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University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: 1D & 2D NMR Spectroscopy

NMR1/00

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

Per week: 2 / 3 Per study period: 28 / 42

Course method: present

**Number of ECTS credits: 6** 

Recommended semester/trimester of the course: 2.

Course level: II.

# **Prerequisities:**

# **Conditions for course completion:**

Active student's work at seminars and individual homework, written examinations in 7th and 14th semestral week.

Terminal examination in written form (4 exercises from combined applications of 1D a 2D NMR and other spectral methods) and oral form (3 themes) joining theoretical knowledge with a practical solution of selected NMR problems and exercises.

# Learning outcomes:

Students will learn how to analyze structure and properties of organic, inorganic and biomolecular compounds by 1D and 2D proton and carbon NMR spectra, quantitative NMR analysis, and practical applications in various fields of science and technology.

## **Brief outline of the course:**

Theoretical principles of nuclear magnetic resonance (NMR), basic NMR pulse techniques and Fourier transformation, NMR spectrometers, description of NMR by vector models. Parameters of one- (1D) and two-dimensional (2D) NMR spectra, practical application of 1H and 13C NMR spectra and basic correlated 2D spectra for structure and stereochemical arrangement, elucidation of reaction mechanisms, molecular dynamics, physico-chemical properties and quantitative analysis of chemical compounds.

#### Recommended literature:

- 1. Friebolin H.: Basic One- and Two-Dimensional NMR Spectrocopy, 5. Ed., Wiley, 2010.
- 2. T. D. W. Claridge: High-Resolution NMR Techniques in Organic Chemistry, Elsevier, 1999.
- 3. Atta-ur-Rahman, M. I. Choudhary: Solving Problems with NMR spectroscopy, Academic Press 1996.
- 4. H.-O. Kalinowski, S. Berger, S. Braun: Carbon-13 NMR Spectroscopy. Wiley, New York 1988
- 5. A. E. Derome: Modern NMR Techniques for Chemistry Research. Pergamon Press, Oxford 1987.
- 6. E. Pretsch, B. Buhlmann, C. Affolter: Structure Determination of Organic Compounds. Tables of Spectral Data. Springer Verlag, Berlin 2000.
- 7. E. Breitmaier: Structure Elucidation by NMR in Organic Chemistry: A Practical Guide, 3rd Ed., Wiley, 2002.

Course languag	ge:				
Notes:					
Course assessm Total number of	nent f assessed student	rs: 173			
A	В	С	D	Е	FX
38.15	26.01	24.28	9.83	1.73	0.0
Provides: doc. 1	RNDr. Ján Imrich	, CSc.			
Date of last mo	dification: 03.05	.2015			
Approved: prof	Dr. Yaroslav Ba	zeľ, DrSc.			

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course na

Course name: Analysis of Psychotropic and Narcotic Substances

APO1/02

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: 4** 

**Recommended semester/trimester of the course:** 3.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Examination

# **Learning outcomes:**

Survey of classification, effects/mechanism and properties of psychotropic and narcotic substances, drug dependences and methods used in the (toxicological) analysis of drugs.

## **Brief outline of the course:**

Drug, drug dependence. Psychotropic and narcotic substances - classification, properties and laws. Dose and tolerance, therapy, prevention. Pharmacokinetics of the drug. Biological effects, biotransformations, receptors. The methods used in the analysis of the drugs (clinical, forensic analysis) - opiates, cocaine, amphetamines and their analogues, hallucinogenics, cannabis products, etc.

## **Recommended literature:**

- 1. M. D. Cole: The Analysis of Controlled Substances, Wiley 2003.
- 2. E. Hodgson: A Textbook of Modern Toxicology, Wiley 2004.

# Course language:

Notes:

# Course assessment

Total number of assessed students: 238

A	В	С	D	Е	FX
95.38	3.78	0.84	0.0	0.0	0.0

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.05.2015

University: P. J. Šafá	University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	cience						
Course ID: ÚCHV/ ANAL/18	Course name: Analysis of	f drugs					
Course method: pro Number of ECTS cr	re / Practice rse-load (hours): study period: 28 / 14 esent	se:					
Prerequisities:			_				
Conditions for cours	se completion:		_				
Learning outcomes: Survey of basic princ	riples, methods and new tre	ends in drugs analysis.					
Brief outline of the c	ourse:						
Recommended litera	iture:						
Course language:							
Notes:							
Course assessment Total number of asse	ssed students: 8						
abs n							
100.0 0.0							
Provides: doc. RNDr	. Taťána Gondová, CSc.						
Date of last modifica	ation: 03.02.2020		_				
Approved: prof. Dr.	Yaroslav Bazel', DrSc.						

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Analytical Chemistry ACHSP/14/15 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: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 44 C Α В D Е FX 50.0 25.0 20.45 4.55 0.0 0.0 **Provides:** Date of last modification: 03.05.2015 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Cou

Course name: Analytical Chemistry III.

ANCH2/06

Course type, scope and the method:

Course type: Lecture / Practice

Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

**Recommended semester/trimester of the course:** 1.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Test

**Test** 

# **Learning outcomes:**

Advanced theoretical and practical knowledge of of instrumental methods of analysis.

#### **Brief outline of the course:**

Analytical chemistry. Objects of analysis. Instrumental equipment of a modern analytical laboratory. Relationship between analytical chemistry and other scientific branches. Problems and trends in recent analytical chemistry. Speed and factors affecting the speed of analysis. Validation of analytical methods. Non-destructive methods of analysis, principle, utility. Distance analysis. Automation of analysis, examples. Flow analysis – FIA and SIA. Analytical reaction, chemical equilibrium in solutions. Kinetic analytical methods. Radiochemical analytical methods. Secondary Ion Mass Spectrometry. X-ray Photoelectron spectrometry. Mass pectrometry. Roentgen spectroscopic methods.

