistic cor syntactic aspects, dev for a given purpose, v	students' language skills - reading, writing, listening, speaking, improvement npetence - students acquire knowledge of selected phonological, lexical and relopment of pragmatic competence - students can effectively use the language with focus on Academic English, level B2.						
Brief outline of the c Formal and informal Academic English an Key academic verbs a Linking words in aca Word-formation - aff abstract Selected aspects of E Selected functional a paraphrasing	ourse: English Id its specific features and nouns demic writing, writing a paragraph, word-order, topic sentences ixation nglish pronunciation, academic vocabulary grammar structures - defining, classifying, epressing opinion, cause-effect,						
Recommended litera Seal B.: Academic En T. Armer :Cambridge M. McCarthy M., O' Zemach, D.E, Rumis Olsen, A. : Active Vo www.bbclearningeng Cambridge Academic	ncounters, CUP, 2002 English for Scientists, CUP 2011 Dell F Academic Vocabulary in Use, CUP 2008 ek, L.A: Academic Writing, Macmillan 2005 ocabulary, Pearson, 2013 lish.com c Content Dictionary, CUP, 2009						

Course language: English language, level B2 according to CEFR.								
Notes:								
Course assessment Total number of assessed students: 435								
А	A B C D E FX							
36.09 22.3 14.94 9.89 5.75 11.03								
Provides: Mgr. Viktória Mária Slovenská								
Date of last modification: 11.09.2024								
Approved: RN	Dr. Miroslava Ma	atiková Maľarová	i, PhD.					

University: P. J.	Šafárik	Universi	ity in Košice					
Faculty: Faculty	Faculty: Faculty of Science							
Course ID: ÚC ANCHU/21	Course ID: ÚCHV/ Course name: Analytical Chemistry ANCHU/21							
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present								
Number of ECTS credits: 5								
Recommended	semeste	r/trimes	ter of the course	e:				
Course level: I.								
Prerequisities:								
Conditions for 1. 3x test of ana 2. Examination	course c ollytical can be composed as a composed of the compo	ompletion alculation osed of 3	on: ns (each 33%, m questions (each	inim. 50%). for 33%, it is 1	necessary to reach	at least 50%).		
Learning outcomes: Survey of basic principles and tasks of analytical chemistry and applications of analytical methods in research and practice.								
 Brief outline of the course: Subject and role of analytical chemistry. General principles and procedures - sampling, sample pretreatment. Preparation of solutions. Evaluation of the results. Classification of analytical reactions. Qualitative analysis of cations and anions. Basic principles of organic analysis. Methods of quantitative analysis. General principles of gravimetry. Volumetric analysis. Instrumental methods of analytical chemistry (basic principles, instrumentaion and applications) - electroanalytical, optical and separation methods. 								
Recommended literature: D.Harvey, Modern Analytical Chemistry. McGraw Hill, Boston, 2000 Skoog D.A., Principles of Instrumental Analysis. Saunders Col. Publishing, New York 1985								
Course languag	ge:							
Notes:	Notes:							
Course assessment Total number of assessed students: 101								
А	В	3	С	D	E	FX		
30.69	17.	82	20.79	19.8	6.93	3.96		
Provides: doc. I	RNDr. Ta	tťána Go	ndová, CSc.					
Date of last mo	dificatio	n: 12.11	.2021					
Approved: RNI	Dr. Miros	slava Ma	tiková Maľarová	i, PhD.				

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Analytická chémia v praxi
Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Analytická chémia v praxi AnCHP/23 Course name: Analytická chémia v praxi
Course ID: ÚCHV/ Course name: Analytická chémia v praxi AnCHP/23 Course name: Analytická chémia v praxi
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: 5
Recommended semester/trimester of the course:
Course level: I.
Prerequisities:
Conditions for course completion:
Learning outcomes:
Brief outline of the course:
Recommended literature:
Course language:
Notes:
Course assessment Total number of assessed students: 0
A B C D E FX
0.0 0.0 0.0 0.0 0.0
Provides: prof. Mgr. Vasil' Andruch, DSc.
Date of last modification: 18.12.2023
Approved: RNDr. Miroslava Matiková Maľarová, PhD.

University: P. J	. Šafárik Univers	sity in Košice					
Faculty: Facult	y of Science						
Course ID: ÚC BPO/21	Course ID: ÚCHV/ Course name: Bachelor Thesis and its Defence BPO/21						
Course type, sc Course type: Recommended Per week: Per Course metho	ope and the met d course-load (h r study period: d: present	thod: ours):					
Number of EC	TS credits: 4						
Recommended	semester/trimes	ster of the cours	e:				
Course level: I.							
Prerequisities:							
Conditions for	course completi	ion:					
Learning outco	omes:						
Brief outline of Oral presentation the state examine	the course: on of the thesis r nation board.	esults. Answerin	g questions of t	he thesis oponen	it or members of		
Recommended	literature:						
Course languag slovak	ge:						
Notes:							
Course assessm Total number of	ent f assessed studen	ıts: 27					
A	В	С	D	E	FX		
88.89	11.11	0.0	0.0	0.0	0.0		
Provides:							
Date of last mo	dification: 07.12	2.2021					
Approved: RNI	Dr. Miroslava Ma	atiková Maľarová	á, PhD.				

University, F. J. Salarik University in Rusice	University:	P. J.	Šafárik	University	v in Košice
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Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Basic Principles of Medicinal Chemistry
FMZ/04	

Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present

Number of ECTS credits: 3

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Exam: Two written tests 2 x 50 pts., one test in the middle of the semester, the other in the examination period. A minimum of 26 points must be obtained in each test.

A 100 pts in total.

Assessment A: 91-100; B: 81-90; C: 71-80; D: 60-71; E: 51-60; FX: 0-50 pts.

Learning outcomes:

The student will acquire knowledge of the fundamental conceptions of medicinal chemistry, understanding of structure-activity relationships including space structure and chirality and their consequences on chemical and physico-chemical properties influencing biological activity. Gaining knowledge of the present state in the field of selected important groups of drugs, such as antibacterial, antiviral or antitumor drugs.

Brief outline of the course:

Introduction, classification of drugs, factors influencing design and activity of drugs of the third generation, drug chirality, search for new drugs, structure-activity relationships, antibacterial compounds, antitumor compounds, antiviral compounds, disinfectants, antitussives and expectorants.

- 1. The essence, subject and goal of medicinal chemistry
- 2. Factors influencing design and activity of drugs
- 3. Drug chirality
- 4. Search for new drugs
- 5. Structure-activity relationships
- 6. Chemotherapeutics of central and peripheral nervous system
- 7. Antibacterial compounds
- 8. Antitumor compounds
- 9. Antiviral compounds
- 10. Psychotropic drugs
- 11. Disinfectants
- 12. Antitussives and expectorants

Recommended literature:

1. Medicinal Chemistry: Principles and Practice, King F. D., Ed., The Royal Society of Chemistry, Thomas Graham House, Cambridge, 1994.

Advances in Drug Discovery Techniques: Harvey A. L., Ed., Wiley & Sons, Chichester, 1998.
 Thomas G.: Medicinal Chemistry: An introduction. John Willey & Sons, 2000.

Course language: Slovak

Notes:

Teaching is carried out in person or, if necessary, online using the BBB (BigBlueButton) tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 230

А	В	С	D	Е	FX
40.0	22.17	18.26	10.43	8.26	0.87

Provides: doc. RNDr. Mariana Budovská, PhD.

Date of last modification: 21.07.2022

University P I Ša	fárik Univers	ity in Košice			
Faculty: Faculty of	Science				
Course ID: ÚCHV ZNCH/21	/ Course na	me: Basics of na	anochemistry		
Course type, scope Course type: Lec Recommended co Per week: 2 / 1 Pe Course method: p	e and the met cure / Practice ourse-load (h er study peri present	thod: ; ours): od: 28 / 14			
Number of ECTS	credits: 4				
Recommended ser	nester/trimes	ster of the cours	e:		
Course level: I.					
Prerequisities:					
Conditions for cou	rse completi	on:			
Learning outcome	s:				
Brief outline of the	e course:				
Recommended lite	rature:				
Course language:					
Notes:					
Course assessment Total number of as	sessed studen	ts: 0			
A	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: prof. RN	Dr. Vladimír	Zeleňák, DrSc.		1	L
Date of last modifi	cation: 21.11	.2021			
Approved: RNDr.	Miroslava Ma	atiková Maľarová	á, PhD.		

University: P. J.	. Šafár	ik Univers	ity in Košice				
Faculty: Faculty	y of So	cience					
Course ID: ÚC MINU/03	Course ID: ÚCHV/ Course name: Basis of Mineralogy MINU/03						
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present							
Number of EC	ГS cre	edits: 5					
Recommended	semes	ster/trimes	ster of the cours	e:			
Course level: I.							
Prerequisities: or ÚCHV/VACI	ÚCHV 1 /10 o	V/VCHU/1 r ÚCHV/C	0 or ÚCHV/VCH HG/09 or ÚCHV	HU/14 or ÚCHV/ //ZCF/03	/VCHU/15 or ÚC	CHV/ZAC2/10	
Conditions for Verification of t Semester project	cours heore	e completi tical knowl ctical test f	on: edge and recogn rom recognizing	izing minerals. of minerals, opti	onal oral examin	ation.	
Learning outcomes: To recognize the beauty of nature and to obtain basic knowledge from mineralogy. To familiarize students with properties of usual minerals and to recognize these minerals.							
Brief outline of the course: Basic terms and definitions, origin of minerals in nature. Basis of morphological and structural crystallography: characteristic properties of crystals, crystallographic laws, crystal structure, unit cells and their parameters, crystallographic systems with examples of minerals. Crystallochemistry: types of bonds and structures and their effect on the properties of minerals. Physical properties of minerals and their utilize in minerals classification. Basis of genetic and systematic mineralogy. Structure of silicates							
Recommended literature: M. Košuth: Mineralógia. Elfa, s.r.o. Košice, 2001 V. Radzo: Mineralógia, Alfa Bratislava, 1987.							
Course language: Slovak							
Notes:							
Course assessm Total number of	Course assessment Total number of assessed students: 40						
А		В	С	D	Е	FX	
67.5		25.0	7.5	0.0	0.0	0.0	
Provides: doc. 1	RNDr.	Ivan Poto	čňák, PhD.				
Date of last mo	difica	tion: 03.05	5.2015				

University: P. J. Šafá	rik University in Košice					
Faculty: Faculty of S	Science					
Course ID: ÚCHV/ BVT/21	Course ID: ÚCHV/ BVT/21Course name: Battery and hydrogen technologies					
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 1 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present					
Number of ECTS credits: 5						
Recommended semester/trimester of the course:						
Course level: I.						
Prerequisities:						

Conditions for course completion:

1. Participation in seminars (also applies to the online form of teaching) and laboratory practical exercises. Students are required to attend seminars and laboratory exercises. The relevant teacher who leads the seminar will justify the reasoned absence of the student (incapacity for work, family reasons, etc.) in a maximum of two seminars or laboratory exercises during the semester without the need for replacement. In the event of a longer-term reasoned absence (for example due to incapacity for work), the relevant teacher will provide the student with an alternative form of mastering the missed material;

2. Activity at seminars and laboratory practical exercises. The preparation of students and their regular monitoring is always assessed by the relevant teacher who conducts the seminar or laboratory exercise, within his/her competence.

3. The exam is observed in a regular oral form, resp. in case of restrictions of contact forms of the pedagogical process, the exam is performed by a suitable distance - electronic form.

4. To successfully master the subject, it is necessary to prove mastery of the required curriculum at least 51%.

Learning outcomes:

Students will gain knowledge and skills on battery and hydrogen technologies for a low-carbon economy.

Brief outline of the course:

Description of primary and secondary batteries and their role in the energy system: different battery types, concepts describing the storage capabilities of batteries in context of both energy and power, advantages and disadvantages. How an electric power system can affect the operation of a battery, for example, in a vehicle or for large scale storage. Different cathode and anode materials, electrolytes, additives in Li-ion batteries. Description of other hybrid storage systems: water power, flywheels, supercapacitors, fuel cells, etc. Calculation of capacity, efficiency, state of charge, Li diffusion rate, etc.

Hydrogen technologies, hydrogen as an energy carrier, transition to a low-carbon economy, hydrogen valleys, hydrogen production, storage and distribution of hydrogen, electrolysis, fuel cell. Use of hydrogen as an energy storage, to power cars, for industry, buildings and households. Principle and types of electrolyzers.

Principle and types of fuel cells.

Recommended literature:

Course language:

Slovak language.

