CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJAKA/07	**Course name:** Academic English

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:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
Active classroom participation, assignments handed in on time, 2 absences tolerated
1 test (10th week), no retake.
Presentation on chosen topic
Final evaluation- average assessment of test (40%), essay (30%) and presentation (30%).
Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less

Learning outcomes:
The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English, level B2.

Brief outline of the course:
Formal and informal English
Academic English and its specific features
Key academic verbs and nouns
Linking words in academic writing, writing a paragraph, word-order, topic sentences
Word-formation - affixation
abstract
Selected aspects of English pronunciation, academic vocabulary
Selected functional grammar structures - defining, classifying, epressing opinion, cause-effect, paraphrasing

Recommended literature:
Seal B.: Academic Encounters, CUP, 2002
T. Armer :Cambridge English for Scientists, CUP 2011
M. McCarthy M., O´Dell F. - Academic Vocabulary in Use, CUP 2008
Zemach, D.E, Rumisek, L.A: Academic Writing, Macmillan 2005
Olsen, A. : Active Vocabulary, Pearson, 2013
www.bbclearningenglish.com
Cambridge Academic Content Dictionary, CUP, 2009

Course language:
English language, level B2 according to CEFR.

Notes:

Course assessment
Total number of assessed students: 400

A	B	C	D	E	FX
34.75	22.0	15.75	9.5	6.25	11.75

Provides: Mgr. Viktória Mária Slovenská

Date of last modification: 19.09.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ ALP/06	**Course name:** Alternative Education

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: 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: 318

A	B	C	D	E	FX
69.18	25.16	2.83	0.63	0.31	1.89

Provides: Mgr. Katarína Petríková, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ANCHU/21	**Course name:** Analytical Chemistry

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: 3.

Course level: I.

Prerequisities:

Conditions for course completion:
1. 3x test of analytical calculations (each 33%, minim. 50%).
2. Examination is composed of 3 questions (each for 33%, it is 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 pre-treatment. 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 language:

Notes:

Course assessment
Total number of assessed students: 50

A	B	C	D	E	FX
30.0	20.0	20.0	18.0	8.0	4.0

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 12.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BZm/19	**Course name:** Animal Biology

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

Number of ECTS credits: 1

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚBEV/CYT1/15 and ÚBEV/PMZ/10 and ÚBEV/FZ1/10 and (ÚBEV/ZO1/03 or ÚBEV/ZO1/15) and (ÚBEV/ZOO1/03 or ÚBEV/ZOO1/15)

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 30

A	B	C	D	E	FX
20.0	16.67	30.0	16.67	16.67	0.0

Provides:

Date of last modification: 14.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ FZ1/10	**Course name:** Animal Physiology

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

Number of ECTS credits: 7

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚBEV/HIS1/15 or ÚBEV/HISE1/15

Conditions for course completion:
Active participation on practicals.
Passing the test in recognition of microscopical preparations (min. 50% of correct identification and description)
Passing the final examination of knowledge and practical skills from the content of practicals.
Oral examination.

Learning outcomes:
To provide students with basic knowledge on the physiological processes in animals on different levels of the phylogenesis. Learn the principles of their control, aimed to secure the inner integrity of the animal and to its adaptation to the environment. To point out the unity of the structure (on the molecular, cellular, tissue and organ levels) and of the functions of the body.

Brief outline of the course:
1. Basic physiological principles. Homeostatic mechanisms.
2. Physiology of blood and hemopoetic organs.
3. Physiology of respiration.
4. Thermoregulation.
5. Physiology of cardio-vascular system.
6. Physiology of the gastro-intestinal system.
7. The functions of the liver.
8. Physiology of nutrition and the energetic metabolism. The water and mineral household.
9. General neurophysiology.
10. Sensory and motoric functions of the nervous system. Associative functions of the brain.
11. Physiology of excretion. The work of the muscles.
12. Sensory physiology.
13. Hormonal regulation. Physiology of reproduction.
12. Sensory physiology.

Recommended literature:
Varder, A. J., Sherman, J. H., Luciano, D. S.: The mechanisms of body functions, McGraw-Hill, 1990
Schmidt, R. F., Thews, G.: Human Physiology, Springer-Verlag, 1989

R.W.Hill, R.Wyse, M.Anderson : Animal Physiology, Sinauer Assoc., 2008

Course language:

Notes:

Course assessment
Total number of assessed students: 1550

A	B	C	D	E	FX
8.65	16.19	22.13	24.13	23.23	5.68

Provides: doc. RNDr. Monika Kassayová, CSc., prof. RNDr. Beňadik Šmajda, CSc., doc. RNDr. Bianka Bojková, PhD., RNDr. Vlasta Demečková, PhD., RNDr. Terézia Kisková, PhD., RNDr. Natália Pipová, PhD.

Date of last modification: 21.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ BKP/21	**Course name:** Bachelor Project
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion: Submission of the bachelor project, the defense of the project and acceptance of its content by the supervisor.	
Learning outcomes:	
Brief outline of the course:	
Recommended literature: 1. Scientific papers related to the topic of the bachelor project. 2. Directive No. 1/2011 of the rector UPJS in Košice.	
Course language:	
Notes:	
Course assessment Total number of assessed students: 13	

abs	n
100.0	0.0

Provides: doc. RNDr. Miroslav Almáši, PhD.
Date of last modification: 08.09.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ BKP/14	**Course name:** Bachelor Project
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion: Submission of the bachelor project, the defense of the project and acceptance of its content by the supervisor.	
Learning outcomes:	
Brief outline of the course:	
Recommended literature: 1. Scientific papers related to the topic of the bachelor project. 2. Directive No. 1/2011 of the rector UPJS in Košice.	
Course language:	
Notes:	
Course assessment Total number of assessed students: 171	

abs	n
100.0	0.0

Provides:
Date of last modification: 02.03.2022
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BPO/14	**Course name:** Bachelor Thesis and its Defence

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:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 344

A	B	C	D	E	FX
52.91	26.74	15.7	3.2	1.45	0.0

Provides:

Date of last modification: 07.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/BPO/14	**Course name:** Bachelor Thesis and its Defence

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:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Oral presentation of the thesis results. Answering questions of the thesis oponent or members of the state examination board.

Recommended literature:

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 255

A	B	C	D	E	FX
88.63	8.24	1.57	1.57	0.0	0.0

Provides:

Date of last modification: 07.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MIN1/14	**Course name:** Basis of Mineralogy

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: 4.

Course level: I.

Prerequisities: ÚCHV/VCH/10 or ÚCHV/VCH/21 or ÚCHV/VCHU/10 or ÚCHV/ZAC2/10 or ÚCHV/VACH/10 or ÚCHV/CHG/09 or ÚCHV/ZCF/03 or ÚCHV/VCHU/15

Conditions for course completion:
Verification of theoretical knowledge and recognizing minerals.
A semester project about selected minerals (40 %), a practical test from recognizing of minerals (30 %), a written examination (30 %). The student must obtain totally at least 51%.
In a case of online education the practical test is canceled and the written examination contains more questions (60 %).

Learning outcomes:
To recognize the beauty of nature and to obtain basic knowledge from mineralogy. After completing the course, students will be familiar with the properties of commonly available minerals and will be able 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:
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: 135

A	B	C	D	E	FX
85.19	12.59	0.74	0.74	0.0	0.74

Provides: doc. RNDr. Ivan Potočňák, PhD.

Date of last modification: 21.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ BCHU/21	**Course name:** Biochemistry
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: 5.	
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: 62					
A	B	C	D	E	FX
35.48	12.9	14.52	19.35	16.13	1.61
Provides: doc. RNDr. Erik Sedlák, DrSc., RNDr. Nataša Tomášková, PhD.					
Date of last modification: 14.11.2021					
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PBCHU/15	**Course name:** Biochemistry Practical

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 4 **Per study period:** 56
Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/BCHU/03 or ÚCHV/BCHU/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: 219

A	B	C	D	E	FX
76.71	19.18	2.74	0.91	0.46	0.0

Provides: prof. RNDr. Mária Kožurková, CSc., RNDr. Nataša Tomášková, PhD., doc. RNDr. Rastislav Varhač, PhD., RNDr. Danica Sabolová, PhD., RNDr. Eva Konkoľová, PhD.

Date of last modification: 19.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ BAC1/04	**Course name:** Bioinorganic 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 ECTS credits: 5

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Test or seminar works
examination

Learning outcomes:
The basic knowledges about biometal interactions with biomolecules, biomaterials, biominerals, biocatalysis, metals in biology and medicine, metal-based drugs, toxic metals for biosystems and metals in the environment.

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) radiodiagnostics, mineral biotechnology, ecology and in other branches of life.

Recommended literature:
1. Shriver D. F., Atkins P. W., Overton T. L., Rourke J.P., Weller M.T., Amstrong F.A.: Shiver & Atkins. Inorganic Chemistry. Oxford University Press, Oxford 2006.
2. Kaim W., Schwederski B.: Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life. Wiley, Chichester 1998.
3. Wilkins P. C., Wilkins R. G.: Inorganic Chemistry in Biology. OCP, Oxford 1997.

Course language:

Notes:

Course assessment
Total number of assessed students: 350

A	B	C	D	E	FX
42.57	27.71	18.57	6.0	4.86	0.29

Provides: doc. RNDr. Zuzana Vargová, Ph.D.

Date of last modification: 28.10.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BDD/05	**Course name:** Biology of Children and Adolescents

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: 2

Recommended semester/trimester of the course: 4., 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Written test

Learning outcomes:
Acquisition of basic morphological and physiological knowledge about individual organs and systems of the human body with a focus on the specifics of childhood and adolescence. Familiarity with developmental and growth characteristics and with the most common diseases in these stages of ontogenesis.

Brief outline of the course:
Human ontogenesis. Postnatal development. Age specific features of skeletal and muscalar, circulatory, respiratory, gastrointestinal and urinary systems. Reproductive system. Endocrine system. Nervous system. Age specifics of selected diseases and drug dependence arise. Human population and environment.

Recommended literature:
Drobný I., Drobná M.: Biológia dieťaťa pre špeciálnych pedagógov I. a II. Bratislava, PdF UK, 2000
Lipková V.: Somatický a fyziologický vývoj dieťaťa. Osveta Bratislava, 1980
Malá H., Klementa J.: Biológia detí a dorastu. Bratislava, SPN, 1989

Course language:

Notes:

Course assessment
Total number of assessed students: 1717

A	B	C	D	E	FX
31.74	23.76	17.94	16.83	9.2	0.52

Provides: doc. RNDr. Monika Kassayová, CSc.

Date of last modification: 20.04.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BS1/03	**Course name:** Biostatistics

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: 3., 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Active participation on practicals, including successful solving of the assigned numerical examples.
Passing the continual testing.
To absolve the final written test with at least 50% of the maximal score.

Learning outcomes:
To provide the students with knowledge on basic principles of statistic methods used in biology and their scope of application in statistical evaluation of experimental results, and with the principles of the design of experiments, as well.

Brief outline of the course:
1. Sources and theoretical background of biostatistics.
2.Basic principles of the probability theory. Descriptive statistics: variables, measures of mean value and variability of data.
3. Theoretical and empirical distributions. Experimental sampling from the normal distribution.
4. Reliability of estimations. Testing of hypotheses. I.-. and II.-type errors.
5. Statistical sampling. Comparison of two groups.
6. One-way and multiple analysis of variance. Tests for multiple comparisons.
7. Regression analysis.
8. Correlations.
9. Non-parametrical methods.
10. Design and planning of biological experiments.
11. Aanalysis of time series.
12. Analysis of qualitative data.
13. One- and multidimensional methods, use of computer software.

Recommended literature:
Hassard, T. H.: Understanding biostatistics. Mosby Year Book, 1991
Snedecor,G.W., Cochran,W.G.: Statistical methods. The Iowa state university, Ames, 1972.
R.Forthofer, E.S.Lee, M.Hernandez: Biostatistics. A guide to design, analysis and dicovery. Elsevier, Amsterdam, 2007

Course language:

Notes:

Course assessment
Total number of assessed students: 259

A	B	C	D	E	FX
4.63	7.72	20.08	24.71	32.82	10.04

Provides: prof. RNDr. Beňadik Šmajda, CSc.

Date of last modification: 21.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BO1/03	**Course name:** Botany I

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: 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: 1863

A	B	C	D	E	FX
14.01	19.54	25.55	20.24	18.3	2.36

Provides: prof. RNDr. Martin Bačkor, DrSc., RNDr. Michal Goga, PhD.

Date of last modification: 05.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BO1/15	**Course name:** Botany I

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: 4

Recommended semester/trimester of the course: 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: 320

A	B	C	D	E	FX
23.13	19.69	23.75	19.69	11.88	1.88

Provides: prof. RNDr. Martin Bačkor, DrSc., RNDr. Michal Goga, PhD.

Date of last modification: 04.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BOT1/03	**Course name:** Botany II

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: 2.

Course level: I.

Prerequisities:

Conditions for course completion:
.

Learning outcomes:
.

Brief outline of the course:
.

Recommended literature:
Mártonfi P.: Systematika cievnatých rastlín, 4. vydanie. - Vydavateľstvo UPJŠ, Košice, 2013.
Judd W. S., Campbell Ch. S., Kellogg E. A. & Stevens P. F., Donoghue M. J.: Plant Systematics. A phylogenetic Approach, 4th ed. - Sinauer Associates, Sunderland, 2016.
Simpson M. G.: Plant Systematics. - Elsevier - Academic Press, 2019.
Dostál J., Červenka M.: Veľký kľúč na určovanie rastlín I. a II. - SPN, Bratislava, 1991 a 1992

Course language:

Notes:

Course assessment
Total number of assessed students: 1520

A	B	C	D	E	FX
10.92	12.57	16.84	19.8	24.28	15.59

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD.