## **Recommended literature:**

1. H.H. Willard, L.L. Merritt, Jr., J.A. Dean, F.A. Settle, Jr.: Instrumental Methods of Analysis, Wadsworth Publ. Co., Belmont (CA) 1988, ISBN 0-534-08142-8

# Course language:

# **Notes:**

## Course assessment

Total number of assessed students: 86

Α	В	С	D	Е	FX
39.53	32.56	22.09	1.16	3.49	1.16

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

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: KF/ Course name: Ancient Philosophy and Present Times AFS/05 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:** 2. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 31 C A В D Е FX 80.65 6.45 6.45 0.0 6.45 0.0 Provides: Doc. PhDr. Peter Nezník, CSc. Date of last modification: 17.09.2020 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: Atomic Spectrochemistry

AAS1/03

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

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

**Course method:** present

**Number of ECTS credits: 6** 

**Recommended semester/trimester of the course:** 1.

Course level: II.

# **Prerequisities:**

## **Conditions for course completion:**

On the basis of the practical results and seminary works.

On the basis of continuous assessment and oral examination.

# **Learning outcomes:**

Theoretical information and practical experience with atomic absorption and emission methods used in analytical chemistry.

## **Brief outline of the course:**

Information and the role of atomic absorption and emission spectroscopy in analytical chemistry. History of the development of spectral methods.

Theoretical foundations, principles and classification of optical methods. Experimental foundations of spectral methods. Atomic absorption spectrometry. Atomic emission spectrometry.

Atomic fluorescence spectrometry. X-ray spectrometry. Absorption spectroscopy in the visible, ultraviolet and near-infrared region and its analytical applications.

## **Recommended literature:**

I.Němcová, L. Čermáková, P. Rychlovský: Spektrometrické analytické metódy. Karolinum , Praha. 1997.

- D. A. Skoog, J. J. Leary: Instrumental Analytics. Springer, Berlin, 1996.
- B. Welz, M. Sperling: Atomic Absorption Spectrometry, Wiley-VCH, Weinheim, 1998.
- H. Günzler, A. Wiliams: Handbook of Analytical Techniques. Wiley-VCH, Weinheim, 2001.
- G. Gauglitz, T. Vo-Dinh: Handbook of Spectroscopy. Wiley-VCH, Weinheim, 2003.

# Course language:

# **Notes:**

## Course assessment

Total number of assessed students: 93

A	В	С	D	Е	FX
38.71	23.66	20.43	12.9	4.3	0.0

Provides: doc. Ing. Viera Vojteková, PhD.

**Date of last modification:** 03.05.2015

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚCHV/ BACH1/03	Course name: Bioanalytical Chemistry
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 1 Per Course method: pre	re / Practice rse-load (hours): study period: 28 / 14
Number of ECTS cr	edits: 5
Recommended seme	ster/trimester of the course: 1.
Course level: II.	
Prerequisities:	
Conditions for cours Written test Oral examination	e completion:
	ge and practical experience regarding application of analytical chemistry and laboratory medicine.
analytes in biologica procedures of sampl Enzymes in bioanaly reagents. Moderators and Aglutination me Nonisotopic methods	analytical Chemistry, biological samples classification. Factors affecting I samples. Collection, transport and storage of biological samples. Selected e pretreatment Control and management of quality in clinical laboratory. In the sistence of enzyme activity. Introduction to Immunochemical methods, Precipitation of enzyme activity. Introduction to Immunochemical methods, Precipitation of the storage of the sistence of enzyme activity. Introduction to Immunochemical methods, Precipitation of ElA, ELISA, LIA, FIA). Investigative procedures in medical microbiology. ation of analytical procedures in clinical chemistry, microchips, nanochips,
2. Wilson, I.: Bioanal 3. Suelter, C. H., Krid Instrumentation, Wile	Cortón, E.: Bioanalytical Chemistry, Wiley, 2004. lytical Separations 4, (Handbook of Analytical Separations), Elsevier, 2003. cka, L. J.: Methods of Biochemical Analysis, Vol.37, Bioanalytical ey, 1994. , Wehr, T., Tuck, S.: Analytical Techniques for Biopharmaceutical
Course language:	

**Notes:** 

Course assessment Total number of assessed students: 100						
A B C D E FX						
34.0	37.0	19.0	9.0	1.0	0.0	
Provides: doc. RNDr. Katarína Reiffová, PhD.						
Date of last modification: 03.05.2015						
Approved: prof	Approved: prof. Dr. Yaroslav Bazel', DrSc.					

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: KF/ Course name: Chapters from History of Philosophy of 19th and 20th KDF/05 Centuries (General Introduction) 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:** 2. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 10 C Α В D Е FX 50.0 20.0 10.0 0.0 10.0 10.0 Provides: doc. PhDr. Pavol Tholt, PhD., mim. prof. Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Cour

Course name: Chemometrics

ACM1/06

Course type, scope and the method: Course type: Lecture / Practice

Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

Recommended semester/trimester of the course: 2.

Course level: II.

# **Prerequisities:**

# **Conditions for course completion:**

On the basis of the tests and seminary works

On the basis of the continuous assessment and examination.

# **Learning outcomes:**

Knowledge about the correct and theoretically based evaluation of analytical results and methods. Knowledge about the methods of validation and accreditation of laboratories.

Knowledge about the result uncertainties and methods of decision statistics.

## **Brief outline of the course:**

The principles of the mathematic- statistical methods used in analytical chemistry. Probability distribution of the measuring results. Classic and robust estimation of the mean value and variance. Statistical tests and their application. Accuracy, precision, and reliability of the results. Uncertainty of the results. Calibration in the analytical chemistry, linear and nonlinear models.

Evaluation of the analytical methods, the chosen optimization approaches. Solving of the typical examples in the frame of the practical lectures.

