CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ PMB/10	**Course name:** Advanced biometric methods

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Tests during the semester.
Given at the basis of partial examination and final test.

Learning outcomes:
To learn to use the most widely used advanced methods of data processing practically.

Brief outline of the course:
Multivariate data. Dependence measures. Contingency tables. Regression analysis. Logistic regression. Analysis of variance. Basics of time series.

Recommended literature:
1. Field, A.: Discovering statistics using SPSS, SAGE, 2009.
2. Ho, R.: Handbook of univariate and multivariate data analysis and interpretation in SPSS, Chapman & Hall/CRC, 2006.
3. Motulsky, H.: Intuitive biostatistics, Oxford University Press, 2018

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 75

A	B	C	D	E	FX
2.67	4.0	26.67	28.0	38.67	0.0

Provides: doc. RNDr. Daniel Klein, PhD.

Date of last modification: 14.04.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ AOL1/06	**Course name:** Analysis of Organic Substances

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

Number of ECTS credits: 6

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

Course level: II.

Prerequisities:

Conditions for course completion:
Examination.

Learning outcomes:
Methods of analysis of organic substances.

Brief outline of the course:
Characteristics, objectives, methods and basic procedures in qualitative and quantitative analysis of organic compounds (AOC). Evidence and identification, molecular, elemental and structural-analytical methods in AOC. Groups solubility, color and precipitation reactions, identification and determination of functional groups. Optical, electrochemical, separation and other methods used in analysis of organic compounds. Some examples of the use of knowledge for the purposes of research and practice.

Recommended literature:
1. Jerry R. Mohrig et al. Organic Qualitative Analysis, W. H. Freeman and Company, 2003
2. H.T. Openshaw, A Laboratory Manual of Qualitative Organic Analysis, CUP Archive, 1976
3. Oliver Kamm, Qualitative organic analysis, John Wiley & Sons, 1923, Open Library

Course language:

Notes:

Course assessment
Total number of assessed students: 32

A	B	C	D	E	FX
71.88	21.88	3.13	3.13	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KF/ AFS/05	**Course name:** Ancient Philosophy and Present Times

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
When implementing the subject in the classical - face-to-face - form of teaching:
40% - continuous assessment of student activity at seminars, partial seminar work - assignment.
60% - final test, or seminar paper in the range of 10 A4 standard pages (with compliance with the KF citation standard for seminar and qualification papers.
In the case of a transition to distance education, students will be assigned sub-tasks for studying philosophical texts and processing the task in written form, which must be submitted by the set deadline, will be assigned points (partial assessment) and at the end will prepare a seminar paper to the same extent as in the face-to-face form teaching.

Learning outcomes:

Brief outline of the course:
Point out the roots of Western civilization that go back to the Greeks. The ancient Greeks, as one of the 3 pillars of European culture, reveal the origins of democracy and critical thinking. Emphasizing the interconnectedness of ancient philosophy and EPISTEME will enable a better understanding of the issues of thought formation, the relationship between philosophy and science, and modern society, where the emergence of mathematical natural science in the 17th century is the pillar on which Europe and European humanity stand. The student will be able to understand the questions and problems of today if he discovers the foundations and contexts leading to serious questions of today's form of society, thinking, science and culture.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 31

A	B	C	D	E	FX
80.65	6.45	6.45	0.0	6.45	0.0

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EFZ1/03	**Course name:** Animal and Human Ecophysiology

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Elaboration of semestral thesis.

Learning outcomes:
To understand the basic mechanisms of adaptations to environmental factors in animals and humans.

Brief outline of the course:
1. Definition of the subject. External environment characteristics. Environmental factors, classification, time factor. Reaction, adaptation, deformation. Classification of adaptations. Stress reaction, general adaptation syndrome.
2. Pathological reaction, pathological state, disease. General characteristics of disease – pain, fever, inflammation.
3. Ageing, theories, physiological changes in ageing. Death of organism. Adaptations to food intake changes and food composition. Food intake regulation.
4. Caloric restriction, starving, increased caloric intake, obesity. Time factor in food intake.
5. Thermoregulation, heat and cold adaptations. Hibernation, diapause.
6. Altitude and hyperbaric adaptations. Osmoregulation.
7. The effects of hypergravity and microgravity, physiological changes during space flight. Sound, ultrasound, infrasound effects.
8. Electromagnetic fields. Effects of electric current. Infrared, visible, ultraviolet radiation and their significance for organisms. Microwaves. Laser.
9. Ionising radiation, classification, sources. The effects of ionising radiation.
10. Xenobiotics, biotransformation. Air, water, and soil pollutants.
11. Drug abuse, mechanism of drug action. The effects of opioids and CNS depressants – sedatives, hypnotics, and alcohol.
12. The effects of CNS stimulants – amphetamines, cocaine, methylxanthines, nicotin. The effects of hallucinogens and solvents.
13. Carcinogenesis, chemical, physical, and biological carcinogens. Oncogenes, tumour suppressor genes. Prevention of carcinogenesis. Prions.

Recommended literature:
1. Piantadosi C.A. Biology of Human Survival: Life and Death in Extreme Environments. Oxford Press 2003.

2. Wilmer P and co.: Environmental Physiology of Animals. Blackwell Publishing Inc., 2004
3. Chown SL, Nicolson SW: Insect Physiological Ecology. Oxford University Press 2004

Course language:

Notes:

Course assessment
Total number of assessed students: 434

A	B	C	D	E	FX
14.29	22.58	22.81	22.81	16.36	1.15

Provides: doc. RNDr. Bianka Bojková, PhD.

Date of last modification: 14.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ AMK/15	**Course name:** Applied Microbiology

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: II., III.

Prerequisities:

Conditions for course completion:
Attendance of practicals (at least 90%), final examination

Learning outcomes:
The students will acquire in-depth knowledge on the important role of microoganisms in different fields like food (production of beer, wine, milk products, probiotics), chemical and pharmaceutical industry (production of vitamins, hormones, amino acids, enzymes, comodity chemicals), vaccines and their production, wastewater treatment, as well as microbial bioremediation, biofuels and biomining.

Brief outline of the course:
Application of bacteria in industrial processes, biochemicals production. Application of recombinant DNA techniques in industry. Lactic acid bacteria and its application in food industry. Microbiology in food quality control. Application of microorganisms in environment protection – wastewater treatment, bioremediation, biofuels, microbiology of biogas plants.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 41

A	B	C	D	E	FX	N	P
53.66	19.51	12.2	4.88	0.0	0.0	0.0	9.76

Provides: doc. RNDr. Peter Pristaš, CSc., RNDr. Lenka Maliničová, PhD., RNDr. Jana Kisková, PhD.

Date of last modification: 23.06.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ AAS1/03	**Course name:** Atomic Spectrochemistry

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

Number of ECTS credits: 6

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

Course level: II.

Prerequisities:

Conditions for course completion:
Based on the ongoing evaluation: it means based on the results of laboratory exercises and seminar works with an assessment higher than 51%.
Based on ongoing evaluation, and the final written and oral examination. The exam consists of a written and an oral part and its overall percentage rating must be higher than 51%. (Written and oral exam evaluation: 51-60% - E; 61-70% - D; 71-80% - C; 81-90% - B; 91-100% - A).

Learning outcomes:
After completing the subject, the student will acquire theoretical information and practical experience in the field of spectro-analytical methods.

Brief outline of the course:
Information and the role of atomic absorption and emission spectroscopy in analytical chemistry. History of the development of spectral methods.
Theoretical foundations, principles and classification of optical methods. Experimental foundations of spectral methods. Atomic absorption spectrometry. Atomic emission spectrometry.
Atomic fluorescence spectrometry. X-ray spectrometry. Inorganic mass spectrometry. Molecular absorption spectrometry in the visible, ultraviolet and near-infrared region and its analytical applications.

Recommended literature:
I.Němcová, L. Čermáková, P. Rychlovský: Spektrometrické analytické metódy. Karolinum , Praha, 1997.
D. A. Skoog, J. J. Leary: Instrumental Analytics. Springer, Berlin, 1996.
B. Welz, M. Sperling: Atomic Absorption Spectrometry,Wiley-VCH, Weinheim, 1998.
H. Günzler, A. Wiliams: Handbook of Analytical Techniques. Wiley-VCH, Weinheim, 2001.
G. Gauglitz, T. Vo-Dinh: Handbook of Spectroscopy. Wiley-VCH, Weinheim, 2003.

Course language:
Slovak language

Notes:

Theoretical part of the course can also be carried out by distance learning, using MS Teams or BBB. The form of teaching is always specified at the beginning of the semester, and is continuously updated in accordance with the pandemic situation.

Course assessment

Total number of assessed students: 104

A	B	C	D	E	FX
41.35	24.04	19.23	11.54	3.85	0.0

Provides: doc. Ing. Viera Vojteková, PhD.

Date of last modification: 05.08.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ZTOX/04	**Course name:** Basic Toxicology

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

Number of ECTS credits: 5

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

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
In this course, students will learn how important it is in a teacher's job to know the toxicity and physicochemical properties of the substances they work with. They will gain knowledge especially about the specific and systemic toxicity of substances, they will get acquainted with the classification of xenobiotics and with the methods of their effect and possible identification.
They will also be familiar with the risks involved in working with a given chemical, from simple metals, oxides to salts. The very important knowledge that will be the result of education is that they will learn how to work and how to handle dangerous substances and ways to protect themselves and students for whom working with these substances is intended.
An inseparable part of education is also the knowledge of current Slovak and European chemical legislation, which is dynamic and changes depending on new knowledge in the field of xenobiotic toxicity.

Brief outline of the course:
Historical aspects, types of toxic substances, types of exposure, dose-response relationship. Disposition of toxic compounds (absorption, distribution, excretion of toxic compounds). Metabolism of toxic compounds. Drugs as toxic substances, food additives and contaminants, environmental pollutans. Statement of chemistry laboratory policy. Safe and handling of toxic substances.

Recommended literature:
G. F. Fuhrman: Allgemeine Toxikologie fuer Chemiker, Teubner Verlag, Stutgart 1984.
V. E. Forbes, T. L. Forbe: Ecotoxicology in Theory and Practice, Chapman&Hall, London 1994.
J. A. Timbrell: Introduction to Toxicology, Taylor&Francis, London 1994.
J.H.Duffus, H.G.J. Worth: Fundamental toxicology, RSC Publishing, Cambridge, 2006.

Course language:

Notes:

Course assessment
Total number of assessed students: 325

A	B	C	D	E	FX
21.23	28.0	24.92	17.23	7.38	1.23

Provides: RNDr. Miroslava Matiková Maľarová, PhD.

Date of last modification: 21.06.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ ZCHI2/11	**Course name:** Basic chiropterology

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

Number of ECTS credits: 3

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Comprehensive review of scientific knowledge on bats. Review on methods of bat research in conditions of the temperate zone.

Brief outline of the course:
1. Bat systematics. 2. Species diversity, bats of the Palaearctic. 3. Morphology, anatomy. 4. Physiology. 5. Echolocation. 6. Ecology: roosts, diet, hibernations, migration. 7. Social structure, mating systems. 8. Population ecology. 9. Research methods. 10. Students' presentations. 11. Practical. 12. Field excrusion. 13. Field excrusion.

Recommended literature:
Kunz T. H. & Fenton M. B. (eds), 2003: Bat ecology. The University of Chicago Press, Chicago and London, 779 pp.

Course language:

Notes:

Course assessment
Total number of assessed students: 87

abs	n
98.85	1.15

Provides: doc. RNDr. Marcel Uhrin, PhD.

Date of last modification: 20.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ MMZ/20	**Course name:** Basic molecular methods in Zoology and Animal Physiology

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Ongoing evaluation: active participation on practical exercises
Final evaluation: fulfilling the practical task

Learning outcomes:
Practical skills in the following techniques:
- Pipetting methods,
- DNA/RNA extraction,
- PCR methods (PCR, RT-PCR, qRT-PCR) + electrophoretic visualization
- database NCBI (GenBank, BOLD)
- basic instructions in using of phylogenetic program Mega: sequences trimming, construction of phylogenetic trees

Brief outline of the course:
The aim of the subject is to introduce the methods of molecular biology as the tools used to solve problems of zoological, ecological and physiological studies, in both theoretical but first of all in practical form.
The course focuses on basic molecular methods used in studies of taxonomy, ecology and physiology of animals (invertebrates and vertebrates). The main task is to provide not only theoretical knowledge, but in the form of practical exercises, mainly skills usable in practice (especially in the solution of future bachelor and master theses).