Date of last modification: 29.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BOT1/15	**Course name:** Botany II

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: 4

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚBEV/TCB1/03

Conditions for course completion:
.

Learning outcomes:
.

Brief outline of the course:
.

Recommended literature:
Mártonfi P.: Systematika cievnatých rastlín, 4. vydanie. - Vydavateľstvo UPJŠ, Košice, 2013.
Judd W. S., Campbell Ch. S., Kellogg E. A. & Stevens P. F., Donoghue M. J.: Plant Systematics. A phylogenetic Approach, 4th ed. - Sinauer Associates, Sunderland, 2016.
Simpson M. G.: Plant Systematics. - Elsevier - Academic Press, 2019.
Dostál J., Červenka M.: Veľký kľúč na určovanie rastlín I. a II. - SPN, Bratislava, 1991 a 1992.

Course language:

Notes:

Course assessment
Total number of assessed students: 376

A	B	C	D	E	FX
15.16	17.82	29.52	19.95	11.44	6.12

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD.

Date of last modification: 29.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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: 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: 1623

A	B	C	D	E	FX
24.52	19.53	22.92	20.02	12.08	0.92

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Miroslav Almáši, PhD.

Date of last modification: 15.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ISC1a/00	**Course name:** Cheminformatics I

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: I.

Prerequisities:

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 session. Students must demonstrate the ability to work with electronic information sources available within the licenced access of the University library and must submit all assignments (10). Students must complete: 4 assignments using scientometric database Scopus and Web of Science; 2 assignments using factual database ChemSpider or other available factual database; 6 assignments using software ACDLabs/ChemSketch, respectively other possible editor of chemical structures. Students are assigned a grade in the course on the basis of submitted assignments. Students must obtain at least 51 percent of the total number of points within all 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:
Graduates of the course have knowledge of the existence and specific properties of chemical (scientific) information, the structure and availability of information sources (both classical and electronic) and acquire the skills necessary for searching, sorting and processing of professional information. The acquired knowledge and skills will enable them to independently use information resources for studying, preparing seminar papers, projects, theses, etc.

Brief outline of the course:
Searching, retrieving and use of the informations in chemistry. Using of "paper" resources (primary journals, Chemical Abstracts). Searching chemical information on Internet (Chemical Abstracts, Science Citation Index, Scopus, Web of Science, ChemSpider) and e-journals.

Recommended literature:
1. R.E. Maizell: How to find Chemical Information, John Wiley,
New York 1998
2. Internet resources for chemistry.

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.

Course assessment
Total number of assessed students: 932

A	B	C	D	E	FX
72.85	7.4	11.37	6.12	1.39	0.86

Provides: RNDr. Monika Tvrdoňová, PhD., doc. RNDr. Ladislav Janovec, PhD.

Date of last modification: 11.08.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/SCHM/21	**Course name:** Chemistry

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: (ÚCHV/OCHU/21 or ÚCHV/OCHU/03) and ÚCHV/ANCHU/21 and ÚCHV/BCHU/21 and (ÚCHV/ACHU/21 or ÚCHV/ACHU/03) and (ÚCHV/FCHU/22 or ÚCHV/FCHU/21 or ÚCHV/FCHU/10)

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 52

A	B	C	D	E	FX
9.62	26.92	21.15	19.23	15.38	7.69

Provides:

Date of last modification: 08.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KOP/ OPaPDV/14	**Course name:** Civil Law and Intellectual Property Rights
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., 5.	
Course level: I., N	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 113	

abs	n
93.81	6.19

Provides: doc. JUDr. Renáta Bačárová, PhD., LL.M., prof. JUDr. Peter Vojčík, CSc.
Date of last modification: 23.09.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ PFAJKKA/07	**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: combined, present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
Active participation in class and completed homework assignments. Students are allowed to miss two classes at the most.
2 credit tests (presumably in weeks 6/7 and 12/13) and an oral presentation in English.
Final evaluation consists of the scores obtained for the 2 tests (50%) and the presentation (50%).
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:

Brief outline of the course:

Recommended literature:
www.bbclearningenglish.com
Štěpánek, Libor a kol. Academic English-Akademická angličtina. Praha: Grada Publishing, a.s., 2011.
McCarthy M., O'Dell F.: English Vocabulary in Use, Upper-Intermediate. CUP, 1994.
Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé. Barrister and Principal, 2008.
Peters S., Gráf T.: Time to practise. Polyglot, 2007.
Jones L.: Communicative Grammar Practice. CUP, 1985.

Course language:
English language, B2 level according to CEFR

Notes:

Course assessment
Total number of assessed students: 289

A	B	C	D	E	FX
44.64	20.76	17.65	7.96	6.23	2.77

Provides: Mgr. Barbara Mitríková, Mgr. Viktória Mária Slovenská

Date of last modification: 12.02.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ PFAJGA/07	**Course name:** Communicative Grammar in English

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:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
Active classroom participation (maximum 2 absences tolerated), homework assignments completed by given deadlines.
Powerpoint presentation of a topic related to the study field.
Final Test - end of semester, no retake
Final assessment = average of test and presentation.
Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less

Learning outcomes:
The development of students´ language skills - reading, writing, listening, speaking, improvement of their communicative linguistic competence. Students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence. Students can efectively use the language for a given purpose, with focus on Academic English and English on level B2.

Brief outline of the course:
Selected aspects of English grammar and pronunciation
Word formation
Contrast of tenses in English
The passive voice
Types of Conditionals
Phrasal verbs and English idioms
Words order and collocations, prepositional phrases

Recommended literature:
Vince M.: Macmillan Grammar in Context, Macmillan, 2008
McCarthy, O'Dell: English Vocabulary in Use, CUP, 1994
www.linguahouse.com
esllibrary.com
bbclearningenglish.com
ted.com/talks

Course language:

English language, level B2 according to CEFR.

Notes:

Course assessment
Total number of assessed students: 432

A	B	C	D	E	FX
39.81	19.91	16.2	8.1	5.79	10.19

Provides: Mgr. Lenka Klimčáková

Date of last modification: 13.09.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KGER/ NJKG/07	**Course name:** Communicative Grammar in German Language

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., II.

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 language:
German, Slovak language

Notes:

Course assessment
Total number of assessed students: 56

A	B	C	D	E	FX
60.71	10.71	8.93	3.57	8.93	7.14

Provides: Mgr. Ulrika Strömplová, PhD.

Date of last modification: 12.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ PMZ/10	**Course name:** Comparative Animal Morphology

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: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Lectures and practical exercises, original drawing of some parts of animal body or it derivates, examination.

Learning outcomes:
The student will acquire basic knowledge about the principles of building the animal body from the simplest protostomian invertebrates to vertebrates. Despite the huge taxonomic diversity of animals, their bodies can be interpreted by a relatively limited number of building principles that correspond to the systematic position of the examined animal and functional adaptations to the environment and way of life. The subject examines the structure of the body at the level of organs and organ systems, by applying the method of comparison it seeks general principles and also peculiarities. It is also important to get acquainted with the principal terms, which the student will use in the spectrum of other study subjects.

Brief outline of the course:

Recommended literature:
Fretter, V., Graham, A., 1976: A Functional Anatomy of Invertebrates. Academic Press, London, New York, San Francisco, 589 pp.
Kardong, K. V., 2002: Vertebrates. Comparative anatomy, function, evolution. 3rd ed., Mc-Graw-Hill, New York.
Pough, F. H., Janis, Ch. M., Heiser, J. B., 2008: Vertebrate Life. Prentice Hall, Inc., 752 pp. 8th edition.
Ruppert, E. E., Fox, R. S., & Barnes, R. D., 2004: Invertebrate zoology: a functional evolutionary approach. Belmont, CA: Thomas-Brooks/Cole.

Course language:

Notes:
The study of the animal body structure of animals is a very old scientific discipline that has accumulated a vast amount of detailed knowledge. Comparing them is not only a way to put the knowledge into a comprehensive system, but mainly a way to find general anatomical rules that are tied to one of the animal's phylogenetic linneage or have general validity and reveal the degree of phylogenetic relationship of animals or the degree of adaptation to the environment

and a way of life. A brief summary of the phylogeny of the animal body building plan and organ systems using the knowledge of classical and modern comparative morphological approach, supported by knowledge of embryology and molecular data for interpretation of the phenotype are the content of this course.

Course assessment

Total number of assessed students: 2145

A	B	C	D	E	FX
18.83	19.39	24.43	20.79	11.98	4.57

Provides: doc. RNDr. Andrej Mock, PhD., RNDr. Andrea Parimuchová, PhD.

Date of last modification: 19.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/KCHU/03	**Course name:** Coordination 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: 4

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities: ÚCHV/ACHU/03

Conditions for course completion:
Final written exam

Learning outcomes:
The student acquires basic knowledge on the coordination compounds, preparation, isomerism and properties of coordination compounds as well as about the chemical bonding in coordination compounds.

Brief outline of the course:
1. Definition and nomenclature of coordination compounds.
2. Central atom and ligands
3. Coordination numbers, coordination polyhedra.
4. Isomerism of coordination compounds
5. Preparation of coordination compounds
6. Stability of coordination compounds
7. Chemical bonding in coordination compounds.

Recommended literature:
J. Ribas: Coordination Chemistry, Wiley-VCH, Weinheim, 2008.
J. C. Huheey, E. A. Keiter, R. L. Keiter: Inorganic Chemistry, Haper Collins, New York, 1993.
G. A. Lawrance: Introduction to Coordination Chemistry, Wiley, 2010.

Course language:

Notes:

Course assessment
Total number of assessed students: 76

A	B	C	D	E	FX
51.32	26.32	14.47	3.95	3.95	0.0

Provides: prof. RNDr. Juraj Černák, DrSc., doc. RNDr. Juraj Kuchár, PhD.

Date of last modification: 10.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ CYT1/15	**Course name:** Cytology

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: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Practicals graduation (without absence); Two written tests graduation (min. 70 % fruitfulness of each); Oral examination

Learning outcomes:
To provide the students with knowledge of basic principles of cell microscopic and submicroscopic structure and function.

Brief outline of the course:
Lectures:
1.) Cell theory. Cell. 2.) Organization of living systems. 3.) Biological membranes. 4.) Transfer of substances across membranes. 5.) Cell wall of plant cells. 6.) Surface structures of cells. Extracellular matrix. Cell movement. 7.) Intercellular connections. 8.) Cytoskeleton. 9.) Cell nucleus. 10.) Mitochondria and cellular metabolism. 11.) Plastids and vacuoles. 12.) Ribosomes. Endoplasmic reticulum. Golgi apparatus. Lysosomes. 13.) Differentiation, aging and cell death, pathological changes in cells.
Exercises:
1.) Safety at work in a cytomorphological laboratory. Conditions for successful completion of exercises. 2.) Basics of optics. Origin and construction of the image with a magnifying glass and a microscope. 3.) Microscopic technique. 4.) Shape and size of cells. 5.) Principle of fluorescence and confocal microscopy. 6.) Control test. Vacuole. 7.) Cytoplasm movement. 8.) Nucleus and nucleolus. 9.) Cytoplasmic membrane. 10.) Osmotic processes. 11.) Cell inclusions. 12.) Cell walls of plant cells. 13.) Cell counting. Control test.

Recommended literature:
K.Kapeller, H.Strakele: Cytomorfológia. Osveta Martin, 1999
M.Babák, J.Šamaj: Cytológia. Univerzita Komenského Bratislava, 2002
Alberts B., Bray D., Johnson A., Lewis J.: Základy buněčné biologie. Espero Publishing, 2003
Campbell N. a Reece J.: Biologie. Computer Press, 2006
Kleban J., Mikeš J., Jendželovská Z., Jendželovský R., Fedoročko P.: Cytológia pracovný zošit na praktické cvičenia, 2018

Course language:

Notes:

Course assessment
Total number of assessed students: 946

A	B	C	D	E	FX
14.16	19.77	28.54	19.87	16.6	1.06

Provides: doc. RNDr. Rastislav Jendželovský, PhD., RNDr. Zuzana Jendželovská, PhD., RNDr. Jana Vargová, PhD.

Date of last modification: 08.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/PUDB/15	**Course name:** Drug Addiction Prevention in University Students

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., 5.

Course level: I.

Prerequisities:

Conditions for course completion:
1st of the evaluation: active participation in the training part (30p). 2nd part of the evaluation: active participation in workshops (20p). In total, students can get 50p and the final evaluation is as follows: 50 - 45: A; 44 - 40: B; 39-35: C; 34-30: D; 29 - 25: E 24 and less: FX. Detailed information in the electronic bulletin board of the course in AIS2. The teaching of the subject will be realized by a combined method.

Learning outcomes:
The student understands the principals of research data based prevention of risk behavior, can describe and explain the determinants of risk behavior as well as protective and risk factors for substance use. Student understands and adequately interprets the theory explaining the background of substance and non-substance addictions.
The student is also able to state and classify the types and forms of prevention, strategies and approaches in prevention, can distinguish effective strategies from ineffective ones.
The student is able to adequately interpret their experience with preventive activities in the group and assume their positive effect as well as limitations and threats.