## Recommended literature:

R. G. Brereton: Chemometrics., Wiley, Chichester, 2003

M. Meloun, J. Militký: Kompendium statistického zpracování dat., Academia, Praha 2006

# Course language:

# **Notes:**

## **Course assessment**

Total number of assessed students: 90

A	В	С	D	Е	FX
36.67	27.78	23.33	6.67	5.56	0.0

Provides: doc. Ing. Viera Vojteková, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafár	University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	Faculty: Faculty of Science					
Course ID: ÚCHV/ RP/14	Course ID: ÚCHV/ Course name: Class Project RP/14					
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:					
Number of ECTS cro	edits: 6					
Recommended seme	ster/trimester of the cours	e: 2.				
Course level: II.						
Prerequisities:						
<b>Conditions for cours</b>	e completion:					
Learning outcomes:						
Brief outline of the c	ourse:					
Recommended litera	ture:					
Course language:						
Notes:						
Course assessment Total number of asses	ssed students: 164					
	abs	n				
	98.78 1.22					
Zuzana Vargová, Ph.D Juraj Kuchár, PhD., pr Dr. Yaroslav Bazeľ, D	D., RNDr. Martin Vavra, Ph Irof. RNDr. Vladimír Zeleňál DrSc., prof. Mgr. Vasil' Andro ondová, CSc., doc. Ing. Vier	Miroslava Matiková Maľarová, PhD., doc. RNDr. D., prof. RNDr. Juraj Černák, DrSc., doc. RNDr. k, DrSc., doc. RNDr. Ivan Potočňák, PhD., prof. uch, DSc., doc. RNDr. Katarína Reiffová, PhD., ra Vojteková, PhD., RNDr. Rastislav Serbin,				
Date of last modifica	tion: 03.05.2015					
<b>Approved:</b> prof. Dr. Y	Yaroslav Bazel', DrSc.					

University: P. J. Šafárik University in Košice						
Faculty: Faculty of S	cience					
Course ID: KPPaPZ/KK/07						
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre	ce rse-load (ho dy period: e esent	ours):				
Number of ECTS cr						
Recommended seme	ster/trimest	ter of the course: 3.				
Course level: II.						
Prerequisities:						
Conditions for cours	se completio	on:				
Learning outcomes:						
Brief outline of the c	ourse:					
Recommended litera	iture:					
Course language:						
Notes:						
Course assessment Total number of asses	ssed student	s: 281				
abs	abs n z					
98.22 1.78 0.0						
Provides: Mgr. Ondre	ej Kalina, Pl	nD., Mgr. Lucia Barbierik, PhD.				
Date of last modifica	tion: 16.02.	2021				
<b>Approved:</b> prof. Dr. `	Yaroslav Ba	zeľ, DrSc.				

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Diploma Thesis and its Defence DPO/14 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 20** Recommended semester/trimester of the course: Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 140 C Ε Α В D FX 65.71 25.0 5.71 2.14 1.43 0.0 **Provides:** Date of last modification: 03.05.2015 Approved: prof. Dr. Yaroslav Bazel', DrSc.

Page: 17

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Co

Course name: Electrophoretic Methods

EMST/05

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: II.

# **Prerequisities:**

# **Conditions for course completion:**

Examination

# **Learning outcomes:**

Basic principles of electromigration techniques and their application in practise.

## **Brief outline of the course:**

Principles and classification of electromigration techniques - Zone electrophoresis, The moving boundary method, Focusing methods, Capillary isotachophoresis (cITP), Micellar electrokinetic chromatography (MEKC). Capillary zone electrophoresis (CZE). Principle of separation in an electric field, the phenomena accompanying separation in an electric field - electroosmotic pressure, Joule heat, diffusion, gravity, adsorption, instrumentation, detection, qualitative and quantitative analysis, electrophoretic separation on a microchip. Electrophoresis of nucleic acid, Elektrophoresis of serum proteins

## **Recommended literature:**

- 1. Handbook of Capillary Electrophoresis, 2nd Ed., CRC, Boca Raton, 1997
- 2.P.Boček:Basic course and Advanced course of Isotachophoresis,Institute of Analytical Chemistry, Czech Academy of Science, Brno, 1984

# Course language:

#### Notes:

#### Course assessment

Total number of assessed students: 9

A	В	С	D	Е	FX
33.33	66.67	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 04.02.2020

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

Page: 18

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course name

AZP1/04

Course name: Environmental Analytical Chemistry

Course type, scope and the method: Course type: Lecture / Practice

Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

Recommended semester/trimester of the course: 1., 3.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Test / Exam

# **Learning outcomes:**

Getting knowledge about the methods of environmental analysis.

## **Brief outline of the course:**

Sampling techniques and sample pretreatment in environmental analysis. Quality assurance for environmental analysis. Good laboratory practice. Application of the chemometric tools in environmental analysis. Analysis of water, soil, ore, sediment, air, food samples. Analysis of environmental samples by spectroscopic methods. Separation techniques in environmental analysis. Application of electrochemical methods for environmental samples.

# **Recommended literature:**

- 1. A.M. Ure, C.M. Davidson, Chemical Speciation in the Environment. Blackie, London 1995.
- 2. J.R. Dean, Extraction Methods for Environmental Analysis. Wiley, 1988.
- 3. H.D. Belitz, W. Grosch, P. Schieberle, Food Chemistry, Springer Verlag, 2004.

## Course language:

Slovak

# **Notes:**

#### Course assessment

Total number of assessed students: 255

A	В	С	D	Е	FX
46.27	16.86	18.04	7.06	11.76	0.0

**Provides:** prof. Mgr. Vasil' Andruch, DSc., RNDr. Rastislav Serbin, PhD., RNDr. Jana Šandrejová, PhD., RNDr. Lívia Kocúrová, PhD.

Date of last modification: 31.01.2020

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/

**Course name:** Experimental Methods to Master's Thesis

EMDP/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:** 3.