Notes:

Teaching is carried out in person or, if necessary, remotely using the bbb or MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 7

А	В	С	D	Е	FX
71.43	28.57	0.0	0.0	0.0	0.0

Provides: prof. RNDr. Renáta Oriňaková, DrSc., prof. RNDr. Andrej Oriňak, PhD., doc. RNDr. Andrea Straková Fedorková, PhD., RNDr. Ivana Šišoláková, PhD., univerzitná docentka

Date of last modification: 25.11.2021

University: P. J. Šafărik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Bezpečnostné predpisy v chémii BPR/23 Course name: Bezpečnostné predpisy v chémii Course type, scope and the method: Course type, Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study periol: 28 / 0 Study periol: 28 / 0 Number of ECTS credits: 3 Recommended semester/trimester of the course: Study periol: 28 / 0 Recommended semester/trimester of the course: Course lavel: 1. Study periol: 28 / 0 Prerequisities: Study periol: 28 / 0 Study periol: 28 / 0 Study periol: 28 / 0 Course level: 1. E Study periol: 28 / 0 Study periol: 28 / 0 Study periol: 28 / 0 Course language: Study periol: 28 / 0 Course language:							
Faculty: Faculty of Science Course ID: ÚCHV/ BPR/23 Course name: Bezpečnostné predpisy v chémii BPR/23 Course name: Bezpečnostné predpisy v chémii Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study period: 28 / 0 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: Recommended semester/trimester of the course: Course lavel: 1. Prerequisities: Conditions for course completion: Learning outcomes: Recommended literature: Course language: Recommended literature: Notes: Course assessent students: 0 A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Recommended literature: C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0<	University: P. J.	Šafárik Univers	ity in Košice				
Course ID: ÚCHV/ BPR/23 Course name: Bezpečnostné predpisy v chémii BPR/23 Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study period: 28 / 0 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: Course level: I. Prerequisities: Prerequisities: Conditions for course completion: Image: Course level: I. Brief outline of the course: Image: Course level: I. Recommended literature: Image: Course language: Notes: Image: Course language: Notes: Image: Course language: A B C D A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 A B C D E FX 0.0	Faculty: Faculty	of Science					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 0 Per study period: 28 / 0 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: Course level: I. Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature: Course language: Notes: Course assessment Total number of assessed students: 0 A B C A B C 0.0 0.0 0.0 0.0 Outoes: RNDr. Rastislav Serbin, PhD. D E Date of last modification: 18.12.2023 Annraved: RNDr. Miroslava Matiková Maľarová. PhD	Course ID: ÚCH BPR/23	Course ID: ÚCHV/ Course name: Bezpečnostné predpisy v chémii 3PR/23					
Number of ECTS credits: 3Recommended semester/trimester of the course:Course level: I.Prerequisities:Conditions for course completion:Learning outcomes:Brief outline of the course:Recommended literature:Course language:Notes:Course assessmentTotal number of assessed students: 0ABCDEFX0.00.00.00.00.00.0Provides: RNDr. Rastislav Serbin, PhD.Date of last modification: 18.12.2023Annraved: RNDr. Miroslava Matiková Maľarová PhD	Course type, sco Course type: Lo Recommended Per week: 2 / 0 Course method	pe and the met ecture / Practice course-load (h Per study perio : present	thod: ours): od: 28 / 0				
Recommended semester/trimester of the course: Course level: I. Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Brief outline of the course: Course language: Recommended literature: Course language: Notes: Course assessed students: 0 A B C D E FX A B C D E FX 0.00 One of last modification: 18.12.2023	Number of ECT	S credits: 3					
Course level: I. Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature: Course language: Notes: Course assessment Total number of assessed students: 0 A B C A B C O.0 0.0 0.0 0.0 Provides: RNDr. Rastislav Serbin, PhD. E FX Date of last modification: 18.12.2023 Annroved: RNDr. Miroslava Matiková Maľarová PhD	Recommended s	emester/trimes	ster of the cours	e:			
Prerequisities:	Course level: I.						
Conditions for course completion:Learning outcomes:Brief outline of the course:Recommended literature:Course language:Course language:Total number of assessed students: 0A B C D E FXO.00.00.0O.0O.0O.0D.Date of last modification: 18.12.2023Anproved: RNDr. Miroslava Matiková Maľarová PbD	Prerequisities:						
Learning outcomes:Brief outline of the course:Recommended literature:Course language:Notes:Course assessment Total number of assessed students: 0ABCDEFX0.00.00.00.00.00.0Provides: RNDr. Rastislav Serbin, PhD.Date of last modification: 18.12.2023	Conditions for c	ourse completi	on:				
Brief outline of the course: Recommended literature: Course language: Notes: Course assessment Total number of assessed students: 0 A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 Provides: RNDr. Rastislav Serbin, PhD. Date of last modification: 18.12.2023	Learning outcom	nes:					
Recommended literature: Course language: Notes: Course assessment Total number of assessed students: 0 A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 Provides: RNDr. Rastislav Serbin, PhD. Date of last modification: 18.12.2023	Brief outline of t	the course:					
Course language: Notes: Course assessment Total number of assessed students: 0 E A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Provides: RNDr. Rastislav Serbin, PhD. Date of last modification: 18.12.2023	Recommended l	iterature:					
Notes: Course assessment Total number of assessed students: 0 A B C D E FX 0.0 0.0 0.0 0.0 0.0 0.0 Provides: RNDr. Rastislav Serbin, PhD. Date of last modification: 18.12.2023 PhD	Course language	2.					
Course assessment Total number of assessed students: 0ABCDEFX0.00.00.00.00.00.00.0Provides: RNDr. Rastislav Serbin, PhD.Date of last modification: 18.12.2023Annroyed: RNDr. Miroslava Matiková Maľarová PhD	Notes:						
ABCDEFX0.00.00.00.00.00.00.0Provides: RNDr. Rastislav Serbin, PhD.Date of last modification: 18.12.2023Annroyed: RNDr. Miroslava Matiková Maľarová PhD	Course assessme Total number of	ent assessed studen	ts: 0				
0.00.00.00.00.0Provides: RNDr. Rastislav Serbin, PhD.Date of last modification: 18.12.2023Approved: RNDr. Miroslava Matiková Maľarová PhD	A	В	С	D	Е	FX	
Provides: RNDr. Rastislav Serbin, PhD. Date of last modification: 18.12.2023 Approved: RNDr. Miroslava Matiková Maľarová. PhD.	0.0	0.0	0.0	0.0	0.0	0.0	
Date of last modification: 18.12.2023 Approved: RNDr. Miroslava Matiková Maľarová. PhD	Provides: RNDr.	Rastislav Serbi	in, PhD.		l	<u>I</u>	
Approved: RNDr. Miroslava Matiková Maľarová, PhD	Date of last mod	ification: 18.12	2.2023				
The store is the interval interval interval in the second state is	Approved: RND	r. Miroslava Ma	atiková Maľarová	i, PhD.			

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Biochemistry
BCHU/21	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/VCHU/10 or ÚCHV/VCHU/15 or ÚCHV/VACH/10 or ÚCHV/VCHU/14

Conditions for course completion:

Successful completion of the exam, which consists of two parts: (i) written and (ii) oral part. The student passes the exam if he / she obtains at least 60% of the points in the written part and at the same time adequately answers the asked questions in the oral part.

Learning outcomes:

Gain knowledge of: (i) the basic building blocks of biomacromolecules (proteins, DNA, RNA, fats and sugars) and their properties, (ii) the basic biochemical processes that take place in living organisms, (iii) the way energy is produced and used in cells.

Brief outline of the course:

1. Protein Structure and Function, Exploring proteins.

- 2. DNA and RNA and the Flow of Genetic Information, Exploring genes.
- 3. Enzymes: Basic Concepts and Kinetics, Catalytic Strategies and Regulatory Strategies.
- 4. Carbohydrates (Monosaccharides, Disaccharides, Polysaccharides Functions and Properties).
- 5. Lipids and Cells Membranes, Membrane Channels and Pumps.
- 6. Metabolis: Basic Concepts and Design, Signal-Transduction Pathways.
- 7. Glycolysis and Gluconeogenesis, Glycogen Metabolism.
- 8. The Citric Acid Cycle and Glyoxylate Cycle.
- 9. Oxidative Phosphorylation, The Light Reactions of Photosyntesis.
- 10. The Calvine Cycle and the Pentose Phosphate Pathway.
- 11. Fatty Acids Metabolism, Urea Cycle.
- 12. DNA Replication, Transcription (RNA Synthesis).
- 13. Protein Synthesis & Degradation, the Integration of Metabolism.

Recommended literature:

Course language:

Notes:

Course assessment Total number of assessed students: 106						
A B C D E FX						
29.25	13.21	13.21	18.87	19.81	5.66	
Provides: prof. RNDr. Erik Sedlák, DrSc., RNDr. Nataša Tomášková, PhD., prof. RNDr. Mária Kožurková, CSc., Mgr. Mária Tomková, PhD.						
Date of last modification: 14.11.2021						
Approved: RN	Approved: RNDr. Miroslava Matiková Maľarová, PhD.					

University	P 1	I Šafárik	University	in Košice
University.	F. J	J. Salalik	University	III KUSICE

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Biochemistry Practical
PBC1/00	

Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 6 Per study period: 84 Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/BCH1a/03 or ÚCHV/BCH1a/21

Conditions for course completion:

Active participation with a maximum of one excused absence without the need for compensation. In case of excused absence from two or more practical exercises (e.g. due to illness), the student agrees with the teacher on alternative dates for practice.

Correctly prepared protocols from all completed tasks.

At least 51% of points from each of the written tests.

Learning outcomes:

To allow students to get practical experience in experimental techniques and methods, currently used in a biochemical research: UV/VIS spectrophotometry, thin layer chromatography (TLC), gel electrophoresis, isolation of macromolecules and substances from biological materials and their quantitative and qualitative determination.

Brief outline of the course:

1. Biochemistry laboratory safety rules. Basic biochemical laboratory procedures.

- 2. Qualitative tests for amino acids and proteins.
- 3. Isolation of casein from milk. Determination of protein concentration by Lowry method.

4. Determination of the iodine number by Yasud method . Soap production. Reactions with soap. Oxidation of unsaturated fatty acids.

5. Saponification number of fats and oils. Qualitative test for cholesterol: Salkowsky reaction.

6. Qualitative tests for carbohydrates. Determination of reducing carbohydrates by the Schoorl's method.

7. Determination of reducing and nonreducing carbohydrates in germinant plants.

8. Time-dependent course of enzyme-catalyzed reaction: digestion of gelatin by trypsine.

9. Determination of catalase activity and the first order rate constant. Effect of pH on alpha-amylase activity.

10. Effect of substrate concentration on initial rate of reaction, determination of Km and Vmax for urease-catalyzed hydrolysis of urea.

11. Isolation of DNA from spleen. Isolation of RNA from yeast. Qualitative tests for DNA and RNA components.

12. Determination of vitamin C concentration by 2,4-dinitrofenylhydrazine. Determination of vitamins A, B1, and C.

13. Final evaluation of students.

Recommended literature:

Sedlák, Varhač, Danko, Paulíková, Podhradský: Praktické cvičenia z biochémie, 2020, https://unibook.upjs.sk/sk/chemia/1411-prakticke-cvicenia-z-biochemie

Course language:

Slovak

Notes:

Teaching is carried out in person.

Course assessment

Total number of assessed students: 492

А	В	С	D	Е	FX
55.28	27.44	10.16	5.49	1.22	0.41

Provides: prof. RNDr. Mária Kožurková, CSc., RNDr. Nataša Tomášková, PhD., doc. RNDr. Rastislav Varhač, PhD., RNDr. Danica Sabolová, PhD., univerzitná docentka, RNDr. Lukáš Trizna, PhD.

Date of last modification: 19.11.2021

University: P. J	. Šafárik Un	iversity in Košice				
Faculty: Facult	y of Science					
Course ID: ÚC BAC1/04	HV/ Cour	se name: Bioinorga	nic Chemistry I			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present						
Number of EC	TS credits:	5				
Recommended	semester/ti	imester of the cour	se:			
Course level: I.	, II.					
Prerequisities:						
Conditions for Test or seminar examination	course com works	pletion:				
Learning outco The basic know biocatalysis, mo metals in the en	mes: vledges abo etals in biolo vironment.	ut biometal interacti ogy and medicine, m	ons with biomoleonetal-based drugs,	cules, biomateria toxic metals for	ls, biominerals, biosystems and	
Brief outline of Metalic and non elements, esse Oxygen carrier processes. Calc bioinorganic ch radiodiagnostic	Brief outline of the course: Metalic and non-metalic elements and their roles in biological systems (biometals, bulk biological elements, essential trace elements). Biocoordination compounds, bioligands. Biocatalyzers. Oxygen carriers and oxygen transport proteins. Photochemical process. Catalysis and regulation processes. Calcium biominerals and biomineralization.Toxic metals. Application of knowledge of bioinorganic chemistry in pharmacy, chemotherapy (e.g. platinum complexes in cancer therapy) radiadiagnestias minarel biotechnology acalegy and in other branches of life					
Recommended 1. Shriver D. F. Atkins. Inorgan 2. Kaim W., Sch Life. Wiley, Ch 3. Wilkins P. C.	literature: , Atkins P. V ic Chemistr hwederski E ichester 199 , Wilkins R.	V., Overton T. L., Ro y. Oxford University 3.: Bioinorganic Cher 8. G.: Inorganic Cher	ourke J.P., Weller M Press, Oxford 20 mistry: Inorganic I histry in Biology. (M.T., Amstrong F 06. Elements in the C DCP, Oxford 199	F.A.: Shiver & Chemistry of 7.	
Course languag	ge:					
Notes:						
Course assessm	nent					
		C	D	F	FY	
41 71	27 77	19.17	5.96	5 18	0.26	
Provides. prof	$\frac{27.72}{\text{RNDr} 7027}$	na Vargová Ph D	5.70	5.10	0.20	
i roviues: prof.	KINDI. ZUZ	illa valgova, Pll.D.				

Date of last modification: 28.10.2021

University: P. J. Ša	afárik Univers	ity in Košice						
Faculty: Faculty of	f Science							
Course ID: ÚCHV BTC/04	Course ID: ÚCHV/ Course name: Biotechnology BTC/04							
Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present								
Number of ECTS	credits: 5							
Recommended ser	nester/trimes	ter of the cours	e:					
Course level: I.								
Prerequisities:								
Conditions for con Written test, from	urse completi which the stuc	on: lent must obtain	at least 51 %.					
Learning outcome Students obtained agriculture, industri	es: the knowledg ry, enviroment	ge of basic bioto tal technologies,	echnological pro food production	ocesses and their and medicine.	applications in			
Characterization o Composition, pre Biogas. Biotechno microorganisms. A organic acids and s antibiotics.	f biotechnolo paration and logical waste Aerobic and a solvents. Isola	gy. Methods of sterilization of treatment. Impo naerobic fermen tion and using of	cultivation and f nutrient soils ortance of carbo tation. Biotechn f amino acids. Pr	preservation of n . Classification hydrates and lipic ological producti roduction of yeast	nicroorganisms. of bioreactors. ds produced by ion of alcohols, t, vitamin C and			
Recommended literature: Z. Vodrážka: Biotechnologie, Academia Praha, 1992. B. Sykita: Biotechnologie pro farmaceuty, FaF UK Praha, 1984. E.M.T. El-Mansi et al, Fermentation microbiology and biotechnology,second edition, 2007. Y.H. Hui, Food biochemistry & food processing, Blackwell Publishing 2006. J.E. Smith, Biotechnology, Cambridge university press 2009.								
Course language: Slovak, English								
Notes:								
Course assessmen Total number of as	t sessed studen	ts: 166						
A	В	С	D	Е	FX			
34.34	28.31	22.89	10.84	3.01	0.6			
Provides: RNDr. D	Danica Sabolo	vá, PhD., univerz	zitná docentka	·				
Date of last modif	ication: 11.01	.2022						

University:	P. J. Šafá	rik University in	n Košice				
Faculty: Fa	culty of S	cience					
Course ID: ZCVU/04	ourse ID: ÚCHV/ Course name: Chemical Engineering CVU/04						
Course typ Course typ Recomme Per week: Course mo	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present						
Recommon	dod somo	stor/trimostor	f the cours	•			
Course leve							
Prerequisit	ies:						
Conditions	for cours	e completion:					
Learning o	utcomes:	<u> </u>					
Brief outlin General an and holdin manufactur Silicate ind	e of the c d Inorgani g; Chemic e (H2SO4 ustry – cet	ourse: c Engineering; cal reactors; Ch , HNO3, HCl, F ment manufactu	Mineral rav nemical met IF, H3PO4); ire, ceramics	v materials; allurgy – F Industrial e ; Petrochem	Raw materia e, Al, Cu w lectrochemist	als processir orking; Ino try; Industria	ng, transport rganic acids al fertilizers;
Recommen	ded litera	ture:					
Course lan	guage:						
Notes:							
Course assessment Total number of assessed students: 22							
А	В	C	D	Е	FX	N	Р
22.73	22.73 54.55 13.64 4.55 0.0 0.0 0.0 4.55						
Provides: p	Provides: prof. RNDr. Zuzana Vargová, Ph.D.						
Date of last	t modifica	tion: 21.01.202	2				
Approved:	RNDr. M	roslava Matiko	vá Maľarová	i, PhD.			