Recommended literature:
Šmarda a kol. 2005. Metody molekulární biologie. Masarykova univerzita, Brno.
Weaver, R.F. 2002. Molecular biology. University of Kansas
Pastoráková A. & Petrovič, R. 2016. Molekulárne metódy aktuálne používané v klinickej genetike. Univerzita Komenského v Bratislave, Lekárska fakulta

Course language:
Slovak or English language

Notes:

Course assessment
Total number of assessed students: 18

A	B	C	D	E	FX
22.22	38.89	16.67	22.22	0.0	0.0

Provides: RNDr. Andrea Parimuchová, PhD., RNDr. Terézia Kisková, PhD.

Date of last modification: 14.05.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ BACH1/03	**Course name:** 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: 1., 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion: Completion of block exercises. Processing and presentation of the assigned topic. Oral examination.	
Learning outcomes: Theoretical knowledge and practical experience regarding application of analytical chemistry and analytical methods to laboratory medicine.	
Brief outline of the course: Introduction to Bioanalytical Chemistry, biological samples classification. Factors affecting analytes in biological samples. Collection, transport and storage of biological samples. Selected procedures of sample pretreatment Control and management of quality in clinical laboratory. Enzymes in bioanalysis. Introduction to Immunochemical methods - basic characteristics of the immune system, antibody, antigen, hapten - definition, basic characteristics. Precipitation and Agglutination methods - principle, definition, use. Immunodiffusional methods. Radioimmunoanalytic methods (RIA). Nonisotopic methods (EIA, ELISA, LIA, FIA). Investigative procedures in medical microbiology. Principles miniaturization of analytical procedures in clinical chemistry, microchips, nanochips, sensors and biosensors.	
Recommended literature: 1. Mikkelsen, S. R., Cortón, E.: Bioanalytical Chemistry, Wiley, 2004. 2. Wilson, I.: Bioanalytical Separations 4, (Handbook of Analytical Separations), Elsevier, 2003. 3. Suelter, C. H., Kricka, L. J.: Methods of Biochemical Analysis, Vol.37, Bioanalytical Instrumentation, Wiley, 1994. 4. Rodriguez-Diaz, R., Wehr, T., Tuck, S.: Analytical Techniques for Biopharmaceutical Development, Marcell Dekker, 2005.	
Course language: 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: 116

A	B	C	D	E	FX
34.48	37.07	17.24	10.34	0.86	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 25.01.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BRS1/03	**Course name:** Biology of Plant Symbioses

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: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
1. presentation of a semester project on a selected topic
2. proving knowledge of the subject by oral exam

Learning outcomes:
After completing the subject, the student will get knowledge and understanding of what symbiosis is, what is its role and meaning, with a focus on interactions in the plant kingdom. The student should be able to apply the acquired knowledge in practice, such as when growing crops or in gardening. He should also be able to use the knowledge gained by completing this subject when conducting experiments related to symbioses.

Brief outline of the course:
1. Introduction to the study of symbioses
2. Viruses and their symbiosis with fungi, algae and plants
3. Bacterial associations with plants
4. Fungal associations with fungi, algae and plants
5. Associations of algae with protozoa and invertebrates
6. Symbiosis of flowering plants
7. Symbiosis of coral reefs
8. Endosymbiosis
9. Morphological, cytological, physiological and biochemical aspects of the most famous examples plant symbioses.
10. signals and communication in plant symbiosis (signaling of cyanobacteria with plants)
11. Signals and communication in plant symbiosis (signaling of ectomycorrhizal symbioses)
12. Ecological use of plant symbioses in practice
13. presentation of the semester project

Recommended literature:
Van den Hoek, C. et al. 1995: Algae, an introduction to phycology,
Deacon, J.W. 1997: Modern Mycology
Paracer S., Ahmadjian V., 2000: Symbiosis: an introduction to Biological Associations

Course language:

slovak, english

Notes:

Course assessment
Total number of assessed students: 338

A	B	C	D	E	FX	N	P
95.27	0.0	0.0	0.0	0.0	0.0	0.0	4.73

Provides: prof. RNDr. Martin Bačkor, DrSc.

Date of last modification: 31.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BFA1/03	**Course name:** Biopharmacology

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: II.

Prerequisities:

Conditions for course completion:
Written test.

Learning outcomes:
To provide the students with basic knowledge on the classification and mechanism of action of the most important pharmaceuticals

Brief outline of the course:
Pharmaceutical principles. Classification of drugs. Absorption, biotransformation and excretion of drugs from the organism. Pharmacogenetics. Molecular mechanisms of drug effects. Drug-receptor interactions. Chronic administration of drugs. Teratogenity and cancerogenity of drugs. Development and introduction of drugs for clinical use. Principle of chronopharmacology

Recommended literature:
Clark, W. G., Braber, D.C., Johnen, A.R.: Goth‘s medical pharmacology. Mosby Year Book, 1992

Course language:

Notes:

Course assessment
Total number of assessed students: 243

A	B	C	D	E	FX
14.81	25.51	23.87	16.46	17.28	2.06

Provides: doc. RNDr. Monika Kassayová, CSc.

Date of last modification: 23.11.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BSP/04	**Course name:** Biospeleology

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

Number of ECTS credits: 4

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

Course level: II., III.

Prerequisities:

Conditions for course completion:
Active participation in seminars and field trips, preparation of oral presentation to a selected topic, completion of semestral written examination, final oral examination.

Learning outcomes:
The main goal of the subject is to get basic knowledge on the diversity of the cave biota, relationships and adaptations to the specific environment, its role in the cave system and protection of the cave biota.

Brief outline of the course:
The subject covers morphology and systematics of the cave fauna and microflora, their adaptations to this specific habitat type, geographic distribution, functioning of the cave system and interactions between its components, human influence and protection of the cave biota.

Recommended literature:
Culver D. C., 1982: Cave life – evolution and ecology. Harvard University Press, Cambridge, Massachusetts and London
Culver D.C., White W.B., 2005: Encyclopedia of caves. Elsevier, 1-654
Vandel A., 1965: Biospeleology - the biology of cavernicolous animals. Pergamon Press, Oxford
Wilkens H., Culver D.C., Humphreys W.F., 2000: Subterranean Ecosystems. Ecosystems of the World, vol. 30. Elsevier, 1-791

Course language:

Notes:

Course assessment
Total number of assessed students: 84

A	B	C	D	E	FX	N	P
92.86	0.0	2.38	1.19	0.0	0.0	0.0	3.57

Provides: prof. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 10.12.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KF/ KDF/05	**Course name:** Chapters from History of Philosophy of 19th and 20th Centuries (General Introduction)

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 10

A	B	C	D	E	FX
50.0	20.0	10.0	0.0	10.0	10.0

Provides: PhDr. Dušan Hruška, PhD.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ACM1/06	**Course name:** Chemometrics

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
On the basis of ongoing evaluation, which requires the elaboration of homeworks and seminar works, and a final written project with an assessment higher than 51%.
On the basis of ongoing evaluation, and final examination. The exam consists of a written and an oral part and its overall percentage rating must be higher than 51%. (Written and oral exam evaluation: 51-60% - E; 61-70% - D; 71-80% - C; 81-90% - B; 91-100% - A).

Learning outcomes:
After completing the course, the student will acquire knowledge about the correct and theoretically based evaluation of analytical results and methods.
Knowledge about the methods of validation and accreditation of laboratories.
Knowledge about the result uncertainties, methods of decision statistics and good laboratory practice.

Brief outline of the course:
The principles of the mathematic- statistical methods used in analytical chemistry. Probability distribution of the measuring results. Classic and robust estimation of the mean value and variance. Statistical tests and their application. Accuracy, precision, and reliability of the results. Uncertainity of the results. Calibration in the analytical chemistry, linear and nonlinear models.
Evaluation of the analytical methods, the chosen optimization approaches. Solving of the typical examples in the frame of the practical lectures.

Recommended literature:
R. G. Brereton: Chemometrics., Wiley, Chichester, 2003
M. Meloun, J. Militký: Kompendium statistického zpracování dat., Academia, Praha 2006
James N. Miller, Jane C. Miller: Statistics and Chemometrics for Analytical Chemistry, Pearson Education Limited, England, 2010

Course language:
Slovak language

Notes:

The course can be carried out by distance learning, using MS Teams or BBB. The form of teaching is always specified at the beginning of the semester, and is continuously updated in accordance with the pandemic situation.

Course assessment

Total number of assessed students: 112

A	B	C	D	E	FX
39.29	29.46	21.43	5.36	4.46	0.0

Provides: doc. Ing. Viera Vojteková, PhD.

Date of last modification: 05.08.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ CHRA1/03	**Course name:** Chromatographic Analysis

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: II.

Prerequisities:

Conditions for course completion:
Oral Examination. In the case an constraint the form of pedagogical process , a distance form - electronic form of exam is recommended. For successful exam the knowledge of 51% is necessary, at least.

Learning outcomes:

Brief outline of the course:
General characteristics of chromatographic system and chromatographic separation. Analyte retention in chromatography, retention indices. Models used for chromatographic system description. Parameters affecting quality of chromatographic separation. Sensitivity, separated analytes, separation time, optimisation of chromatographic process. General equation of chromatography.
Evaluation of retention and selectivity of chromatographic process. Stationary phase. Qualitative chromatographic analysis. Quantitative analysis methods, sample preparation. System of analyte separation. Identification in chromatographic analysis.

Recommended literature:
D. A. Skoog, J. J. Leary: Principles of Instrumental Analysis, Saunders, 1992.

Course language:

Notes:

Course assessment
Total number of assessed students: 60

A	B	C	D	E	FX
83.33	6.67	6.67	0.0	3.33	0.0

Provides: prof. RNDr. Andrej Oriňak, PhD.

Date of last modification: 07.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ CRO1/03	**Course name:** Chronophysiology

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 1.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Active participation on practicals.
Passing of the final oral examination.

Learning outcomes:
To outline the problematics of the time organization of biological processes and their significance in evolution of living organisms.
To understand the mechanisms, ensuring the adaptation to regular changes in their environment with various periodicity, as well as of the common action of external and internal factors in control of the biological rhythms..

Brief outline of the course:
1. Time structure of the physiological variables in animals.
2. Overview of the history of chronobiology.
3. Basic notions and division of biological rhythms.
4. Genetic basis and molecular mechanisms of the biological rhythms in animals.
5. Endogenous character of the biological rhythms. Localization of the biological clock.
6. Synchronsation of rhythms. Multioscillatory system of the body.
7. Model animals in study of biological rhythms.
8. Ultradian rhythms.
9. Circaannual (seasonal) rhythms.
10. Application of chronobiological principles in medicine.
11. Disturbations of the biological rhythms. The jet-lag syndrome.
12. Biological rhythms in shift-work.
13. The significance of biological rhythms in the evolution of living organisms.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 98

A	B	C	D	E	FX	N	P
21.43	20.41	27.55	11.22	4.08	0.0	0.0	15.31

Provides: prof. RNDr. Beňadik Šmajda, CSc., RNDr. Natália Pipová, PhD.

Date of last modification: 21.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ FKC1/03	**Course name:** Colloid 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: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Approved calculation exercises tests and an approved written examination
Examination For sucsesfull exam must be shown 51% of right results.

Learning outcomes:
To clarify basic physicochemical principles of colloid disperse systems (size of dispersed particles is from 1 nanometre to 1 micrometre) to understand several important problems of technology and nature. The students obtain primary information on colloid chemistry.

Brief outline of the course:
Classification and characterization of dispersed systems. Heterogeneity of colloidal systems. Optical properties of colloids. Theory of light scattering. Molecular-kinetic properties. Brownian motion, diffusion, osmosis, and sedimentation. Adsorption-basic concepts. Electrokinetic phenomena and their application. Structure, stability and coagulation of colloids. Rheology of dispersed systems. Gels. Aerosols. Solid dispersions, emulsions and foams. The theory is applied during laboratory and calculation exercises.