Course level: II.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

**Brief outline of the course:** 

**Recommended literature:** 

**Course language:** 

**Notes:** 

## Course assessment

Total number of assessed students: 378

A	В	С	D	Е	FX
94.18	3.7	0.79	0.53	0.79	0.0

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Peter Pristaš, CSc., doc. RNDr. Peter Javorský, DrSc., doc. RNDr. Ján Imrich, CSc., doc. RNDr. Mária Kožurková, CSc., prof. Ing. Marián Antalík, DrSc., prof. RNDr. Juraj Černák, DrSc., prof. RNDr. Jozef Gonda, DrSc., prof. RNDr. Andrej Oriňak, PhD., doc. RNDr. Zuzana Vargová, Ph.D., doc. RNDr. Taťána Gondová, CSc., doc. RNDr. Miroslava Martinková, PhD., prof. RNDr. Renáta Oriňaková, DrSc., doc. RNDr. Ivan Potočňák, PhD., doc. RNDr. Erik Sedlák, DrSc., prof. RNDr. Vladimír Zeleňák, DrSc., doc. RNDr. Viktor Víglaský, PhD., doc. RNDr. Katarína Reiffová, PhD., RNDr. Miroslava Matiková Maľarová, PhD., doc. RNDr. Juraj Kuchár, PhD., RNDr. Nataša Tomášková, PhD., RNDr. Andrea Morovská Turoňová, PhD., RNDr. Dušan Koščík, CSc., RNDr. Daniela Kladeková, CSc., RNDr. Slávka Hamuľaková, PhD., RNDr. Rastislav Varhač, PhD., RNDr. Daniea Sabolová, PhD., RNDr. Zuzana Kudličková, PhD., RNDr. Lívia Kocúrová, PhD., prof. Mgr. Vasiľ Andruch, DSc., prof. Dr. Yaroslav Bazeľ, DrSc., RNDr. Ladislav Janovec, PhD., doc. Ing. Viera Vojteková, PhD., RNDr. Miroslav Almáši, PhD., RNDr. Gabriel Žoldák, PhD.

**Date of last modification:** 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/

**Course name:** Forensic and Clinical Analytical Chemistry

SKACH1/06

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: 2., 4.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Examination.

# **Learning outcomes:**

Application of analytical methods in forensic medicine.

# **Brief outline of the course:**

Basic principles and definition of subject. Basic criminalistic categories. Criminalistic track. Criminalistic technology. Criminalistic methods, resources, procedures and operations. Introduction to forensic chemistry. Chemical, physical and physicochemical methods of research tracks and material evidence. Fingerprints. Forensic biology. Forensic toxicology.

#### **Recommended literature:**

- 1.A. Mozayani, C.Noziglia: The Forensic Laboratory Handbook. Procedures and Practice, Springer, 2006
- 2.H.Duffus, H.G.J.Worth: Fundamental Toxicology, Springer, 2006
- 3.R.Bertholf, R.Winecker: Chromatographic Methods in Clinical Chemistry and Toxicology, Wiley. 2007

# Course language:

# **Notes:**

#### **Course assessment**

Total number of assessed students: 49

A	В	С	D	Е	FX
55.1	30.61	14.29	0.0	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: KF/ **Course name:** History of Philosophy 2 (General Introduction) DF2p/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: 4** Recommended semester/trimester of the course: Course level: I., II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 739 C A В D Е FX 60.89 13.8 12.58 8.66 3.38 0.68 Provides: Doc. PhDr. Peter Nezník, CSc. Date of last modification: 25.03.2020 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/

CHHS/07

**Course name:** Hydrochemistry

Course type, scope and the method:

Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

Recommended semester/trimester of the course: 1., 3.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Test / Exam

# **Learning outcomes:**

Getting knowledge about the hydrochemistry.

## **Brief outline of the course:**

Types of natural waters and their properties. Chemical content and properties of nature water. Surface waters. Chemical content and properties of surface waters. Fundamentals of aquatic chemistry. The hydrologic cycle. Mineral waters, their classification. Chemical content and properties of mineral waters. Underground water. Processes influencing the content of underground water. Sea water. Waste water. Content and properties of waste water. Basic strages of water analysis. Sampling. Physical properties of water. Methods of analysis of water chemical content. Biochemical oxygen demand. Dissolved oxygen. Distributing diagrams. Interaction of content of water and sediments. Test-methods in water analysis. Automatic monitoring stations. Sensor systems. Requirements for water quality.

## **Recommended literature:**

- 1. Handbook of Water and Wastewater Treatment Technologies. Ed. By Nicholas P Cheremisinoff, Butterworth Heinemann, 2001. 576 p.
- 2. Principles of Water Quality Control, Ed. by Thy Tebbutt, Butterworth Heinemann, 1997. 288
- 3. Water Technology. Ed. by N. F. Gray, Butterworth Heinemann, 2005. 600 p.

# Course language:

Slovak

**Notes:** 

#### Course assessment

Total number of assessed students: 126

A	В	С	D	Е	FX
29.37	18.25	15.87	18.25	18.25	0.0

Page: 23

**Provides:** prof. Mgr. Vasil' Andruch, DSc., RNDr. Rastislav Serbin, PhD., RNDr. Lívia Kocúrová, PhD.

Date of last modification: 31.01.2020

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: KF/ Course name: Idea Humanitas 2 (General Introduction) IH2/03 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:** 3. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 9  $\mathbf{C}$ A В D Е FX 88.89 11.11 0.0 0.0 0.0 0.0 Provides: Doc. PhDr. Peter Nezník, CSc. Date of last modification: 12.02.2021 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ C

Course name: Liquid Chromatography

KCHR/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: 1.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Examination

# **Learning outcomes:**

Advanced knowledges about LC applications

## **Brief outline of the course:**

Theoretical principles of liquid chromatography. Selection and optimisation of separation process. Sample pretreatment. New trends in HPLC techniques - uLC, chiral analysis, multidimensional chromatography, combined systems with LC. Applications.

#### **Recommended literature:**

Skoog D.A.: Principles of Instrumental Analysis. Saunders, New York 1985.

Mondello L., Lewis A.C., Bartle K.D.: Multidimensional Chromatography, Wiley, 2002.

## Course language:

# **Notes:**

#### Course assessment

Total number of assessed students: 54

A	В	С	D	Е	FX
57.41	33.33	7.41	1.85	0.0	0.0

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.02.2020

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: Molecular Spectrometry

MOL/06

Course type, scope and the method: Course type: Lecture / Practice

Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

**Recommended semester/trimester of the course:** 2.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Test

**Test** 

## **Learning outcomes:**

Advanced theoretical and practical knowledge of the methods of molecular spectroscopy.

## **Brief outline of the course:**

Molekular spectrophotometry (Ultra-Violet, Visible, Infrared) for Chemical Analysis. Fourier Transform Infrared. Raman spectrometry. Microwave spectrometry. Electron Paramegnetic Resonance. Nuclear Magnetic Resonance.