University	Р	ТŠ	Šafárik	Univer	sity	in	Košice
University.	1.	J. K	Jararik	Univers	sity	III .	RUSICC

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Chemical calculations
CHV1/99	

Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Successful completion of two written tests in the middle and at the end of the semester. Accomplished test is with minimal 50% of point. The exact dates will be determined after mutual consultation between the teacher and the students.

The rating scale is determined as follows: A (100-91%), B (90-81%), C (80-71%), D (70-61%), E (60-51%), Fx (50-0%).

Learning outcomes:

To teach students how to calculate material balances in the systems with or without chemical processes and how to calculate examples concerning the chemical equilibrium.

Brief outline of the course:

Expression of the clear matter amount and the system composition. Stoichiometric formula. Material bilances for preparation, dissolving and mixing of solutions, and for separating of mixtures. Material bilances for combined processes. Chemical equations and material bilances in the systems with chemical processes. Acid-Base equilibrium and the pH calculations. The solubility product and solubility.

Recommended literature:

Potočňák I.: Chemické výpočty vo všeobecnej a anorganickej chémii (skriptum), PF UPJŠ, Košice, 2017.

https://unibook.upjs.sk/sk/chemia/843-chemicke-vypocty-vo-vseobecnej-a-anorganickej-chemii Any chemical laboratory tables.

Course language:

SK - slovak

Notes:

The subject is carried out in person or, if necessary, remotely using the online platform Big Blue Button (BBB). The form of teaching is specified by the teacher at the beginning of the semester and updated continuously.

Course assessment Total number of assessed students: 1805							
A B C D E FX							
26.81 19.0 21.99 19.39 11.58 1.22							
Provides: doc. RNDr. Miroslav Almáši, PhD., Mgr. Nikolas Király, PhD.							
Date of last modification: 15.11.2021							
Approved: RN	Approved: RNDr. Miroslava Matiková Maľarová, PhD.						

University: P. J. Safarik University in Kosice

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Cheminformatics II
ISCH1b/03	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28

Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/ISC1a/03 or ÚCHV/ISC1a/00 or ÚCHV/ISVTC/14

Conditions for course completion:

In order to pass this course, each student must complete ALL of the following compulsory requirements: Students may only miss 1 exercise. Students must demonstrate the ability for advanced search in electronic information sources available within the licenced access of the University library and must submit all assignments (6). Students must complete: 2 assignments using scientometric database Scopus and/or Web of Science; 4 assignments using ChemSpider, Protein Data Bank, spectral or crystallographic databases, respectively other factual databases. Students must present a seminar works (3 presentations) within semester using sources of popular science websites and/or standard science portals as well. Students are assigned a grade in the course on the basis of submitted assignments. The final evaluation is assigned on the basis of the mark obtained within all submitted assignments. Students are assigned a grade in the course as follows: 100 - 91% (A), 90 - 81% (B), 80 - 71% (C), 70 - 61% (D), 60 - 51% (E), 50% and less FX. The examination can be extended to written and/or oral test as the examiner may determine.

Learning outcomes:

The student has the skills necessary for searching, sorting and processing scientific information in databases such as Web of Science, Cambridge structural database.... The acquired knowledge and skills should enable them to independently use specialized information sources for the preparation of bachelor theses, projects, diploma theses, etc..

Brief outline of the course:

Science Citation Index (Web of Science). Important scientific and chemical portals on the Internet (ChemWeb, Scopus, ..). Presentations of chem. data in electronic form. Chemical information and web applications. Factual databases - ChemSpider, PubChem, ... Structural databases - CSD, PDB, ...Presentation of seminar work.

Recommended literature:

1. Gasteiger J.(Editor), Engel T.(Editor): Chemoinformatics : A Textbook. John Wiley & Sons, 2004, ISBN 3-527-30681-1

2. Internet resources

Course language:

slovak language and english language

Notes:

In-person course, alternatively online course using the BigBlueButton tool or MS Teams. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

5						
Course assessment						
Total number of assessed students: 110						
A B C D E FX						
99.09	0.0	0.0	0.0	0.91	0.0	
Provides: doc. RNDr. Ivan Potočňák, PhD., doc. RNDr. Ladislav Janovec, PhD.						
Date of last modification: 11.08.2022						
Approved: RN	Approved: RNDr. Miroslava Matiková Maľarová, PhD.					

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚCHV/ Course name: Chémia - štátna skúška CHŠS/23
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: I.
Prerequisities: ÚCHV/VCHU/14 and ÚCHV/PLCV/23 and ÚCHV/OST/23 and ÚCHV/ AANCH/03 and ÚCHV/OCHU/21 and ÚCHV/FCHU/10 and ÚCHV/ACHU/21 and ÚCHV/ BCHU/21 and ÚCHV/ZCVU/04
Conditions for course completion:
Learning outcomes:
Brief outline of the course:
Recommended literature:
Course language:
Notes:
Course assessment Total number of assessed students: 0
A B C D E FX
0.0 0.0 0.0 0.0 0.0 0.0
Provides:
Date of last modification: 19.12.2023
Approved: RNDr. Miroslava Matiková Maľarová, PhD.

University: P. J	. Šafárik Univers	ity in Košice					
Faculty: Facult	y of Science						
Course ID: CJF PFAJKKA/07	CJP/ Course name: Communicative Competence in English						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present							
Number of EC	TS credits: 2						
Recommended	semester/trimes	ster of the cours	e:				
Course level: I.							
Prerequisities:							
Conditions for Active participa two classes at tl 2 credit tests (p Final evaluation Final grade will FX 64 % and le Learning outco Brief outline of Recommended www.bbclearnin Štěpánek, Libon 2011. McCarthy M., C Fictumova J., C	course completi ation in class and he most. resumably in wea n consists of the s be calculated as ess. omes: T the course: literature: ngenglish.com r a kol. Academia D'Dell F.: English ceccarelli J., Lon	on: l completed home eks 6/7 and 12/13 scores obtained fo follows: A 93-10 c English-Akaden n Vocabulary in U g T.: Angličtina, 1	ework assignmen 3) and an oral pro- or the 2 tests (50 0 %, B 86-92%, 0 mická angličtina Jse, Upper-Intern konverzace pro p	nts. Students are a esentation in Eng %). C 79-85%, D 72-7 . Praha: Grada Pu mediate. CUP, 19 pokročilé. Barrist	allowed to miss lish. 78%, E 65-71%, 		
Principal, 2008	·		1 1				
Peters S., Gráf T.: Time to practise. Polyglot, 2007. Jones L.: Communicative Grammar Practice. CUP, 1985. Additional study materials.							
Course language: English language, B2-C1 level according to CEFR							
Notes:							
Course assessm Total number of	Course assessment Total number of assessed students: 303						
А	В	С	D	Е	FX		
45.21	21.12	17.49	7.59	5.94	2.64		
Provides: Mgr.	Barbara Mitríkov	vá, Mgr. Viktória	Mária Slovensk	á			

Date of last modification: 06.02.2025

University: P. J. Šafári	ik University in Košice						
Faculty: Faculty of Science							
Course ID: CJP/ PFAJGA/07	Course name: Communicative Grammar in English						
Course type, scope an Course type: Practice Recommended course Per week: 2 Per stud Course method: pres	nd the method: e se-load (hours): ly period: 28 sent						
Number of ECTS cre	dits: 2						
Recommended semes	ter/trimester of the course:						
Course level: I.							
Prerequisities:							
Conditions for course Active classroom parti by given deadlines. Presentation of a topic Final Test - end of sem Final assessment = ave Grading scale: A 93-1	e completion: cipation (maximum 2 absences tolerated), homework assignments completed e related to the study field. nester, no retake erage of test and presentation. 00%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less						
Learning outcomes: The development of st of their communicat phonological, lexical at efectively use the lang level B2.	tudents' language skills - reading, writing, listening, speaking, improvement tive linguistic competence. Students acquire knowledge of selected and syntactic aspects, development of pragmatic competence. Students can guage for a given purpose, with focus on Academic English and English on						
Brief outline of the co Selected aspects of En Word formation Contrast of tenses in E The passive voice Types of Conditionals Phrasal verbs and Eng Words order and collo	purse: aglish grammar and pronunciation English dish idioms cations, prepositional phrases						
Recommended literat Vince M.: Macmillan McCarthy, O'Dell: Eng www.linguahouse.com esllibrary.com bbclearningenglish.com ted.com/talks	ture: Grammar in Context, Macmillan, 2008 glish Vocabulary in Use, CUP, 1994 n m						

English language, level B2 according to CEFR.

Notes:

Notes:							
Course assessment Total number of assessed students: 446							
ABCDEFX							
41.48 19.51 15.7 7.85 5.61 9.87							
Provides: Mgr. Viktória Mária Slovenská, Mgr. Lýdia Markovičová, PhD.							
Date of last modification: 08.02.2025							
Approved: RN	Dr. Miroslava Ma	atiková Maľarova	á, PhD.				

University: P. J. Šafárik University in Košice							
Faculty: Faculty of Science							
Course ID: KGER/ Course name: Communicative Grammar in German Language NJKG/07							
Course type, scope an Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre Number of ECTS cro	nd the method: ce rse-load (hours): dy period: 28 sent edits: 2						

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most (2x90 min.). 2 control tests during the semester. Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.

Learning outcomes:

The aim of the course is to identify and eliminate the most frequent grammatical errors in oral and written communication, learning language skills of listening comprehension, speaking, reading and writing, increasing students 'language competence (acquisition of selected phonological, lexical and syntactic knowledge), development of students' pragmatic competence (acquisition of the ability to express selected language functions), development of presentation skills, etc.

Brief outline of the course:

The course is aimed at practicing and consolidating knowledge of morphology and syntax of German in order to show the context in grammar as a whole. The course is intended for students who often make grammatical errors in oral as well as written communication. Through the analysis of texts, audio recordings, tests, grammar exercises, monologic and dialogical expressions of students focused on specific grammatical structures, problematic cases are solved individually and in groups. Emphasis is placed on the balanced development of grammatical thinking in the communication process, which ultimately contributes to the development of all four language skills.

Recommended literature:

Dreyer, H. – Schmitt, R.: Lehr- und Übungsbuch der deutschen Grammatik. Hueber Verlag GmbH & Co. Ismaning, 2009.

Krüger, M.: Motive Kursbuch, Lektion 1 – 30. Huebert Verlag GmbH & Co. Ismaning, 2020. Brill, L.M. – Techmer, M.: Deutsch. Großes Übungsbuch. Wortschatz. Huebert Verlag GmbH & Co. Ismaning, 2011.

Földeak, Hans: Sag's besser!. Grammatik. Arbeitsbuch für Fortgeschrittene. Huebert Verlag GmbH & Co. Ismaning, 2001.

Geiger, S. – Dinsel, S.: Deutsch Übungsbuch Grammatik A2-B2. Huebert Verlag GmbH & Co. Ismaning, 2018.

Dittelová, E. – Zavatčanová, M.: Einführung in das Studium der deutschen Fachsprache. Košice: ES UPJŠ, 2000.

Course langua German, Slova	ge: k language						
Notes:							
Course assessment Total number of assessed students: 58							
А	В	B C D E FX					
62.07	10.34	8.62	3.45	8.62	6.9		
Provides: Mgr.	Provides: Mgr. Ulrika Strömplová, PhD.						
Date of last modification: 13.08.2024							
Approved: RN	Dr. Miroslava Ma	tiková Maľarova	á, PhD.				

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJ4/07	Course name: English Language of Natural Science
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities:	
Conditions for cours Active participation is 2 classes at the most Continuous assessme 1 credit test taken pre 1 project (quiz on the 5 LMS quizzes (25% In order to be admitted assessment The exam test results represent the other 50 The final grade for th A 93-100, B 86-92, C Learning outcomes: Enhancement of stude in English for specifie Students obtain know	e completion: n class and completed homework assignments. Students are allowed to miss nt: esumably in weeks 6/7 topic of the student's field of study) 25% of the continuous assessment of the continuous assessment) ed to the final exam, a student has to score at least 65 % from the continuous represent 50% of the final grade for the course, continuous assessment results 0% of the final grade. e course will be calculated as follows: 2 79-85, D 72-78, E 65-71, FX 64 and less. ents' language skills (speaking, writing, reading and listening comprehension) c and academic purposes and development of students' linguistic competence. wedge of selected phonological, lexical and syntactic aspects of professional
English, improve their purpose, and acquire sciences.	r pragmatic competence - students can effectively use the language for a given presentation skills at B2 level (CEFR) with focus on terminology of natural
 Brief outline of the c 1. Introduction to stude 2. Selected aspects of 3. Talking about acade 4. Discussing science 5. Defining scientific 6. Expressing cause a 7. Describing structure 8. Explaining process 9. Comparing objects 	ourse: dying language i scientific language lemic study terminology and concepts and effect res ses s, structures and concepts
10. Talking about problem and solution

- 11. Referencing authors
- 12. Giving examples
- 13. Visual aids and numbers
- 14. Referencing time and place

Presentation topics related to students' study fields.

Recommended literature:

lms.upjs.sk - e-kurz Odborný anglický jazyk pre prírodné vedy.

Redman, S.: English Vocabulary in Use, Pre-intermetdiate, Intermediate. Cambridge University Press, 2003.