Recommended literature:
W.J. Moore: Physical Chemistry, Longman, London 1972
P.C. Hiemenz: Principles of Colloid and Surface Chemistry, M. Dekker, New York 1986
P.W. Atkins: Physical Chemistry, Oxford University Press, Oxford, New York 2002

Course language:

Notes:

Course assessment
Total number of assessed students: 39

A	B	C	D	E	FX
92.31	2.56	5.13	0.0	0.0	0.0

Provides: prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Renáta Oriňaková, DrSc.

Date of last modification: 07.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/FKC/00	**Course name:** Colloid Chemistry Practicals

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Approved laboratory reports
Assessment

Learning outcomes:
To give an introduction to technically important applications of colloid and surface chemistry.

Brief outline of the course:
Surface effects. Adsorption at interface of solid and liquid phases, determination of surface nature. Electrical properties. Stability and coagulation of colloids. Structure-mechanical properties of colloids. Properties and aggregation of surfactants and micelles. Rheological properties.

Recommended literature:
B.P. Levitt: Findlay´s Practical Physical Chemistry, Longman, London 1973
Internal textbooks

Course language:

Notes:

Course assessment
Total number of assessed students: 12

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: RNDr. František Kaľavský, prof. RNDr. Renáta Oriňaková, DrSc.

Date of last modification: 12.05.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/KK/07	**Course name:** Communication and Cooperation

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Evaluation:
A condition for student evaluation is his active participation in the seminar. It is expected that the student will actively participate in the discussions and will express their positions and possible solutions.
The output for evaluation will be the development of a project in the form of a Power Point presentation or a video on a selected communication topic.

Learning outcomes:
The goal of the subject Communication, cooperation is the formation and development of students' language and communication skills through experiential activities.
The student can demonstrate an understanding of individual behavior in various communication contexts.
The student can describe, explain and evaluate communication techniques (cooperation, assertiveness, empathy, negotiation, persuasion) in practical contexts.
The student can apply these techniques in common communication schemes.

Brief outline of the course:
Communication
Communication theory
Non-verbal communication and its means
Verbal communication (basic components of communication, language means of communication) about active listening
Empathy
Short conversation and effective communication (principles and principles of effective communication)
Cooperation
About the basics of cooperation
About types, signs, types and factors of cooperation
Characteristics of the team (positions in the team)
Small social group (structure, development, characteristics of a small social group, position of the individual in the group)

About leadership (characteristics of the leader, management, leadership styles)

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 281

abs	n	z
98.22	1.78	0.0

Provides: Mgr. Ondrej Kalina, PhD., Mgr. Lucia Barbierik, PhD.

Date of last modification: 31.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ DNR/06	**Course name:** Dendrology

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: II.

Prerequisities:

Conditions for course completion:
1. Attending lectures is optional, participation in exercises is mandatory. 2. During the exercises, it is necessary to master the recognition of selected trees and shrubs in their various phenological phases according to significant identifying features (buds, bark, shape of leaves and flowers, habitus) and some species-specific features (cork wings, thorns, prominent pubescence, distinctive color of shoots in winter, etc.). 3. Within the framework of forest tree seed production, it is necessary to master the identification of fruits and seeds of selected taxa of woody plants.

Learning outcomes:

Brief outline of the course:
1. Summary of basic terms within the subject Dendrology. 2. Individual variability of woody plants (morphological, biochemical, biological, technical forms). 3. Geographic variability of woody plants (climate type, edaphotype). 4. Individual ecological requirements of woody plants with a basic overview of taxa (woody plants in shade and sunny conditions, oceanic and continental climate). 5. Special communities of woody plants, their characteristics and overview of the most important taxa. Pioneer woody plants, melioration woody plants, woody plants in ravines and scree, forest-steppe woody plants, floodplain woody plants, peatland woody plants and woody plants of upper forest border. 6. Saving the gene pool of forest trees (generative and clone seed orchards, selected trees and stands). 7. Selected chapters from the seed production of forest trees (external and internal factors of seed production, methods of collecting and technology of seed processing and its subsequent storage). 8. Selected chapters from forest tree seed production (seed lifespan, short-term and long-term seed storage, germination ability and germination process, methods of pre-sowing seed preparation). 9. Introduction of woody plants - definition of the term, phases of introduction. Benefits of introduction and possible environmental risks. 10. Invasive trees, overview and characteristics of the most important taxa. Ecological, economic and health consequences of invasions. 11. The most important dendrological objects in Slovakia (Mlyňany Arboretum, Borová hora Arboretum, Kysihýbel Arboretum, Topoľčianky Castle Park). 12. Introduction to arboriculture, protection and care of trees growing outside the forest. The exercises are aimed at practical recognizing the most important coniferous and deciduous both native and introduced trees. During the summer semester, dealing with woody plants in the winter (in a sterile state), the specific characteristics of woody plants (general habitus of the wood, buds, thorns, specific color of the

surface of the branch, pubescence, cork lamellas, etc.). During the growing season, recognizing the shape of the leaves and flowers..

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 82

A	B	C	D	E	FX
71.95	13.41	7.32	7.32	0.0	0.0

Provides: Ing. Peter Kelbel, Dr.

Date of last modification: 19.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPa/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course: 1.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 254	

abs	n
100.0	0.0

Provides:
Date of last modification: 03.05.2015
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPb/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 215	
abs	n
100.0	0.0
Provides:	
Date of last modification: 03.05.2015	
Approved:	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPc/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 218	

abs	n
100.0	0.0

Provides:
Date of last modification: 03.05.2015
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ SDPd/15	**Course name:** Diploma Thesis Seminar

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 4.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 216

A	B	C	D	E	FX
85.19	10.65	2.78	0.46	0.93	0.0

Provides:

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/DPO/14	**Course name:** Diploma 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: 20

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 230

A	B	C	D	E	FX
58.7	24.78	10.0	4.78	1.74	0.0

Provides:

Date of last modification: 17.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EET1/03	**Course name:** Ecological ethology

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Field excursion
Oral examination.

Learning outcomes:
To analyze and comprehend to priciples of behavioral strategies in a given ecosystem from the point of view of sociobiology

Brief outline of the course:
The topic of sociobiology and its relations to other disciplines. The evolution of social behavior in animals and in man. Strategies of social interactions and formation of groups in relation to the ecosystem. The choice of appropriate social arrangement, sexual partner, reproductional and parental strategy. Competition among indiviuals and sexes.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 214

A	B	C	D	E	FX	N	P
87.38	3.74	5.14	0.47	0.0	0.0	0.0	3.27

Provides: RNDr. Igor Majláth, PhD.

Date of last modification: 16.05.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/EKO/20	**Course name:** Ecology of Amphibians

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

Number of ECTS credits: 2

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

Course level: II.

Prerequisities:

Conditions for course completion:
Ongoing evaluation: active participation on practical exercises.
Final evaluation: fulfilling the practical task.

Learning outcomes:

Brief outline of the course:
Presenting the basic knowledge of the most threatened class of vertebrates - amphibians, and various methods used in their research. This subject will contain theoretical and practical part, which will take place directly in the field with the main aim to show students how to observe and catch amphibians, handling, obtaining of biological material and its storage. In addition, students will be involved in activities related to the protection of amphibians in selected locations in eastern Slovakia (building of protection barriers, transferring of amphibians during their spring migration).

Recommended literature:
Dodd Jr C.K., 2010. Amphibian ecology and conservation: a handbook of techniques. New York: Oxford University Press.
Hillman S. S., Wothers P. C., Drewes R. C. & Hillyard S. D., 2009: Ecological and environmental physiology of amphibians. New York: Oxford University Press.

Course language:
Slovak or English language.

Notes:

Course assessment
Total number of assessed students: 21

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: RNDr. Monika Balogová, PhD., RNDr. Natália Pipová, PhD.

Date of last modification: 19.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ EKV1/03	**Course name:** Ecology of Birds
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 2 / 1 **Per study period:** 28 / 14 **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: 1. Anatomy and morphological characteristics of birds (brain, senses, navigation, physiology of flying, plumage, annual and circadian rhythms, reproduction) 2. Evolution, speciation, biogeography (species diversity, hybrid zones, differences between tropical and temperate areas) 3. Visual and acoustic communication (importance of colour, evolution of social signals, individual discrimination, variability of singing, learning) 4. Behaviour (individual and social behaviour, personality, territorial and dominant behaviour, flock behaviour) 5. Foraging ecology and migration (foraging guilds, strategies and adaptations, the importance of birds in ecosystem, ornithochory, evolution of migratory behaviour, phenology, types of migrants) 6. Mating systems (types, pair formation, extra-pair copulations, sperm competition, lek system) 7. Breeding biology (nest construction and protection, microclimate, variability in clutch size, incubation, rearing of young, parental care, colonies, nest parasitism) 8. Populations and communities (population structure, survival and mortality, demography, geographical variability, gene flow, competition, communities of different habitats) 9. Disease transmission (zoonoses, viruses) 10. Threats and species protection (birds in the country, threat factors, fragmentation of populations, legal system)	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 237

A	B	C	D	E	FX
75.11	14.35	8.86	0.42	1.27	0.0

Provides: Mgr. Peter Kaňuch, PhD.

Date of last modification: 21.02.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ECE/15	**Course name:** Ecology of Ecosystems
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 1 / 2 **Per study period:** 14 / 28 **Course method:** present	
Number of ECTS credits: 4	
Recommended semester/trimester of the course:	
Course level: II.	
Prerequisities:	
Conditions for course completion: lectures and excursions presentation of own project oral examination	
Learning outcomes: Deepening of the knowledge on the ecology of ecosystems in global with accent on the nature of the Central Europe (typology, location, genesis and dynamics and protection of ecosystems) is done. Theoretical part will be completed by excursions directed to the important ecosystems presented in the Slovak Republic.	
Brief outline of the course: The students obtain basis of modern ecology of ecosystems analysed the processes in world biomes and in local scale: the ecosystems in our country (in context of the Central Europe): classification of ecosystems Slovak Carpathians and forelands of the Pannonian Lowland, their Quarternary history, dynamics, human influences leading to agricultural and urbanised ecosystems, problems with conservancy and optimalisation of the relations men-nature, with emphasis on field excursions to the characeristic habitats.	
Recommended literature: Anděra, M., 2003: Encyklopédia európskej prírody. Slov. preklad D. Šubová, Slovart, Bratislava, 240 s. Chapin III FS, Matson PA, Vitousek PM, 2012: Principless of Terrestrial Ecosystems Ecology. 2nd Edition. Springer, 529 s. Jørgensen S.E, 2009: Ecosystem Ecology. Academic Press, 521 s. Kuras, T., 2013: Ekologie společenstev a ekosystémů. Palackého Univerzita v Olomouci. Skripta, 140 s. Loreau, M., Naeem, S., Inchausti, P. (eds.), 2009: Biodiversity and Ecosystem Functioning. Synthesis and Perspective. Oxford University Press, 294 s. Prach, K., Štech, M., Říha, P., 2009: Ekologie a rozšíření biomů na Zemi. Scientia, Praha, 152 s. +obr. príl. Wilkinson, D.M., 2006: Fundamental Processes in Ecology and Earth System approach- Oxford, Oxford University Press, 182 s,	

Course language:
English

Notes:

Course assessment
Total number of assessed students: 27

A	B	C	D	E	FX
81.48	11.11	7.41	0.0	0.0	0.0

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

Date of last modification: 19.10.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EPZ1/03	**Course name:** Ecology of Soil Animals

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
active (100%) participation in seminars and lectures
preparation of the presentation to the given topic
preparation of calculation protocol
practical and oral examination

Learning outcomes:
The main goal of the subject is to gain basic knowledge on the functioning of the soil system with the special reference to dominant systematic groups of the soil fauna, their ecology and taxonomic identification.