Brief outline of the course:

Recommended literature:
Orosová, O. a kol. (2012). Základy prevencie užívania drog a problematického používania internetu v školskej praxi. Košice: UPJŠ.
Sloboda, Z., & Bukoski, J. (Eds.). (2006). Handbook of Drug Abuse Prevention: Theory, Science, and Practice. New York: Springer.
National and international scientific journals.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 562

A	B	C	D	E	FX
76.87	16.9	4.09	1.6	0.18	0.36

Provides: prof. PhDr. Oľga Orosová, CSc., Mgr. Lucia Barbierik, PhD., Mgr. Lenka Abrinková, PhD., Mgr. Frederika Lučanská, PhD., Mgr. Viera Čurová, Mgr. Marcela Majdanová, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ EDS/15	**Course name:** Educational software

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: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Conditions for ongoing evaluation:
1. Creation of a worksheet for student (with custom graphics).
2. Creation of a multimedia educational presentation (with pictures, animations and sounds).
3. Creation of an interactive educational quiz (with various types of quiz items).
4. Creation of an instructional educational video.
Conditions for the final evaluation:
1. Creation and presentation of final project on the use of educational software in education.
Conditions for successful completion of the course:
Obtaining at least 50% of points for ongoing and final assignments.

Learning outcomes:
Students will receive, resp. deepen their basic skills in working with:
a) presentation software, programs for creating and editing images, animations, diagrams, sounds, conceptual maps,
b) programs for the creation of didactic tests, questionnaires, surveys,
c) simulation and modeling software,
d) selected subject-oriented educational programs,
Students present and discuss their idea of the use of educational software and educational Internet resources and tools in the selected school subject.

Brief outline of the course:
1. Overview of educational software and educational web resources and tools.
2. Creating and processing images into teaching aids (word clouds, QR codes, diagrams, concept maps).
3. Creating raster animations. Creating and processing sounds.
4. Creation of instructional educational video.
5. Electronic voting (Polleverywhere, Plickers, Kahoot!) and questionnaire creation (Google Forms).
6. Creation of didactic tests (Google Forms, HotPotatoes).
7. Collaborative web applications (mind42, miro, whiteboard, padlet).
8. Online communication tools (BBB).

9. Complex online learning environments (Moodle).
10. Online educational projects and competitions (eTweening, WebQuest, PALMA junior).
11. Simulations and modelling (WolframAlpha, PhET, Geogebra). Subject-focused educational programmes.
12. Creation of educational software in Scratch environment.

Recommended literature:

SOLOMON, Gwen and Lynne SCHRUM, 2014. Web 2.0 How-to for Educators. Second. International Society for Technology in Education, 314 p. ISBN 978-1564843517.
STOBAUGH, Rebecca, 2019. Fifty Strategies to Boost Cognitive Engagement: Creating a Thinking Culture in the Classroom (50 Teaching Strategies to Support Cognitive Development). Solution Tree Press, 176 p. ISBN 978-1947604773.
LEMOV, Doug, 2015. Teach Like a Champion 2. 0: 62 Techniques That Put Students on the Path to College [online]. 2nd edition. John Wiley & Sons, Incorporated, 509 p. [cited 2021-7-10]. ISBN 9781118898628. Available from: https://ebookcentral.proquest.com/lib/upjs-ebooks/detail.action?docID=1895720
European Schoolnet: Transforming education in Europe [online]. [cited 2021-7-10]. Available from: http://www.eun.org/home
Science On Stage Europe [online]. Science on Stage Europe e.V. [cited 2021-7-10]. Available from: https://www.science-on-stage.eu/

Course language:
Slovak and partly English due to selected programs and information sources

Notes:
By default, teaching is carried out face to face. If this is not possible (eg due to a pandemic), teaching is provided at a distance through video conferencing programs and LMS.

Course assessment
Total number of assessed students: 77

A	B	C	D	E	FX
68.83	15.58	9.09	0.0	6.49	0.0

Provides: doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 01.08.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

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: 4.

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
Continuous assessment:
1 credit test taken presumably in weeks 6/7
1 project (quiz on the topic of the student´s field of study) 25% of the continuous assessment
5 LMS quizzes (25% of the continuous assessment)
In order to be admitted to the final exam, a student has to score at least 65 % from the continuous assessment
The exam test results represent 50% of the final grade for the course, continuous assessment results represent the other 50% of the final grade.
The final grade for the course 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:
Enhancement of students' language skills (speaking, writing, reading and listening comprehension) in English for specific and academic purposes and development of students' linguistic competence. Students obtain knowledge of selected phonological, lexical and syntactic aspects of professional English, improve their pragmatic competence - students can effectively use the language for a given purpose, and acquire presentation skills at B2 level (CEFR) with focus on terminology of natural sciences.

Brief outline of the course:
1. Introduction to studying language
2. Selected aspects of scientific language
3. Talking about academic study
4. Discussing science
5. Defining scientific terminology and concepts
6. Expressing cause and effect
7. Describing structures
8. Explaining processes
9. Comparing objects, 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: 3056

A	B	C	D	E	FX
38.29	26.18	16.46	9.55	7.46	2.06

Provides: Mgr. Lenka Klimčáková, Mgr. Viktória Mária Slovenská

Date of last modification: 05.02.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/TCZ/03	**Course name:** Fieldwork from zoology

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 5d
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
The condition for successful completion of the field exercises in zoology is active participation in the specified field trips, submission of a collection of 10 correctly identified species of animals or their resident characters, processing of the assigned task and presentation of the results of the task at the final student conference.

Learning outcomes:
Students will see and practically try different methods of collecting, capturing and observing different groups of animals in nature. They will try identifying animals using identification keys. Students will try processing a small scientific project and presenting the obtained results in front of other course participants.

Brief outline of the course:
Study of fauna directly in the field in different habitats of Slovakia; observation, collection, recording, conservation and determination. Getting to know the representatives of fauna connected with the principles of nature conservation.

Recommended literature:
Any literature (identification keys, animal atlases) for identifying different groups of invertebrates and vertebrates. Electronic applications for identifying animals from photographs and voice recordings.

Course language:

Notes:

Course assessment
Total number of assessed students: 1086

abs	n
99.45	0.55

Provides: RNDr. Peter Ľuptáčik, PhD., doc. RNDr. Andrej Mock, PhD., doc. RNDr. Marcel Uhrin, PhD.

Date of last modification: 07.04.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ TCB1/03	**Course name:** Fieldworks from Botany

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 5d
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

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: 1411

abs	n
99.93	0.07

Provides: prof. RNDr. Pavol Mártonfi, PhD., prof. RNDr. Martin Bačkor, DrSc., Mgr. Vladislav Kolarčik, PhD.

Date of last modification: 15.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PCH1/00	**Course name:** Food 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: 4

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Active work during semester, presentation on certain theme. Two exams, one in the middle and second at the end of semester (min. 51%). A: 91-100b, B: 81-90b, C: 71-80b, D: 61-70b, E: 51-60b, FX: 0-50b.

Learning outcomes:
Students will recieve informations and knowledges about chemical substances in food, their importance and chemical changes in food during processing and storage.

Brief outline of the course:
The main categories of substances in the most important group of food. Aminoacids, proteins, lipids, carbohydrates. Water, minerals, low concentration anorganic compounds, vitamins. Hydrocarbons, colorants, toxic compounds, aditives. Chemical reactions in dairy products.

Recommended literature:

Course language:
english

Notes:
Teaching is carried out in person or, if necessary, online using the MS Teams or 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: 296

A	B	C	D	E	FX
65.88	29.39	4.39	0.0	0.0	0.34

Provides: RNDr. Ján Elečko, PhD.

Date of last modification: 28.01.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ BACHZ/06	**Course name:** Fundamentals of Bioanalytical 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: 3.

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: 98

A	B	C	D	E	FX
33.67	31.63	29.59	4.08	0.0	1.02

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 22.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/VCHU/15	**Course name:** General Chemistry

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 4 / 2 **Per study period:** 56 / 28
Course method: present

Number of ECTS credits: 7

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities: ÚCHV/CHV1/99

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:
To provide students with knowledge of atoms and molecules their electronic structure, theories of chemical bonds, physical and chemical properties of elements and compounds as well as their periodicity.

Brief outline of the course:
Main terms used in chemistry. Atoms – models of atoms, electron configuration, chemical periodicity and its effect on the properties of elements, radioactivity. Chemical bonds and intermolecular interactions. Chemical structure and physical properties of matter. State of matter. Solutions. Chemical equilibrium. Basis of chemical thermodynamics and chemical kinetics. Classification of chemical reactions. Electrochemistry.

Recommended literature:
1. Atkins P., Jones L.: Chemical Principles, 2nd ed., Freeman, New York 2002.
2. Russel J.B.: General Chemistry, 2nd ed., McGraw Hill, London 1992.

Course language:

Notes:

Course assessment
Total number of assessed students: 310

A	B	C	D	E	FX
23.87	29.03	28.39	11.61	7.1	0.0

Provides: prof. RNDr. Vladimír Zeleňák, DrSc.

Date of last modification: 07.02.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/PACU/03	**Course name:** General Course of Analytical Chemistry - Laboratory

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 4 **Per study period:** 56
Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚCHV/ANCHU/03 or ÚCHV/ANCHU/21

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.
2. 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.
3. 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 qualitative and quantitative analytical chemistry into analytical laboratory practise.

Brief outline of the course:
Practical in qualitative and quantitative analysis. Qualitative analysis, separation by selective precipitation. Quantitative methods. Gravimetry, general principles of method. Volumetric methods. Preparation of accurate solutions. Indication of equvivalency point. Titration curves, calculations in volumetric analysis. Acidimetry, alkalimetry. Manganometry. Iodometry. Complexometry. Selected Instrumental analytical methods.

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.Meľuch: 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: 402

A	B	C	D	E	FX
58.21	28.36	10.95	1.24	1.24	0.0

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

Date of last modification: 15.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/VB1/01	**Course name:** General botany

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: 2.

Course level: I.

Prerequisities: ÚBEV/CYT1/15

Conditions for course completion:
Two tests during the semester, oral examination

Learning outcomes:
The subject enables to understand the structure and function of plant cells, tissues and organs and to enhance student's ability to describe the biological role of plants for life on earth. Students will acquire skills for simple preparation of native microscopic slides, for working with a light microscope and demonstration of observed plant structures in relation to the lectured theoretical topics.

Brief outline of the course:
The structure and function of plant cells and tissues. Plant organs, their structure, function, shape and organization. Plant reproduction and grounding in embryology. Basic information and terms that are necessary for understanding of relationship between internal structure and functions of organs and functions of plant organism en bloc. 1. Contents of General botany, significant evolutionary adaptations of plants; 2. Plant cell cytology. Basic cell organelles; 3. Plastids, cell wall; 4. Histology, plant tissue systems, meristematic tissues; 5. Dermal and ground tissues; 6. Vascular tissues; 7. Plant organs, root; 8. Stem; 9. Leaf; 10. Flower, Inflorescence; 11. Pollination and fertilisation in plants; 12. Sexual and apomictic reproduction of plants. Seeds and fruits; 13. Alternation of generations and life cycles of bryophytes and vascular plants.

Recommended literature:
Bobák, M. a kol.: Botanika. Anatómia a morfológia rastlín. SPN, Bratislava, 1992;
Vinter V.: Rostliny pod mikroskopem. Základy anatómie cévnatých rostlin. Univerzita Palackého v Olomouci, Olomouc, 2009;
Lux, A. (ed.) Obrazový průvodce anatomií rostlin, Academia, Praha, 2017.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 1196

A	B	C	D	E	FX
16.64	27.17	28.85	15.97	8.19	3.18

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD., PaedDr. Andrea Lešková, PhD., RNDr. Martin Pizňak, PhD.

Date of last modification: 29.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/GE1/10	**Course name:** Genetics

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

Number of ECTS credits: 7

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities: ÚBEV/MOB1/15 or ÚBEV/MB1/01

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1579

A	B	C	D	E	FX
19.25	15.77	15.96	13.93	20.08	15.01

Provides: prof. RNDr. Eva Čellárová, DrSc., doc. RNDr. Katarína Bruňáková, PhD., RNDr. Miroslava Bálintová, PhD., RNDr. Linda Petijová, PhD.

Date of last modification: 15.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ HISE1/15	**Course name:** Histology
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: 2.	
Course level: I.	
Prerequisities: ÚBEV/CYT1/15	
Conditions for course completion: Oral examination	
Learning outcomes: To provide the students with knowledge of basic morphology of tissues of animals.	
Brief outline of the course: 1. Epithelium and glands. 2. Connective tissue. 3. Cartilage. Bone. 4. Muscle. 5. Nervous Tissue. 6. Blood and hemopoiesis. 7. Circulatory system. Lymphoid system. 8. Endocrine system. 8. Respiratory system. Integument. 9. Digestive system. 10. Urinary system. 11. Female reproductive system. 12. Male reproductive system. 13. Nervous system. Special senses.	
Recommended literature: Gartner, L.P., Hiatt, J.L.: Color Texbook of Histology. W.B. Saunders Company, Philadelphia, 1997 Juanqueira, L.C., Carneiro, J., Kelley, R.O.: Basic Histology. Prentice Hall International Inc., Apleton & Lange, 1992 Michel H. Ross, Wojciech Pawlina: Histology, Lippincott Wiliams & Wilkins, 2011	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 574

A	B	C	D	E	FX
16.9	14.29	14.46	19.16	23.52	11.67

Provides: doc. RNDr. Zuzana Daxnerová, CSc., doc. RNDr. Juraj Ševc, PhD., RNDr. Anna Alexovič Matiašová, PhD.

Date of last modification: 11.01.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KF/ DF2p/03	**Course name:** History of Philosophy 2 (General Introduction)

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: 6.

Course level: I., II.