Armer, T.: Cambridge English for Scientists. CUP, 2011.

Wharton J.: Academic Encounters. The Natural World. CUP, 2009.

P. Fitzgerald : English for ICT studies. Garnet Publishing, 2011.

https://worldservice/learningenglish, https://spectator.sme.sk

www.isllibrary.com

linguahouse.com

Course language:

English, level B2 (CEFR)

Notes:

Course assessment

Total number of assessed students: 3246

А	В	С	D	Е	FX	
38.63	26.31	16.3	9.52	7.18	2.06	
Provides: Mgr. Viktória Mária Slovenská, Mgr. Lenka Klimčáková						
Date of last modification: 06 02 2024						

		COUR	SE INFURI	VIATION LI	LIIEK		
University:	P. J. Šafárik	University i	n Košice				
Faculty: Fac	culty of Scie	ence					
Course ID: EECH/03	ÚCHV/ C	course name:	Environme	ntal Chemist	ry		
Course type Course typ Recommer Per week: Course me	e, scope and oe: Lecture / nded course 2 / 1 Per stu ethod: prese	I the method / Practice e-load (hours udy period: 2 ent	: 5): 28 / 14				
Number of	ECTS cred	its: 5					
Recommen	ded semeste	er/trimester	of the cours	e:			
Course leve	l: I., II.						
Prerequisiti	les:						
Conditions Examination	for course (n.	completion:					
Learning ou	itcomes:						
Carbon, nit Earth atmost atmosphere, of greenhou and polluta cleaning pro- biogeochem concepts.	trogen, sult sphere com . Atmospher se effects. P nts monitor ocesses. An nical process	phur, phospo position, fun ric photochem Principles of a red. Classific alytical meth ses. Acid rai	phorous cyc actions of a histry. Pollut ir quality con- cation of po- hods in envir n, metal ion	les. Metals tmosphere. I ants in atmos ntrol. Energe llutants and ronmental ch ns in soil. E	and environ Physical and sphere and gro- tic Earth bala ways of elinemistry, app nvironmental	iment. Spec chemical p eenhouse effence. Water en mination. W lications. Sc l analysis, st	vial cycles rocesses ir ect. Models nvironmen Vaste water oil analysis trategy and
Recommend 1. G. Schwe 2. R.N. Ree	ded literatu edt: The Ess ve, J.D. Bar	rre: ential Guide mes: General	to Environm Environmer	ental Chemis ntal Chemistr	stry, Wiley ar y, Wiley, Lor	1d Sons, Lon 1don 1994	ndon 2001
Course lang	guage:						
Notes:							
Course asse Total numbe	essment er of assesse	ed students: 1	19				
A	В	C	D	E	FX	N	Р
49.58	19.33	16.81	2.52	3.36	0.0	0.0	8.4
Provides: de	oc. RNDr. A	ndrea Strako	vá Fedorkov	vá, PhD.			L
Date of last	modificatio	on: 07.11.202	22				
Approved:	RNDr. Miro	slava Matiko	vá Maľarov	á, PhD.			

Faculty: Faculty of Science

Course ID: ÚCHV/ **Course name:** Fundamentals of Bioanalytical Chemistry BACHZ/06

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours):

Per week: 2 / 1 **Per study period:** 28 / 14

Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Elaboration and presentation of a semester project with an assigned topic. Completion of block exercises. Oral examination.

Detailed conditions for completing the subject are listed in the electronic bulletin board of the subject and in the repository of digital support materials LMS UPJŠ and are updated annually.

Learning outcomes:

After completing the course, the student has basic knowledge about biological samples, factors affecting biological samples and analytical methods used in clinical chemistry and bioanalysis.

Brief outline of the course:

Introduction to Bioanalytical Chemistry. Biological samples classification. Factors that affect analytes in biological samples. Collection, transport and storage of samples, the main principles of sampling, the suppressing of undesirable phenomena. Selected methods of pretreatment of biological samples. Analyzers, equipment and organization of work in a clinical laboratory. Control and management of quality in clinical laboratory. Quality manual, calibration, control, and reference materials. Validation and Good Laboratory Practice. Buffers in bioanalysis. Enzymes in bioanalysis, introduction, distribution, Mechanism of enzyme catalysis. The kinetics of enzymatic reactions with one substrate, the Michaelis constant, constant specificity, lag phase, kinetics of reactions with two substrates. Moderators of enzyme activity. Selected methods for the analysis of biomolecules.

Recommended literature:

1. Chromý, V. a kol.: Bioanalytika, MU Brno, 2002

2. Kukačka, J. a kol.: Bioanalytická chemie v príkladech a cvičeních, Karolinum, 2010

3. Mikkelsen, S.R, Cortón E.: Bioanalytical Chemistry, Wiley, 2004

4. Wilson I.: Bioanalytical Separations 4, (Handbook of Analytical

Separations), Elsevier, 2003

5.Lee, D.C., Webb, M.: Pharmaceutical Analysis, Blackwell, 2003

Course language:

Notes:

If necessary, the teaching also takes place in a distance form with the use of various tools of LMS UPJŠ, MS teams, etc. The form of teaching is specified by the teacher at the beginning of the semester, it is continuously updated.

Course assessment

Total number of assessed students: 112								
А	В	С	D	Е	FX			
33.04	30.36	31.25	4.46	0.0	0.89			
Provides: doc. RNDr. Katarína Reiffová, PhD.								
Date of last modification: 22.07.2022								
Approved: RNDr. Miroslava Matiková Maľarová, PhD.								

	COURSE INFORMATION LETTER
University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚCHV/ VCHU/15	Course name: General Chemistry
Course type, scope a Course type: Lectur Recommended cour Per week: 4 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 56 / 28 esent
Number of ECTS cr	edits: 7
Recommended seme	ster/trimester of the course: 1.
Course level: I.	
Prerequisities: ÚCH	V/CHV1/99
Conditions for cours Written test in the m participation on semi	e completion: iddle and the end of the semester followed by the oral examination. Active nars.
Learning outcomes: To provide students of chemical bonds, p periodicity.	with knowledge of atoms and molecules their electronic structure, theories hysical and chemical properties of elements and compounds as well as their
Brief outline of the c Main terms used in periodicity and its intermolecular intera Solutions. Chemical Classification of chemical	ourse: chemistry. Atoms – models of atoms, electron configuration, chemical effect on the properties of elements, radioactivity. Chemical bonds and ctions. Chemical structure and physical properties of matter. State of matter. equilibrium. Basis of chemical thermodynamics and chemical kinetics. nical reactions. Electrochemistry.
Recommended litera 1. Atkins P., Jones L. 2. Russel J.B.: Gener	i ture: : Chemical Principles, 2nd ed., Freeman, New York 2002. al Chemistry, 2nd ed., McGraw Hill, London 1992.
Course language:	
Notes:	
Course assessment Total number of asse	ssed students: 413

А	В	С	D	Е	FX			
24.7	27.36	28.09	12.35	6.78	0.73			

Provides: prof. RNDr. Vladimír Zeleňák, DrSc., doc. RNDr. Ivan Potočňák, PhD.

Date of last modification: 07.02.2022

	COURSE INFORMATION LETTER
University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚCHV/ GAC/21	Course name: Green analytical chemisty and automatization
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 1 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 14 esent
Number of ECTS cro	edits: 5
Recommended seme	ster/trimester of the course:
Course level: I.	
Prerequisities:	
Conditions for cours Active participation i Elaboration of 2 writ participation in the ex is carried out by a con with an examination Note: Detailed condit (LMS UPJŠ).	e completion: n laboratory exercises and seminars; successful completion of the final test. ten assignments (or subject project), which will be one of the conditions for am. The evaluation of the student's study results within the study of the subject nbination of continuous control during the teaching part of the semester (50%) during the examination period (50%). tions are updated annually within the repository for digital support materials
Learning outcomes: The student acquires analytical chemistry.	s knowledge of the green chemistry, miniaturization, and automation in
Brief outline of the c Green chemistry. Pr instrumental techniq of miniaturization a applications of procee	ourse: inciples of green chemistry. Green Analytical Chemistry (GAC). Green ues. Miniaturization and automation. Principles of individual methods nd automation, instrumentation, advantages and disadvantages. Practical dures.
Recommended litera 1. J. Labuda a kol. An 2. Current periodical 3. ANASTAS, P., WA University Press. 199 4. KOLEV S.D., McH Elsevier Wilson&Wil	Ature: nalytická chémia, STU, Bratislava 2014. literature. ARNER J. C. Green Chemistry: Theory and Practice. Oxford: Oxford 8. KELVIE I.D. Advences in flow injection analysis and related techniqoues. lson's, USA, 2008.
Course language: Slovak	
Notes: The course is implem	ented by full-time or, if necessary, distance method using the MS Teams or

BBB or a combined method. The form of teaching is specified by the teacher at the beginning of the semester and updated continuously.

Course assessment Total number of assessed students: 6								
A B C D E FX								
16.67	50.0	33.33	0.0	0.0	0.0			
Provides: prof. Mgr. Vasil' Andruch, DSc., RNDr. Jana Šandrejová, PhD., univerzitná docentka								
Date of last modification: 22.07.2022								
Approved: RN	Dr. Miroslava Ma	atiková Maľarova	á, PhD.					

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University: P. J.	Safárik Univers	ity in Košice						
Faculty: Faculty	of Science							
Course ID: ÚCH PCH/22	IV/ Course na	me: Industrial C	hemistry					
Course type, sco Course type: L Recommended Per week: 2 Pe Course method	ppe and the met ecture course-load (he r study period: l: present	hod: ours): 28						
Number of ECI	S credits: 3							
Recommended s	semester/trimes	ter of the cours	e:					
Course level: I.,	II.							
Prerequisities:								
Conditions for c	course completi	on:						
Learning outco	mes:							
Brief outline of	the course:							
Recommended	literature:							
Course languag	e:							
Notes:								
Course assessme Total number of	ent assessed studen	ts: 9						
A	В	С	D	Е	FX			
77.78	77.78 22.22 0.0 0.0 0.0 0.0							
Provides: prof. I	RNDr. Zuzana V	argová, Ph.D.		1	1			
Date of last mod	lification: 18.01	.2022						
Approved: RND	Dr. Miroslava Ma	tiková Maľarová	i, PhD.					

University: P. J. Šafár	ik University in Košice
Faculty: Faculty of Sc	ience
Course ID: ÚCHV/ ACPE1/03	Course name: Industrial Ecology
Course type, scope an Course type: Lecture Recommended cour Per week: 2 / 1 Per s Course method: pres	ad the method: e / Practice se-load (hours): atudy period: 28 / 14 sent
Number of ECTS cre	dits: 5
Recommended semes	ter/trimester of the course:
Course level: I.	
Prerequisities:	
Conditions for course On the basis of an inte are written, and it is a In order to be admitted of the seminar work m its overall percentage - E; 61-70% - D; 71-8	rim assessment that is higher than 51%: during the semester, 4 mid-term tests lso mandatory to prepare and present one seminar work on the given topic. d to the exam, the evaluation of the interim tests together with the evaluation nust be higher than 51%. The exam consists of a written and an oral part and rating must be higher than 51%. (Written and oral exam evaluation: 51-60% 0% - C; 81-90% - B; 91-100% - A).
Learning outcomes: After completing the s and environmental ch industrial ecology).	subject, the student will acquire knowledge in the field of industrial ecology nemistry of all abiotic components of the environment (in the context of
Brief outline of the co Familiarization with the the development of gr Selected topics of envi the environment - envir geosphere: the earth's Selected topics of inco ecology.	he concept of industrial ecology and its use in environmental protection and een technologies. ironmental chemistry (environmental chemistry of all abiotic components of ronmental chemistry of atmosphere, hydrosphere, pedosphere and part of the crust) in the context of industrial ecology. dustrial, clinical toxicology and ecotoxicology in the context of industrial
Recommended literat S. E. Manahan: Indust S. E. Manahan: Enviro R. U. Ayres, L. Ayres:	ture: crial Ecology., CRC Press, New York, 1999. conmental Chemistry., CRC Press, New York, 2005. A handbook of industrial ecology, Edward Elgar Publishing, 2002.
Course language: Slovak language	
Notes: Teaching can also be of teaching is always spe	carried out by distance learning, using MS Teams or BBB. The form of cified at the beginning of the semester, and is continuously updated in

accordance with the pandemic situation.

Course assessment Total number of assessed students: 167							
ABCDEFX							
25.75	20.96	25.75	14.97	11.98	0.6		
Provides: doc. Ing. Viera Vojteková, PhD.							
Date of last modification: 03.08.2022							
Approved: RN	Dr. Miroslava Ma	atiková Maľarova	á, PhD.				

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Inorganic Chemistry
ACHU/21	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14

Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/VCHU/15

Conditions for course completion:

Written test in the middle and the end of the semester followed by the oral examination. Active participation on seminars.

Learning outcomes:

Gaining knowledge about the properties and reactivity of elements and their compounds, the periodicity of their properties and the periodicity of the properties of their compounds. Knowledge of the basic physical and chemical properties of elements and their compounds, reactivity, their preparation, production and occurrence.

Brief outline of the course:

Electronic configuration, abundance, use, physical and chemical properties, preparation, reactivity of non-metallic elements hydrogen, halogens, oxygen, sulphur, nitrogen, phosphorus, carbon, silicon, boron and rare gases. Binary and other compounds formed by these elements, their properties and reactivity. Metals and transition elements. Abudance, properties, reactivity, important compounds.

Recommended literature:

Greenwood, N. N., Earnshaw, A: Chemistry of the Elements. Pergamon Press, Oxford, 1984 Atkins O., Overton T., Rourke J., Weller M., Armstrong F.: Inorganic Chemistry, University Press, Oxford, 2006.

Course language:

Notes:

Course assessment

Total number of assessed students: 90

А	В	С	D	Е	FX	
31.11	30.0	24.44	7.78	6.67	0.0	
Provides: prof. RNDr. Vladimír Zeleňák, DrSc., prof. RNDr. Juraj Černák, DrSc.						
Date of last modification: 07 02 2022						

University: P. J. Šafá	University: P. J. Šafárik University in Košice					
Faculty: Faculty of Science						
Course ID: ÚCHV/ FUMCH1/03	Course name: Introduction to Material Chemistry					
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present						
Number of ECTS credits: 5						
Recommended semester/trimester of the course:						
Course level: I., II.						