Brief outline of the course:
The subject deals with the soil as an ecological system and type of environment It is concentrated to the ecological factors ruling the life in soil, soil-dwelling animals and their adaptations to this specific habitat. Functioning of the soil system and understanding of the principal interactions of soil fauna with plant rhizosphere and soil microflora are among the main goals of the discipline.
1. Soil physical and soil-chemical characteristics.
2. Ecological characteristics of dominant groups of soil fauna - Protozoa, Nematoda.
3. Ecological characteristics of dominant groups of soil fauna - Annelida, Tardigrada
4. Ecological characteristics of dominant groups of soil fauna - Aranea, Pseudoscorpiones, Opiliones
5. Ecological characteristics of dominant groups of soil fauna - Acari, Isopoda
6. Ecological characteristics of dominant groups of soil fauna - Myriapoda - Pauropoda, Symphyla, Diplopoda, Chilopoda
7. Ecological characteristics of dominant groups of soil fauna - Apterygota - Diplura, Protura, Collembola, Thysanura
8. Ecological characteristics of dominant groups of soil fauna - Coleoptera - Carabidae, Staphylinidae, Elateridae, Diptera
9. Ecological characteristics of dominant groups of soil fauna - Vertebrata-Insektivora
10. Methodological approaches, soil sampling.
11. Identification of soil fauna-keys as taxonomic tool.
12. Identification of soil fauna - morphological differences in males, females, adults, juveniles.

13. Open, forest ecosystems and agricultural soils and their fauna.

Recommended literature:

Coleman, D.C., Crossley, D. A., 1996: Fundamentals of Soil Ecology. Academic Press, London, 1-205
Eisenbeis, G., Wichard, W., 1987: Atlas on the Biology of Soil Arthropods. Springer- Verlag Berlin, Germany, 1-437
Schaller, F. 1968: Soil Animals. The University of Michigan Press, United States of America, 1-144
Wallwork, J. A., 1970: Ecology of Soil Animals. McGraw- Hill, England, 1-283
Wallwork, J. A., 1976: The distribution and Diversity of Soil Fauna. Academis Press, London, 1-355

Course language:

Notes:

Course assessment

Total number of assessed students: 159

A	B	C	D	E	FX
52.83	22.01	16.98	5.66	2.52	0.0

Provides: RNDr. Natália Raschmanová, PhD.

Date of last modification: 12.10.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EVZ1/03	**Course name:** Ecology of Water Animals

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Ecological characteristic of freshwater groups and prevalent species (invertebrates, vertebrates), characteristic for habitat type and water condition (bioindication).

Brief outline of the course:
Biology of the most common representatives and groups of freshwater animals of Central Europe temperate region. Mohological adaptations, taxanomical characters, water communities.

Recommended literature:
Bronsmark, Ch., Hannsson, L. A.: The biology of Lakes and ponds. Biol. Of Habitats Ser, 1998
Fryer, G., Murphy, S. A natural history of the lakes, tarns and streams of the English Lake District. Freshw. Biol. Association Cumbria, 1991

Course language:

Notes:

Course assessment
Total number of assessed students: 188

A	B	C	D	E	FX
33.51	14.89	16.49	33.51	1.6	0.0

Provides: doc. RNDr. Andrej Mock, PhD.

Date of last modification: 19.10.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EKC1/00	**Course name:** Ecology of mammals

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To understand a) ekological position of mammal groups in ecosystems and their importance in ecological networks; b) anthropogenic impacts on mammals and their coenoses; c) population ecology of some mammal groups

Brief outline of the course:
1. Factors of environment. Temperature. Water. Snow. Light. Adaptations. Hypothermy. Hibernation, aestivation, letargy. 2. Reseources. Food. Food strategies and specialistaions. 3. Habitat and nika. Interactions. 4. Komensalism. Mutualism. Kooperation. Competion. Predator and prey. 5. Mammals and plants. Food webs. 6. Teritoriality. Home range. Lek. Metapopulations. 7. Reproduction. Mating systems. Oestrus. r- and K- strategy. Monogamy, polygamy. 8. Dispersion. Migration. Habitat selection. Individual. Population. Natality, mortality. Kohorts. Population dynamics and cycles. Gradations. 9. Mammal diversity. Island biogeografy. Macroecology. Gradients. Long-term studies. 10. Habitat fragmentations. Synanthropy. 11. Conservation of mammals. Wind energy. Mammal introductions. Repatriations, reintroductions. Expansions. 12. Global climate changes and mammals. Protected areas. 13. Vulneralble species. Minimal viable population.

Recommended literature:
Feldhamer G., Drickamer L., Vessey SH., Merritt JF., 2000. Mammalogy: Adaptation, Diversity and Ecology. McGraw Hill Hardback, 563 pp.
Vlasák P., 1986. Ekologie cicavcu. Academia, Praha, 292 pp.

Course language:

Notes:

Course assessment
Total number of assessed students: 261

A	B	C	D	E	FX	N	P
64.37	16.86	11.49	2.3	2.3	0.0	0.0	2.68

Provides: doc. RNDr. Marcel Uhrin, PhD.
Date of last modification: 20.09.2021
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ FEM1/03	**Course name:** Electroanalytical 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: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Continuous evaluation of exercise preparation and accepted exercise protocols.
Active participation in exercises.
Passing the final examination in the form of a written test.

Learning outcomes:
Survey on principles, theoretical background and practical applications of modern electroanalytical methods.

Brief outline of the course:
Importance of electroanalytical methods for environmental control and protection, requirements of practice, electrochemical cells, electrode potential, mass transfer by convection, migration and diffusion, Cottrell equation, direct current voltametry and polarography(principle, theoretical backround, examples of practical application). TAST polarography and voltametry, staircase voltammetry, pulse techniques: normal pulse and differential pulse voltammetry and polarography, square - wave voltammetry and polarography, AC polarography and voltammetry, anodic stripping voltammetry, adsorptive(or accumulation) voltammetry (applications in clinical and environmental analysis), working electrodes in voltammetry: stationary mercury electrode, mercury film electrode, glassy carbon electrode, carbon paste electrode,metallic electrodes, rotating disk electrode, rotating ring-disk electrode, ultramicroelectrodes, chemically modified electrodes, potentiometry, principles of ion selective electrodes, glass electrodes, ISE with solid and liquid membranes, biocatalytic membrane electrodes, chronopotentiometry, potentiometric stripping analysis, electroanalytical detectors in flow systems, amperometric titrations, biamperometric and bipotentiometric titrations, potentiostatic and galvanostatic coulometry.

Recommended literature:
F. Scholtz: Electroanalytical Methods, Springer Vrlg., Heidelberg 2002, ISBN 3-540-42449-3
J. Wang: Analytical Electrochemistry, VCH Publ., New York 1994,2000 R. Kalvoda (Ed.): Electroanalytical Methods in Chemical and Environmental Analysis, Plenum Publ. Corp., New York 1987
A.J. Bard, L.R. Faulkner: Electrochemical Methods, Jofn Wiley and Sons, New York 1980
T. Riley, A. Watson: Polarography and Other Voltametric Methods, John Wiley and Sons, Chichester 1987

J. Wang: Stripping Analysis, VCH Publ. Inc., Deerfield Beach 1985

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: 32

A	B	C	D	E	FX
62.5	18.75	9.38	6.25	3.13	0.0

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

Date of last modification: 18.11.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ EECH/03	**Course name:** 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: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Examination.

Learning outcomes:

Brief outline of the course:
The subject of environmental chemistry. Matter cycles on Earth. Geochemical cycles. Carbon, nitrogen, sulphur, phospohorous cycles. Metals and environment. Special cycles. Earth atmosphere composition, functions of atmosphere. Physical and chemical processes in atmosphere. Atmospheric photochemistry. Pollutants in atmosphere and greenhouse effect. Models of greenhouse effects. Principles of air quality control. Energetic Earth balance. Water environment and pollutants monitored. Classification of pollutants and ways of elimination. Waste water cleaning processes. Analytical methods in environmental chemistry, applications. Soil analysis, biogeochemical processes. Acid rain, metal ions in soil. Environmental analysis, strategy and concepts.

Recommended literature:
1. G. Schwedt: The Essential Guide to Environmental Chemistry, Wiley and Sons, London 2001
2. R.N. Reeve, J.D. Barnes: General Environmental Chemistry, Wiley, London 1994

Course language:

Notes:

Course assessment
Total number of assessed students: 118

A	B	C	D	E	FX	N	P
50.0	19.49	16.1	2.54	3.39	0.0	0.0	8.47

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

Date of last modification: 07.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EMK/15	**Course name:** Environmental Microbiology

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: II., III.

Prerequisities:

Conditions for course completion:
Attendance of practicals (at least 90%), final oral examination

Learning outcomes:
To provide students data on participation of microorganisms in biosphere processes, characteristics of most frequently occuring microbial communities and interactions ofmicroorganisms with other organisms.

Brief outline of the course:
Evolution and biodiversity of microorganisms, microorganisms in environment, the influence of abiotic factors on microorganisms, biogeochemical cycles, interactions between microorganisms and other organisms

Recommended literature:
1. BERTRAND, Jean-Claude, et al. (ed.). Environmental microbiology: fundamentals and applications. Dordrecht: Springer, 2015.
2. MITCHELL, Ralph; GU, Ji-Dong (ed.). Environmental microbiology. John Wiley & Sons, 2010.
3. HUDECOVÁ, D.: Mikrobiológia 1. Bratislava: STU, 2002.
4. SCHMIDT, Tom. Topics in ecological and environmental microbiology. Elsevier, 2012.
5. SIGEE, David. Freshwater microbiology: biodiversity and dynamic interactions of microorganisms in the aquatic environment. John Wiley & Sons, 2005.
6. VAN ELSAS, Jan Dirk, et al. Modern soil microbiology. CRC press, 2006.

Course language:

Notes:

Course assessment
Total number of assessed students: 80

A	B	C	D	E	FX	N	P
57.5	20.0	1.25	0.0	2.5	1.25	0.0	17.5

Provides: doc. RNDr. Peter Pristaš, CSc., RNDr. Lenka Maliničová, PhD., RNDr. Mária Piknová, PhD.
Date of last modification: 23.06.2022
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ETO1/03	**Course name:** Ethology

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Thematical presentations
Oral examination.

Learning outcomes:
To teach the students to know and to be aware of the importance of the behavioural aspect in biological sciences

Brief outline of the course:
History and development of ethology. Ethological methods. The innate forms of behaviour. The simplest forms of learning – conditioning and instrumental learning. Higher form of learning. Social behaviour. Sexual behaviour. Play behaviour. Biological rhythms. Orientation in space and animal migrations. Communication systems of animals. Emotions. Aggression in animal and human behaviour. Abnormal forms of behaviour

Recommended literature:
Franck, D.: Verhaltensbiologie. Einfuhrung in die Ethologie. Georg Thieme-Verlag, 1993
Manning, A., Dawkins, M. S.: An introduction to animal behaviour. Cambridge University Press, 1992

Course language:

Notes:

Course assessment
Total number of assessed students: 1092

A	B	C	D	E	FX
42.12	24.63	23.35	8.15	1.65	0.09

Provides: RNDr. Igor Majláth, PhD., RNDr. Natália Pipová, PhD.

Date of last modification: 16.05.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CIB/ EVČ/21	**Course name:** Evolúcia človeka

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: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Martin Kundrát, Ph.D.

Date of last modification: 09.02.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/TCE/02	**Course name:** Field Course of Ecology

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: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Presentation of own results and their interpretation in 15 minutes.

Learning outcomes:
Improvement of practical skills in ecology of organisms.

Brief outline of the course:
A fieldwork activity focused on individual tasks using previous theoretical knowledge and practical skills gained during practical courses of ecological disciplines and their fieldwork courses (Zoology, Botany, Geography). Fundamental methods of ecological research applied in field conditions. The investigations of the influence of abiotic factors on biotic communities, analysis of quantitative community characteristics. Practical skills with monitoring methods of animal and plant populations and evaluation of own data and data from other supporting monitoring from available databases.

Recommended literature:
Begon M., Harper J.L., Townsend C.R., 1990: Ecology - individuals, populations and communities. Blackwell, New York, 1-945

Course language:

Notes:

Course assessment
Total number of assessed students: 12

abs	n
100.0	0.0

Provides: prof. RNDr. Ľubomír Kováč, CSc., doc. RNDr. Andrej Mock, PhD.

Date of last modification: 10.12.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ SKACH1/06	**Course name:** Forensic and Clinical 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: 2., 4.

Course level: II.

Prerequisities:

Conditions for course completion:
Elaboration and presentation of a seminar work with an assigned topic. Written examination.

Learning outcomes:
Application of analytical methods in criminology and forensic medicine.