## **Recommended literature:**

E.D.Olsen. Modern optical methods of analysis. McGraw-Hill, Inc. 1975.

A.Skoog, J.J.Leary. Instrumentelle Analytic. Springer. Berlin-Heidelberg. 1996.

# Course language:

**Notes:** 

## Course assessment

Total number of assessed students: 57

A	В	C	D	Е	FX
38.6	33.33	22.81	5.26	0.0	0.0

Provides: prof. Dr. Yaroslav Bazel', DrSc., RNDr. Rastislav Serbin, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/

**Course name:** Practical in Bioanalytical Chemistry

PBACH1/03

Course type, scope and the method:

**Course type:** Practice

Recommended course-load (hours): Per week: 3 Per study period: 42

Course method: present

**Number of ECTS credits: 3** 

Recommended semester/trimester of the course: 2., 4.

Course level: II.

**Prerequisities:** 

# **Conditions for course completion:**

Assessment

# **Learning outcomes:**

Application of theoretical knowledge to bioanalytical laboratory practise

# **Brief outline of the course:**

Analytical chemistry in laboratory medicine, basic analysis of biological systems, the nature and processing of biological samples, enzymes in bioanalysis, immunochemical methods, radioimunoanalytical methods (RIA), electrophoretic methods, analytical significance of nucleic acid, selected separation methods for the analysis of biomolecules.

## **Recommended literature:**

- 1. Mikkelsen S.R, Cortón E.: Bioanalytical Chemistry, Wiley, 2004
- 2. Wilson I.: Bioanalytical Separations 4, (Handbook of Analytical Separations), Elsevier, 2003
- 3. Suelter C.H., Kricka L.J.: Methods of Biochemical Analysis, Vol.37, Bioanalytical Instrumentation, Wiley, 1994
- 4. Rodriguez-Diaz R., Wehr T., Tuck S.: Analytical Techniques for Biopharmaceutical Development, Marcell Dekker, 2005

# Course language:

Notes:

#### Course assessment

Total number of assessed students: 0

A	В	С	D	Е	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Course name: Psychology and Health Psychology (Master's Study)

KPPaPZ/PPZMg/12

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: II.

# **Prerequisities:**

# **Conditions for course completion:**

- a) Active work during the whole semester (according to the ongoing instructions of the lecturer and instructors); continuous control of study results at seminars during the teaching part of the semester in the range of maximum 5 points. Preparation, presentation and discussion on a selected topic max. 15 points. A maximum of 2 absences are allowed.
- b) Written examination of the topics of lectures in the 9th week of the semester at the time and place of the lecture. The written examination will consist of 10 questions of a factual nature (1 question / 3 points) with a maximum of 30 points.

Conditions for admission to the exam: completion of seminars and obtaining at least 25 points.

c) Exam: written form (50 points / 10 questions of factual-evaluation character of 5 points each) You need to get at least half of the 50 points.

## Rating:

65 and less FX;

66 - 72 E;

73 - 79 D;

80 - 86 C;

87 - 93 B;

94 - 100 A.

The final evaluation reflects the results obtained during the semester and in the exam:

A more detailed explanation of the assignment and the work schedule of students will be the subject of an agreement for the 1st exercise of the semester.

Any modifications to the implementation of the course in connection with the current order of the Rector are listed in the electronic board of the course.

## **Learning outcomes:**

Students will be able to orient themselves in the basic concepts and theories of health psychology, which will be given an interesting and engaging explanation, accompanied by many examples from life. They will gain orientation in current topics, which are the content of health psychology or they are closely related to the issues not only of this discipline, but also of other psychological disciplines such as educational psychology, personality psychology and the like. Within the course, students are allowed to communicate freely with the teacher and discuss the topics with other classmates.

Students can practically apply the knowledge from the subject especially in the field of prevention of burnout syndrome and support of mental health in the work of a teacher.

## **Brief outline of the course:**

- 1 Introduction to health psychology
- 2 Psychoimmunology
- 3 Personality factors and health
- 4 Social support as a protective factor in relation to health
- 5 Subjective well-being
- 6 Stress and stressful situations and ways to manage them
- 7 Burnout syndrome
- 8 Health-promoting behavior, mental hygiene
- 9 Health risk behavior
- 10 School as an important factor of health

## **Recommended literature:**

Křivohlavý, J.: Psychologie zdraví. Portál, Praha 2001.

Křivohlavý, J.: Psychologie nemoci. Grada, Praha, 2002.

Křivohlavý, J.: Psychologie moudrosti a dobrého života. Grada, Praha, 2009.

Kebza, V.: Psychosociální determinanty zdraví. Academia, Praha 2005.

Kahneman, D., Diener, E., Schwarz, N.(Eds), Well-Being. The Foundations of Hedonic

Psychology. New York, Russell Sage Foundation, 2003.

Kaplan, R. M.: Zdravie a správanie človeka. SPN, Bratislava 1996.

Sarafino, E. P.: Health Psychology. Biopsychosocial interactions. John Wiley and sons 1994.

Baštecký, J., Šavlík, J., Šimek, J. 1993. Psychosomatická medicína. Praha: Grada

Tress, W., Krusse, J., Ott, J.: Základní psychosomatická péče. Portál, Praha 2008.

# Course language:

Course assessment

slovak

# **Notes:**

Total number of assessed students: 226

A	В	С	D	Е	FX
19.47	25.22	25.66	13.27	15.93	0.44

Provides: PhDr. Anna Janovská, PhD., Mgr. Lucia Barbierik, PhD.

Date of last modification: 16.02.2021

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Cour

**Course name:** Sampling of Analytical Samples

AVZ1/02

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: II.

# **Prerequisities:**

# **Conditions for course completion:**

Examination.

# **Learning outcomes:**

#### **Brief outline of the course:**

Analytical sample, characterisation. Sampling and norms effecting sampling process. Quantity, number of samples. Sampling techniques. Sampling laboratory equipment. Sampling techniques. Sample pre-concentration. Sample storing and conservation. Matrix simplifying, specific analysis. Chromatographic sample pre-treatment.