Prerequisities:

Conditions for course completion:

1. Participation in seminars (also applies to the online form of teaching). Students are required to attend seminars. The relevant teacher who leads the seminar will justify the student's justified non-participation (incapacity for work, family reasons, etc.) in a maximum of two seminars during the semester without the need for substitute performance. In the case of a longer-term justified absence (for example due to incapacity for work), the relevant teacher will assign the student an alternative form of mastering the missed material.

2. Activity at seminars. The preparation of students and their activity in seminars is always assessed by the relevant teacher who leads the seminar, within his / her competence.

3. Elaboration and submission of a seminar paper on an assigned topic within the independent work at home and presentation of the most important conclusions of the seminar paper in the form of a PPT presentation. The seminar papers must be handed over to the relevant teacher who leads the seminars by the 12th week of the semester, and the presentation must take place no later than the 8th week of the semester. The seminar work and performance are evaluated by the relevant teacher. Submission of the seminar paper and its successful defense is a condition of admission to the oral exam.

4. The exam is usually carried out orally, resp. in case of restrictions of contact forms of the pedagogical process, the exam will be performed in a suitable distance - electronic form.

5. To successfully master the subject, it is necessary to prove mastery of the required curriculum at least 51%.

Learning outcomes:

To present the different types of functional materials, their atomic structure and mechanical properties.

Brief outline of the course:

Historical perspectives. Materials and human being. Participation of natural science in material engineering. Material revolutions. Classification of materials. Atomic structure and interatomic bonding. Amorphous and crystalline materials. Mechanics of materials. Imperfections in solids. Crystal lattice defects. Point defects. Line defects. Dislocations. Diffusion. Diffusion mechanisms. Deformations and failures, re-crystallization. Deformations. Plastic deformations. Solid solutions. Intermediary phases. Phases in ceramic systems. Phase transformations. Crystallization of metals.

Phase identification methods. Stress and strain. Structure of metallic and ceramic materials. Alloys. Steel. Light metals. Metallic glasses. Gold. Inorganic non-metallic materials. Ceramic construction materials. Ceramic tools. Bio-ceramics. Ceramics in cosmos. High-temperature superconductors. Glass. Building binders. Polymers. Essence of polymers. Thermoplastics. Reactoplastics. Polymer structure. Mechanical properties of polymers. Natural materials. Wood. Bones. Teeth. Conchs and shells. Tectrices.

Recommended literature:

W. D. Callister, Jr.: Fundamentals of Materials Science and Engineering, John Wiley & Sons, 2001.

Brian S. Mitchell: An Introduction to Materials Engineering and Science: For Chemical and Materials Engineers, John Wiley & Sons, 2004.

Course language:

Slovak language.

Notes:

Teaching is carried out in person or, if necessary, remotely using the bbb or MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment							
Iotal number o	f assessed studen	ts: 84					
Α	В	С	D	Е	FX		
90.48	8.33	0.0	0.0	0.0	1.19		
Provides: prof. RNDr. Renáta Oriňaková, DrSc.							
Date of last modification: 25.11.2021							
Approved: RN	Dr. Miroslava Ma	atiková Maľarova	á, PhD.				

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚCHV/ IP/23	Course name: Inštrumentá	ilne praktikum			
Course type, scope a Course type: Lectur Recommended cour Per week: 0 / 6 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 0 / 84 esent				
Number of ECTS cr	edits: 6				
Recommended seme	ster/trimester of the cours	e:			
Course level: I.					
Prerequisities:					
Conditions for cours	se completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	nture:				
Course language:					
Notes:					
Course assessment Total number of asse	ssed students: 0				
	abs	n			
	0.0	0.0			
Provides: doc. RNDr Zuzana Vargová, Ph.I Renáta Oriňaková, Dr	. Miroslav Almáši, PhD., M D., RNDr. Slávka Hamuľako Sc., doc. RNDr. Viktor Víg	gr. Michaela Rendošová, PhD., prof. RNDr. ová, PhD., univerzitná docentka, prof. RNDr. laský, PhD.			
Date of last modification: 18.12.2023					
Approved: RNDr. M	iroslava Matiková Maľarova	á, PhD.			

University: P. J	. Šafárik Univers	sity in Košice					
Faculty: Facult	y of Science						
Course ID: ÚC MKLP/23	HV/ Course na	ame: Manažment	t kvality a správn	a laboratórna pr	ax		
Course type, sc Course type: 1 Recommended Per week: 2/2 Course metho	cope and the met Lecture / Practice d course-load (h 2 Per study peri d: present	thod: ours): od: 28 / 28					
Number of EC	TS credits: 5						
Recommended	Recommended semester/trimester of the course:						
Course level: I.							
Prerequisities:							
Conditions for course completion:							
Learning outcomes:							
Brief outline of	Brief outline of the course:						
Recommended literature:							
Course language:							
Notes:							
Course assessm Total number of	Course assessment Total number of assessed students: 0						
А	В	С	D	Е	FX		
0.0	0.0	0.0	0.0	0.0	0.0		
Provides: doc. Ing. Viera Vojteková, PhD.							
Date of last mo	dification: 18.12	2.2023					
Approved: RNI	Approved: RNDr. Miroslava Matiková Maľarová, PhD.						

	COURSE INFORMATION LETTER
University: P. J. Šafa	árik University in Košice
Faculty: Faculty of S	Science
Course ID: ÚMV/ MTCa/22	Course name: Mathematics I for chemists
Course type, scope a Course type: Lectu Recommended cou Per week: 2 / 2 Per Course method: pr	and the method: are / Practice arse-load (hours): • study period: 28 / 28 resent
Number of ECTS cr	redits: 5
Recommended sem	ester/trimester of the course:
Course level: I.	
Prerequisities:	
and the ability to sol The evaluation of the of the written final te and two extensive te semester. Then stud 12 points from the n 100-80-A, 79-70-B, number of points fro she is evaluated by F	ve problems from selected thematic units. e subject is according to the results from the semester and in view of the results est. During the semester, students write tests at all seminars (together 20 points) ests (together 50 points). It is necessary to obtain at least 28 points during the ents may write the exam. To pass the exam, it is necessary to obtain at least naximum number of 30 points. The scale for student evaluation is as follows: 69-60-C, 59-50-D, 49-40-E. If a student does not achieve the required minimal om the exam test (12 points) and during the semester (together 28 points), he/ FX.
Learning outcomes: After completing th equations and ineq differential and integ	e course, the student can use basic mathematical terms, can solve various uations, and is acquainted with basic mathematical knowledge from the gral calculus, and is able to apply the theory in concrete excercises.
Brief outline of the Week 1-6: Definition functions. Composit Week 7-14: Limit of Indefinite integrals,	course: n of function. Domain and range of functions. Elementary functions. Inverse ions of functions. f functions. Continuity of functions. Derivation and its geometric aplications. basic methods of integration. Definite integral and its applications.
Recommended liter Huťka, Benko, Ďuri D. Studenovská, T. M odbory, UPJŠ 2006 D. Studenovská, T. M	ature: kovič: Matematika, Alfa, Bratislava 1991 Madaras, S. Mockovčiak: Zbierka úloh z matematiky pre nematematické Madaras: Matematika pre nematematické odbory, UPJŠ 2006

S. Lang: A First Course in Calculus, Springer Verlag, 1998

Course language:

Slovak

Notes:

Course assessment Total number of assessed students: 660							
А	В	С	D	Е	FX		
11.52	11.21	16.06	21.21	28.03	11.97		
Provides: RNDr. Jana Borzová, PhD., RNDr. Miriama Kmeciková							
Date of last modification: 18.04.2022							
Approved: RN	Dr. Miroslava Ma	atiková Maľarova	á, PhD.				

University: P. J. Šafá	University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚCHV/ NANO/09	Course name: Nanotechnology					
Course type, scope a Course type: Lectur Recommended cou Per week: 2 / 1 Per Course method: pre	ind the method: re / Practice irse-load (hours): study period: 28 / 14 esent					
Number of ECTS cr	redits: 5					
Recommended seme	ester/trimester of the course:					
Course level: I.						
Prerequisities:						
Conditions for cours	se completion:					

1. Participation in seminars (also applies to the online form of teaching) and laboratory exercises. Students are required to attend seminars and laboratory exercises. The relevant teacher who leads the seminar or practical exercise will justify the student's justified non-participation (incapacity for work, family reasons, etc.) in a maximum of two seminars during the semester without the need for substitute performance. In the case of a longer-term justified absence (for example due to incapacity for work), the relevant teacher will assign the student an alternative form of mastering the missed material.

2. Activity at seminars and practical exercises. The preparation of students and their activity in seminars and exercises is always assessed by the relevant teacher who conducts the seminar or exercise, within his / her competence.

3. The exam is carried out in the form of a written test, resp. in case of restrictions of contact forms of the pedagogical process, the exam will be performed in a suitable distance - electronic form.

4. To successfully master the subject, it is necessary to prove mastery of the required curriculum at least 51%.

Learning outcomes:

To provide the students with basic knowledge of nanotechnology, nanomaterials as well as preparation and investigation methods. Discusses current and future nanotechnology applications in engineering, physics, chemistry, biology, electronics and computing, energy and medicine. The students will obtain first knowledge on nanotechnology as well about the funktions of nanostructured surfaces.

Brief outline of the course:

Properties of nanomaterials. Methods of preparation of thin layers and nanostructured surfaces. Methods of submicron-sized structures production. Nanodevices and chips. Methods of nanomaterials structure investigation. Nanodevices and chips. Nanofluidic systems in biology, medicine, energy storage and catalysis.

Recommended literature:

- 1. Nanotechnológie, A. Oriňák, R. Oriňáková, A. Fedorková, PF UPJŠ, 2012.
- 2. Introduction to Nanotechnology, C. Poole Jr., F.J. Owens, Wiley (2003).

3. Nanoelectronics and Nanosystems, Karl Goser, Peter Glosekotter, Jan Dienstuhl., Springer, 2004.

4. Nano: The Essentials: T. Pradeep. McGraw – Hill education – 2007.

5. Nanofabrication Towards Biomedical Applications, Techniques, Tools, Applications and Impact. 2005 - By Challa, S.S.R. Kumar, Josef Hormes, Carola Leuschaer. Wiley – VCH.

Course language:

Slovak language.

Notes:

Teaching is carried out in person or, if necessary, remotely using the bbb or MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 203

А	В	С	D	Е	FX	Ν	Р
28.57	23.15	24.14	12.81	6.9	0.99	0.0	3.45

Provides: doc. RNDr. Andrea Straková Fedorková, PhD., prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Renáta Oriňaková, DrSc.

Date of last modification: 25.07.2022

University: P. J. Šaf	árik Univers	ity in Košice			
Faculty: Faculty of	Science				
Course ID: ÚCHV/ OST/23	Course na	ame: Odborná stá	ìŽ		
Course type, scope Course type: Recommended cou Per week: Per stu Course method: pr	and the met urse-load (h dy period: resent	thod: ours):			
Number of ECTS c	redits: 30				
Recommended sem	ester/trimes	ster of the cours	e:		
Course level: 1.					
Prerequisities:					
Conditions for cour	se completi	on:			
Learning outcomes	:				
Brief outline of the	course:				
Recommended liter	ature:				
Course language:					
Notes:					
Course assessment Total number of ass	essed studen	ts: 0			
A	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides:		<u> </u>			
Date of last modific	ation: 18.12	2.2023			
Approved: RNDr. N	firoslava Ma	atiková Maľarová	i, PhD.		

University: P. J. Safári	k Universitv	in Košice
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Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Organic chemistry
OCHU/21	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14

Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/VCHU/15 or ÚCHV/VCHU/14 or ÚCHV/VCHU/10 or ÚCHV/VACH/10

Conditions for course completion:

Written test. Two tests, in 7th and 14th week. Test max 50 points. A student must obtain at least 51% of points. Writing of the tests is mandatory.

Written exam, 100 points. 69 Theoretical questions (69 points), 62 chemical formulas (31 points). A student must obtain at least 51% of points. Final evaluation: A 91-100 pts, B 81-90 pts, C 71-80 pts, D 61-70 pts, E 51-60 pts, FX 0-50 pts.

Learning outcomes:

Basic organic chemistry course.

Nomenclature of organic compounds, their chemical properties, structure, reactivity and characteristic reactions. Preparation of organic molecules, explanation of the basic mechanisms and principles of organic reactions.

After completing the subject, the student understands the studied theories, principles, methods and logical procedures of organic chemistry. He has knowledge of modern organic chemistry with an emphasis on the current development of knowledge in the aforementioned area.

Brief outline of the course:

Chemical bonding Hybridization and Bonding Covalent bonds Double bonds and Triple Bonds Structural Formulas of Organic Molecules Polar Covalent Bonds and Electronegativity Constitutional Isomers Alkenes Electrophilic Additions Strong Brønsted Acids Lewis Acids (non-Proton Electrophiles) Electrophilic Halogen Reagents Other Electrophilic Reagents Reduction Oxidation Radical Additions Allylic Substitution Alkynes Addition Reactions Hydrogenation Electrophiles Hydration & Tautomerism Hydroboration Nucleophilie Addition & Reduction Acidity of Terminal Alkynes (Substitution of H) Alkyl Halides General Reactivity Substitution(of X) SN2 Mechanism SN1 Mechanism Elimination (of HX) Summary of Substitution vs. Elimination Substitution by Metals Elimination Reactions of Dihalides Alcohols Reactions of Alcohols Substitution of the Hydroxyl H Substitution of the Hydroxyl Group Elimination of Water Oxidation to Quinones Aromatic compounds Electrophilic Substitution A Substitution Mechanism Reactions of Substituted Benzenes Reaction Characteristics Reactions of Disubstituted Rings Reactions of Substituent Groups Nucleophilic Substitution, Elimination & Addition Reactions Amines Basicity of Nitrogen Compounds Acidity of Nitrogen Compounds Important Reagent Bases Reactions of Amines Electrophilic Substitution at Nitrogen Preparation of 1°-Amines Preparation of 2° & 3°-Amines Reactions with Nitrous Acid Reactions of Aryl Diazonium Intermediates Elimination Reactions of Amines Oxidation States of Nitrogen Basic information: Aldehydes & Ketones Carboxylic Acids Derivatives of Carboxylic acids Natural products

Recommended literature:

1. Organic chemistry, J. Clayden, N. Greeves Warren, S. Wothers, Oxford University Press, 2012, ISBN 978-0-19-92-7029-3.

2. Organic chemistry, J. E. McMurry, Brooks/Cole, a Thomson Learning Company 2004, Sixth Eddition, ISBN 0534389996.

3. Organic chemistry, P. Zahradník, M. Mečiarová, P. Magdolen, Univerzita Komenského v Bratislave, 2019, ISBN: 978-80-223-4589-7.