Brief outline of the course:
Criminology section: basic principles and definition of subject. Basic criminalistic categories. Criminalistic track. Criminalistic technology. Criminalistic methods, resources, procedures and operations. Introduction to forensic chemistry. Chemical, physical and physicochemical methods of research tracks and material evidence. Dactyloscopy. Methods of individual identification of persons.
Toxicological part: definition, classification and role of toxicology. Separation methods used in toxicology. Definition of poison. Pharmacokinetics and metabolism. Absorption, distribution, metabolism and elimination. Nox accumulation in the body. Biotransformation of noxy, biotransformation reactions. Poisoning, overdose, toxic levels, nox interaction. General approaches to the treatment of acute poisoning. Laboratory diagnostics of poisoning, drug abuse, sample selection, detection limits and time detection window. Development trends in toxicology - current toxicological methods - advantages and limitations.

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

Course language:

Notes:

Course assessment
Total number of assessed students: 69

A	B	C	D	E	FX
60.87	26.09	13.04	0.0	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 08.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/VEEKO/14	**Course name:** General Ecology

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities: (ÚBEV/ECE/15 and ÚBEV/EP/14) and (ÚBEV/FG1/03 or ÚBEV/ZOG1/03)

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 20

A	B	C	D	E	FX
50.0	25.0	15.0	10.0	0.0	0.0

Provides:

Date of last modification: 09.06.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ VEENV/14	**Course name:** General Ecology

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities: (ÚBEV/ECE/15 and ÚBEV/EP/14) and (ÚGE/PAM/12 or ÚGE/DPZ/15)

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides:

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ GB1/03	**Course name:** Geobotany

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: II.

Prerequisities:

Conditions for course completion:
1. Active participation in field exercises.
2. Elaboration of a semester's work (recording in the field, species herbarium of detected vascular plants, classification at the class level and the reasons that conditioned it, brief comparison with similar communities based on the literature)
3. Written examination in the form of a test, which must be completed with at least 50%.

Learning outcomes:
Get an overview of the classification of vegetation, the distribution of plants and the relationships between plants. Get a basic idea of the practical use of this knowledge in botany, ecology and nature conservation. To teach students to take field notes and process them.

Brief outline of the course:
1. basic information about phytocenology, its goals
2. brief history of phtocenology, basic terms and literature
3. Zurich-Montpellier school, methodological foundations, data collection
4. analysis of the obtained phytocenological data (principles, database and statistical programs used in phytocenology),
4. phytocenological nomenclature code.
5. ecological assessment of vegetation (indirect indication vs directly measured/obtained data).
6. syntaxonomic and ecological assessment of basic biotopes in the Central European area
7. pioneer vegetation,
8. synanthropic vegetation
9. Vegetation of wetlands
10. alpine vegetation,
11. herbaceous vegetation
12. Vegetation of forests and bushes
13. examples of phytocenological case studies and the use of phytocenology in practice.

Recommended literature:
Dengler, J., Chytrý M., Ewald, J., 2008: Phytosociology. In: Sven Erik Jørgensen and Brian D. Fath (Eds), General Ecology. Vol. [4] of Encyclopedia of Ecology, pp. 2767-2779. Elsevier, Oxford.

Moravec, J. a kol: Fytocenologie, Academia Praha, 1994.
Weber, H. E., Moravec, J. & Theurillat, J.-P. 2000. International Code of Phytosociological Nomenclature. 3rd edition. – J. Veg. Sci. 11: 739–768.
Valachovič M. a kol., 1995: Rastlinné spoločenstva Slovenska 1. Pionierska vegetácia. Veda, Bratislava.
Jarolímek I. a kol., 1997: Rastlinné spoločenstva Slovenska 2. Synantropná vegetácia. Veda, Bratislava.
Valachovič M. a kol., 2001: Rastlinné spoločenstva Slovenska 3. Vegetácia mokradí. Veda, Bratislava.
Kliment J., Valachovič, M. a kol., 2007: Rastlinné spoločenstva Slovenska 4. Vysokohorská vegetácia. Veda, Bratislava.
Hegedüšová Vantarová, K., Škodová, I. a kol., 2014: Rastlinné spoločenstva Slovenska 5. Travinno-bylinná vegetácia. Veda, Bratislava.
Chytrý, M. a kol., 2013: Vegetace České republiky 4. Lesní a křovinová vegetace. Academia, Praha.
Chytrý, M. a kol., 2010: Katalog biotopů České republiky. AOPK, Praha.
Stanová, V., Valachovič, M. a kol., 2002: Katalóg biotopov Slovenska. DAPHNE, Bratislava.

Course language:

Notes:

Course assessment
Total number of assessed students: 42

A	B	C	D	E	FX
52.38	23.81	21.43	2.38	0.0	0.0

Provides: Ing. Richard Hrivnák, PhD.

Date of last modification: 30.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚGE/ GNS/15	**Course name:** Global Navigation Satellite Systems

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

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
The evaluation is based on a combination of the continuous control at the exercises and final exam. The continuous control is carried out during the exercises teaching in the form of tasks on the individual work with a share of 30 % of the final evaluation. To the final exam can sign student who obtained the evaluation at the minimum level of 16 % in the exercise. The resultant rating is a weighted average of the evaluation from the continuous control (maximum 30 %) and final exam (maximum 70 %). The credits will be awarded only to student who achieves rating at least at the grade level of E, i.e. he achieves the raiting of at least 51 %. achieves the evaluation at the minimum level of 51 % in the final evaluation.

Learning outcomes:
To acquire basic theoretical knowledge and practical experience of the global navigation satellite systems (GNSS) for a data collection methodology for geoinformatics.

Brief outline of the course:
GNSS in the context of geography and geoinformatics. GNSS, their nature and division. GPS - operating principle, the principles and characteristics; structure of GPS and its applications; surveying GPS technology, GPS instrumentation, data collection and transmission observed GPS data. The European satellite navigation system Galileo; positioning, navigation and timing services of the system Galileo; Galileo infrastructure; structure and applications of Galileo. Overview of other GNSS (GLONASS, BNSS, EGNOS, WAAS, MSAS, QZSS, IRNSS etc.).

Recommended literature:
DODEL, H., H. HÄUPLER, H., 2009. Satellitennavigation. 1st edition. Heidelberg-Dordecht-London-New York: Springer, 548p. ISBN 978-3-540-79446-1.
KAPLAN, E.D., HEGARTY, Ch.J., 2017. Understanding GPS/GNSS. 3rd ed. Boston/London: Artech House. 993p. ISBN 978-1-63081-058-0.
GROVES, P., 2008. Principles of GNSS: Inertial and Multisensor Integrated Navigation Systems. London: Artech House, 536p. ISBN 9781580532556.
HOFMANN-WELLENHOF, B., H. LICHTENEGGER and E. WASLE, 2008. GNSS – Global Navigation Satellite Systems: GPS, GLONASS, Galileo, and more. Wien: Springer-Verlag, 518p. eBook ISBN 978-3-211-73017-1, Softcover ISBN 978-3-211-73012-6.

LEICK, A., 1995: GPS Satellite Surveying. 2nd ed. New York: John Wiley & Sons, Inc., 560p. ISBN 0-471-30626-6.
LEICK, A., L. RAPOPORT, D. TATARNIKOV, 2015. GPS Satellite Surveying. 4th ed. 840p., Hoboken: John Wiley & Sons. ISBN 978-1-118-67557-1.
SEDLÁK, V., P. LOŠONCZI a I. PODLESNÁ, 2009: Družicové navigačné systémy. (in Slovak). [Satellite navigation systems]. Košice: VŠBM Košice, 75p. ISBN 978-80-89282-31-9.
SEDLÁK, V . a P. Lošonczi, 2011. Družicové navigačné systémy a ich bezpečnostné aplikácie. (in Slovak) [Satellite navigation systems and their security applications]. Košice: VŠBM Košice, 120p. ISBN 978-80-89282-66-1.
SEDLÁK, V., 2012. Globálne navigačné satelitné systémy pre bezpečnostný manažment. (in Slovak) [Satellite navigation systems for security management]. Košice: VŠBM Košice, 126p. ISBN 978-80-89282-83-8.
SEDLÁK, V., 2017. Globálne navigačné satelitné systémy. (in Slovak) [Global navigation satellite systems]. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach, 157p. ISBN 978-80-8152-554-4. Available at: https://unibook.upjs.sk/sk/geografia/899-globalne-navigacne-satelitne-systemy;
http://geografia.science.upjs.sk/index.php/study/ucebnice-skripta-studijne-materialy
SEDLÁK, V., 2019. Globálne navigačné satelitné systémy pre geoinformatiku. (in Slovak) [Global navigation satellite systems for geoinformatics]. Košice: Univerzita P. J. Šafárika v Košiciach, ISBN 978-80-8152-770-8.
TEUNISSEN, P.J.G., O. MONTENBRUCK, 2017. Handbook of Global Navigation Satellite Systems. 1328p., Cham: Springer. ISBN 978-3-319-42926-7.
GEO INFORMATICS Journal, Vol. 2008-present.

Course language:
Slovak

Notes:
without notes

Course assessment
Total number of assessed students: 97

A	B	C	D	E	FX
74.23	18.56	6.19	1.03	0.0	0.0

Provides: doc. RNDr. Ján Kaňuk, PhD., Mgr. Katarína Onačillová, PhD.

Date of last modification: 19.08.2020

Approved:

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:

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:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ HDR1/99	**Course name:** Hydrobiology

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 1.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
The transfer of knowledge of hydrobiology takes place in the form of lectures, seminars, field trips and independent work of students in the field according to the instructions of the teacher.
Teaching is focused on understanding the basic dynamics of abiotic and biotic relationships, conditions and interactions in different types of freshwater environments. It notes current issues such as biodiversity loss, degradation of aquatic habitats and drinking water sources, water loss in the country of pollution, historical degradation of watercourses by regulations, migration barriers and pollution, wetland extinction, acquaints students with the starting points of renaturalization and ecosystem revitalization. Water is the key to understanding the functioning of the landscape, living organisms are an indispensable part of the self-cleaning, productive and other properties of water, on which life depends on our planet. The climate crisis is opening up these problems with new urgency.

Recommended literature:
Dobson, M., Frid, C. Ecology of Aquatic Systems. Oxford University Press, 2009
Wetzel, R.G..: Limnology. Academic Press. 3rd Edition, 2001
Wetzel, R.G.: Limnological analyses. Springer Verl., 3rd Edition, 2000

Course language:

Notes:

Course assessment
Total number of assessed students: 222

A	B	C	D	E	FX
40.99	21.62	17.57	18.47	1.35	0.0

Provides: doc. RNDr. Andrej Mock, PhD.

Date of last modification: 18.10.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ CHHS/07	**Course name:** Hydrochemistry

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Active participation in laboratory exercises and seminars; successful completion of the final test. Elaboration of 2 written assignments (or subject project), which will be one of the conditions for participation in the exam. The evaluation of the student's study results within the study of the subject is carried out by a combination of continuous control during the teaching part of the semester (50%) with an examination during the examination period (50%).
Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

Learning outcomes:
The student acquires knowledge of the hydrochemistry.

Brief outline of the course:
European Water Charter. Water consumption. Water supplies. Water cycle in nature. Basics of water chemistry. Water sampling methods. Water analysis strategy. Methods of chemical analysis of water. Test method in water analysis. Automatic monitoring stations and sensors. Physical properties of water. Classification of substances present in natural waters. Types of natural waters and their characteristics. Water quality monitoring in Slovakia. Surface waters, their classification, chemical composition and properties. Pollution and analysis of surface waters. Sediments, their composition and analysis. Mutual influence of waters and sediments. Groundwater, their classification, chemical composition and properties. Groundwater pollution and analysis. Drinking water. Drinking water quality requirements. Physical, sensory and chemical indicators of drinking water quality. Analytical methods used in the analysis of drinking water. Domestic hot water preparation and requirements for its quality. Mineral waters, their classification, chemical composition, properties and analysis. Wastewater, their classification, chemical composition, properties and analysis. Sea water.