#### **Recommended literature:**

O. Stoeppler: Sampling and Sample Preparation Practical Guide for Analytical Chemists. Academic Press, London, 2002.

E. P. Popek: Sampling and Analysis of Environmental Chemical Pollutants. Elsevier Science, San Diego, 2003.

## Course language:

## **Notes:**

#### Course assessment

Total number of assessed students: 195

A	В	С	D	Е	FX
60.51	21.54	12.82	4.1	1.03	0.0

Provides: prof. RNDr. Andrej Oriňak, PhD., Mgr. Ján Macko, PhD.

Date of last modification: 26.09.2017

COURSE INFORMATION LETTER					
University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚTVŠ/ ÚTVŠ/CM/13					
Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: Per study period: 36s Course method: combined, present					
Number of ECTS cr	edits: 2				
Recommended seme	ster/trimester of the cours	e:			
Course level: I., II.					
Prerequisities:					
	Conditions for course completion: Conditions for course completion: Attendance				
conditions actively a Students will acquire	Learning outcomes:  Learning outcomes:  Students will be provided an overview of possibilities how to spend leisure time in seaside conditions actively and their skills in work and communication with clients will be improved. Students will acquire practical experience in organising the cultural and art-oriented events, with the aim to improve the stay and to create positive experiences for visitors.				
Brief outline of the course:  1. Basics of seaside aerobics 2. Morning exercises 3. Pilates and its application in seaside conditions 4. Exercises for the spine 5. Yoga basics 6. Sport as a part of leisure time 7. Application of projects of productive spending of leisure time for different age and social groups (children, young people, elderly) 8. Application of seaside cultural and art-oriented activities in leisure time					
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 41					
	abs	n			

87.8

12.2

Provides: Mgr. Agata Horbacz, PhD.	
<b>Date of last modification:</b> 15.03.2019	
Approved: prof Dr Yaroslav Bazel' DrSc	

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	cience				
Course ID: ÚCHV/ SP1/14	Course ID: ÚCHV/ Course name: Semestral Project I SP1/14				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present					
Number of ECTS cr	edits: 4				
Recommended seme	ster/trimester of the cours	e: 1.			
Course level: II.					
Prerequisities:					
<b>Conditions for cours</b>	e completion:				
Learning outcomes:					
Brief outline of the c	ourse:				
Recommended litera	ture:				
Course language:					
Notes:					
Course assessment Total number of asses	ssed students: 171				
	abs	n			
	99.42	0.58			
<b>Provides:</b> RNDr. Rastislav Serbin, PhD., doc. RNDr. Mária Kožurková, CSc., prof. Dr. Yaroslav Bazeľ, DrSc., prof. RNDr. Jozef Gonda, DrSc., doc. RNDr. Ján Imrich, CSc., doc. RNDr. Miroslava Martinková, PhD., doc. RNDr. Erik Sedlák, DrSc., RNDr. Nataša Tomášková, PhD., doc. RNDr. Viktor Víglaský, PhD., RNDr. Rastislav Varhač, PhD., RNDr. Danica Sabolová, PhD., RNDr. Jana Šandrejová, PhD., doc. RNDr. Ivan Potočňák, PhD., RNDr. Marián Fabián, CSc., RNDr. Miroslav Almáši, PhD., RNDr. Miroslava Matiková Maľarová, PhD., doc. RNDr. Zuzana Vargová, Ph.D., RNDr. Martin Vavra, PhD., prof. RNDr. Juraj Černák, DrSc., doc. RNDr. Juraj Kuchár, PhD., prof. RNDr. Vladimír Zeleňák, DrSc.					
Date of last modifica	tion: 03.05.2015				
Approved: prof. Dr. Yaroslav Bazel', DrSc.					

University: P. J. Šafárik University in Košice			
Faculty: Faculty of S	cience		
Course ID: ÚCHV/ SPII/14	Course name: Semestral Project II		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period: esent		
Number of ECTS credits: 6			
Recommended semester/trimester of the course: 3.			
Course level: II.			
Prerequisities:			
Conditions for course completion:			
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 50			
	abs	n	
	100.0	0.0	
<b>Provides:</b> prof. Dr. Yaroslav Bazel', DrSc., doc. RNDr. Taťána Gondová, CSc., doc. RNDr. Katarína Reiffová, PhD., doc. Ing. Viera Vojteková, PhD., prof. Mgr. Vasil' Andruch, DSc., prof. RNDr. Renáta Oriňaková, DrSc., RNDr. Rastislav Serbin, PhD., RNDr. Jana Šandrejová, PhD.			
Date of last modification: 03.05.2015			
Approved: prof. Dr. Yaroslav Bazel'. DrSc.			

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚCHV/ SPIII/15	Course name: Semestral Project III		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period: esent		
Number of ECTS credits: 6			
Recommended semester/trimester of the course: 4.			
Course level: II.			
Prerequisities:			
Conditions for course completion:			
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of asse	ssed students: 33		
	abs	n	
	100.0	0.0	
1	RNDr. Taťána Gondová, C	Dr. Yaroslav Bazeľ, DrSc., doc. Ing. Viera Sc., doc. RNDr. Katarína Reiffová, PhD., RNDr.	
Date of last modifica	tion:		
Approved: prof. Dr.	Yaroslav Bazel', DrSc.		

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Cours

Course name: Seminar to Diploma Thesis

SDP/03

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:** 3.

Course level: II.

# **Prerequisities:**

## **Conditions for course completion:**

Consultations, discussions and presentations.

Assessment of student's work during the semester by supervisor.

### **Learning outcomes:**

Teach the student to prepare presentation of his own results, critical acceptation of information, participate in scientific discussion and formal requirements of written diploma work.

#### **Brief outline of the course:**

Presentation of literature information and own experimental results, scientific discussions and writing of scientific text.

### **Recommended literature:**

According to the field of diploma work.