Course language:

anglický

Notes:

Teaching is carried out in person or, if necessary, online using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 84

А	В	С	D	Е	FX
11.9	9.52	22.62	41.67	13.1	1.19

Provides: RNDr. Slávka Hamuľaková, PhD., univerzitná docentka, doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka, doc. RNDr. Mária Vilková, PhD.

Date of last modification: 04.08.2022

University	Р	ТŠ	Šafárik	Univer	sity	in	Košice
University.	1.	J. K	Jararik	Univers	sity	III .	RUSICC

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Organic chemistry - Lab
POC1/03	

Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 6 Per study period: 84

Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/OCH1a/10

Conditions for course completion:

100% participation in practical exercises.

Two written tests 2 x 25 pts (a minimum of 13 points must be obtained in each test), twelve reports 12 x 2 pts, laboratory skills 12 pts, short quizzes and questions 14 pts.

A 100 pts. in total.

Assessment A: 91-100; B: 81-90; C: 71-80; D: 60-71; E: 51-60; FX: 0-50 pts.

Learning outcomes:

Students will become familiar with the basic isolation and purification methods used in a synthetic laboratory. Students should master basic laboratory technique and be able to apply the theoretical knowledge from the basic course of organic chemistry in simple synthetic projects.

Brief outline of the course:

Preparation, isolation, purification and identification of organic compounds. The emphasis is on gaining the experimental skills in synthesis of organic compounds, distillation, extraction, crystallization, sublimation and thin-layer chromatography.

- 1. Isolation and purification methods crystallization
- 2. Isolation and purification methods distillation
- 3. Preparation of ethyl acetate
- 4. Preparation of acetylsalicylic acid
- 5. Preparation of benzalaniline
- 6. Spectral methods in organic chemistry
- 7. Preparation of acetophenone oxime
- 8. Preparation of benzilic acid
- 9. Preparation of 4,5-diphenylimidazole
- 10. Isolation of caffeine from tea
- 11. Isolation of trimyristin from nutmeg

Recommended literature:

- 1. Handout with experimental procedures http://kekule.science.upjs.sk/pochu.
- 2. Organic chemistry lectures.

Course language:

Slovak or English

Notes

Notes:							
Course assessment Total number of assessed students: 517							
А	В	С	D	Е	FX		
51.84	29.98	12.57	4.06	0.77	0.77		
Provides: RNDr. Kvetoslava Stanková, PhD., RNDr. Jana Špaková Raschmanová, PhD., RNDr. Slávka Hamuľaková, PhD., univerzitná docentka, doc. RNDr. Mariana Budovská, PhD., RNDr. Ján Elečko, PhD.							
Date of last mo	dification: 09.01	.2022		_			

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Physical Chemistry
FCHU/10	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 2 Per study period: 42 / 28

Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/VCHU/14 or ÚCHV/VCHU/10 or ÚCHV/VACH/10 or ÚCHV/VCHU/15

Conditions for course completion:

Active participation in seminars. Two partial tests from computational seminars, each must be mastered at A-E. In the case of distance learning, it is necessary to prepare 2 assignments, each must be mastered at 80%.

Examination, unerstanding of three thematic areas of the subject (thermodynamics, electrochemistry, kinetics).

Learning outcomes:

Acquirement of the basics knowledgements of physical chemistry within the chapters: thermodynamics, phase equilibria, chemical equilibria, electrochemistry, chemical kinetics.

Brief outline of the course:

Fundamental concepts of thermodynamics, thermochemistry, chemical equilibrium, phase equilibria and diagrams, laws for ideal gas and reals gases, liquids, solutions, solutions of electrolytes. Electrochemistry: ionics and electrodics. Electrodes and electrochemical cells, corrosion. Chemical kinetics, catalysis. Adsorption.

Recommended literature:

T. Engel, P. Reid: Physical Chemistry, Pearson Educat. Inc., San Francisco 2006 P.W. Atkins: Physical Chemistry, Oxford University Presss, Oxford 1986, 1990, 1996 W.J. Moore: Physical Chemistry, Longman, London 1972 and newer editions

Course language:

Notes:

Teaching is carried out in person. If a distance form is required, the lectures will take place online, using the BigBlueButton tool (https://bbb.science.upjs.sk/). Other conditions will be specified by the teacher.

Course assessment

Total number of assessed students: 324

А	В	С	D	Е	FX
32.72	19.75	14.2	17.9	12.35	3.09

Provides: prof. RNDr. Renáta Oriňaková, DrSc., RNDr. Ivana Šišoláková, PhD., univerzitná docentka, RNDr. Radka Gorejová, PhD., RNDr. Jana Shepa, PhD.

Date of last modification: 24.11.2021

University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚFV/ CHF1a/22Course name: Physics I
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present
Number of ECTS credits: 5
Recommended semester/trimester of the course:
Course level: I.
Prerequisities:
Conditions for course completion: To successfully complete the course, the student must demonstrate sufficient knowledge of mechanics, molecular physics and thermodynamics. The credit evaluation of the course takes into account the following student workload: 1 credits: direct teaching in lectures and numerical exercises, self-study of recommended literature, fulfillment of homework assignments 2 credits: successful mastery of numerical exercises and obtaining an A-E rating from two numerical papers in the 6th and 13th week of the semester 2 credits: obtaining the A-E evaluation from two theoretical papers in the 6th and 13th weeks of the semester and the evaluation for the oral exam.
 Learning outcomes: After completing the lectures and numerical exercises and after successfully passing the final exam, the student will demonstrate adequate mastery of the content standard of the course, which is defined by the brief content of the course and the recommended literature. The result of education is: a) Complementing and summarizing knowledge of mechanics, molecular physics and thermodynamics. b) They will learn to apply the mastered subject matter to the numerical solution of relevant physical problems and problems. c) Creates the necessary terminological and knowledge base for mastering related subjects.
Brief outline of the course:
 Recommended literature: 1. Halliday D., Resnick R., Walker J.: Fyzika, VUTIUM Brno, 2000. 2. Krempasky J.: Fyzika, Veda Bratislava, 1982. 3. Hajko V., Daniel - Szabó J.: Základy fyziky, Veda, Bratislava 1983. 4. Horák Z., Krupka F.: Fyzika, SNTL a Alfa, Praha 1981. 5. Hajko V. a kol: Fyzika v príkladoch, Alfa, Bratislava 1983.
english

Notes:

Lectures can be done at presence form or online form using MS Teams and BBB. Education form is

updated at the begining of the subject. All ppt presentations are accesible in LMS UPJŠ.

Course assessment

Total number of assessed students: 68

А	В	С	D	Е	FX		
20.59	29.41	17.65	23.53	8.82	0.0		
Provides: doc. RNDr. Adriana Zeleňáková, DrSc.							
Date of last modification: 30.09.2021							
Approved: RNDr. Miroslava Matiková Maľarová, PhD.							

University: P. J.	Šafárik Univers	sity in Košice								
Faculty: Faculty	Faculty: Faculty of Science									
Course ID: ÚCI PACH/03	JCHV/ Course name: Practical from Inorganic Chemistry									
Course type, sc Course type: P Recommended Per week: 6 Pe Course method	Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 6 Per study period: 84 Course method: present									
Number of ECT	FS credits: 6									
Recommended	semester/trime	ster of the cours	e:							
Course level: I.										
Prerequisities:	ÚCHV/CHV1/9	9								
Conditions for of test Results from rep	course complet	ion: ieved practical ab	ilities.							
Learning outco The practical ac chemical proper	mes: equirements at p rties by common	preparation and st laboratory techn	udy of inorgan iques.	ic compounds an	d their physico-					
Brief outline of The utilization inert and nor oxides(CO2, A KMnO4), binat and coordination K3[Al(C2O4)3]	Brief outline of the course: The utilization of common laboratory techniques and also the work in anaerobic, inert and non-aqueous conditions at preparation of elements (H2, O2, Cu, Ni), oxides(CO2, Al2O3·xH2O), nitrides(Mg3N2), acids (HNO3, H3BO3), salts((NH4)2SO4, KMnO4), binary salts(NH4)Fe(SO4)2·12H2O), halides (CuCl, CuCl2·2H2O, SnI4, CuBr2) and coordination compounds ([Cr2(CH3COO)4(H2O)2], [CoCl2(en)2]Cl, [Cu(NH3)4]SO4·H2O, K3[Al(C2O4)3]·3H2O).									
Recommended	literature:									
Course languag	ge:									
Notes:										
Course assessm Total number of	Course assessment Total number of assessed students: 543									
A	В	C	D	E	FX					
57.46	57.46 33.89 5.34 2.03 1.1 0.18									
Provides: prof. RNDr. Zuzana Vargová, Ph.D., doc. RNDr. Juraj Kuchár, PhD., doc. RNDr. Miroslav Almáši, PhD., Mgr. Nikolas Király, PhD.										
Date of last modification: 28.10.2021										
Approved: RNI	Dr. Miroslava M	atiková Maľarová	i, PhD.							

University	Р	ТŠ	Šafárik	Univer	sity	in	Košice
University.	1.	J. K	Jararik	Univers	sity	III .	RUSICC

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Practical in Analytical Chemistry
PANCH/06	

Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 6 Per study period: 84

Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Active participation in laboratory exercises and seminars; successful completion of the tests.

1. Participation in laboratory exercises is required. Assigned teacher who leads exercises might excuse without substitute the student's absence (incapacity for work, family reasons, etc.) for a maximum of two exercises during the semester with substitute supplying.

 The assigned teacher, who leads the seminar, assesses the preparation of students and their activity in seminars. For the active participation in the exercises, the student can get a maximum of 10 points.
 Two written tests are obligatory. The written test will consist of 15 questions with 15 points, together for 2 written testes of 30 points. To successful completion of the exam, it is necessary to achieve at least 8 points from each test.

Overall score: Max. number of points: 50 (elaboration of protocols / assignments - 10 points; active participation in practical exercises - 10 points; written tests - 2×15 points). Min. number of points to successful completion of course: 26.

Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

Learning outcomes:

Application of theoretical knowledge of quantitative analysis into analytical laboratory practise.

Brief outline of the course:

Practical in quantitative analysis. Quantitative methods. Gravimetry, general principles of method. Volumetric methods. Preparation of accurate solutions. Indication of equvivalency point. Titration curves, calculations in volumetric analysis, measurement errors. Acidimetry, alkalimetry. Manganometry. Iodometry. Complexometry. Argentometry. Selected instrumental analytical methods - electrochemical, optical, separation. Evaluation of the results in instrumental analysis.

Recommended literature:

- 1. Y. Bazel a kol.: Praktikum z analytickej chémie, PF UPJŠ, Košice 2019.
- 2. T. Gondová a kol.: Praktikum z analytickej chémie, PF UPJŠ, Košice 1999.
- 3. V. Szmereková, P.Mel'uch: Praktikum z analytickej chémie, PF UPJŠ, Košice 1988.
- 4. J. Labuda a kol. Analytická chémia, STU, Bratislava 2014.
- 5. Z. Holzbecher a kol: Analytická chemie, SNTL, ALFA Praha 1987.

6. L. Koller: Analytická chémia, TU Košice, 2002, skriptum a v digitálnej forme.

7. D. Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000.

Course language:

Slovak

Notes:

The course is implemented by full-time or, if necessary, distance method using the MS Teams or BBB or a combined method. The form of teaching is specified by the teacher at the beginning of the semester and updated continuously.

Course assessment

Total number of assessed students: 493

А	В	С	D	Е	FX
56.8	23.53	15.01	2.43	2.23	0.0

Provides: RNDr. Rastislav Serbin, PhD., RNDr. Jana Šandrejová, PhD., univerzitná docentka

Date of last modification: 15.11.2021

University: P. J. Ša	arik Universit	y in Ko	šice
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Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Practical in Physical Chemistry
PFCH/03	

Course type, scope and the method: Course type: Practice Recommended course-load (hours):

Per week: 6 Per study period: 84

Course method: present

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/FCH1a/03 or ÚCHV/FCH1a/21

Conditions for course completion:

1. Adequate theoretical preparation for individual tasks of experimental practice according to the recommended literature.

2. Passing tasks with relevant results.

- 3. Processing of experimental work results in the form of a protocols and its acceptance.
- 4. Elaboration of a paper on a selected topic and its presentation.
- 5. Assessment of theoretical knowledges and practical skills.

In the case of distance learning:

1. Elaboration of a paper on a selected topic and its presentation.

2. Theoretical preparation in the form of protocols, where the basic principles of individual tasks are stated.

3. Teaching is realized in blocks without limiting the scope in the alternative term.

Learning outcomes:

Theoretical principles, description of each technique and appropriate physical chemistry experiments.

Brief outline of the course:

Experimental verification of theoretical knowledge on thermodynamics, thermochemistry, chemical equilibria (determination of enthalpy, phase diagrams), colligative properties (cryoscopy, ebulioscopy), adsorption.

Experimental verification of theoretical knowledge on electrochemistry (conductivity, dissociation constants, activity coefficients, electromotive force of galvanic cell, Daniell cell, potentials, polarography) and chemical kinetics (determination of rate constants).

Recommended literature:

B.P. Levitt: Findlay's Practical Physical Chemistry, Longman, London 1973

W.J. Moore: Physical Chemistry, Longman, London 1972

P.W. Atkins: Physical Chemistry, Oxford University Press, Oxford, New York 2002

Course language:

Notes:

Teaching is carried out in person. If a distance form is required, the conditions will be specified by the teacher.

Course assessment					
Total number of assessed students: 464					
А	В	С	D	Е	FX
69.61	21.77	6.25	0.86	1.51	0.0
Provides: RNDr. František Kaľavský, RNDr. Jana Shepa, PhD.					
Date of last modification: 22.07.2022					
Approved: RNDr. Miroslava Matiková Maľarová, PhD.					