Recommended literature:
1. Tölgyessy J. a kol. Chémia, biológia a toxikológia vody a ovzdušia. Bratislava, VEDA, 1984.
2. Kalavská D., Holoubek I. Analýza vôd. Bratislava, Alfa, 1989. 262 s.
3. Handbook of Water and Wastewater Treatment Technologies. Ed. By Nicholas P Cheremisinoff, Butterworth Heinemann, 2001. 576 p.

4. Principles of Water Quality Control, Ed. by Thy Tebbutt, Butterworth Heinemann, 1997. 288 p.
5. Water Technology. Ed. by N. F. Gray, Butterworth Heinemann, 2005. 600 p.

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: 140

A	B	C	D	E	FX
32.86	17.14	17.14	16.43	16.43	0.0

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

Date of last modification: 22.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KF/ IH2/03	**Course name:** Idea Humanitas 2 (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.

Course level: II.

Prerequisities:

Conditions for course completion:
100% graded credit: 40% (evaluated participation in seminars, processing of partial seminar work - separate assignment) 60% (final seminar work - student project). In the case of implementation of the classical form of teaching - face-to-face - active participation of the student in the seminar; study and reflection of assigned philosophical texts, attempt to interpret them. In the case of the introduction of distance education (as was the case due to Covid-19), the student will have to actively fulfill tasks of a partial nature, where increased demands will be placed on the student and his independent work with philosophical texts and literature. Tasks will be assigned to the students by the teacher on an ongoing basis. The student must study the assigned philosophical texts, think through and process them, submit them as a seminar paper, i.e. in written form. In both cases, the study of literature is necessary to pass the subject. The conclusion of the subject is the preparation of a seminar paper - the final seminar paper - in the range of at least 10 - 12 pages of A4 (with compliance with the bibliographic standard of the Department of Philosophy (KF) for seminar and qualification papers).

Learning outcomes:
To supplement and expand the interest of natural science students in social science issues related to the issues of the development of philosophy, science and human leadership, which are manifested in the urgent problems of today's world and society. Special emphasis is placed on the formation of humanistic ideas, their origin, transformation and possible pitfalls and risks. In addition to thinking about serious questions of the past and present, it also includes thinking about the present and the current contexts of major topics in philosophy and Western culture in particular. Therefore, the preparation and implementation of a program aimed at cooperation with alternative directions of pedagogy in the conditions of our transforming education system is understood as a practical output.

Brief outline of the course:
The age of the image of the world. Doubt as a principle of philosophy. The emergence of the image of the world (Weltbild); the differences of ancient theoria, medieval scientia, the emergence of mathematical natural science. Science as an operation (Betrieb); institutionalization of science. Philosophy, science and the modern world. The movement of human life: acceptance, defense, freedom as struggle, submission to finitude. The modern world and the search for meaning. Bureaucracy, impersonality, predominance of technocratic approaches. Fatigue as a modern threat

to Europe. The paths to freedom lead through the rediscovery of one's own Self and creativity. The basic condition for the educability of any education is the care of the soul. The crisis of European humanity. Antiquity. Philosophy - the emergence of a special community of people, the beginnings of education - paideia. The winding road of leadership. The origin and birthplace of calculating thinking. Europe and the post-European era. Care of the soul as a basic idea of Patočka's philosophy. The difference in the position of Plato and Democritus in understanding the care of the soul. The idea of caring for the soul and Aristotle.

Recommended literature:

Hadot, P.: What is ancient philosophy. Transl. M. Křížová. Prague: Vyšehrad 2017. Hegel, G. W. F.: Phenomenology of Spirit. Prague: NČSAV 1960 Husserl, E.: The Crisis of European Humanity and Philosophy. In: Crisis of European sciences and transcendental phenomenology. Prague: Academie 1996. Mokrejš, A.: Eros as a Theme of Greek Thought. Prague: Triton 2009. Patočka, J.: Péče o duši I. Prague. OIKOYMENH 1996. Patočka, J.: Care of the soul II. Prague. OIKOYMENH 1999. Vernant, J.-P.: The beginnings of Greek thought. Prague: OIKOYMENH 1995. Wright von, G.H.: Humanism as a life attitude. Bratislava: Kalligram 2001.

Course language:

Notes:

Course assessment

Total number of assessed students: 12

A	B	C	D	E	FX
91.67	8.33	0.0	0.0	0.0	0.0

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ACPE1/03	**Course name:** Industrial Ecology

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

Number of ECTS credits: 5

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

Course level: I., II.

Prerequisities:

Conditions for course completion:
On the basis of an interim assessment that is higher than 51%: during the semester, 4 mid-term tests are written, and it is also mandatory to prepare and present one seminar work on the given topic. In order to be admitted to the exam, the evaluation of the interim tests together with the evaluation of the seminar work must be higher than 51%. The exam consists of a written and an oral part and its overall percentage rating must be higher than 51%. (Written and oral exam evaluation: 51-60% - E; 61-70% - D; 71-80% - C; 81-90% - B; 91-100% - A).

Learning outcomes:
After completing the subject, the student will acquire knowledge in the field of industrial ecology and environmental chemistry of all abiotic components of the environment (in the context of industrial ecology).

Brief outline of the course:
Familiarization with the concept of industrial ecology and its use in environmental protection and the development of green technologies.
Selected topics of environmental chemistry (environmental chemistry of all abiotic components of the environment - environmental chemistry of atmosphere, hydrosphere, pedosphere and part of the geosphere: the earth's crust) in the context of industrial ecology.
Selected topics of industrial, clinical toxicology and ecotoxicology in the context of industrial ecology.

Recommended literature:
S. E. Manahan: Industrial Ecology., CRC Press, New York, 1999.
S. E. Manahan: Environmental Chemistry. , CRC Press, New York, 2005.
R. U. Ayres, L. Ayres: A handbook of industrial ecology, Edward Elgar Publishing, 2002.

Course language:
Slovak language

Notes:
Teaching can also be carried out by distance learning, using MS Teams or BBB. The form of teaching is always specified at the beginning of the semester, and is continuously updated in accordance with the pandemic situation.

Course assessment
Total number of assessed students: 167

A	B	C	D	E	FX
25.75	20.96	25.75	14.97	11.98	0.6

Provides: doc. Ing. Viera Vojteková, PhD.

Date of last modification: 03.08.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ ISU/12	**Course name:** Information systems on territory

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 243

A	B	C	D	E	FX
62.14	21.4	7.0	7.82	1.65	0.0

Provides: prof. Mgr. Jaroslav Hofierka, PhD., Mgr. Ondrej Tokarčík

Date of last modification: 20.09.2020

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MMU/03	**Course name:** Macromolecular Chemistry

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: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Elaboration of a project on a selected topic and its presentation.
Exam, answering each question at least 50%.

Learning outcomes:
Acquire the knowledge of the methods of macromolecules synthesis and biosynthesis, the structure and properties of macromolecular systems. Understanding of thermodynamic and kinetic aspects of preparation of traditional and new polymers.

Brief outline of the course:
Fundamental aspects of chemical composition of polymers-monomers, shape and the relationship between structure and properties. Primary, secondary, tertiary and quaternary structures. Thermal transition. Chain polyreactions. Step polyreactions. Synthetic methods of functional polymers and their characterisation. Naturally occurring polymers, their properties. Degradation of polymers. Molecular mass distributions. Determination of molecular mass of macromolecules. Polymers and environment.

Recommended literature:
H.-G Elias: Macromolecules, Volume 1 (Structure and Properties); Volume 2 (Synthesis, Materials, and Technology), Plenum Press, New York 1984
W.J. Moore: Physical Chemistry, Longman, London 1972
P. Munk: Introduction to Macromolecular Science, John Wiley & Sons, New York 1989
P.W. Atkins: Physical Chemistry, Oxford University Press, Oxford, New York 2002

Course language:

Notes:
The teaching takes place 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: 28

A	B	C	D	E	FX
60.71	17.86	14.29	7.14	0.0	0.0

Provides: RNDr. Andrea Morovská Turoňová, PhD., prof. RNDr. Renáta Oriňaková, DrSc.

Date of last modification: 24.11.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ MCV1/03	**Course name:** Methods of Chemical Research

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
In each of the two compulsory intermediate tests from the lecture, the student should reach at least half of the maximum number of assigned points.
Elaboration of seminar work.
Final examination

Learning outcomes:
To make students known with the physicochemical parameters´means of measurement, evaluation, and interpretation for the study of the process, i.e. the rate of reaction, mechanism, intermediates and final products in both homogeneous and heterogeneous systems.

Brief outline of the course:
Overview of basic principles of the determination of physicochemical quantities (dissociation constant, activity coefficient, solubility product, stability constant of complex, diffusion coefficient). Calorimetry and its utilisation. Experimental methods in kinetics. The Butler-Volmer equation. Survey of selected key topics in colloid chemistry. Adsorption-BET equation. Determination of molecular mass of macromolecules. A discussion of topics selected from active research fields.

Recommended literature:
W.J. Moore: Physical Chemistry, Longman Group Limited, London 1972
H. H. Willard et al.: Instrumental Methods of Analysis, Wadsworth, Belmont 1988
J. Koryta, J. Dvořák, L. Kavan: Principles of Electrochemistry, John Wiley & Sons, New York 1993
P.W. Atkins: Physical Chemistry, Oxford University Press, Oxford, New York 2002
D. Kladeková: Supportive Textbooks in Course: Methods of Chemical Research, The ESF project no. SOP HR 2005/NP1-051 11230100466, Košice 2008

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: 50

A	B	C	D	E	FX	N	P
50.0	28.0	2.0	4.0	0.0	0.0	0.0	16.0

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

Date of last modification: 18.11.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MECV/16	**Course name:** Metódy ekologického výskumu cicavcov

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 9

A	B	C	D	E	FX
100.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Marcel Uhrin, PhD.

Date of last modification: 20.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/OPS/15	**Course name:** Open Source GIS

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: 3

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
During the semester, students will need to hand in the outputs of the practicals. The resulting assessment is based on the final practical skills verification and delivery of the outputs of practicals. From the practical skills verification, students must obtain at least 90 points to get the A mark, at least 80 points to get B, at least 70 points to get C, at least 60 points to get D, at least 50 points to get E. The credits shall not be granted to a student who does not hand in one or more outputs of the practicals or he/she will get less than 50 points out of 100.

Learning outcomes:
The main learning outcomes include practical skills in advanced geodata processing in open source GIS software. In particular, the skills involve data edtiting and advanced raster analyses with digital terrain models.

Brief outline of the course:
Key concepts and historical background of the open source idea, terminology and definitions. Input and graphics of a data layer, selection of the features within the data layer, creation of a new layer in Quantum GIS. Editing of the attribute table and joining external tables, cartogram and cartodiagram in Quantum GIS. Quantum GIS plug-ins, WMS and map composer. Installation and data import in GRASS GIS, generating map layouts. Basic operations with vector data in GRASS GIS. Basic operations with raster data sets in GRASS GIS. Digital terrain modelling in GRASS GIS, geomorphometric analysis. Map algebra, water flow modelling, watershed modelling. 3-D/4-D visualisation in GRASS GIS.

Recommended literature:
NETELER, M., MITASOVA, H. 2008:Open Source GIS: A GRASS GIS Approach. New York(Springer Verlag).
SHERMAN, G.E. 2008: Desktop GIS: Mapping the Planet with Open Source Tools. Raleigh, NC, USA (Pragmatic Bookshelf).
QGIS 2013: QGIS Documentation. http://www.qgis.org/en/docs/index.html
GRASS GIS 2013: GRASS Wiki. http://grass.osgeo.org/wiki/GRASS-Wiki

Course language:

Notes:

Course assessment
Total number of assessed students: 65

A	B	C	D	E	FX
81.54	9.23	0.0	0.0	9.23	0.0

Provides: doc. Mgr. Michal Gallay, PhD., doc. RNDr. Ján Kaňuk, PhD., Mgr. Ján Šašak, PhD.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CIB/PZ/21	**Course name:** Paleozoológia

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: 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: 0

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Martin Kundrát, Ph.D.

Date of last modification: 09.02.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ PAR1/03	**Course name:** Parasitology 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: 6

Recommended semester/trimester of the course: 1.

Course level: I., II., III.