### Course language:

### **Notes:**

#### Course assessment

Total number of assessed students: 311

A	В	С	D	Е	FX
96.14	2.25	0.96	0.32	0.0	0.32

Provides: doc. RNDr. Andrea Straková Fedorková, PhD., doc. RNDr. Mária Kožurková, CSc., doc. RNDr. Ján Imrich, CSc., prof. RNDr. Katarína Györyová, DrSc., prof. RNDr. Juraj Černák, DrSc., prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Jozef Gonda, DrSc., doc. Ing. Viera Vojteková, PhD., doc. RNDr. Katarína Reiffová, PhD., doc. RNDr. Taťana Gondová, CSc., doc. RNDr. Mária Reháková, CSc., doc. RNDr. Miroslava Martinková, PhD., doc. RNDr. Zuzana Vargová, Ph.D., prof. RNDr. Vladimír Zeleňák, DrSc., doc. RNDr. Ivan Potočňák, PhD., prof. RNDr. Renáta Oriňaková, DrSc., RNDr. Dušan Koščík, CSc., RNDr. Andrea Morovská Turoňová, PhD., RNDr. Slávka Hamuľaková, PhD., RNDr. Ladislav Janovec, PhD., RNDr. Zuzana Kudličková, PhD., RNDr. Lívia Kocúrová, PhD., prof. Mgr. Vasiľ Andruch, DSc., prof. Dr. Yaroslav Bazeľ, DrSc., RNDr. Miroslav Almáši, PhD.

**Date of last modification:** 20.09.2017

University: P. J. Šafárik University in Košice Faculty: Faculty of Science **Course ID:** Course name: Social-Psychological Training of Coping with Critical Life KPPaPZ/SPVKE/07 Situations 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:** 2. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 126 abs n  $\mathbf{Z}$ 97.62 2.38 0.0 Provides: Mgr. Ondrej Kalina, PhD. Date of last modification: 11.02.2021 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Cou

Course name: Special Seminar

VSE1a/04

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:** 1.

Course level: II.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

### **Brief outline of the course:**

Actual problems of physical and analytical chemistry which are connected with the solution of the students theses.

### **Recommended literature:**

### Course language:

**Notes:** 

### Course assessment

Total number of assessed students: 48

A	В	С	D	Е	FX
89.58	4.17	2.08	2.08	2.08	0.0

**Provides:** prof. Dr. Yaroslav Bazel', DrSc., doc. RNDr. Katarína Reiffová, PhD., doc. RNDr. Taťána Gondová, CSc., doc. Ing. Viera Vojteková, PhD., prof. Mgr. Vasil' Andruch, DSc., doc. RNDr. Andrea Straková Fedorková, PhD., prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Renáta Oriňaková, DrSc., RNDr. Andrea Morovská Turoňová, PhD., RNDr. Rastislav Serbin, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/

Course name: Special Seminar

VSE1b/04

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:** 2.

Course level: II.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

### **Brief outline of the course:**

Actual problems of physical and analytical chemistry which are connected with the solution of the students theses.

### **Recommended literature:**

### **Course language:**

**Notes:** 

### Course assessment

Total number of assessed students: 45

A	В	С	D	Е	FX
91.11	2.22	4.44	2.22	0.0	0.0

**Provides:** prof. Dr. Yaroslav Bazel', DrSc., doc. RNDr. Andrea Straková Fedorková, PhD., prof. RNDr. Andrej Oriňak, PhD., doc. Ing. Viera Vojteková, PhD., doc. RNDr. Katarína Reiffová, PhD., prof. RNDr. Renáta Oriňaková, DrSc., doc. RNDr. Taťána Gondová, CSc., prof. Mgr. Vasil' Andruch, DSc., RNDr. Andrea Morovská Turoňová, PhD., RNDr. Rastislav Serbin, PhD., RNDr. Jana Šandrejová, PhD.

Date of last modification: 03.05.2015

	COURSE INFORMATION LETTER
University: P. J. Šafár	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ TVa/11	Course name: Sports Activities I.
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: con Number of ECTS cro	rse-load (hours): dy period: 28 mbined, present
	ster/trimester of the course: 1.
Course level: I., I.II.,	
Prerequisities:	
	<u>-</u>
0 1 3	condition and performance within individual sports. Strengthening the its to the selected sports activity and its continual improvement.
University provides of floorball, yoga, pilated tennis, sports for unfile. In the first two semestand particularities of physical condition, condition, contact but not least, the means of a special properties of the physical education transport of the second properties.	
Recommended litera	iture:
Course language:	

Course assessment							
Total numb	er of assesse	d students: 1	4050				
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.48	0.07	0.0	0.0	0.0	0.04	7.51	3.9

**Provides:** Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.

Date of last modification: 18.03.2019

	COURSE IN ORMATION LETTER
University: P. J. Šafái	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: cor Number of ECTS cro	rse-load (hours): dy period: 28 mbined, present
Recommended seme	ster/trimester of the course: 2.
Course level: I., I.II.,	II.
Prerequisities:	
-	<u> </u>
0 1 5	condition and performance within individual sports. Strengthening the its to the selected sports activity and its continual improvement.
University provides of floorball, yoga, pilated tennis, sports for unfile. In the first two semestand particularities of its physical condition, condition, condition and the premises of the factors.	burse:  subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, basketball, badminton, es, swimming, body-building, indoor football, self-defence and karate, table t persons, streetball, tennis, and volleyball.  sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their coordination abilities, physical performance, and motor performance fitness. Important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. Sports, the Institute offers for those who are interested winter and summer thinings with an attractive program and organises various competitions, either at culty or University or competitions with national or international participation.
Recommended litera	ture:
Course language:	

Course ass	Course assessment						
Total numb	er of assesse	d students: 1	1330				
abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.75	0.56	0.02	0.0	0.0	0.05	9.87	3.75

**Provides:** Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.

Date of last modification: 18.03.2019

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

**Course ID:** ÚTVŠ/ | **Course name:** Sports Activities III.

TVc/11

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present

**Number of ECTS credits: 2** 

Recommended semester/trimester of the course: 3.

Course level: I., I.II., II.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

**Brief outline of the course:** 

**Recommended literature:** 

Course language:

**Notes:** 

Course assessment

Total number of assessed students: 8383

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
90.11	0.05	0.01	0.0	0.0	0.02	4.04	5.76

**Provides:** Mgr. Marcel Čurgali, Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

**Course ID:** ÚTVŠ/ **Course name:** Sports Activities IV.

TVd/11

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: combined, present

**Number of ECTS credits: 2** 

Recommended semester/trimester of the course: 4.

Course level: I., I.II., II.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

**Brief outline of the course:** 

**Recommended literature:** 

Course language:

**Notes:** 

Course assessment

Total number of assessed students: 5101

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.2	0.29	0.04	0.0	0.0	0.0	6.76	7.7

**Provides:** Mgr. Marcel Čurgali, Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD.

Date of last modification: 03.05.2015

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ **Course name:** Students Scientific Conference (Presentation) SVK1/00 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: 2., 4. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 238 C Α В D Ε FX 100.0 0.0 0.0 0.00.0 0.0 Provides: prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Renáta Oriňaková, DrSc., prof. Dr. Yaroslav Bazel', DrSc. Date of last modification: 03.05.2015 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafár	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚTVŠ/ LKSp/13	Course name: Summer Course-Rafting of TISA River
Course type, scope a Course type: Practic Recommended cour Per week: Per stud Course method: cor	ce rse-load (hours): y period: 36s
Number of ECTS cro	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for course Conditions for course Attendance Final assessment: Rat	
Learning outcomes: Learning outcomes: Students have knowled	edge of rafts (canoe) and their control on waterway.
5. Canoe lifting and control of the canoe in	ourse: ficulty of waterways fting  ning using an empty canoe earrying In the water without a shore contact the  ut of the water  fast waterways)
Recommended litera	ture:
Course language:	

Course assessment					
Total number of assessed students: 153					
abs	n				
45.75	54.25				
Provides: Mgr. Dávid Kaško, PhD.					
Date of last modification: 18.03.2019					
Approved: prof. Dr. Yaroslav Bazel', DrSc.					

University: P. J. Šafá	rik University in Košice
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: Per stud Course method: cor	rse-load (hours): ly period: 36s mbined, present
Number of ECTS cr	edits: 2
Recommended seme	ster/trimester of the course:
Course level: I., II.	
Prerequisities:	
Conditions for course Conditions for course Attendance Final assessment: con	•
conditions as they wi and demanding situa	miliarized with principles of safe stay and movement in extreme natural ll obtain theoretical knowledge and practical skills to solve the extraordinary tions connected with survival and minimization of damage to health. The n work and students will learn how to manage and face the situations that of obstacles.
<ul><li>2. Preparation and lea</li><li>3. Objective and subj</li><li>4. Principles of hygie</li><li>Exercises:</li><li>1. Movement in terra</li></ul>	viour and safety for movement and stay in unknown mountains adership of tour ective danger in mountains one and prevention of damage to health in extreme conditions in, orientation and navigation in terrain (compasses, GPS) rovised overnight stay
Recommended litera	iture:
Course language:	

Course assessment						
Total number of assessed students: 393						
abs	n					
44.53	55.47					
Provides: MUDr. Peter Dombrovský, Mgr. Marek Valanský						
Date of last modification: 15.03.2019						
Approved: prof. Dr. Yaroslav Bazel', DrSc.						

University: P. J. Šafárik University in Košice Faculty: Faculty of Science **Course ID:** Course name: The Art of Aiding by Verbal Exchange KPPaPZ/UPR/03 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: 4. Course level: II. **Prerequisities: Conditions for course completion: Learning outcomes: Brief outline of the course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 49 C Α В D Ε FX 85.71 4.08 2.04 2.04 2.04 4.08 Provides: Mgr. Ondrej Kalina, PhD. Date of last modification: 18.03.2019 Approved: prof. Dr. Yaroslav Bazel', DrSc.

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Vybrané kapitoly analytickej chémie VKAC/19 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: 2., 4. Course level: II. **Prerequisities: Conditions for course completion:** Test / Exam **Learning outcomes:** Extension of knowledge in the field of analytical chemistry. **Brief outline of the course: Recommended literature:** Course language: Slovak **Notes: Course assessment** Total number of assessed students: 0 Α В C D Ε FX 0.0 0.0 0.0 0.0 0.0 0.0 Provides: prof. Mgr. Vasil' Andruch, DSc.

Date of last modification: 01.02.2020

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course name:

ATV1/04

Course name: Water Pretreatment

Course type, scope and the method:

Course type: Lecture / Practice Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

**Number of ECTS credits: 6** 

Recommended semester/trimester of the course: 2., 4.

Course level: II.

**Prerequisities:** 

### **Conditions for course completion:**

Test / Exam

### **Learning outcomes:**

Getting a knowledge about the methods of water pretreatment.

### **Brief outline of the course:**

Disinfection of drinking water. Fluoridation of drinking water. Water softening and demineralisation. Waste water. Neutralization of wastewater. Oxidation of wastewater. Physicochemical methods of waste water treatment. Biological treatment of wastewater.

### **Recommended literature:**

- 1. Handbook of Water and Wastewater Treatment Technologies. Ed. By Nicholas P Cheremisinoff, Butterworth Heinemann, 2001. 576 p.
- 2. Principles of Water Quality Control, Ed. by Thy Tebbutt, Butterworth Heinemann, 1997. 288 p.
- 3. Water Technology. Ed. by N. F. Gray, Butterworth Heinemann, 2005. 600 p.

### Course language:

Slovak

## **Notes:**

#### Course assessment

Total number of assessed students: 172

A	В	С	D	Е	FX
37.21	14.53	18.02	18.02	12.21	0.0

Provides: prof. Mgr. Vasil' Andruch, DSc.

Date of last modification: 31.01.2020

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

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University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course name: Zelená analytická chémia: miniaturizácia, automatizácia,

GAC/18 senzory

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: II.

**Prerequisities:** 

**Conditions for course completion:** 

Test / Exam

**Learning outcomes:** 

Getting information about the green chemistry, miniaturization, and automation in analytical chemistry.

**Brief outline of the course:** 

**Recommended literature:** 

Course language:

Slovak

**Notes:** 

Course assessment

Total number of assessed students: 6

A	В	С	D	Е	FX
83.33	16.67	0.0	0.0	0.0	0.0

Provides: prof. Mgr. Vasil' Andruch, DSc.

Date of last modification: 31.01.2020

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

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