University: P. J. Šafá	rik University in Ko	šice			
Faculty: Faculty of S	cience				
Course ID: ÚCHV/ PLCV/23	Course ID: ÚCHV/ Course name: Prístrojové laboratórne cvičenie v praxi LCV/23				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	nd the method: rse-load (hours): y period: esent				
Number of ECTS cr	edits: 5				
Recommended seme	ster/trimester of th	e course:			
Course level: I.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	ture:				
Course language:	Course language:				
Notes:					
Course assessment Total number of asses	ssed students: 0				
	abs	n			
	0.0	0.0			
Provides:					
Date of last modifica	tion: 18.12.2023				
Approved: RNDr. M	iroslava Matiková M	Iaľarová, PhD.			

University: P. J. Š	afárik Univers	ity in Košice			
Faculty: Faculty o	f Science				
Course ID: ÚCHV STN/23	// Course na	Course name: STN normy výrobkov chemického priemyslu			
Course type, scop Course type: Lec Recommended c Per week: 2 / 3 P Course method:	e and the met eture / Practice ourse-load (h er study perio present	hod: ours): od: 28 / 42			
Number of ECTS	credits: 5				
Recommended set	mester/trimes	ter of the course	2:		
Course level: I.					
Prerequisities: ÚC	CHV/CHV1/99)			
Conditions for co	urse completi	on:			
Learning outcome	es:				
Brief outline of th	e course:				
Recommended lit	erature:				
Course language:	Course language:				
Notes:					
Course assessmen Total number of as	t ssessed studen	ts: 0			
A	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0
Provides: doc. RN	Dr. Miroslav A	Almáši, PhD.		I	<u>I</u>
Date of last modif	ication: 18.12	.2023			
Approved: RNDr.	Miroslava Ma	tiková Maľarová	, PhD.		
University: P. J. Šafán	rik University in Košice				
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Faculty: Faculty of Seculty	cience				
Course ID: ÚTVŠ/ CM/13	Course name: Seaside Aerobic Exercise				
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: e se-load (hours): dy period: 28 esent				
Number of ECTS cro	edits: 2				
Recommended seme	ster/trimester of the course:				
Course level: I., II.					
Prerequisities:					
Conditions for cours Completion: passed Condition for success - active participation - effective performance	e completion: ful course completion: in line with the study rule of procedure and course guidelines ce of all tasks- aerobics, water exercise, yoga, Pilates and others				
Learning outcomes: Content standard: The student demonstr course syllabus and re Performance standard Upon completion of t - perform basic aerob - conduct verbal and re - organise and manag	ates relevant knowledge and skills in the field, which content is defined in the ecommended literature. I: he course students are able to meet the performance standard and: ics steps and basics of health exercises, non-verbal communication with clients during exercise, e the process of physical recreation in leisure time				
Brief outline of the constraints of the constraints of the constraint of the constraints of the constraint of the constraints of the constraint of the constraints of the constraint of the constraints of the constraints of the constraints of the constraint of the constraints of the constraint of the constraints of the constraints of the constraints of the constraint of the con	ourse: ourse: w impact aerobics, high impact aerobics, basic steps and cuing ess ses rcises in different sport activities offered by the sea resort – swimming, rafting, able tennis, tennis and other water sports in particular. ture:				
1. BUZKOVÁ, K. 20	06. Fitness jóga. Praha: Grada. 167 s.				

 ŽECHOVSKÁ, I., MILEROVÁ, H., NOVOTNÁ, V. Aqua-fitness. Praha: Grada. 136 s. EVANS, M., HUDSON, J., TUCKER, P. 2001. Umění harmonie: meditace, jóga, tai-či, strečink. 192 s. JARKOVSKÁ, H., JARKOVSKÁ, M. 2005. Posilováni s vlastním tělem 417 krát jinak. Praha: Grada. 209 s. KOVAŘÍKOVÁ, K. 2017. Aerobik a fitness. Karolium, 130 s. 				
Course language: Slovak language				
Notes:	Notes:			
Course assessment Total number of assessed students: 62				
abs	n			
9.68 90.32				
Provides: Mgr. Agata Dorota Horbacz, PhD.				
Date of last modification: 29.03.2022				
Approved: RNDr. Miroslava Matiková Maľarová, PhD.				

University: P. J. Šafá	rik University in Košic	ce		
Faculty: Faculty of S	cience			
Course ID: ÚCHV/ SPPI/23	Course name: Semes	strálny projekt z praxe I		
Course type, scope a Course type: Lectur Recommended cour Per week: 0 / 1 Per Course method: pre	nd the method: e / Practice rse-load (hours): study period: 0 / 14 esent			
Number of ECTS cr	edits: 1			
Recommended seme	ster/trimester of the o	course:		
Course level: I.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	ture:			
Course language:				
Notes:				
Course assessment Total number of asses	ssed students: 0			
	abs		n	
	0.0		0.0	
Provides:				
Date of last modifica	tion: 18.12.2023			
Approved: RNDr. M	iroslava Matiková Mal	ľarová, PhD.		

University: P. J. Šafá	rik University in Košic	9	
Faculty: Faculty of S	cience		
Course ID: ÚCHV/ SPPII/23	Course name: Semes	trálny projekt z praxe II	
Course type, scope a Course type: Lectur Recommended cour Per week: 0 / 2 Per Course method: pre	nd the method: e / Practice rse-load (hours): study period: 0 / 28 esent		
Number of ECTS cr	edits: 2		
Recommended seme	ster/trimester of the c	ourse:	
Course level: I.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	ture:		
Course language:			
Notes:			
Course assessment Total number of asses	ssed students: 0		
	abs		n
	0.0		0.0
Provides:			
Date of last modifica	tion: 18.12.2023		
Approved: RNDr. M	iroslava Matiková Maľ	arová, PhD.	

Faculty: Faculty of Science

Course ID: ÚCHV/	Course name: Separation Methods
ASM/03	

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours):

Per week: 2 / 1 Per study period: 28 / 14

Course method: present

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: (ÚCHV/ANCHU/03 or ÚCHV/ANCHU/21 or ÚCHV/ANCHE/09 or ÚCHV/ ANCH1b/03 or ÚCHV/ANCH1b/21) and (ÚCHV/PAEC/03 or ÚCHV/PANCH/06 or ÚCHV/ PANCHE/09 or ÚCHV/PACU/03)

Conditions for course completion:

1. Preparation and presentation of a project focused on the application of separation methods.

2. Examination. The exam consists of 3 questions (each of 33%), 50% must be obtained for the pass exam.

Learning outcomes:

Survey of basic principles, theoretical background and applications of separation methods in research and analytical practice.

Brief outline of the course:

Basic principles, classification, theory and applications of separation methods. Extraction - LLE, SPE, SPME. Chromatographic methods - theory, classification. Gas chromatography, stationary phases. Instrumentation, detectors in GC. Data evaluation - qualitative and quantitative analysis. High-performance liquid chromatography, principles, classification. Stationary and mobile phases in LC, instrumentation. Applications.

Planar chromatographic methods - TLC, HPTLC, PC.

Electrophoretic techniques and their applications.

Recommended literature:

Skoog D. A., Leary J. J.: Principles of instrumental analysis. Saunders College Publishing, New York 1997.

Pawliszyn J., Lord H. L.: Handbook of sample preparation, Wiley 2010.

Current scientific literature

Course language:

Slovak, english language

Notes:

Course assessment Total number of assessed students: 506								
А	A B C D E FX							
28.66 26.09 25.1 12.65 5.34 2.17								
Provides: doc. RNDr. Taťána Gondová, CSc.								
Date of last modification: 01.08.2022								
Approved: RNDr. Miroslava Matiková Maľarová, PhD.								

University: P. J. Šafárik University in Košice						
Faculty: Faculty of Science						
Course ID: ÚCHV/ Course name: Separation Methods Practicals						
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 5 Per study period: 70 Course method: present						
Number of ECTS credits: 5						
Recommended semester/trimester of the course:						
Course level: I.						
Prerequisities: ÚCHV/ASM/03						
Conditions for course completion:1.Take part in all exercises.2. Assessment is based on active participation in all exercises according to the schedule and submitted protocols from individual tasks.						
Learning outcomes: To obtain practical experiences for applications of separation methods in analytical practice.						
Brief outline of the course: Application of gas chromatography, high-performance liquid chromatography and thin-layer chromatography methods in analysis. Application of electrophoretic methods. Spectrophotometric determination of selected analytes after extraction treatment of sample. Application of ion-exchange chromatography in analytical practice.						
Recommended literature: Skoog D. A., Leary J. J.: Principles of instrumental analysis. Saunders College Publishing, New York 1997. Pawliszyn J., Lord H. L.: Handbook of sample preparation, Wiley 2010. T.Gondová a kol.: Separation methods practicals - actual texts for exercises						
Course language:						
Notes:						
Course assessment Total number of assessed students: 149						
A B C D E FX						
89.26 10.07 0.67 0.0 0.0 0.0						
Provides: doc. RNDr. Taťána Gondová, CSc.						
Date of last modification: 15.11.2021						
Approved: RNDr. Miroslava Matiková Maľarová, PhD.						

University: P. J. Šafárik	University in Košice
Faculty: Faculty of Scie	nce
Course ID: ÚTVŠ/ Co TVa/11	ourse name: Sports Activities I.
Course type, scope and Course type: Practice Recommended course Per week: 2 Per study Course method: presen	the method: -load (hours): period: 28 nt
Number of ECTS credi	ts: 2
Recommended semeste	r/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for course c Min. 80% of active parti	ompletion: cipation in classes.
Learning outcomes: Sports activities in all the They have a great impa- enables students to stree improve.	eir forms prepare university students for their professional and personal life. ct on physical fitness and performance. Specialization in sports activities ngthen their relationship towards the selected sport in which they also
Brief outline of the cour Brief outline of the cour The Institute of physical activities aerobics; aikid yoga, power yoga, pilat tennis, chess, volleyball, Additionally, the Institu offers winter courses (si the Tisza River) with an participation.	rse: se: education and sport at the Pavol Jozef Šafárik University offers 20 sports o, basketball, badminton, body-balance, body form, bouldering, floorball, tes, swimming, fitness, indoor football, SM system, step aerobics, table , tabata, cycling. te of physical education and sport at the Pavol Jozef Šafárik University ki course, survival) and summer courses (aerobics by the sea, rafting on attractive programme, sports competitions with national and international
Recommended literatur BENCE, M. et al. 2005. [online] Dostupné na: ht BUZKOVÁ, K. 2006. F 8024715252. JARKOVSKÁ, H, JARI Grada. ISBN 978802473 KAČÁNI, L. 2002. Futt 8089197027. KRESTA, J. 2009. Futsa LAWRENCE, G. 2019. SNER, Wolfgang. 2004.	re: Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. tps://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 itness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN KOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: 57308. bal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN el.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.

STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 15781

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.74	0.06	0.0	0.0	0.0	0.04	9.0	5.15

Provides: Mgr. Patrik Berta, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., Mgr. Marcel Čurgali, Mgr. Alena Buková, PhD., univerzitná docentka, doc. PaedDr. Ivan Uher, MPH, PhD., prof. RNDr. Stanislav Vokál, DrSc., Mgr. Zuzana Küchelová, PhD., Mgr. Ferdinand Salonna, PhD.

Date of last modification: 07.02.2024

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ TVb/11	Course name: Sports Activities II.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for cours active participation in	e completion: n classes - min. 80%.
Learning outcomes: Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life. spact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
Brief outline of the c Brief outline of the co The Institute of physic activities aerobics; ai yoga, power yoga, p tennis, chess, volleyb Additionally, the Inst offers winter courses the Tisza River) with participation.	ourse: ourse: ical education and sport at the Pavol Jozef Šafárik University offers 20 sports kido, basketball, badminton, body-balance, body form, bouldering, floorball, ilates, swimming, fitness, indoor football, SM system, step aerobics, table vall, tabata, cycling. titute of physical education and sport at the Pavol Jozef Šafárik University (ski course, survival) and summer courses (aerobics by the sea, rafting on an attractive programme, sports competitions with national and international
Recommended litera BENCE, M. et al. 200 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252. JARKOVSKÁ, H, JA Grada. ISBN 978802 KAČÁNI, L. 2002. F 8089197027. KRESTA, J. 2009. Fu LAWRENCE, G. 201 SNER, Wolfgang. 20	 Ature: O5. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN ARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: 4757308. Yutbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN utsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. O4. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.

STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 13799

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
83.85	0.49	0.01	0.0	0.0	0.04	11.17	4.43

Provides: Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., Mgr. Alena Buková, PhD., univerzitná docentka, doc. PaedDr. Ivan Uher, MPH, PhD., prof. RNDr. Stanislav Vokál, DrSc., Mgr. Zuzana Küchelová, PhD., Mgr. Ferdinand Salonna, PhD.

Date of last modification: 07.02.2024

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ TVc/11	Course name: Sports Activities III.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for cours min. 80% of active pa	articipation in classes
Learning outcomes: Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life. pact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
Brief outline of the c Brief outline of the co The Institute of physic activities aerobics; ai yoga, power yoga, p tennis, chess, volleyb Additionally, the Inst offers winter courses the Tisza River) with participation.	ourse: ourse: ical education and sport at the Pavol Jozef Šafárik University offers 20 sports kido, basketball, badminton, body-balance, body form, bouldering, floorball, bilates, swimming, fitness, indoor football, SM system, step aerobics, table ball, tabata, cycling. titute of physical education and sport at the Pavol Jozef Šafárik University s (ski course, survival) and summer courses (aerobics by the sea, rafting on an attractive programme, sports competitions with national and international
Recommended litera BENCE, M. et al. 200 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252. JARKOVSKÁ, H, JA Grada. ISBN 978802 KAČÁNI, L. 2002. F 8089197027. KRESTA, J. 2009. Fu LAWRENCE, G. 201 SNER, Wolfgang. 20	 nture: 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 5. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN ARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: 4757308. Sutbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN utsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. 19. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. 04. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.

STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 9334

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
87.96	0.06	0.01	0.0	0.0	0.02	4.92	7.03

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., Mgr. Alena Buková, PhD., univerzitná docentka, doc. PaedDr. Ivan Uher, MPH, PhD., prof. RNDr. Stanislav Vokál, DrSc., Mgr. Zuzana Küchelová, PhD., Mgr. Ferdinand Salonna, PhD.