Prerequisities: ÚBEV/ZOM/04 or ÚBEV/ZO1/03 or ÚBEV/ZO1/04

Conditions for course completion:
active participation in practical exercises
presentation of seminar work
continuous written examinations
oral examination

Learning outcomes:
Upon completion of this Parasitology I., students will demonstrate:
-an understanding of the fundamental terms and principles of parasitism
-an ability to outline the general life cycles of the major parasites of medical and veterinary importance
-an understanding of the ecology of parasites, and of the importance of parasites in the ecosystem
-an understanding of the methods of control
-an ability to determine species of human and animal parasites

Brief outline of the course:
The subject classifies epidemiologically and epizootologically important parasites. Basic parasitological concepts are discussed like adaptations, evolution, parasite-host interactions, systematic overview of parasitic animals, their ecology and epidemiology, natural focus and transimissive parasitoses.
Syllabus:
1 week: Fascinating world of parasites
2 week: General parasitology, basic epidemiological terms
3 week: Evolution of parasites
4 week: Forms of transmission
5 week: Unicelluar parasites: Excavata - Trypanosomatida, Diplomonadida
6 week: Unicelluar parasites: Excavata - Trichomonadida; Amebozoa
7 week: Unicelluar parasites: Chromalveolata - Apicomplexa
8 week: Helminths: Trematoda, Monogenea
9 week: Helminths: Cestoda
10 week: Helminths: Nematoda, Acanthocephala
11 week: Arachnoentomology: Crustacea, Pentastomida, Chelicerata

12 week: Arachnoentomology: Insecta
13 week: Arachnoentomology: Insecta - Diptera

Recommended literature:
1. Roberts, Janovy Jr. Nadler,Foundations of Parasitology, 9th edition, 2012 McGraw-Hill Education, 701pp.
2. Loker, Parasitology: A Conceptual Approach, 2015, Garland Science, 560 pp.

Course language:
slavak, english

Notes:

Course assessment
Total number of assessed students: 475

A	B	C	D	E	FX	N	P
52.42	19.58	12.21	10.95	3.16	0.63	0.0	1.05

Provides: RNDr. Viktória Majláthová, PhD., RNDr. Igor Majláth, PhD., RNDr. Mikuláš Oros, PhD.

Date of last modification: 17.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ PAR2/03	**Course name:** Parasitology II

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
active participation in practical exercises
presentation of seminar work
continuous written examinations
oral examination

Learning outcomes:
After completing the course Parasitology II. students will demonstrate
- knowledge of diagnostic methods commonly used in parasitology
- practical use of methods commonly used in parasitology
- evaluate the method of detection and identification on the basis of knowledge of parasite life cycles

Brief outline of the course:
The course builds on the knowledge acquired in the Parasitology I. course, expands them and includes vectors transmitted organisms. It focuses on mastering the methods used in parasitology.
Syllabus:
Week 1: Parasitic adaptations
Week 2: Parasite-host interactions
Week 3: Behavioral strategies of parasites
Week 4: Effect of the parasite on host behavior
Week 5: Vector-borne viruses
Week 6: Vector-borne bacteria
Week 7: Vector-borne parasites
Week 8: Laboratory diagnostic methods
Week 9: Flotation and serological methods
Week 10: Molecular detection and identification
Week 11: Methods of capturing vertebrates for parasitological purposes
Week 12: Methods of capturing invertebrates for parasitological purposes
Week 13: Parasitological autopsy

Recommended literature:
1. Roberts, Janovy Jr. Nadler,Foundations of Parasitology, 9th edition, 2012 McGraw-Hill Education, 701pp.

2. Loker, Parasitology: A Conceptual Approach, 2015, Garland Science, 560 pp.

Course language:
slovak, english

Notes:

Course assessment
Total number of assessed students: 73

A	B	C	D	E	FX	N	P
75.34	8.22	5.48	1.37	1.37	1.37	0.0	6.85

Provides: RNDr. Viktória Majláthová, PhD., RNDr. Mikuláš Oros, PhD.

Date of last modification: 17.09.2021

Approved:

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: 1., 3.

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:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EKR1/03	**Course name:** Plant Ecology

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
1. Participation in seminars (even in the case of online teaching) Students are obliged to participate in seminars. The relevant teacher who conducts the seminar will excuse the justified non-participation of the student (inability to work, family reasons, etc.) at a maximum of two seminars during the semester without the need for substitute performance. In case of long-term justified absence (for example due to incapacity for work), the relevant teacher will determine the student's alternative form of mastering the missed material;
2. Demonstration of knowledge and expertise in the field of ecology acquired at lectures and seminars (determination of morphological and anatomical features related to environmental factors)
3. Demonstration of sufficient skills in the use of methodologies that are part of laboratory exercises
4. Pass the oral exam, which will also include a written part in the form of a short description of ecological relationships from the given picture.

Learning outcomes:
The student will understand the main relationships of plants with the environment and other organisms. He will be able to recognize the needs of plants, how plants adapt to the environment and other organisms. Based on this, he will understand the distributional and formative values of biotic and abiotic ecological conditions, as well as the linking of plants into complex plant communities, which is also related to other organisms in ecosystems. The student will be able to recognize the major biomes of the Earth and the problems that plants face, as well as what solutions or mechanisms they have developed to survive in such an environment. Finally, he will learn how the changing environment affects plant organisms and plant communities.

Brief outline of the course:
1. Plant ecology, subject, research approaches and methodology, autecology, ecology of communities
2. Factor ecology I – plants and water (drought)
3. Factor ecology II – plants and atmosphere including wind
4. Factor ecology III – plants and light
5. Factor ecology IV – plants and soil
6. Factor ecology V – plants and interactions with other organisms
7. Zonobiomes on Earth

8. tropical biomes
9. Subtropical biomes
10. Temperate climate, maritime to continental biomes
11. boreal and polar biomes
12. water biomes
13. Plants related to anthropogenic environmental changes

Recommended literature:

Breckle, S.-W. (2002). Walter's Vegetation of the Earth. Springer, 525
Schultze, E.D., Beck, E., Muller-Hohenstein, K. (2002). Plant Ecology. Springer, 702.
Gurevich, J., Scheiner, S., Fox, G. (2006). The ecology of plants, Sinauer Associated, Inc. Publishers, 522
Lambers, H., Chapin III, F.S., Pons, T.L. (1998). Plant Physiological Ecology. Springer, Berlin, 540

Course language:
slovak, english

Notes:

Course assessment
Total number of assessed students: 249

A	B	C	D	E	FX
77.51	16.06	5.22	0.8	0.4	0.0

Provides: prof. RNDr. Martin Bačkor, DrSc., RNDr. Michal Goga, PhD., prof. Marko Sabovljević, Dr. rer. nat.

Date of last modification: 31.07.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/EP/14	**Course name:** Population Ecology

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

Number of ECTS credits: 3

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination
Running evaluation: active (100%) participation in seminars and lectures
preparation of the presentation to the given topic

Learning outcomes:

Brief outline of the course:
Population ecology includes study of the structure and dynamics of populations (chose population characteristics such as density/abundance, distribution/population dispersion patterns, natality, mortality) interactions between populations of organisms and environmental factors based on mathematical models, theories, and population methods applied in various ecosystems. Population ecology elucidates growth models and changes in populations.

Recommended literature:
Rockwood Larry L., 2006: Introduction to population ecology, 339 pp., Malden, Mass.: Blackwell

Course language:

Notes:

Course assessment
Total number of assessed students: 32

A	B	C	D	E	FX
56.25	6.25	31.25	6.25	0.0	0.0

Provides: RNDr. Natália Raschmanová, PhD.

Date of last modification: 11.07.2022

Approved:

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: 1.

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:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/PEE/15	**Course name:** Praktikum z evolučnej ekológie

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 0 / 2 **Per study period:** 0 / 28
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

A	B	C	D	E	FX
66.67	0.0	0.0	0.0	33.33	0.0

Provides: Mgr. Peter Kaňuch, PhD.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/PPZMg/12	**Course name:** Psychology and Health Psychology (Master´s Study)

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:
Conditions for the continuous assessment during the semester:
Active work (maximum 5 points, 2 absences are allowed).
Preparation, presentation and discussion on a selected topic - max. 15 points.
Written examination (maximum 30 points).
Conditions for admission to the exam: min. 25 points.
Conditions for the final assessment:
Exam: written form (max. 50 points, min. 25 points)
Conditions for successful completion of the course: participation in lessons, fulfillment of assignments and at least 66 points from the overall evaluation.
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 will understand the basic concepts and theories of health psychology, can explain salutogenic factors as well as the consequences of risk behavior related to health. He is able to apply the knowledge especially in the field of prevention of burnout syndrome and support of mental health in the work of a teacher.

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

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

Křivohlavý, J.: Psychologie nemoci. Grada, Praha, 2002.
Křivohlavý, J.: Psychologie moudrosti a dobrého života. Grada, Praha, 2009.
Kebza, V.: Psychosociální determinanty zdraví. Academia, Praha 2005.
Kahneman, D., Diener, E., Schwarz, N.(Eds), Well-Being. The Foundations of Hedonic Psychology. New York, Russell Sage Foundation, 2003.
Kaplan, R. M.: Zdravie a správanie človeka. SPN, Bratislava 1996.
Sarafino, E. P.: Health Psychology. Biopsychosocial interactions. John Wiley and sons 1994.
Baštecký, J., Šavlík, J., Šimek, J. 1993. Psychosomatická medicína. Praha: Grada
Tress, W., Krusse, J., Ott,J.: Základní psychosomatická péče. Portál, Praha 2008.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 226

A	B	C	D	E	FX
19.47	25.22	25.66	13.27	15.93	0.44

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

Date of last modification: 07.07.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/REK1/01	**Course name:** Radiation 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: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To provide the students with a basic knowledge about the effects of ionizing radiation on living systems.

Brief outline of the course:
Biologicaly important radionuclides. Natural sources of ionizing radiation. Artificial radioisotopes and the paths of thier entrance into the biosphere. Radioactive compounds in the food chains. Entrance, cummulation and excretion of radioactive substances in animals. Biological effects of ionizing radiation.

Recommended literature:
Coggle, J.E.: Biological Effects of Radiation. Taylor and Francis LTD, London, 1983
Hall, E.J.: Radiobiology for the Radiologist. J.B. Lippincott Company, Philadelphia, 1988

Course language:

Notes:

Course assessment
Total number of assessed students: 17

A	B	C	D	E	FX
29.41	29.41	35.29	5.88	0.0	0.0

Provides: prof. RNDr. Beňadik Šmajda, CSc.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚGE/ DPZ/15	**Course name:** Remote Sensing

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: II.

Prerequisities:

Conditions for course completion:
During the semester, students will need to hand in the outputs of the practicals. The resulting assessment is based on the final exam, which the student can undertake if he/she handed in all the required outputs of the practical according to the given criteria. The final exam is a combination of a written test and an oral examination. The student must obtain at least 90 points to get the A mark, at least 80 points to get B, at least 70 points to get C, at least 60 points to get D, at least 50 points to get E. The credits shall not be granted to a student who does not hand in one or more outputs of the practicals or he/she will get less than 50 points out of 100.

Learning outcomes:
The learning outcomes comprise knowledge on remote sensing methods, ability to judge appropriatness of particular remote sensing methods for geographical applications, skills of processing the remote sensing data and their interpretation.

Brief outline of the course:
Lectures:
Introduction, key concepts, historical background of remote sensing methods. Physical principles –electromagnetic energy (EME), its properties and spectral characteristics. Interaction of EME – scattering, spectral behaviour, absorption. Spectral, temporal, spatial and radiometric resolution. Analogue image interpretation. Global navigation satellite systems. Phtogrammetry. Multispectral scanning. Active systems. Airborne laser scanning. Terrestrial laser scanning. Radar remote sensing.
Practicals:
Web-based data sources of remotely sensed data. Physical properties of the EME. Spectral behaviours of particular objects. Geometric parameters of aerial imagery. Planning an airborne photogrammetric and laser scanning mission. Image adjustment and false colour composite imagery. Supervised and unsupervised image classification. The work on practicals expects basic GIS skills.