Prerequisities:

Conditions for course completion:
The condition for awarding the evaluation will be the active approach of students to fulfilling their study obligations, independent work with selected philosophical texts in the library, active participation and creative work in seminars. In connection with the possibility of interrupting face-to-face teaching, there will be greater demands on the student's independent study and the processing of professional literature, which will be continuously evaluated, using e-mail to communicate with the teacher, at the end of the semester, preparing and handing in the semester's seminar work by the set date, or also passing a knowledge test - about which the students will be informed in advance in sufficient time.

Learning outcomes:
Deepening knowledge about the development of spiritual culture in the European spiritual space and pointing out the most important sources of this development: (1) ancient philosophy and science, (2) Christianity as the second pillar of Europe, (3) the Renaissance and the emergence of modern science (mathematical natural science) as the third pillar of European development. Development of critical thinking skills, active position in professional (ethics of science), public and private life (ethics of responsibility). Transcending narrowly specialized views of the world.

Brief outline of the course:

Recommended literature:
Antológia z diel filozofov. Predsokratovci a Platon. Zost. J. Martinka. Bratislava: Nakladateľstvo Epocha 1970; Antológia z diel filozofov. Od Aristotela po Plotina. Zost. J. Martinka. Bratislava: Nakladateľstvo Pravda 1972. Predsokratovci a Platon. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo Iris 1998. Od Aristotela po Plotina. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo IRIS 2006. Anzenbacher,A.: Úvod do filozofie. Prel. K. Šprunk. Praha: SPN 1990. Barthes, R.: Mytologie. Prel. J. Fulka. Praha: Dokořán 2004. Bělohradský, V.: Společnost nevolnosti. Eseje z pozdější doby. Praha: SLON 2009. Benjamin, W.: Iluminácie. Prel. A. Bžoch; J. Truhlářová. Bratislava: Kalligram 1999. Borges, J. L.: Borges ústne. Prednášky a eseje. Prel. P. Šišmišová. Bratislava: Kalligram 2005. Cassirer, E.: Esej o človeku. Prel. J. Piaček. Bratislava: Nakladateľstvo Pravda 1977. Debord, G.: Společnost spektáklu. Prel. J. Fulka; P. Siostrzonek. Praha: Nakladatelství :intu: 2007. Farkašová, E.: Na rube plátna. Bratislava: Vydavateľstvo Spolku slovenských spisovateľov 2013.

Feyerabend, P.: Věda jako umění. Prel. P. Kurka. Praha: JEŽEK 2004. Freud, S.: Nepokojenost v kultuře. Prel. L. Hošek. Praha: Hynek 1998. Hadot, P.: Co je antická filosofie. Prel. M. Křížová. Praha: Vyšehrad 2017. Hippokratés: Vybrané spisy. Prel. H. Bartoš; J. Černá; J. Daneš; S. Fischerová. Praha: OIKOYMENH 2012. Husserl, E.: Filosofie jako přísná věda. Prel. A. Novák. Praha: Togga 2013. Kuhn, T. S.: Štruktúra vedeckých revolúcií. Prel. J. Viceník. Bratislava: Nakladateľstvo Pravda 1981. Leško,V., Mihina, F. a kol.: Dejiny filozofie. Bratislava. Iris 1993 Leško, V.: Dejiny filozofie I. Od Tálesa po Galileiho. Prešov: v. n. 2004, 2007. Leško, V.: Dejiny filozofie II. Od Bacona po Nietzscheho. Prešov: v. n. 2008. McLuhan, M.: Jak rozumět médiím. Extenze člověka. Prel. M. Calda. Praha: Mladá fronta 2011. Patočka, J.: Duchovní člověk a intelektuál. In: Patočka, J.: Péče o duši III. Praha: OIKOYMENH 2002, s. 355 - 371. Popper, K. R.: Otevřená společnost a její nepřátelé I. Platónovo zaříkávání. Prel. M. Calda; J. Moural. Praha: OIKOYMENH 2011. Sloterdijk, P.: Kritika cynického rozumu. Prel. M. Szabó. Bratislava: Kalligram 2013. Störig,H .J.:Malé dějiny filozofie. Prel. P. Rezek. Praha: Zvon 1991. Wittgenstein, L.: Filozofické skúmania. Prel. F. Novosád. Bratislava: Nakladateľstvo Pravda 1979. Wright von, H. G.: Humanizmus ako životný postoj. Prel. M. Žitný. Kalligram 2001. Žižek, S.: Mor fantázií. Prel. M. Gálisová; V. Gális. Bratislava: Kalligram 1998.

Course language:

Notes:

Course assessment
Total number of assessed students: 746

A	B	C	D	E	FX
60.59	14.21	12.6	8.58	3.35	0.67

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 11.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ ACL/03	**Course name:** Human Anatomy

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: 3.

Course level: I.

Prerequisities:

Conditions for course completion:
1. active participation on Anatomy lectures, max. 3 absences per semester
2. two written exams (20 points each) during semester, results of written exams contribute to the overall ranking
3. elaboration and presentation of the seminar paper (max. 5 points to overall ranking)
4. written exam (test, 55 points max.) during winter exam period; 3 regular exam dates (unlimited number of students) + 1 date for correction (for students, which failed in regular exam dates). Final grade will be calculated based on the total sum of earned points from written exams (20+20), seminar paper (5) and test (55). Grading scale: A (100-91 points), B (90.5-81), C (80.5-71), D (70.5-61), E (60.5-51), FX (50.5 and less)

Learning outcomes:
After successful completion of the lectures, student masters the systemic human anatomy and has an accurate idea about the arrangement of the individual organs in particular organ system, or across various systems. Student understands the function and basic physiology of particular organs in human body in context of both; evolution and processes occurring in cells and tissues. Successful completion of the lectures prepare students for further study of histology, animal physiology, comparative morphology, immunology, etc.

Brief outline of the course:
1. Anatomical terminology
2. The skeletal system
3. The muscular system
4. The respiratory system
5. The gastrointestinal system
6. The urinary system
7. The male reproductive system
8. The female reproductive system
9. The circulatory system
10. The lymphatic system
11. The immune system
12. The nervous system

13. The sensory organs

Recommended literature:

Miklošová M.: Anatómia, vysokoškolská učebnica, UPJŠ, Equilibria, Košice, 2011
Ševc, J., Mochnacký, F.: Anatomické termíny pre jednoodborové a medziodborové štúdium biológie, UPJŠ, e-book (https://unibook.upjs.sk/sk), 2020
Kluchová, D. a kol.: Anatómia trupu a končatín, UPJŠ, Equilibria, Košice, 2015
K. S. Saladin: Anatomy and Physiology: The Unity of Form and Function, Mc Graw-Hill; 3rd edition, 2004
Mráz, P. a kol.: Anatómia ľudského tela 1-3, Slovak Academic Press, 2015-2021

Course language:

Notes:

Course assessment

Total number of assessed students: 1956

A	B	C	D	E	FX
5.93	16.82	27.1	25.15	21.83	3.17

Provides: doc. RNDr. Juraj Ševc, PhD., RNDr. Anna Alexovič Matiašová, PhD.

Date of last modification: 07.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ INP/17	**Course name:** Inclusive Pedagogy

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: 5.

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: 85

A	B	C	D	E	FX
65.88	25.88	4.71	1.18	2.35	0.0

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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: 2.

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: 54

A	B	C	D	E	FX
37.04	33.33	12.96	9.26	7.41	0.0

Provides: prof. RNDr. Vladimír Zeleňák, DrSc.

Date of last modification: 07.02.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ACH2/03	**Course name:** Inorganic Chemistry II

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: 7

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/ACH1/10 or ÚCHV/ACHU/03

Conditions for course completion:
Written examination at the end of the course. The final mark is given by the sum of points from seminars (max. 10 points) and 3x30 points from written test, totally 100 points. To pass it is required to obtain at least 51 points as well as 51 % of points from every partial examination.

Learning outcomes:
Goal of the course is to provide the students with a knowledge of systematic chemistry of metallic elements.

Brief outline of the course:
Electronic configuration, abundance, use, physical and chemical properties and reactivity of the elements of the 1st, 2nd groups, transition metal elements, elements of the 12th group, Al, Ga, In, Tl, Ge, Sn, Pb, As, Sb, Bi, Se, Te, Po, lanthanides and actinides. Binary and other compounds formed by these elements, their properties and reactivity. General properties, structure and bonding in metals, co-ordination and organometallic compounds.

Recommended literature:
1. Greenwood, N. N., Earnshaw, A: Chemistry of the Elements. Pergamon Press, Oxford, 1984
2. Shriver, D.F., Atkins, P.W., Langford, C. H.: Inorganic Chemistry. 2ndEd., Oxford University Press, Oxford, 1995

Course language:

Notes:

Course assessment
Total number of assessed students: 684

A	B	C	D	E	FX
13.01	21.93	29.82	23.98	6.87	4.39

Provides: prof. RNDr. Juraj Černák, DrSc., RNDr. Miroslava Matiková Maľarová, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ANCH1b/03	**Course name:** Instrumental Analytical 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.

Prerequisities:

Conditions for course completion:
Active participation in computational exercises; successful completion of the final test.
Elaboration of 2 written assignments (or project). The student is obliged to prepare 2 written assignments, which will be one of the conditions for participation in the exam.
Written test and oral examination during the examination period.
Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

Learning outcomes:
The student acquires knowledge of the theoretical foundations and instrumentation in analytical chemistry.

Brief outline of the course:
Classification of instrumental analytical methods. Basic parts of analytical instruments. Comparison of range, accuracy, detection limit, selectivity and economic characteristics of analytical methods. Analytical signal and calibration. Detection limit. Standard addition method. Accuracy and precision. Spectral methods. Electromagnetic radiation. Analytical signal of the optical methods. Classification of spectral and optical analytical methods. Instrumentation of spectral methods. Basic parts of instruments in spectral analysis: optical elements, radiation sources, monochromators, detectors (scheme, principle, basic characteristics, advantages and disadvantages). Molecular spectrometry. Nephelometry and turbidimetry. Luminescence analysis. Infrared spectroscopy. Raman spectroscopy. Refractometry. Chiroptical methods. Mass spectroscopy. Atomic spectral methods. Atomic absorption spectroscopy. Atomic emission spectral analysis. Atomic fluorescence spectrometry. Separation and preconcentration methods. Classification of separation methods. Chromatographic and non-chromatographic separation methods. Basic characteristics of separation methods. Non-chromatographic separation methods. Chromatographic methods of separation. Classification of chromatographic methods. Elution characteristics. Liquid chromatography. Gas chromatography. Supercritical fluid chromatography. Basic parts of instruments in chromatography. Electroanalytical methods. Basic principle of electroanalytical methods and their division. Potentiometry. Polarography. Voltammetry. Electrogravimetry. Coulometry. Conductometry.

Recommended literature:

1. Labuda a kol. Analytická chémia. ISBN: 9788022742429, Vydavateľstvo: STU Bratislava, Rok vydania: 2014, Počet strán: 671
2. Christian G.D. Analytical Chemistry. John Wiley & Sons, Inc. New York – Chichester – Brisbane – Toronto – Singapore 1994.
3. Holtzclaw H.F., Jr., Robinson W.R. College Chemistry with Qualitation Analysis. D.C. Heath and Company 1988.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 605

A	B	C	D	E	FX
20.17	12.89	22.15	19.01	25.45	0.33

Provides: prof. Mgr. Vasiľ Andruch, DSc.

Date of last modification: 22.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ VEK1/03	**Course name:** Introduction to Ecology

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., II.

Prerequisities:

Conditions for course completion:
oral examination

Learning outcomes:
Fundamental parameters and relations in ecological science. Abiotic, biotic and anthropogenic factors in air, aquatic and terrestrial/soil environment. Autecology, Demecology and Synecology. Ecosystem and Nature Protection.

Brief outline of the course:
Ecological factors and relations in environment (air, water, soil); influence of ecological factors on individuals (morphological adaptations, behavioral reactions); populations and communities; ecosystems (impact assessment); conservation and biodiversity.
1. Basic ecological terms. 2. Characterisation of the basic ecological factors (light, temperature, water). 3. Air environment (composition of atmosphere, physical and chemical factors, air pollutants, organisms and their adaptations in air environment). 4. Aquatic environment (water properties physical and chemical factors, gases in water, water pollutants, eutrophication and saprobity, aquatic organisms). 5. Soil environment (physical and chemical properties, soil profile, humus layer, soil pollutants, soil organisms and their adaptations). 6. Characterization of Populations, structure and ppuatin dynamics. 7.Biocenoses and biotops. 8. Qualitative and quantitative community characteristics. 9. Ecosystems. 10. Biomes and their characteristics, 11. Bidiversity-factors affecting biodiversity, Species-Area relationships. 12. Biodiversity protection.13. Biospheric cycles.

Recommended literature:
Begon, M., Harper, J. L., Townsend, C. L.: Ecology: individuals, populations, and communities. Blackwell Sci. Publ., 1990

Course language:

Notes:

Course assessment Total number of assessed students: 1770					
A	B	C	D	E	FX
20.23	17.68	25.14	17.4	11.81	7.74
Provides: RNDr. Natália Raschmanová, PhD.					
Date of last modification: 16.03.2023					
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ UECH/03	**Course name:** Introduction to Environmental 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: 3.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Continuous test. Active participation in exercises - elaboration of semester work. Passing the final examination in the form of a written test.

Learning outcomes:
Introduction to topics in environmental chemistry and basic procedures applied for environmental protection.

Brief outline of the course:
Introduction to Environmental Chemistry
Chemical aspects of pollution and environmental problems. Composition and behavior of the atmosphere. Energy balance of the Earth and climate changes. Principles of photochemistry, photoprocesses in the atmosphere. Petroleum, hydrocarbons and coal (characteristics, sources and environmental pollution). Soaps, polymers and synthetic surfactants. Haloorganics and pesticides. Environmental chemistry of some important elements (C, N, S, P, halogens, biologically important metals ...). Environmental chemistry in aqueous media. Aqueous systems, parameters, cycles and their protection. The Earth´s crust (rocks, minerals, soils). Natural and artificial radioactivity, utilization. Energy and energy sources (fossil fuels, nuclear, geothermal, solar energy, wind and water energy). Solid waste disposal and recycling.

Recommended literature:
1. Gary W. van Loon, Stephen J. Duffy: Environmental Chemistry - A Global Perspective, Oxford University Press, Oxford 2003.
2. R. A. Bailey, H. M. Clark, J. P. Ferris, S. Krause, R. L. Strong: Chemistry of the Environment, Academic Press, San Diego 2002.
3. G. Schwedt: The Essential Guide to Environmental Chemistry, Wiley and Sons, London 2001.
4. R. N. Reeve, J. D. Barnes: General Environmental Chemistry, Wiley, London 1994.
5. G. Burton, J. Holman, G. Pilling, D. Waddington: Chemical Storylines, Heinemann, Oxford, London 1994.

Course language:

Notes:

Based on the current pandemic situation in Slovakia and in accordance with the conditions of the Faculty of Natural Sciences of UPJŠ in Košice, the education and examination can also be carried out in a distance form. The tutorial will be carried out in the form of online lectures and consultings in the BigBlueButton system. The written form of the exam takes place through the Google Forms app. Students prepare responses to the final written test. Test questions are randomly generated each time. The final oral exam is conducted through a webinar in BigBlueButton https://bbb.science.upjs.sk/b) system with online generation of random question numbers.

Course assessment

Total number of assessed students: 223

A	B	C	D	E	FX
49.78	21.52	14.8	8.07	5.83	0.0

Provides: doc. RNDr. Andrea Straková Fedorková, PhD.

Date of last modification: 21.01.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: Dek. PF UPJŠ/USPV/13	**Course name:** Introduction to Study of Sciences
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week: Per study period:** 12s / 3d **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
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: 2012

abs	n
88.37	11.63

Provides: doc. RNDr. Marián Kireš, PhD.
Date of last modification: 30.08.2022
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MTB/13	**Course name:** Mathematics for biologists

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: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
In the covered areas of mathematics, skills in solving standard problems related to given topics are required.
Evaluation based on the results of two tests (during the semester): A ... at least 80%, B ... at least 70%, C ... at least 60%, D ... at least 50%, E ... at least 40%, FX ... less than 40% .

Learning outcomes:
Short introduction to mathematics, mathematical problem solving strategies and their applications to solving problems in biology and other sciences. Introduction to the computer algebra system MAPLE.

Brief outline of the course:
- (week 1) Basic terms
- (week 2) Geometry in the plane (vectors, lines in the plane and their representations)
- (week 3) Systems of linear equations (linear equation and inequality, system of linear equations, Gaussian elimination)
- (week 4-6) Functions (monotonicity, local extrema, function composition, inverse function, elementary functions and their properties)
- (week 7) Combinatorics (binomial theorem, combinations and permutations without / with repetition, inclusion-exclusion principle)
- (week 8) Sequences and series (monotonicity and boundedness, recurrent sequence, geometric series)
- (week 9) Limit (limit of a sequence, limit of function, convergence, divergence, methods for computing limits, continuity)
- (week 10-11) Derivatives (sum, product, quotient and chain rule, derivatives of elementary functions, Taylor polynomial, analysis of functions)
- (week 12) Integrals (indefinite integral, integration methods: by substitution, by parts, by partial fractions; definite integral)
- (week 13-14) Ordinary differential equations (first order separable ODE, first order linear ODE)

Recommended literature:
E. Bohl, Mathematik in der Biologie, Springer, Berlin Heidelberg, 2006.

D. Studenovská, T. Madaras, S. Mockovčiak: Zbierka úloh z matematiky pre nematematické odbory, UPJŠ 2006.
D. Studenovská, T. Madaras: Matematika pre nematematické odbory, UPJŠ 2006.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 758

A	B	C	D	E	FX
12.93	12.4	15.96	20.58	28.5	9.63

Provides: RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Jana Borzová, PhD., RNDr. Miriam Kleinová

Date of last modification: 28.10.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MKV/15	**Course name:** Microbiology and basics of virology

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: 3., 5.

Course level: I.

Prerequisities: ÚBEV/CYT1/15

Conditions for course completion:
Attendance of practicals (at least 90%), 2 written examinations during semester, final oral examination

Learning outcomes:
Students will obtain a basic informations on viruses, prokaryotic and eukaryotic microorganisms, their cytology, physiology, genetics, ecology, classification, and importance . Information on basic methods for studying microorganisms will be provided.

Brief outline of the course:
Viruses, prokaryotic and eukaryotic microorganisms, their cytology, physiology, genetics, ecology, classification. The importance of microorganisms for humans and environment.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1464

A	B	C	D	E	FX
23.5	13.52	18.24	19.26	21.24	4.23

Provides: doc. RNDr. Peter Pristaš, CSc., RNDr. Mária Piknová, PhD., RNDr. Mariana Kolesárová, PhD., RNDr. Lenka Maliničová, PhD.

Date of last modification: 10.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MB1/01	**Course name:** Molecular Biology

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: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To provide the students with knowledge of molecular basis of inheritance and control of gene expression and development.

Brief outline of the course:
Structure and properties of information macromolecules. Molecular mechanisms of DNA replication and repair, transcription and translation. Prokaryotic and eukaryotic genome. Control of gene expression in prokaryotes and eukaryotes. Control of cell cycle.

Recommended literature:
Lodish, H., Baltimore, D., Berk, A. et al.: Molecular Cell Biology. Sci. Amer. Books Inc., W.H. Freeman and Company, New York, 1995
Myers, R.A.: Molecular Biology and Biotechnology. VCH Publishers Inc., New York, 1995

Course language:

Notes:

Course assessment
Total number of assessed students: 1114

A	B	C	D	E	FX
7.9	11.85	18.85	19.03	29.98	12.39

Provides: doc. RNDr. Peter Pristaš, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MBGm/19	**Course name:** Molecular Biology and Genetics

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

Number of ECTS credits: 1

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚBEV/CYT1/15 and ÚBEV/MB1/01 and ÚBEV/GE1/10

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 47

A	B	C	D	E	FX
40.43	12.77	21.28	12.77	12.77	0.0

Provides:

Date of last modification: 10.02.2020

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ MMKV/17	**Course name:** Multiculturalism and Multicultural Education

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: 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: 191

A	B	C	D	E	FX
41.88	42.93	13.61	1.05	0.52	0.0

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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: 2.

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 Nucleophilile 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 Substiution 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 of Alcohols Reactions of Phenols Acidity of Phenols Ring Substitution of Phenols 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: 52

A	B	C	D	E	FX
11.54	7.69	19.23	50.0	9.62	1.92

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

Date of last modification: 04.08.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ POCHU/15	**Course name:** Organic chemistry - Lab.

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 4 **Per study period:** 56
Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚCHV/OCHU/03 or ÚCHV/OCHU/21

Conditions for course completion:
100% participations 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

Notes:

Course assessment
Total number of assessed students: 228

A	B	C	D	E	FX
53.07	28.07	11.4	6.58	0.88	0.0

Provides: RNDr. Slávka Hamuľaková, PhD., RNDr. Ján Elečko, PhD., RNDr. Jana Špaková Raschmanová, PhD., RNDr. Mariana Budovská, PhD.

Date of last modification: 28.01.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ OCH1b/03	**Course name:** Organic chemistry II

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: 7

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:
Two tests at lecture in 7 and 14th week. Test max 50 points. At least 25 points required.
Written exam, 100 points. At least 49% of points required.
Final evaluation: A 90-100 pts, B 80-89 pts, C 70-79 pts, D 60-69 pts, E 50-59 pts, FX 0-49 pts

Learning outcomes:
Second part of two-semester organic chemistry course.

Brief outline of the course:
Reaction Mechanisms, Mechanisms of Organic Reactions, Reactive Intermediates,Ionic Reactions Radical Reactions Bond Energy Reaction Energetics Activation Energy Reaction Rates and Kinetics Thermodynamic and Chemical Stability Aromaticity Benzene and Other Aromatic Compounds Fused Benzene Ring Compounds Other Aromatic Systems Factors Required for Aromaticity Stereoisomers Chirality and Symmetry Enantiomorphism Polarimetry Optical Activity Designating the Configuration of Stereogenic Centers The Sequence Rule for Assignment of Configurations to Stereogenic Carbons Compounds Having Two or More Stereogenic Centers Stereogenic Nitrogen Fischer Projection Formulas Aldehydes & Ketones Natural Products Synthetic Preparation Properties of Aldehydes & Ketones Reversible Addition Reactions Hydration & Hemiacetal Formation Acetal Formation Imine Formation Enamine Formation Cyanohydrin Formation Irreversible Addition Reactions Complex Metal Hydrides Organometallic Reagents Carbonyl Group Modification Wolff-Kishner Reduction Clemmensen Reduction Hydrogenolysis of Thioacetals Oxidations Reactions at the a-Carbon Mechanism of Electrophilic a-Substitution The Aldol Reaction Ambident Enolate Anions Alkylation of Enolate Anions Carboxylic Acids Natural Products Related Derivatives Preparation of Carboxylic Acids Reactions of Carboxylic Acids Salt Formation Substitution of Hydroxyl Hydrogen Substitution of the Hydroxyl Group Reduction & Oxidation Carboxylic Derivatives Reactions of Carboxylic Acid Derivatives Acyl Group Substitution Mechanism Reduction Catalytic Reduction Metal Hydride Reduction Diborane Reduction Reaction with Organometallic Reagents Reactions at the a Carbon Acidity of a C-H The Claisen Condensation Synthesis Applications Carbohydrates Glucose The Structure and Configuration of Glucose Anomeric Forms of Monosaccharides Glycosides Disaccharides Polysaccharides Lipids Fatty Acids Soaps & Detergents Fats & Oils Nucleic Acids Alkaloids Terpenes

Recommended literature:

1. on-line moodle.science.upjs.sk
2. Organic Chemistry, Clayden, Greeves Warren & Wothers, Oxford University Press, 2010
3. Organic Chemistry, Solomon, Willey, 2009
4. Organic chemistry, John McMurry, Sixth Edition, 2004, Brooks/Cole, a Thomson Learning Company, ISBN: 0534389996.

Course language:

Notes:

Course assessment

Total number of assessed students: 647

A	B	C	D	E	FX
12.36	10.82	17.62	21.64	34.47	3.09

Provides: doc. RNDr. Miroslava Martinková, PhD.

Date of last modification: 05.02.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/Pg/15	**Course name:** Pedagogy

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: 2

Recommended semester/trimester of the course: 3., 5.

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: 961

A	B	C	D	E	FX
23.1	29.24	23.41	13.84	8.84	1.56

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/FCHU/21	**Course name:** Physical Chemistry

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: 5

Recommended semester/trimester of the course: 4.

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: 25

A	B	C	D	E	FX
48.0	24.0	12.0	8.0	8.0	0.0

Provides: RNDr. Andrea Morovská Turoňová, PhD., RNDr. Ján Macko, PhD., RNDr. Ivana Šišoláková, PhD.
Date of last modification: 24.11.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ FCH1b/10	**Course name:** Physical Chemistry II

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/FCH1a/03 or ÚCHV/FCH1a/21 or ÚCHV/FCHU/10

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 reasoned absence of the student (incapacity for work, family reasons, etc.) in a maximum of two seminars 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. The preparation of students and their regular monitoring is always assessed by the relevant teacher who conducts the seminar, within his/her competence.
3. Two tests from computational exercises, usually in the 6th and 12th week of the semester. To successfully pass each test, it is necessary to obtain at least 8 points (out of 15 points). Successful completion of continuous tests is a condition of admission to the oral exam.
4. 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.
5. To successfully master the subject, it is necessary to prove mastery of the required curriculum at least 51%.

Learning outcomes:
Students will gain knowledge about the principles that govern the speed of chemical processes, the kinetics and mechanism of some selected reactions, the balance and kinetics of electrode processes. They will also learn the basics of electrochemistry and catalysis.

Brief outline of the course:
Electrochemistry. Equilibrium homogeneous processesn electrolyte solutions. Charge transfer in electrolyte solutions. Nonequilibrium homogeneous processes. Trnasport processes in electrolyte solutions. Conductance and molar conductivity. Hindering effects. Transport numbers. Equilibrium in heterogeneous electrochemical systems. Pocesses on charged interfaces. Electrochemical cells and fuel cells. Classification of electrode types. Concentration cells. Electrolysis. Electrochemical power sources. Potentiometry. Electrical double layer. Surface tension.
Chemical kinetics. Homogeneous processes. Reaction rate. Reaction order. Classification of chemical reactions. Elementary chemical reactions. Mechanism and kinetics equations of complicated chemical processes. Methods of rate low determination. Theory of chemical kinetics.

Ttemperature dependence of reaction rates. Collision theory. Activated complex theory. Chain reactions. Structure and rate lows of chain reactions. Explosion. Polymerisation reactions. Photochemical reactions. Catalysis. Theory of homogeneous catalysis. Chemical oscillation reactions. Heterogeneous processes. Difusion. Physical and chemical adsorption. Adsorption and diffusion. Processes in heterogeneous electrochemical systems. Electrode kinetics, activation and diffusive mechanism of charge transfer.
Application of theoretical relationships on the solving of concrete problems and on the calculation of examples during seminars.

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, 1994, 1998
W.J. Moore : Physical Chemistry,Longman, London 1972 and newer editions

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: 605

A	B	C	D	E	FX
15.7	18.18	22.15	19.01	20.66	4.3

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

Date of last modification: 25.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ FPCh/21	**Course name:** Physics for Chemists

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: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Two written examinations during the semester, where students apply the new knowledge by solving problems.
Oral exam where students present theoretical knowledge of the thematic areas listed in the syllabus.

Learning outcomes:
Completing the course students will get knowledge of fundamental physical laws and will understand their relation to chemistry.

Brief outline of the course:
1. Kinematics of a point mass.
- Average and instantaneous velocity, 1D and 3D.
- Acceleration of a point mass (free fall, angled shot).
- Steady movement on a circle.
2. Dynamics of a mass point I.
- Newton's laws, applications. Different types of forces. Friction.
3. Dynamics of a mass point II.
- Mechanical work.
- Kinetic energy.
- Conservative force field, potential energy (gravitational, springs).
- The law of conservation of mechanical energy.
- The power.
4. System of mass points and rigid bodies I.
- Center of gravity. 1st impulse theorem.
- The law of momentum conservation.
5. System of mass points and rigid bodies II.
- Rotary motion. Angular momentum, moment of inertia. 2nd impulse theorem.
- The law of angular momentum conservation. Kinetic energy of rotational motion of rigid bodies.
- Balance.
6. Fluid mechanics I.
- Ideal fluid. Density and pressure.
- Hydrostatics, pressure measurement. Pascal's law. Archimedes' law.

7. Fluid mechanics II.
- Fluid dynamics.
- Continuity equation.
- Bernoulli equation, applications.
8. Molecular physics and thermodynamics I.
- Molecular structure of substances (osmosis, Brownian motion).
- Amount of substances, molar mass, Avogadro's law.
- Internal energy. Temperature and its measurement (Celsius, Kelvin).
- Heat, heat capacity. Latent heat.
9. Molecular physics and thermodynamics II.
- Ideal gas: state equation, internal energy, speed distribution.
- I. law of thermodynamics. Isothermal, adiabatic and cyclic processes.
- Heat transfer: conduction, convection, radiation.
- II. law of thermodynamics. Entropy.
- Heat engines, Carnot cycle.
10. Electricity and magnetism I.
- Electric charge. Coulomb's law. Electric field intensity and potential (voltage).
- Capacitor, capacity.
- Electric current. Ohm's law. Electrical power. Kirchhoff's laws.
11. Electricity and magnetism II.
- Magnetism. Magnetic induction, Lorentz force. Ampere's force. Biot-Savart law.
- Faraday's law of electromagnetic induction. Lenz's law.
12. Modern physics
- Relativity. Introduction to quantum physics.
- Atomic physics. Nuclear physics, applications. Elementary particles and cosmology.

Recommended literature:

1. V. Hajko, J. Daniel-Szabó: Základy fyziky. Veda, Bratislava, 1980.
2. Š. Veis, J. Maďar, V. Martišovič: Všeobecná fyzika 1, Mechanika a molekulová fyzika. Alfa, Bratislava, 1978.
3. P. Čičmanec: Všeobecná fyzika 2, Elektrina a magnetizmus. Alfa, Bratislava, 1980.
4. R.P. Feynman, R.B. Leighton, M. Sands: Feynmanove prednášky z fyziky 1-5. Alfa, Bratislava, 1985.
5. V. Hajko a kol.: Fyzika v príkladoch. Alfa, Bratislava, 1983.

Course language:
Slovak language.

Notes:

Course assessment
Total number of assessed students: 167

A	B	C	D	E	FX
27.54	21.56	22.75	13.17	14.97	0.0

Provides: doc. Mgr. Gregor Bánó, PhD., RNDr. Zuzana Jurašeková, PhD.

Date of last modification: 22.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ FG1/03	**Course name:** Phytogeography

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. Lectures are optional, but highly recommended due to the presentation of otherwise difficult-to-access information and its synthesis.
2. In addition to the exam, the student must complete a mandatory 5-hour field trip focusing on the aspects that determine the spread of plants on Earth, solve practical tasks from the topic of the subject and prepare a semester presentation on the given topic, the presentation is defended at a scientific mini-conference.

Learning outcomes:
After completing the subject, the student is oriented in various aspects of phytogeographic issues and can apply the acquired knowledge both in basic research within chorology, historical and regional phytogeography, as well as in the evaluation of world biomes. The practical application of the subject is within the study of geographically and climatically conditioned changes in vegetation, in the assessment of the reduction of biodiversity and the extinction of the natural plant communities of the Earth, and the acquired knowledge can be used in work in environmental protection.

Brief outline of the course:
1. History of the subject. Plants and environment. Dynamics of the earth's surface.
2. Abiotic and biotic factors of the plant environment.
3. Chorology, range, areal disjunctions, relics, endemism, vicarism.
4. Elements of flora - older and newer approaches.
5. Main features of florogenesis. Paleozoic, Mesozoic, Cenozoic.
6. Main features of florogenesis. Cenozoic - Pleistocene, Holocene.
7. Basics of GIS (geographic information systems) and their use in botanical research.
8. Postglacial development of vegetation in Slovakia.
9. Current changes in terrestrial vegetation and their study, plant invasions.
10. Geography of vegetation: from tropical rainforests to tundra I.
11. Geography of vegetation: from tropical rainforests to tundra II.
12. Geographical origin of cultivated plants.
Seminars and exercises consist of a 5-hour excursion focusing on the connections and conditionality of plant distribution and indoor exercises focusing on an overview of phytogeographical literature, atlases of plant distribution and their importance, types of mapping, types of areas, practical

assessment of floristic elements and types of disjunctions , work with maps of specific taxa throughout Europe. Further: regional phytogeography of the Earth, historical overview of opinions on the phytogeographical (floristic) division of Slovakia. Plant phylogeography. Student presentations of final semester theses (phytogeographical mini-conference).

Recommended literature:

Hendrych R.: Fytogeografie. - SPN, Praha 1984.
Prach K., Štech M., Říha P.: Ekologie a rozšíření biomů na Zemi. - Scientia, Praha 2009.
Krippel E.: Postglaciálny vývoj vegetácie Slovenska. – Veda, vyd. SAV, Bratislava, 1986.
Dahl, E.: The Phytogeography of Northern Europe, - Cambridge University Press, 2007.
Brown J. H., Lomolino M. V.: Biogeography. - Sinauer Associates, Sunderland, 1998.
Myers A. A., Giller P. S.: Analytical Biogeography. - Chapman & Hall, 1990.
Various literature devoted to the geography of vegetation (mainly nature and travel), articles in National Geographic, Živa, Vesmír and other magazines.

Course language:

Notes:

Course assessment

Total number of assessed students: 388

A	B	C	D	E	FX
38.92	22.42	21.13	8.25	8.51	0.77

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD.

Date of last modification: 24.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BRm/19	**Course name:** Plant Biology

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

Number of ECTS credits: 1

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚBEV/CYT1/15 and ÚBEV/VB1/01 and ÚBEV/FR1/10 and (ÚBEV/BO1/03 or ÚBEV/BO1/15) and (ÚBEV/BOT1/03 or ÚBEV/BOT1/15)

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 68

A	B	C	D	E	FX
17.65	20.59	17.65	23.53	19.12	1.47

Provides:

Date of last modification: 10.02.2020

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ FR1/10	**Course name:** Plant Physiology

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: 4.

Course level: I.

Prerequisities: ÚBEV/VB1/01

Conditions for course completion:
1. Active participation in laboratory practicals. In case of justified non-participation, the teacher will determine an alternative form of lessons.
2. Before the practicals, the students will study the main oints of the task that will be carried out. Students will receive an exact list of tasks according to individual lessons at the beginning of the semester.
3. Students make a written report of the practicals. The students will evaluate the results of the tasksand form a conclusion. The protocols are handed over to the teacher before the next lessons at the latest. The teacher checks the protocols and, in case of errors, returns the protocols for revision. If the submitted protocol is correct, the task is considered validly completed.
4. Practicals are considered to have been completed when at least 10 practical tasks are validly completed. Completion of practicals by the end of the semester at the latest (the date will be specified by the teacher) is obligatory for participation in the exam.
5. The activity in the practicals is evaluated by means of an ongoing point evaluation. A student can get 1-3 points. Obtaining 2 points is considered a standard completion of practicals. The best students can get 3 points for high-quality performance in the laboratory or excelent protocols. On the other hand, 1 point will be awarded to students who completed the practicals despite the teacher's minor reservations.
6. The examination of the subject takes place orally. Students need to answer to three questions and have a max. 30 minutes to prepare them.
Any changes or modifications to the conditions for completing the subject due to the COVID19 pandemic or other serious reasons are continuously posted on the subject's electronic board.

Learning outcomes:
Getting a basic overview of life processes in plants. Acquisition of basic laboratory practice in biochemical methods and work with plant material. Ability to evaluate results and form the conclusions.

Brief outline of the course:
1. Water in plant life, properties of water, water regime; uptake and transport of water, transpiration.
2. Mineral substances in plants, transport mechanisms of mineral substances, Essential elements and their main functions, useful substances and toxic substances.

3. Photosynthesis: Meaning of photosynthesis, photosynthetic pigments, electron and proton transport, ATP production.
4. Metabolic phase of photosynthesis, CO2 fixation, Calvin cycle, Photorespiration, C4 and CAM plants, ecophysiology of photosynthesis.
5. Mobilization of storage substances, Glycolysis, Pentose cycle, Citrate (Krebs) cycle, Mitochondrial respiration, Biosynthesis and mobilization of lipids
6. Nitrogen and sulfur metabolism: Nitrogen uptake and reduction, assimilation of nitrogen, nitrogenase, assimilation of sulfur
7. Secondary plant metabolism: Isoprenoids, phenolic substances, substances derived from amino acids, stress metabolites
8. Plant growth, cell division, cellulose formation, embryogenesis, meristems, regeneration
9. Photoreceptors: Phytochromes, physiological effects of phytochromes, blue light receptors
10. Plant hormones: Characteristics and method of signaling, auxins, gibberellins, cytokinins, abscisic acid, ethylene, brassinosteroids and other hormones
11. Plant movements, tropisms, circadian rhythms
12. Flowering control: Internal and external regulation of flowering, floral meristem and control of flower development.
13. Physiology of stress: Abiotic stress, biotic stress, response of plants to stress.

Recommended literature:

Bhatla S.C., Lal M.A. Plant Physiology, development and metabolism. Springer Nature Singapore Pte Ltd. 2018

Course language:

Notes:

Course assessment

Total number of assessed students: 1921

A	B	C	D	E	FX
16.14	13.48	16.81	14.47	22.18	16.92

Provides: doc. RNDr. Peter Paľove-Balang, PhD., RNDr. Andrea Fridmanová, PhD.

Date of last modification: 28.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ADP/03	**Course name:** Porous materials and their applications

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: 6.

Course level: I., II., III.

Prerequisities:

Conditions for course completion:
Written test in the middle and the end of the semester.

Learning outcomes:
To make the acquaintance of various types of advanced porous solids and basic methods for their investigation. To gen up the students with the methods used in characterisation of specific surface area and pore size of different types of porous materials.

Brief outline of the course:
Terminology and principal terms associated with powders, porous solids and adsorption. Methodology of adsorption at the gas-solid interface, liquid-solid interface. Assessment of surface area and porosity. Inorganic materials (active carbon, metal oxides, zeolites, clay minerals, new advanced materials) and phenomenon of adsorption. Application in the industry and everyday life.

Recommended literature:
1. F. Rouquerol, J. Rouquerol, K. Sing: Adsorption by powders and porous solids, Academic press, London, UK, 1999
2. S. J. Gregg, K.S.W. Sing: Adsorption, surface area and porosity, Academic Press, London,, UK, 1982.
3. V. Zeleňák: Adsorption and porosity of solid substances, internal study text, PF UPJŠ, 2020.

Course language:

Notes:
The course is standardly realized in full-time form, in case of necessary circumstances by distance.

Course assessment
Total number of assessed students: 100

A	B	C	D	E	FX	N	P
77.0	10.0	4.0	0.0	0.0	0.0	0.0	9.0

Provides: prof. RNDr. Vladimír Zeleňák, DrSc.

Date of last modification: 21.11.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PP/15	**Course name:** Positive Psychology

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., 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Assessment is based on interim evaluation. The subject will be taught in both present and distance format. Up-to-date information concerning the subject for the given academic year can be found on the electronic board of the subject in the Academic information system of the UPJŠ.

Learning outcomes:
Students will acquire basic knowledge concerning the reasons for founding Positive psychology, its main theory, current research, as well as application of Positive psychology as a new and rapidly developing field within psychology. Students will also gain experience in applying critical thinking to the challenges and issues that Positive psychology brings and raises in the context of the individual in contemporary society. Emphasis is placed on the ability to critically evaluate current topics of positive psychology.

Brief outline of the course:
1. Different perspectives on well-being nad happiness in psychology
2. Main theoretical approaches to positive psychology
3. Positive emotions and positivity
4. Meaningfulness
5. Positive interpersonal relations
6. Post-traumatic growth
7. Hope and optimism
8. Gratitude
9. Spirituality as a personality dimension
10. Wisdom
11. Positive institutions
12. New themes and topics in PP

Recommended literature:
Brewer, M. B, Hwestone, M: Emotion and Motivation, Blackwell, 2004
Deci, E., Ryan R. M., Handbook of Self – Determination Reasearch, Rochester, 2002
Křivohlavý, J.: Pozitivní psychologie. Praha, Portál, 2003
Křivohlavý, J.: Psychologie vděčnosti a nevděčnosti. Praha, Grada, 2007
Křivohlavý, J.: Psychologie moudrosti a dobrého života, Praha, Grada, 2012

Křivohlavý, J.: Psychologie pocitu štěstí, Grada, 2013
McAdams, D. P., The Person, New York, 2002
Seligman, M. E. P., & Csikszentmihalyi, M. (Eds.). (2000). Positive psychology [Special issue] American Psychologist, 55(1).
Říčan, P.: Psychologie náboženství a spirituality, Praha, Portál, 2007
Slezáčková, A.:Pruvodce pozitivní psychologií, Praha, Grada, 2012

Course language:

Notes:

Course assessment
Total number of assessed students: 408

A	B	C	D	E	FX
98.28	1.23	0.25	0.0	0.25	0.0

Provides: Mgr. Jozef Benka, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/PACHU/03	**Course name:** Practical from Inorganic Chemistry

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 4 **Per study period:** 56
Course method: present

Number of ECTS credits: 4

Recommended semester/trimester of the course: 2.

Course level: I.

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

Conditions for course completion:

Learning outcomes:
Acquisition of practical skills and knowledge necessary for work in a chemical laboratory in the preparation of inorganic and other compounds, in the preparation of solutions, methods of distillation and other basic techniques of work in the laboratory. Students will also be able to perform basic characterization of substances and proof reactions.

Brief outline of the course:
The utilization of common laboratory techniques for 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, CuBr2) and coordination compounds [Cu(NH3)4]SO4·H2O, K3[Al(C2O4)3]·3H2O).

Recommended literature:
J. Černák, J. Bubanec, M. Dzurillová, V. Zeleňák: Praktikum z anorganickej chémie. UPJŠ Košice, 1999.
Z. Vargová, J. Kuchár: Základné praktikum z anorganickej chémie, UPJŠ, Košice, 2009.
Z.Vargova, M.Almáši, J. Kuchár, J.Dinajová: Základné laboratórne cvičenia z anorganickej chémie, ŠafárikPress, 2020.

Course language:

Notes:

Course assessment
Total number of assessed students: 623

A	B	C	D	E	FX
53.45	27.29	13.96	2.73	1.77	0.8

Provides: doc. RNDr. Juraj Kuchár, PhD., RNDr. Martin Vavra, PhD., RNDr. Miroslava Matiková Maľarová, PhD., Mgr. Michaela Rendošová, PhD.

Date of last modification: 22.07.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ PFCU/03	**Course name:** Practical in Physical Chemistry

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: 4

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities: ÚCHV/FCHU/22 or ÚCHV/FCHU/21 or ÚCHV/FCHU/10

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. Assessment.
<p>
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: 387

A	B	C	D	E	FX
75.45	19.64	4.13	0.52	0.26	0.0

Provides: RNDr. František Kaľavský, RNDr. Andrea Morovská Turoňová, PhD.

Date of last modification: 09.02.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/Ps/15	**Course name:** Psychology

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: 2

Recommended semester/trimester of the course: 1., 3., 5.

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: 749

A	B	C	D	E	FX
36.85	18.42	16.82	13.48	12.42	2.0

Provides: PhDr. Anna Janovská, PhD., Mgr. Ondrej Kalina, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PKŽ/15	**Course name:** Psychology of Everyday Life

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: I.

Prerequisities:

Conditions for course completion:
The evaluation of the course and its subsequent completion will be based on clearly and objectively set requirements, which will be set in advance and will not change. The aim of the assessment is to ensure an objective and fair mapping of the student's knowledge while adhering to all ethical and moral standards. There is no tolerance for students' fraudulent behavior, whether in the teaching process or in the assessment process.
1. Active participation in seminars
2. Elaboration and presentation of PPT presentation on the assigned topic. Maximum number of points 20; minimum number of points 11.
3. Elaboration of an essay in the range of 4xA4 (standard pages). Maximum number of points 20; minimum number of points 11.
The final evaluation (grade) is the sum of points for the presentation and the essay.
A 40b - 37b
B 36b - 33b
C 32b - 29b
D 28b - 25b
E 24b - 21b
FX 20b - 0b

Learning outcomes:
The student is able to demonstrate an understanding of the individual's behavior in selected everyday situations such as conflict, group influence, empathy, helping, aggression, etc.
The student is able to describe, explain and evaluate the psychological mechanisms that occur in everyday situations.
The student is able to apply basic psychological knowledge to himself (self-regulation) but also in interaction with others (cooperation).
The method of teaching the subject will be oriented to the student. Speakers will be interested in the needs, expectations and opinions of students so as to encourage them to think critically by expressing respect and feedback on their opinions and needs.
The content of the curriculum will be based on primary and high-quality sources that will reflect the topicality of the topics so as to ensure the connection of the curriculum with other subjects and also

the connection of the curriculum with practice. Students will be expected to take an active approach in lectures and seminars with an emphasis on their independence and responsibility.

Brief outline of the course:
How to understand human behavior (overview of basic approaches in psychology); Basic overview of cognitive processes; Learning processes and their use in practice; Social influences, prosocial and antisocial behavior; How human emotions and motivations work; Deciding - why and when we take risks; Childhood experiences and their relationship to adulthood; Abnormal behavior, mental disorders and therapeutic approaches

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 208

A	B	C	D	E	FX
42.79	21.15	28.85	5.29	1.44	0.48

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ OLŠ/15	**Course name:** School Administration and Legislation

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., 5.

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: 285

A	B	C	D	E	FX
45.61	29.82	14.39	6.32	3.16	0.7

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ÚTVŠ/CM/13	**Course name:** Seaside Aerobic Exercise

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., II.

Prerequisities:

Conditions for course completion:
Completion: passed
Condition for successful course completion:
- active participation in line with the study rule of procedure and course guidelines
- effective performance of all tasks- aerobics, water exercise, yoga, Pilates and others

Learning outcomes:
Content standard:
The student demonstrates relevant knowledge and skills in the field, which content is defined in the course syllabus and recommended literature.
Performance standard:
Upon completion of the course students are able to meet the performance standard and:
- perform basic aerobics steps and basics of health exercises,
- conduct verbal and non-verbal communication with clients during exercise,
- organise and manage the process of physical recreation in leisure time

Brief outline of the course:
Brief outline of the course:
1. Basic aerobics – low impact aerobics, high impact aerobics, basic steps and cuing
2. Basics of aqua fitness
3. Basics of Pilates
4. Health exercises
5. Bodyweight exercises
6. Swimming
7. Relaxing yoga exercises
8. Power yoga
9. Yoga relaxation
10. Final assessment

Students can engage in different sport activities offered by the sea resort – swimming, rafting, volleyball, football, table tennis, tennis and other water sports in particular.

Recommended literature:
1. BUZKOVÁ, K. 2006. Fitness jóga. Praha: Grada. 167 s.

2. ČECHOVSKÁ, I., MILEROVÁ, H., NOVOTNÁ, V. Aqua-fitness. Praha: Grada. 136 s.
3. EVANS, M ., HUDSON, J., TUCKER, P. 2001. Umění harmonie: meditace, jóga, tai-či, strečink. 192 s.
4. JARKOVSKÁ, H., JARKOVSKÁ, M. 2005. Posilováni s vlastním tělem 417 krát jinak. Praha: Grada. 209 s.
5. KOVAŘÍKOVÁ, K. 2017. Aerobik a fitness. Karolium, 130 s.

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 54

abs	n
11.11	88.89

Provides: Mgr. Agata Dorota Horbacz, PhD.

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KF/ VKFV/07	**Course name:** Selected Topics in Philosophy of Education (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: 3., 5.	
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: 16

A	B	C	D	E	FX
37.5	37.5	18.75	6.25	0.0	0.0

Provides: PhDr. Dušan Hruška, PhD.
Date of last modification: 13.04.2022
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ASM/03	**Course name:** Separation Methods
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: 6.	
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: 494					
A	B	C	D	E	FX
28.14	25.91	25.3	12.96	5.47	2.23
Provides: doc. RNDr. Taťána Gondová, CSc.					
Date of last modification: 01.08.2022					
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPO/ SPKVV/15	**Course name:** Social and Political Context of Education

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: 2

Recommended semester/trimester of the course: 4., 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Evaluation of the developed assignment.
A ... 100,00% - 91,00%
B ... 90,99% - 81,00%
C ... 80,99% - 71,00%
D ... 70,99% - 61,00%
E ... 60,99% - 51,00%
FX ... 50,99% and less

Learning outcomes:
The aim and purpose of teaching the subject is to impart knowledge and promote reflection on the issues of education and training in the context of social and political change.
Development of knowledge: the student will be able to know the current theoretical background related to the process of education and training in a modern democratic society.
The student will be able to navigate the social and political space - politically, legally, socially and culturally. He/she will be able to look for alternatives and solutions to dysfunctions, while at the same time exploiting opportunities and ways to implement them.

Brief outline of the course:
The status, role and functions of education in human life and society. The political, social and economic objectives of education. Education, learning and social change in the context of globalisation. Macrosocial determinants of education. Current roles of education and training in modern performance and democratic society.

Recommended literature:
Domestic and foreign journal literature
Kudláčová, B.(2007) Človek a výchova v dejinách európskeho myslenia. Trnava: PdF TU
Zeus Leonardo (2010) Handbook of Cultural Politics and Education. Rotterdam, The Netherlands.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 157

A	B	C	D	E	FX
60.51	21.02	11.46	4.46	1.27	1.27

Provides: Mgr. Ján Ruman, PhD.

Date of last modification: 13.04.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KGER/ OJPV1/07	**Course name:** Specialised German Language - Natural Sciences 1

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: 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.). 1 control tests during the semester and written assignments. 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 development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes - Natural Science , level B1.

Brief outline of the course:

Recommended literature:
Duden Basiswissen Schule. Abitur: Enthält die Bände Mathematik, Physik, Chemie, Biologie, Geographie, Geschichte. (2007). ISBN: 978-3411002511.
Zettl, E. et al.: Aus moderner Technik und Naturwissenschaft. Ismaning: Hueber, 2003.
Reiss, K.: Basiswissen Zahlentheorie: Eine Einführung in Zahlen und Zahlbereiche (Mathematik für das Lehramt), Springer, 2007. ISBN: 978-3540453772.
Meyer, L., Schmidt, G.- D.: Basiswissen Ausbildung: Physik. Bildungsverlag EINS, 2008. ISBN: 978-3427799337.
Duden. Schülerduden Biologie: Das Fachlexikon von A-Z. Bibliographisches Institut Berlin, 2009. ISBN: 978-3411054275.
Mortimer, Ch. E., Müller, U., Beck, J.: Chemie: Das Basiswissen der Chemie. Stuttgart: Thieme, 2014. ISBN: 978-313484311
Deutsch perfekt, GEO, MaxPlanck Forschung a iné printové a elektronické médiá

Course language:
German

Notes:

Course assessment
Total number of assessed students: 147

A	B	C	D	E	FX
24.49	23.13	23.81	20.41	7.48	0.68

Provides: Mgr. Blanka Jenčíková

Date of last modification: 09.02.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVa/11	**Course name:** Sports Activities I.

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: I., I.II., II.

Prerequisities:

Conditions for course completion:
Min. 80% of active participation in classes.

Learning outcomes:
Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

Brief outline of the course:
Brief outline of the course:
Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.
In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness.
In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

Recommended literature:
BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571
BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.
JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.
KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.
LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. 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: 14548

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
86.46	0.07	0.0	0.0	0.0	0.05	8.41	5.02

Provides: Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVb/11	**Course name:** Sports Activities II.

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: I., I.II., II.

Prerequisities:

Conditions for course completion:
active participation in classes - min. 80%.

Learning outcomes:
Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

Brief outline of the course:
Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.
In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness.
In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

Recommended literature:
BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571
BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.
JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.
KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.
KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. 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: 13211

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
84.35	0.51	0.02	0.0	0.0	0.05	10.78	4.29

Provides: Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVc/11	**Course name:** Sports Activities III.

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: I., I.II., II.

Prerequisities:

Conditions for course completion:
min. 80% of active participation in classes

Learning outcomes:
Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

Brief outline of the course:
Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.
In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness.
In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

Recommended literature:
BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571
BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.
JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.
KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.
KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. 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: 8879

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.62	0.07	0.01	0.0	0.0	0.02	4.25	7.03

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚTVŠ/ TVd/11	**Course name:** Sports Activities IV.

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: I., I.II., II.

Prerequisities:

Conditions for course completion:
min. 80% of active participation in classes

Learning outcomes:
Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

Brief outline of the course:
Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.
In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness.
In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

Recommended literature:
BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571
BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.
JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.
KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.
KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. 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: 5628

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
82.66	0.28	0.04	0.0	0.0	0.0	8.05	8.97

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MUSU/21	**Course name:** Structure determination - spectroscopic methods

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: 6.

Course level: I.

Prerequisities: ÚCHV/OCHU/21 and ÚCHV/ANCHU/21 and ÚCHV/ACHU/21

Conditions for course completion:
1. Participation in exercises in accordance with the Study Rules of PF UPJŠ.
2. Successful execution of 3 control written works on exercises after 4., 8. and.12. weeks of teaching. Obtaining a minimum grade E from seminars.
The written part of the test consists of 3 examples: 1. Solution of 2 given NMR spectra. 2. Calculation
number and symmetry of vibrations. 3. Solution of 2 structures of unknown compounds on the basis of combined
application of spectral methods. Oral part of the exam: Successful answering 5-7 questions.
Percentage rating: 100-91% (A), 90-81% (B), 80-71% (C), 70-61% (D), 60-51% (E), 50% and less FX.

Learning outcomes:
Fundamentals of molecular spectroscopy and magnetic properties study, as powerful tools for structure determination in chemistry. Ultraviolet, visible, infrared and Raman spectroscopy, mass spectrometry and methods based on magnetic resonance (1H NMR, 13C NMR).

Brief outline of the course:
Fundamentals of molecular spectroscopy, mass spectrometry and magnetic methods as powerful tools for structure determination in chemistry. Ultraviolet and visible spectroscopy. Emission spectroscopy. Symmetry and group theory. Infrared and Raman spectroscopy. Mass spectrometry in organic and analytical chemistry and biochemistry. Nuclear magnetic resonance - NMR. Chemical shift and splitting of signals by spin-spin coupling. Coupling constants. 1H NMR, 13C NMR, NMR of other nuclei. Two- and more dimensional NMR. NMR applications. Nuclear quadrupolar resonance - NQR, Electron parameganetic resonance - EPR.
Mossbauer spectroscopy. Relations between the spectra and structure, properties and reactions of chemical compound. Methods and instruments used for spectra measurements. Combined application of spectral methods for solution of chemical problems.

Recommended literature:
1. Kováč Š., Ilavský D., Leško J.: Spektrálne metódy v organickej chémii a technológii, ALFA, Bratislava, 1987.
2. Milata V., Segľa P.: Vybrané metódy molekulovej spektroskopie. STU BA, 2007.

3. Milata V., Segľa P.: Spektrálne metódy v chémii. STU FCHPT Bratislava 2002.
4. Miertuš S. a kol.: 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, english

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 assessment
Total number of assessed students: 37

A	B	C	D	E	FX
13.51	43.24	29.73	10.81	2.7	0.0

Provides: doc. RNDr. Ján Imrich, CSc., RNDr. Monika Tvrdoňová, PhD., doc. RNDr. Juraj Kuchár, PhD.

Date of last modification: 04.08.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SVK/01	**Course name:** Student Scientific Conference
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 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: 20

abs	n
100.0	0.0

Provides:
Date of last modification: 30.11.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ SVK/00	**Course 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 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: 6	

abs	n
100.0	0.0

Provides:
Date of last modification: 03.05.2015
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚFV/ DGS/21	**Course name:** Students` Digital Literacy

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: I.

Prerequisities:

Conditions for course completion:
Summary evaluation based on ongoing assessment:
1. Practical ongoing assignments and their defense (at least 50% needed)
3. Active participation during face-to-face contact learning in classical or virtual classroom (3 absences allowed) and during online learning (no absence, uploading all individual ongoing assignments)

Learning outcomes:
The student should obtain and know to apply basic knowledge and skills in working with current digital technologies (mobile phone, tablet, laptop, web technologies):
1. according to the current European framework for the Digital competence DigComp and ECDL
2. for better and more effective learning, work and active life in higher education, later lifelong learning and further career prospects.

Brief outline of the course:
01.-02. Basic digital skills, DigComp framework, ECDL
- modern web browser and its personalization
- security, privacy, responsible use of DT
03.-05. Search, collection and evaluation of digital content
- scanning, audio recording and speech resolution, optical resolution (OCR)
- digital notebooks (Google keep, Evernote, Onenote)
- evaluation of digital resources (Google forms and sections)
06.-08. Editing and creating digital content
- cloud and interactive documents
(text and spreadsheet editors - Google, Microsoft, Jupyter)
- work with pdf documents, e-books and videos
(Kami, Google books, Screencasting)
09. - 10. Organization, protection and sharing of digital content
- modern LMS and cloud storage
(Google Classroom, Microsoft team, Google Drive, Dropbox)
- time management (Google Calendar)
11.-13. Digital communication and cooperation

- collaborative interactive whiteboards (Jamboard, Whiteboard)
- online presentations and online meetings
(Google presentations, Powerpoint, Google meet, Microsoft teams)

Recommended literature:

1. Carretero Gomez, S., Vuorikari, R. and Punie, Y., DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use, Luxembourg, 2017, ISBN 978-92-79-68006-9, https://www.ecdl.sk/
2. Bruff, D. (2019). Intentional Tech: Principles to Guide the Use of Educational Technology in College Teaching (1st edition). Morgantown: West Virginia University Press.
3. Baker, Y. (2020). Microsoft Teams for Education. Amazon Digital Services.
4. Miller, H. (2021). Google Classroom + Google Apps: 2021 Edition. Brentford: Orion Edition Limited.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 81

A	B	C	D	E	FX
45.68	3.7	7.41	0.0	43.21	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 26.01.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ LKSp/13	**Course name:** Summer Course-Rafting of TISA River

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., II.

Prerequisities:

Conditions for course completion:
Completion: passed
Condition for successful course completion:
- active participation in line with the study rule of procedure and course guidelines
- effective performance of all tasks: carrying a canoe, entering and exiting a canoe, righting a canoe, paddling

Learning outcomes:
Content standard:
The student demonstrates relevant knowledge and skills in the field, which content is defined in the course syllabus and recommended literature.
Performance standard:
Upon completion of the course students are able to meet the performance standard and:
- implement the acquired knowledge in different situations and practice,
- implement basic skills to manipulate a canoe on a waterway,
- determine the right spot for camping,
- prepare a suitable material and equipment for camping.

Brief outline of the course:
Brief outline of the course:
1. Assessment of difficulty of waterways
2. Safety rules for rafting
3. Setting up a crew
4. Practical skills training using an empty canoe
5. Canoe lifting and carrying
6. Putting the canoe in the water without a shore contact
7. Getting in the canoe
8. Exiting the canoe
9. Taking the canoe out of the water
10. Steering
a) The pry stroke (on fast waterways)
b) The draw stroke

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==

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 209

abs	n
37.32	62.68

Provides: Mgr. Dávid Kaško, PhD.

Date of last modification: 29.03.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ TVE/08	**Course name:** Theory of Education

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., 6.

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: 631

A	B	C	D	E	FX
43.11	31.22	16.8	5.07	1.74	2.06

Provides: Mgr. Katarína Petríková, PhD.

Date of last modification: 20.06.2022

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ZOG1/03	**Course name:** Zoogeography
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:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion: Active participation in seminars. Preparation of oral presentation to a selected topic. Completion of two semestral written examinations. Oral examination.	
Learning outcomes: The main goal of the subject is to get knowledge on the basic reasons of recent distribution of the animals on the Earth, zoogeographic regionalization of the Earth´s surface and human influence on the faunal distribution in the history.	
Brief outline of the course: This course will review our current understanding of the patterns of animal distribution and the processes that influence distributions of species and their attributes. Zoogeography will integrate information on the historical and current ecology, genetics, and physiology of animals and their interaction with environmental processes (continental drift, climate) in regulating geographic distributions. The course will emphasize descriptive and analytical approaches useful in hypothesis testing in zoogeography and will illustrate applied aspects of zoogeography (e.g. refuge design in conservation).	
Recommended literature: Buchar, J., 1983: Zoogeografie. SPN Praha Darlington, P.J., 1998: Zoogeography: The geographical distribution of animals. Krieger, USA Lomolino M.V., Brown J.H., Riddle B. R., 2005: Biogeography. Sinauer Associates, 1-845 Plesník, P., Zatkalík, F., 1996: Biogeografia. Vysokoškolské skriptá, PríFUK Bratislava	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 989

A	B	C	D	E	FX
24.47	23.56	23.56	18.91	7.79	1.72

Provides: prof. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 10.12.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ZO1/03	**Course name:** Zoology I

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: 3.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:
The prerequisite for passing the course is active participation in the required exercises, passing all midterm evaluations during the exercises, and successful completion of the final exam.
Midterm evaluations during the exercises are: a written paper - defining zoological terms, identifying animals from pictures, and completing several assignments.
After successful completion of the exercises, students take the final exam, earning points from the exercises, which make up 30% of the final grade. Students can earn 70% of the final grade for the exam.

Learning outcomes:
Students will gain knowledge of the systematic classification and phylogenetic relationships of the higher groups of non-chordates, knowledge of their morphology, anatomy, mode of reproduction, biology and geographic distribution.

Brief outline of the course:
1. Fundamentals of the history of zoology.
System, anatomy, morphology, development, phylogenetic relationships and exemplary species of selected groups of invertebrates:
2. Porifera, Cnidaria, Ctenophora
3. Platyhelminthes, Rotifera, Acantocephala
4. Entoprocta, Ectoprocta, Cycliophora
5. Mollusca, Annelida
6. Nematode, Onychophora, Tardigrad
7. Arthropoda - Chelicerata
8. Arthropoda - Myriapoda
9. Arthropoda - Crustacea (Branchiata)
10. Arthropoda - Hexapoda / Entogantha
11. Arthropoda - Hexapoda / Insecta Heterometabola
12.Arthropoda - Hexapoda / Insecta Holometabola
13. Deusterostomia - Echinodermata

Recommended literature:

Course language:

Notes:
If necessary, students have the opportunity to consult with the lecturer. Unless otherwise stated at the first lecture, consultations take place every Wednesday between 10:00 and 11:00. If the date is not convenient for someone, it is advisable to arrange a consultation date individually by contacting the lecturer by email.

Course assessment
Total number of assessed students: 1248

A	B	C	D	E	FX
7.77	16.51	22.28	21.71	23.24	8.49

Provides: RNDr. Peter Ľuptáčik, PhD., RNDr. Andrea Parimuchová, PhD.

Date of last modification: 01.03.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ZO1/15	**Course name:** Zoology I

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: 4

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:
The prerequisite for passing the course is active participation in the required exercises, passing all midterm evaluations during the exercises, and successful completion of the final exam.
Midterm evaluations during the exercises are: a written paper - defining zoological terms, identifying animals from pictures, and completing several assignments.
Students will earn points for each interim assessment. The sum of all points earned will determine the final grade for the course.

Learning outcomes:
Students will gain knowledge of the systematic classification and phylogenetic relationships of the higher groups of non-chordates, knowledge of their morphology, anatomy, mode of reproduction, biology and geographic distribution.

Brief outline of the course:
1. Fundamentals of the history of zoology.
System, anatomy, morphology, development, phylogenetic relationships and exemplary species of selected groups of invertebrates:
2. Porifera, Cnidaria, Ctenophora
3. Platyhelminthes, Rotifera, Acantocephala
4. Entoprocta, Ectoprocta, Cycliophora
5. Mollusca, Annelida
6. Nematode, Onychophora, Tardigrad
7. Arthropoda - Chelicerata
8. Arthropoda - Myriapoda
9. Arthropoda - Crustacea (Branchiata)
10. Arthropoda - Hexapoda / Entogantha
11. Arthropoda - Hexapoda / Insecta Heterometabola
12.Arthropoda - Hexapoda / Insecta Holometabola
13. Deusterostomia – Echinodermata

Recommended literature:

Course language:

Notes:
If necessary, students have the opportunity to consult with the lecturer. Unless otherwise stated at the first lecture, consultations take place every Wednesday between 10:00 and 11:00. If the date is not convenient for someone, it is advisable to arrange a consultation date individually by contacting the lecturer by email.

Course assessment
Total number of assessed students: 305

A	B	C	D	E	FX
9.84	19.67	22.95	25.25	16.07	6.23

Provides: RNDr. Peter Ľuptáčik, PhD., RNDr. Andrea Parimuchová, PhD.

Date of last modification: 05.03.2023

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ZOO1/15	**Course name:** Zoology II

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: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:

Learning outcomes:
Fundamental information on taxonomy and morphology of vertebrates

Brief outline of the course:
Systematic and phylogenetic relationships of vertebrate. Review of important groups of fishes, amphibians, reptiles, bidrs and mammals. 1. Introduction 2. Chordata, Protochordata 3. Verrtebrata introduction 4. Agnatha 5. Chondrichthyes 6. Osteognathostomata 7. Actinopterygii 8. Sarcopterygii 9. Tetrapoda 10. Lissamphibia 11. Reptilia 12. Aves 13. Mammalia

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 248

A	B	C	D	E	FX
1.21	20.56	31.05	18.15	17.74	11.29

Provides: doc. RNDr. Marcel Uhrin, PhD., RNDr. Monika Balogová, PhD.

Date of last modification: 20.09.2021

Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ZOO1/03	**Course name:** Zoology II

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: 4.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:

Learning outcomes:
Fundamental information on taxonomy and morphology of vertebrates

Brief outline of the course:
Systematic and phylogenetic relationships of vertebrate. Review of important groups of fishes, amphibians, reptiles, bidrs and mammals.
1. Introduction
2. Chordata, Protochordata
3. Verrtebrata introduction
4. Agnatha
5. Chondrichthyes
6. Osteognathostomata
7. Actinopterygii
8. Sarcopterygii
9. Tetrapoda
10. Lissamphibia
11. Reptilia
12. Aves
13. Mammalia

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1108

A	B	C	D	E	FX
22.65	28.43	18.95	15.25	9.57	5.14

Provides: doc. RNDr. Marcel Uhrin, PhD., RNDr. Monika Balogová, PhD.

Date of last modification: 20.09.2021
Approved: doc. RNDr. Peter Pristaš, CSc., prof. RNDr. Vladimír Zeleňák, DrSc.