Date of last modification: 07.02.2024

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ TVd/11	Course name: Sports Activities IV.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce rse-load (hours): dy period: 28 esent
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for cours min. 80% of active pa	e completion: articipation in classes
Learning outcomes: Sports activities in all They have a great im enables students to s improve.	their forms prepare university students for their professional and personal life. apact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also
Brief outline of the c Brief outline of the co The Institute of physi activities aerobics; ai yoga, power yoga, p tennis, chess, volleyb Additionally, the Inst offers winter courses the Tisza River) with participation.	ourse: burse: cal education and sport at the Pavol Jozef Šafárik University offers 20 sports kido, basketball, badminton, body-balance, body form, bouldering, floorball, ilates, swimming, fitness, indoor football, SM system, step aerobics, table all, tabata, cycling. titute of physical education and sport at the Pavol Jozef Šafárik University (ski course, survival) and summer courses (aerobics by the sea, rafting on an attractive programme, sports competitions with national and international
Recommended litera BENCE, M. et al. 200 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252. JARKOVSKÁ, H, JA Grada. ISBN 978802 KAČÁNI, L. 2002. F 8089197027. KRESTA, J. 2009. Fu LAWRENCE, G. 201 SNER, Wolfgang. 20	 hture: 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN ARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: 4757308. https://réning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN httsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.

STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 5845

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
82.53	0.27	0.03	0.0	0.0	0.0	8.25	8.91

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., Mgr. Alena Buková, PhD., univerzitná docentka, doc. PaedDr. Ivan Uher, MPH, PhD., prof. RNDr. Stanislav Vokál, DrSc., Mgr. Zuzana Küchelová, PhD., Mgr. Ferdinand Salonna, PhD.

Date of last modification: 07.02.2024

	COURSE INFORMATION LETTER			
University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚCHV/ MUS/21	Course ID: ÚCHV/ Course name: Structure determination - spectroscopic methods IUS/21			
Course type, scope a Course type: Lectur Recommended cou Per week: 3 / 4 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 42 / 56 esent			
Number of ECTS cr	edits: 8			
Recommended seme	ster/trimester of the course:			
Course level: I.				
Prerequisities:				
1. Participation in exe of 3 control written w grade E from semina the basis of combined Percentage rating: 10 FX. Learning outcomes: Learn students funda	bercises in accordance with the Study Rules of PF UPJŠ. 2. Successful execution rorks on exercises after 4., 8. and 12. weeks of teaching. Obtaining a minimum rs. The test consists of: 1. Solution of 2 structures of unknown compounds on d application of spectral methods. 2. Theoretical and practical questions. 0-91% (A), 90-81% (B), 80-71% (C), 70-61% (D), 60-51% (E), 50% and less mentals of molecular spectroscopy and magnetic properties study, as			
powerful tools for str spectroscopy, mass sp	ructure determination in chemistry. Ultraviolet, visible, infrared and Raman pectrometry and methods based on magnetic resonance (1H NMR, 13C NMR).			
Brief outline of the c Fundamentals of mol tools for structure de spectroscopy. Symme organic and analytica shift and splitting of NMR of other nucl instruments used for of chemical problems	ecular spectroscopy, mass spectrometry and magnetic methods as powerful termination in chemistry. Ultraviolet and visible spectroscopy. Emission etry and group theory. Infrared and Raman spectroscopy. Mass spectrometry in al chemistry and biochemistry. Nuclear magnetic resonance - NMR. Chemical signals by spin-spin coupling. Coupling constants. 1H NMR, 13C NMR, ei. Two- and more dimensional NMR. NMR applications. Methods and spectra measurements. Combined application of spectral methods for solution s.			
Recommended litera 1. Kováč Š., Ilavský Bratislava, 1987. 2. Milata V., Segľa P. 3. Milata V., Segľa P. 4. Miertuš S. a kol.:	nture: D., Leško J.: Spektrálne metódy v organickej chémii a technológii, ALFA, .: Vybrané metódy molekulovej spektroskopie. STU BA, 2007. .: Spektrálne metódy v chémii. STU FCHPT Bratislava 2002. Atómová a molekulová spektroskopia, ALFA, Bratislava 1991.			

5. T. D. W. Claridge: High-Resolution NMR Techniques in Organic Chemistry, 5. Ed., Elsevier, 2016.

Course language:

slovak

Notes: In-person course, alternatively online course using the BigBlueButton tool or MS Teams. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.					
Course assessm	Course assessment				
A	B C D E FX				
52.63	2.63 31.58 5.26 10.53 0.0 0.0				
Provides: doc. RNDr. Juraj Kuchár, PhD., RNDr. Monika Tvrdoňová, PhD., RNDr. Zuzana Kudličková, PhD.					
Date of last mo	dification: 07.11	.2022			

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚCHV/ SVKA1/00	ourse ID: ÚCHV/ VKA1/00Course name: Students Scientific Conference (Presentation)			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present				
Number of ECTS cro	edits: 4			
Recommended seme	ster/trimester of the cours	e:		
Course level: I., II.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the course:				
Recommended litera	iture:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 14				
	abs n			
100.0 0.0				
Provides: prof. RNDr. Juraj Černák, DrSc., prof. RNDr. Vladimír Zeleňák, DrSc., doc. RNDr. Miroslav Almáši, PhD., doc. RNDr. Ivan Potočňák, PhD., RNDr. Miroslava Matiková Maľarová, PhD., prof. RNDr. Zuzana Vargová, Ph.D., doc. RNDr. Juraj Kuchár, PhD., Mgr. Nikolas Király, PhD.				
Date of last modification: 08.09.2021				

University: P. J. Šafán	rik University in Košice					
Faculty: Faculty of S	cience					
Course ID: ÚTVŠ/ LKSp/13	Course ID: ÚTVŠ/ Course name: Summer Course-Rafting of TISA River					
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	nd the method: ce cse-load (hours): dy period: 28 csent					
Number of ECTS cro	edits: 2					
Recommended seme	ster/trimester of the course:					
Course level: I., II.						
Prerequisities:						
Conditions for cours Completion: passed Condition for success - active participation - effective performance paddling	e completion: ful course completion: in line with the study rule of procedure and course guidelines ce of all tasks: carrying a canoe, entering and exiting a canoe, righting a canoe,					
Learning outcomes: Content standard: The student demonstr course syllabus and re Performance standard Upon completion of t - implement the acqu - implement basic ski - determine the right s - prepare a suitable m	ates relevant knowledge and skills in the field, which content is defined in the ecommended literature. I: he course students are able to meet the performance standard and: ired knowledge in different situations and practice, lls to manipulate a canoe on a waterway, spot for camping, aterial and equipment for camping.					
 Brief outline of the c Brief outline of the co 1. Assessment of diff 2. Safety rules for raff 3. Setting up a crew 4. Practical skills train 5. Canoe lifting and co 6. Putting the canoe in 7. Getting in the canoe 8. Exiting the canoe on 10. Steering a) The pry stroke (on b) The draw stroke 	burse: burse: iculty of waterways ting ning using an empty canoe arrying n the water without a shore contact e ut of the water fast waterways)					

11. Capsizing

12. Commands

Recommended literature:

1. JUNGER, J. et al. Turistika a športy v prírode. Prešov: FHPV PU v Prešove. 2002. ISBN 8080680973.

Internetové zdroje:

1. STEJSKAL, T. Vodná turistika. Prešov: PU v Prešove. 1999.

Dostupné na: https://ulozto.sk/tamhle/UkyxQ2lYF8qh/name/Nahrane-7-5-2021-v-14-46-39#! ZGDjBGR2AQtkAzVkAzLkLJWuLwWxZ2ukBRLjnGqSomICMmOyZN==

n

63.36

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 232

abs

uos

36.64

Provides: Mgr. Dávid Kaško, PhD.

Date of last modification: 29.03.2022

	1 TT ' ' TZ V'			
University: P. J. Satarik University in Kosice				
Faculty: Faculty of S	cience			
Course ID: ÚTVŠ/ KP/12	Course name: Survival Course			
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	and the method: ce rse-load (hours): ady period: 28 esent			
Number of ECTS cr	edits: 2			
Recommended seme	ster/trimester of the course:			
Course level: I., II.				
Prerequisities:				
Conditions for course Completion: passed Condition for success - active participation - effective performan Learning outcomes: Content standard: The student demonstr course syllabus and r Performance standard Upon completion of t - acquire knowledge - obtain theoretical kn connected with survir - be able to resist a environment, - be able implement children and youth w	se completion: in line with the study rule of procedure and course guidelines, in line with the study rule of procedure and course guidelines, in line with the study rule of procedure and course guidelines, in line with the study rule of procedure and course guidelines, in the tasks defined in the course syllabus rates relevant knowledge and skills in the field, which content is defined in the ecommended literature. d: the course students are able to meet the performance standard and should: about safe stay and movement in natural environment, nowledge and practical skills to solve extraordinary and demanding situations val and minimization of damage to health, nd face situations related to overcoming barriers and obstacles in natural is the acquired knowledge as an instructor during summer sport camps for ithin recreational sport.			
 Brief outline of the c Brief outline of the c Principles of condu Preparation and gu Objective and subj Principles of hygie Fire building Movement in the u Shelters Food preparation a Rappelling, Tyrolia Transport of an ir 	course: ourse: uct and safety in the movement in unfamiliar natural environment idance of a hike tour fective danger in the mountains ene and prevention of damage to health in extreme conditions unfamiliar terrain, orientation and navigation and water filtering an traverse hjured person, first aid			

Recommended literature:

1. JUNGER, J. et al. Turistika a športy v prírode. Prešov: Fakulta humanitných a prírodných vied PU v Prešove. 2002. 267s. ISBN 80-8068-097-3.

n

53.8

PAVLÍČEK, J. Člověk v drsné přírodě. 3. vyd. Praha: Práh. 2002. ISBN 8072520598.
 WISEMAN, J. SAS: příručka jak přežít. Praha: Svojtka & Co. 2004. 566s. ISBN 8072372807.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 461

abs

46.2

Provides: Mgr. Ladislav Kručanica, PhD.

Date of last modification: 16.05.2023

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚCHV/ FTEP1/03Course name: Theory of electrochemical processes			
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 1 Per study period: 28 / 14 Course method: present			
Number of ECTS credits: 5			
Recommended semester/trimester of the course:			

Course level: I., II.

Prerequisities:

Conditions for course completion:

1. Participation in seminars (also applies to the online form of teaching) and laboratory exercises. Students are required to attend seminars and laboratory exercises. The relevant teacher who leads the seminar or practical exercise will justify the student's justified non-participation (incapacity for work, family reasons, etc.) in a maximum of two seminars during the semester without the need for substitute performance. In the case of a longer-term justified absence (for example due to incapacity for work), the relevant teacher will assign the student an alternative form of mastering the missed material.

2. Activity at seminars and practical exercises. The preparation of students and their activity in seminars and exercises is always assessed by the relevant teacher who conducts the seminar or exercise, within his / her competence.

3. The exam is carried out in the form of a written test, resp. in case of restrictions of contact forms of the pedagogical process, the exam will be performed in a suitable distance - electronic form.

4. To successfully master the subject, it is necessary to prove mastery of the required curriculum at least 51%.

Learning outcomes:

To provide the students with knowledge on the basic theoretical principles, kinetics and mechanism of electrode and electrochemical processes and with selected experimental methods.

Brief outline of the course:

Fundamentals of electrochemical thermodynamics. Electrochemical potential and equilibrium at the electrode/solution interface. Electric double layer - fundamental models of the double layer structure. Adsorption phenomena at the electrode/solution interface. Fundamentals of electrochemical kinetics. Polarization curves and informations provided by them (charge transfer coefficient, heterogeneous rate constant). Influence of transport processes on electrode kinetics (convection, diffusion, migration). Reversibility of electrode reactions. Influence of the double layer structure on kinetics of electrode processes. Theory of electrolytic deposition.

Experimental methods for electrochemical kinetics (single pulse and multipulse potentiostatic methods, cyclic voltammetry with dc and dp scan, coulometry, chronopotentiometry). Spectroelectrochemistry. QCM

Recommended literature:

J.O'M. Bockris, A.K.N. Reddy: Modern Electrochemistry, Macdonald, London 2002

A.J. Bard, L.R. Faulkner: Electrochemical Methods, Fundamentals and Applications, John Wiley and Sons, New York 1980

J. Koryta, J. Dvořák, L. Kavan: Principles of Electrochemistry, John Wiley & Sons, New York 1993

E. Scholz (Ed.): Electroanalytical Methods, Guide to Experiments and Applications, Springer Vrlg., Berlin 2002

T. Engel, P. Reid: Physical Chemistry, Pearson Educat. Inc., San Francisco 2006

Course language:

Slovak language.

Notes:

Teaching is carried out in person or, if necessary, remotely using the bbb or MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 40

А	В	С	D	Е	FX
75.0	15.0	5.0	0.0	5.0	0.0

Provides: prof. RNDr. Renáta Oriňaková, DrSc.

Date of last modification: 12.11.2021

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚCHV/ ZMCHL/23	Irse ID: ÚCHV/Course name: Základné metodiky v chemickom laboratóriuCHL/23				
Course type, scope a Course type: Lectur Recommended cour Per week: 0 / 6 Per Course method: pre	Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 0 / 6 Per study period: 0 / 84 Course method: present				
Number of ECTS cr	edits: 6				
Recommended seme	ster/trimester of the cours	e:			
Course level: I.					
Prerequisities:					
Conditions for cours	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 0					
	abs n				
0.0 0.0					
Provides: doc. RNDr. Miroslav Almáši, PhD., Mgr. Michaela Rendošová, PhD., prof. RNDr. Zuzana Vargová, Ph.D., RNDr. Slávka Hamul'aková, PhD., univerzitná docentka, prof. RNDr. Renáta Oriňaková, DrSc., Mgr. Gabriela Kuzderová, RNDr. Jana Šandrejová, PhD., univerzitná docentka					
Date of last modification: 18.12.2023					
1					

v v
University: P. J. Šafárik University in Košice
Faculty: Faculty of Science
Course ID: ÚCHV/ Course name: Základy chemického inžinierstva ZCHI/23 Course name: Základy chemického inžinierstva
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: 5
Recommended semester/trimester of the course:
Course level: I.
Prerequisities:
Conditions for course completion:
Learning outcomes:
Brief outline of the course:
Recommended literature:
Course language:
Notes:
Course assessment Total number of assessed students: 0
A B C D E FX
0.0 0.0 0.0 0.0 0.0 0.0
Provides: Ing. RNDr. Andrea Džubinská, PhD.
Date of last modification: 18.12.2023
Approved: RNDr. Miroslava Matiková Maľarová, PhD.