Recommended literature:
ŽELEZNÝ, M. (2012): Dálkový průzkum Země (skriptá), Západočeská univerzita v Plzni, Katedra kybernetiky. 93 s. URL: http://www.kky.zcu.cz/uploads/courses/dpz/DPZ-prednasky.pdf

CANADIAN CENTRE FOR REMOTE SENSING (2012): Fundamentals of Remoste Sensing (učebný text v angličtine, in English), 256 s. URL: http://www.nrcan.gc.ca/earth-sciences/geography-boundary/remote-sensing/fundamentals/1430.
BITTERER, L. (2005): Fotogrametria. Interné učebné texty z geodézie, fotogrametrie, katastrálneho mapovania. URL: http://svf.uniza.sk/kgd/literatura.html
HALOUNOVÁ L., PAVELKA K. (2005): Dálkový průzkum Země. Skriptá, ČVUT Praha, ISBN 80-01-03124-1. 192 s.
ŽÍHLAVNÍK, Š., SCHEER, Ľ., 2001: Diaľkový prieskum Zeme v lesníctve. TU Zvolen, 289 s.
KOLÁŘ J., HALOUNOVÁ L., Pavelka K. (1997): Dálkový průzkum Země. Skriptá, ČVUT Praha, 164 s.
DOBROVOLNÝ, P. (1998). Dálkový průzkum Země. Digitální zpracování obrazu. Masarykova Univerzita, Brno.
LILLESAND, T.M., KIEFER, R.W., CHIPMAN, J.W. (2015). Remote Sensing and Image Interpretation. 7. Vydanie, New York, USA (Wiley),756 s.
JENSEN, R. J. (2006): Remote Sensing: An Earth Resource Perspective. 2. vydanie, New Jersey, USA (Prentice Hall), 608 s.
CAMPBELL, J.B., WYNNE, R.H. (2011). Introduction to Remote Sensing. New York, USA (Guilford), 667 s.

Course language:
Slovak, Czech, English

Notes:

Course assessment
Total number of assessed students: 169

A	B	C	D	E	FX
23.08	26.63	34.32	10.65	4.73	0.59

Provides: doc. Mgr. Michal Gallay, PhD., Mgr. Katarína Onačillová, PhD., Bc. Daniela Laubertová

Date of last modification: 16.09.2017

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ RUR/15	**Course name:** Rural Geography

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: 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: 359

A	B	C	D	E	FX
39.55	32.87	18.11	6.69	2.23	0.56

Provides: Mgr. Marián Kulla, PhD., doc. Mgr. Ladislav Novotný, PhD., Bc. Martina Gregáňová, doc. RNDr. Ján Kaňuk, PhD.

Date of last modification: 01.04.2020

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ AVZ1/02	**Course name:** Sampling of Analytical Samples

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination. Sampling of real sample. Sucsesfull exam is by 40% of right answer.

Learning outcomes:

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

Recommended literature:
O. Stoeppler: Sampling and Sample Preparation Practical Guide for Analytical Chemists. Academic Press, London, 2002.
E. P. Popek: Sampling and Analysis of Environmental Chemical Pollutants. Elsevier Science, San Diego, 2003.

Course language:

Notes:

Course assessment
Total number of assessed students: 204

A	B	C	D	E	FX
60.78	20.59	13.73	3.92	0.98	0.0

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

Date of last modification: 24.11.2021

Approved:

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:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ VKH1/03	**Course name:** Selected topics in herpetology

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: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Field excursion
Oral examination.

Learning outcomes:
To broaden the knowledge of students on evolution, taxonomy, morphology, ecology and ecology of reptiles aquired before in the subject Zoology.

Brief outline of the course:
Systematical overview of amphibia and reptilia with a classification on species level. Phylogenetical development of amphibia and reptilia. Charcteristics of morphological and ecophysiological adaptations. Adaptaions on the significant abiotic and biotic factors (food, tepmerature,substrate, humidity, etc.). Selected aspects of population dynamics of some groups. Behavioral manifestations of amphibia and reptilia from a comparative aspect.

Recommended literature:
1. BARUŠ V. a kol.: Reptiles-Reptilia (Fauna of the ČSFR),Prague, 1992 (in Czech)
2. BARUŠ V. a kol.: Amphibia (Fauna of the ČSFR). Prague,1992. (in Czech)
3. OLIVA O., HRABĚ S., LÁC J. : Vertebrates of Slovakia I. Bratislava, 1968 (in Slovak
4. ROČEK Z.: Studies in Herpetology. Praha, 1986.
5. ZWACH I. : Our species of amphibia and reptilia on the photograph. Prague,1990.
6. DIESENER G., REICHHOLF J.: Amphibia and reptilia. Bratislava,1997

Course language:

Notes:

Course assessment
Total number of assessed students: 161

A	B	C	D	E	FX	N	P
89.44	4.35	2.48	0.0	0.0	0.0	0.0	3.73

Provides: RNDr. Igor Majláth, PhD.

Date of last modification: 16.05.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ SDP/03	**Course name:** Seminar to Diploma Thesis

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: II.

Prerequisities:

Conditions for course completion:
Active participation in all seminars. In case of non-participation in a maximum of two seminars for serious reasons (e.g. illness), fulfillment of alternative criteria assigned by the teacher. After completing the course, the teacher will give an evaluation based on the activity and results of the student.

Learning outcomes:
After completing the course, the student is able to work independently in writing a thesis with an emphasis on accurate expression and adherence to ethical principles.

Brief outline of the course:
General principles of thesis writing, formal requirements of diploma thesis, plagiarism as a negative phenomenon. Processing of experimental results in the form of tables, figures and graphs. Method of citing literature, preparation for the defense of the diploma thesis.

Recommended literature:
As recommended by the teacher.

Course language:
Slovak, English

Notes:

Course assessment
Total number of assessed students: 377

A	B	C	D	E	FX
96.02	1.86	1.06	0.27	0.27	0.53

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Andrea Straková Fedorková, PhD., prof. RNDr. Mária Kožurková, CSc., prof. RNDr. Juraj Černák, DrSc., prof. Dr. Yaroslav Bazeľ, DrSc., prof. RNDr. Andrej Oriňak, PhD., prof. RNDr. Vladimír Zeleňák, DrSc., doc. RNDr. Zuzana Vargová, Ph.D., doc. RNDr. Ivan Potočňák, PhD., doc. RNDr. Taťána Gondová, CSc., doc. RNDr. Katarína Reiffová, PhD., prof. Mgr. Vasiľ Andruch, DSc., prof. RNDr. Renáta Oriňaková, DrSc., RNDr.

Miroslava Matiková Maľarová, PhD., doc. RNDr. Juraj Kuchár, PhD., RNDr. Andrea Morovská Turoňová, PhD., doc. RNDr. Miroslav Almáši, PhD., RNDr. Rastislav Serbin, PhD.
Date of last modification: 25.01.2022
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/SPVKE/07	**Course name:** Social-Psychological Training of Coping with Critical Life Situations

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 126

abs	n	z
97.62	2.38	0.0

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 24.06.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EKP1/04	**Course name:** Soil Ecology

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

Number of ECTS credits: 5

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

Course level: II.

Prerequisities:

Conditions for course completion:
Successful completion of the course requires active participation in lectures, preparation and presentation of a PPT presentation on the assigned topic (short literature research), processing of the assigned task in practical exercises and presentation of the results of the task, passing the oral examination.

Learning outcomes:
The goal of the course is to understand soil as a heterogeneous substrate and environment for organisms, with an emphasis on the mineral and organic components of soil that are essential for the existence and development of populations of living organisms.

Brief outline of the course:
The subject covers characterization of components of the soil environment, microclimate, nutrient cycling and energy flow. It deals with soil-forming factors and processes, soil organisms microbial communities, plant roots, invertebrate communities) and functioning of the soil system (decomposition, litter system, rhizosphere, drillosphere, termitosphere).

Recommended literature:
Coleman D. C., Crossley D. A. jr.: Fundamentals of soil ecology. Academic Press, 1995
Lavelle P., Spain A. V.: Soil ecology. Kluwer Academic Publishers. Dordrecht-Boston-London, 2001
Dunger W., Fiedler H. J.: Methoden in Bodenbiologie. VEB Gustav Fischer Verlag, Jena, 1989
Šantručková H., Kaštovská E., Bárta J., Miko L., Tajovský K.: Ekologie pudy. Episteme, 2018

Course language:

Notes:

Course assessment
Total number of assessed students: 170

A	B	C	D	E	FX
55.29	31.18	10.59	1.76	1.18	0.0

Provides: RNDr. Peter Ľuptáčik, PhD.

Date of last modification: 05.03.2023
Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ PAM/12	**Course name:** Spatial analyses and modelling

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 186

A	B	C	D	E	FX
37.1	28.49	19.89	9.14	4.84	0.54

Provides: prof. Mgr. Jaroslav Hofierka, PhD., Mgr. Jozef Šupinský, PhD.

Date of last modification: 03.05.2015

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ VSE1a/04	**Course name:** Special Seminar

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 57

A	B	C	D	E	FX
91.23	3.51	1.75	1.75	1.75	0.0

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

Date of last modification: 07.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ VSE1b/04	**Course name:** Special Seminar

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 59

A	B	C	D	E	FX
93.22	1.69	3.39	1.69	0.0	0.0

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

Date of last modification: 07.11.2022

Approved:

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:

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:

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:

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:

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:

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: 2.	
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:

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:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/UK/17	**Course name:** Urbánna ekológia

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: 3

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 31

A	B	C	D	E	FX	N	P
87.1	0.0	0.0	0.0	0.0	0.0	0.0	12.9

Provides: doc. RNDr. Marcel Uhrin, PhD.

Date of last modification: 20.09.2021

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MSO1/03	**Course name:** Wastes Treatment 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: 4

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Wastes clasiffication, wastes separation. Re-cycling of wastes, methods of wastes elimination and re-finishing. Pyrolysis, degradation of wastes by pyrolysis, process optimization.Analytical methods for wastes analysis. Monitoring of wastes degradation pollutants, toxicity of wastes and degradation products.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 70

A	B	C	D	E	FX
71.43	25.71	2.86	0.0	0.0	0.0

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

Date of last modification: 07.11.2022

Approved:

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ATV1/04	**Course name:** Water Pretreatment

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:
Active participation in laboratory exercises and seminars; successful completion of the final test. Elaboration of 2 written assignments (or project), which will be one of the conditions for participation in the exam. Written test (50%) and oral examination (50%) during the examination period.
Participation in excursions to the municipal wastewater treatment plant and drinking water treatment plant.
Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

Learning outcomes:
The student acquires knowledge of the methods of water pretreatment.

Brief outline of the course:
Classification of technological processes of water treatment according to phase processes, nature of the process, quality of treated water. Selection of resources for the supply of the population. Requirements for the treatment process. Water purification. Coagulation. Influence of various factors on coagulation. Water disinfection. Water fluoridation. Water softening methods. Water demineralization. Methods for removing Fe and Mn. Drinking water treatment plant. Scheme. Brief characteristics of individual stages of adjustment. Technological schemes and equipment.
Composition and properties of wastewater. Wastewater classification. Classification of industrial wastewaters. Stages of industrial wastewater treatment. Municipal wastewater treatment plant. Scheme. Technological process of wastewater treatment. Brief characteristics of individual stages. Technological schemes and equipment.

Recommended literature:
1. Žáček, L. Chemické a technologické procesy úpravy vody, Praha: SNTL, 1981. 270 s.
2. Tölgyessy J. a kol. Chémia, biológia a toxikológia vody a ovzdušia. Bratislava, VEDA, 1984.
3. Kalavská D., Holoubek I. Analýza vôd. Bratislava, Alfa, 1989. 262 s.
4. Handbook of Water and Wastewater Treatment Technologies. Ed. By Nicholas P Cheremisinoff, Butterworth Heinemann, 2001. 576 p.
5. Principles of Water Quality Control, Ed. by Thy Tebbutt, Butterworth Heinemann, 1997. 288 p.

6. Water Technology. Ed. by N. F. Gray, Butterworth Heinemann, 2005. 600 p.

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: 186

A	B	C	D	E	FX
37.1	17.2	17.74	16.67	11.29	0.0

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

Date of last modification: 22.07.2022

Approved:

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: 1.

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:					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ZOO1/11	**Course name:** Zoológia II (pre magisterské štúdium)

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

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: II.

Prerequisities: ÚBEV/ZO1/04

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 61

A	B	C	D	E	FX
24.59	32.79	19.67	9.84	13.11	0.0

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

Date of last modification: 20.09.2021

Approved: