CONTENT

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJAKA/07	**Course name:** Academic English
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities:	
Conditions for course completion: Active classroom participation, assignments handed in on time, 2 absences tolerated 1 test (13th week), no retake. Presentation on chosen topic Final evaluation- average assessment of test (50%), and presentation (50%). Grading scale: A 93-100%, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64% and less	
Learning outcomes: The development of students´ language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can efectively use the language for a given purpose, with focus on Academic English, level B2.	
Brief outline of the course: Formal and informal English Academic English and its specific features Key academic verbs and nouns Linking words in academic writing, writing a paragraph, word-order, topic sentences Word-formation - affixation abstract Selected aspects of English pronunciation, academic vocabulary Selected functional grammar structures - defining, classifying, epressing opinion, cause-effect, paraphrasing	
Recommended literature: Seal B.: Academic Encounters, CUP, 2002 T. Armer :Cambridge English for Scientists, CUP 2011 M. McCarthy M., O´Dell F. - Academic Vocabulary in Use, CUP 2008 Zemach, D.E, Rumisek, L.A: Academic Writing, Macmillan 2005 Olsen, A. : Active Vocabulary, Pearson, 2013 www.bbclearningenglish.com Cambridge Academic Content Dictionary, CUP, 2009	

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

Notes:

Course assessment
Total number of assessed students: 416

A	B	C	D	E	FX
36.54	21.63	15.14	9.38	6.01	11.3

Provides: Mgr. Viktória Mária Slovenská

Date of last modification: 11.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ALG2a/22	**Course name:** Algebra I

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
According to the results from the semester and in view of the results of the written and oral final exam..

Learning outcomes:
To acquire the methods of mathematical thinking and cognition. Gain basic knowledge of number theory related to divisibility, master the basic concepts of linear algebra and be able to apply them to specific problems and mathematical problems.

Brief outline of the course:
Divisibility in Z. Fields. Systems of linear equations, Gauss elimination. Maps, permutations. Computing with matrices. Determinants, Cramer rule.

Recommended literature:
T.S Blyth, E.F. Robertson: Basic linear algebra, Springer Verlag, 2001.
K. Jänich: Linear algebra, Springer Verlag, 1991.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 868

A	B	C	D	E	FX
11.06	13.36	20.16	19.01	27.53	8.87

Provides: prof. RNDr. Danica Studenovská, CSc., RNDr. Lucia Kőszegyová, PhD., Mgr. Martin Vodička

Date of last modification: 17.02.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ALG2b/22	**Course name:** Algebra II

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚMV/ALG2a/22

Conditions for course completion:
According to tests and to the exam.

Learning outcomes:
To acquire the methods of mathematical thinking and cognition. To deepen and expand students' knowledge of systems of linear equations, to acquire basic knowledge about vector spaces, linear representations, polynomials and polynomial equations.

Brief outline of the course:
Linear spaces, bases. Rank of a matrix. Systems of homogeneous linear equations.
Linear transformations.
Ring, fields. Polynomials over a field. Factorization into irreducible factors, roots. Roots of complex numbers. Cubic equations.
Polynomials with several unknowns, symmetric polynomials.

Recommended literature:
T. Katriňák a kol.: Algebra a teoretická aritmetika 1, Alfa Bratislava, 1985.
A. Kurosh: Higher Algebra, Mir Publishers, 1975.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 271

A	B	C	D	E	FX
21.4	16.24	16.24	16.24	26.2	3.69

Provides: doc. RNDr. Miroslav Ploščica, CSc., RNDr. Lucia Kőszegyová, PhD.

Date of last modification: 16.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ALG2c/22	**Course name:** Algebra III

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
According to tests and to the exam.

Learning outcomes:
To develop students' abstract thinking. Follow up on the acquired knowledge of algebra, expand it and generalize; be able to apply the acquired knowledge to specific examples. Demonstrate knowledge of mathematical content in context.

Brief outline of the course:
Relations, operations, algebraic structures.
Substructures.
Homomorphisms, isomorphisms.
Congruences, homomorphism theorems.
Terms, term operations, identities.

Recommended literature:
B. Jónsson: Topics in Universal Algebra, Springer-Verlag 1972
M. Kolibiar a kol.: Algebra a príbuzné disciplíny, Bratislava 1992
S.N. Burris and H.P. Sankappanavar: A Course in Universal Algebra 2000, http://www.math.uwaterloo.ca/~snburris/htdocs/ualg.html

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 151

A	B	C	D	E	FX
18.54	18.54	24.5	21.19	15.23	1.99

Provides: prof. RNDr. Danica Studenovská, CSc.

Date of last modification: 16.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ ATC/22	**Course name:** Algebra and number theory

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: 4.

Course level: I.

Prerequisities: ÚMV/ALG2b/22

Conditions for course completion:
It is based on the results of written checks carried out during the semester. Final evaluation is based on the results of written checks carried out during the semester, of test, written and oral exam.

Learning outcomes:
Obtain basic knowledge about groups and from the elementary number theory.

Brief outline of the course:
1. Congruences in the ring of integers
2. The field of complex numbers
3. Algebraic and transcendent numbers, minimal polynomial
4. Simple extensions of the field of rationals
5. The field of algebraic numbers
6. The concept of group
7. Symmetry groups
8. Orders of elements, Lagrange theorem
9. Normal subgroups, factorization
10. Homomorphism theorems

Recommended literature:
G.Birkoff, S. MacLane: A Survey of Modern Algebra, New York 1965
M. Harminc: Elementárna teória čísel (1.časť), PF UPJŠ Košice 2012
T. Katriňák a kol.: Algebra a teoretická aritmetika 1, Alfa Bratislava 1985
A. Legéň: Grupy, okruhy a zväzy, Alfa Bratislava 1980
I.R. Shafarevich: Basic Notions of Algebra, Springer, 2005

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 368

A	B	C	D	E	FX
12.5	18.75	24.18	22.01	20.38	2.17

Provides: doc. RNDr. Miroslav Ploščica, CSc.

Date of last modification: 23.08.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 356

A	B	C	D	E	FX
67.42	25.28	4.21	0.56	0.28	2.25

Provides: Mgr. Katarína Petríková, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 12.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ BZNm/22	**Course name:** Animal Biology
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ÚBEV/CYT1/15 and ÚBEV/FZ1/10 and ÚBEV/PMZ/10 and (ÚBEV/ZOO1/03 or ÚBEV/ZOO1/15) and (ÚBEV/ZO1/03 or ÚBEV/ZO1/15)	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 17

A	B	C	D	E	FX
17.65	17.65	35.29	11.76	17.65	0.0

Provides:
Date of last modification: 15.05.2023
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/FZ1/10	**Course name:** Animal Physiology

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

Number of ECTS credits: 7

Recommended semester/trimester of the course: 6.

Course level: I.

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

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

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1629

A	B	C	D	E	FX
8.96	16.7	21.73	23.51	23.27	5.83

Provides: doc. RNDr. Monika Kassayová, CSc., doc. RNDr. Bianka Bojková, PhD., RNDr. Vlasta Demečková, PhD., univerzitná docentka, RNDr. Terézia Kisková, PhD., RNDr. Natália Pipová, PhD.

Date of last modification: 21.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BKP/14	**Course name:** Bachelor Project

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Submission of the bachelor project, the defense of the project and acceptance of its content by the supervisor.

Learning outcomes:

Brief outline of the course:

Recommended literature:
1. Scientific papers related to the topic of the bachelor project. 2. Directive No. 1/2011 of the rector UPJS in Košice.

Course language:

Notes:

Course assessment
Total number of assessed students: 198

abs	n
100.0	0.0

Provides:

Date of last modification: 02.03.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BKP2/22	**Course name:** Bachelor Project 2

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: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Submission of the bachelor project, the defense of the project and acceptance of its content by the supervisor.

Learning outcomes:

Brief outline of the course:

Recommended literature:
1. Scientific papers related to the topic of the bachelor project. 2. Directive No. 1/2011 of the rector UPJS in Košice.

Course language:

Notes:

Course assessment
Total number of assessed students: 34

abs	n
100.0	0.0

Provides:

Date of last modification: 02.03.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 389

A	B	C	D	E	FX
53.21	26.22	15.94	3.08	1.54	0.0

Provides:

Date of last modification: 07.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ BKPa/22	**Course name:** Bachelor project I
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 1 **Per study period:** 14 **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion: To prepare and present a contribution related to thesis and its topic.	
Learning outcomes: To get students familiar with basic knowledge on the form and content of thesis and thesis presentation as well as with the support for its realisation.	
Brief outline of the course: Necessary elements and formal aspects of a thesis. WYSIWYG editors, LaTeX, drawing programs. Presentation software, Microsoft PowerPoint and its clones, Beamer. Suggestions for presentation and contribution making.	
Recommended literature: electronic information sources	
Course language: Slovak and English	
Notes:	
Course assessment Total number of assessed students: 119	

abs	n
100.0	0.0

Provides: doc. RNDr. Dušan Šveda, CSc.
Date of last modification: 24.08.2022
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ BKPb/22	**Course name:** Bachelor project II
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 6.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 112	
abs	n
100.0	0.0
Provides:	
Date of last modification: 24.08.2022	
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ BPO/14	**Course name:** Bachelor thesis and its defence

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:
The bachelor thesis is the result of the student's own work. It must not show elements of academic fraud and must meet the criteria of good research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavol Jozef Šafárik University in Košice and its components. Fulfillment of the criteria is verified mainly in the supervision process and in the process of thesis defense. Failure to do so is reason for disciplinary action.

Learning outcomes:
Evaluation of student‘s competences with respect to the profile of the graduate.The bachelor's thesis demonstrates mastery of the basics of theory and professional terminology of the field of study, acquisition of knowledge, skills and competencies in accordance with the declared profile of the graduate of the study program, as well as the ability to apply them creatively in solving selected field problems. The bachelor thesis may have elements of compilation. The student demonstrates the ability of independent professional work in terms of content, formal and ethical. Further details on the bachelor thesis are determined by Directive no. 1/2011 on the basic requirements of final theses and the Study Regulations of UPJŠ in Košice.

Brief outline of the course:
1. Elaboration of the bachelor thesis in accordance with the instructions of the supervisor.
2. Presentation of the results of the bachelor's thesis before the examination commission.
3. Answering questions related to the topic of the bachelor thesis within the discussion.

Recommended literature:
The recommended literature is determined individually in accordance with the topic of the bachelor's thesis.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 202

A	B	C	D	E	FX
66.83	18.81	8.42	3.47	1.98	0.5

Provides:

Date of last modification: 19.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZAC2/10	**Course name:** Basic Chemistry

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:
1. Participation in lectures and seminars.
2. Activity at seminars. The student must have mastered the theory of the lecture that will be discussed at the seminar.
3. Exam: test in inorganic chemistry (max. 50 p, min. 26 p) and test in organic chemistry (max. 50 p, min. 26 p).
4. The rating scale is determined as follows: A (100-91%), B (90-81%), C (80-71%), D (70-61%), E (60-51%), Fx (50- 0%).

Learning outcomes:
The main goal of this subject is to provide a basic overview of general, inorganic and organic chemistry for biology students.

Brief outline of the course:
Introduction to general and inorganic chemistry. Periodic systems of elements and periodicity. Atomic structure. Electron configuration, Chemical bonds. Relationship between structure and properties of substances. Transition and non transition elements and their compounds. Coordination and biocoordination compounds. Basic chemical calculations and balancing of chemical equations. Elements essential for living organisms and their function. Biometals. Biominerals. Introduction to organic chemistry. Saturated and unsaturated hydrocarbons and their derivatives. Heterocyclic compounds. Carbohydrates. Lipids. Aminoacids and proteins. Enzyms and vitamins. Nucleic acids.

Recommended literature:
1. Mária Reháková, Základy chémie pre biológov, časť anorganická chémia. Interný učebný text. PF UPJŠ, Košice 2012.
2. P. Segľa, I. Potočňák, V. Jorík, J. Švorc, M. Tatarko, Anorganická chémia: Základy anorganickej chémie, 2020.
3. J. Krätsmár-Šmogrovič kolektív, Všeobecná a anorganická chémia, Osveta, 2007.
4. Hrnčiar P.: Organická chémia, UK Bratislava 1997.

Course language:
SK - slovak

Notes:

The subject is carried out in person or, if necessary, remotely using the online platform Big Blue Button (BBB) or MS Teams. 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: 1224

A	B	C	D	E	FX
22.39	24.84	26.63	15.93	9.23	0.98

Provides: doc. RNDr. Mária Vilková, PhD., doc. RNDr. Miroslav Almáši, PhD.

Date of last modification: 16.08.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

Conditions for course completion:
Written test

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1789

A	B	C	D	E	FX
31.25	24.04	18.28	16.71	9.11	0.61

Provides: doc. RNDr. Monika Kassayová, CSc.

Date of last modification: 20.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 6

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

Course level: I.

Prerequisities:

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 281

A	B	C	D	E	FX
4.63	9.61	20.64	24.91	30.96	9.25

Provides: prof. RNDr. Beňadik Šmajda, CSc.

Date of last modification: 21.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1906

A	B	C	D	E	FX
14.01	19.57	25.6	20.15	18.26	2.41

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

Date of last modification: 05.11.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 352

A	B	C	D	E	FX
22.16	19.89	23.86	19.89	12.5	1.7

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

Date of last modification: 04.11.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1566

A	B	C	D	E	FX
11.11	12.45	17.18	19.92	24.84	14.5

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD., univerzitný docent, RNDr. Valéria Kocová, PhD.

Date of last modification: 29.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚBEV/TCB1/03

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

Course language:

Notes:

Course assessment
Total number of assessed students: 406

A	B	C	D	E	FX
15.02	18.72	28.33	20.94	11.33	5.67

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

Date of last modification: 29.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ZBR/14	**Course name:** Bridge fundamentals

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Active participation on exercises.

Learning outcomes:
A student gets acquainted with fundamentals of the contract bridge, develops his/her logical thinking and consolidates his/her habits of positive social behaviour.

Brief outline of the course:
Bridge rules.
Principles of the bidding system Standard American.
Basic techniques of declarer's play.
Basic techniques of the defence.
Lead conventions, signals.
Common bidding conventions.
Selected advanced techniques of the card play.
Partnership cooperation in the contract bridge.
Bridge ethics.

Recommended literature:
T. Menyhért: Kurz bridžu 2013, http://new.bridgekosice.sk/kurz-bridzu-2013/
R. Pavlicek: Learn To Play Bridge!, http://www.rpbridge.net/1a00.htm
ACBL SAYC System Booklet, http://ebookbrowsee.net/acbl-sayc-pdf-d201415187

Course language:
Slovak or English

Notes:
Minimum number of participants is 4.

Course assessment
Total number of assessed students: 35

abs	n
97.14	2.86

Provides: doc. RNDr. Miroslav Ploščica, CSc., Mgr. Martin Vodička
Date of last modification: 08.02.2022
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/ECo-C4/14	**Course name:** Communication ECo-C4

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: 4

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

Course level: I.

Prerequisities:

Conditions for course completion:
1. Active participation in lessons (absence is allowed max. 90 min.), 2. Realization of assignments according to the teacher's instructions.
Detailed information in the electronic board of the course in AIS2. The teaching of the subject will be realized by a combined method.

Learning outcomes:
The student understands theoretical information about the basics of verbal and nonverbal communication, rhetoric and methods of visualization and interprets them adequately. Student is able to use the acquired communication skills in practice, can apply effective principles of communication with others, is able to anticipate and thus prevent possible misunderstandings, which will contribute to the development of his social and professional skills.

Brief outline of the course:
Basics of communication (Transmitter-receiver principle, "What is said is not equal to what is heard", "Internal dialogue", The concept of communication)
Active listening (The most important criteria for active listening)
Misunderstandings (How Misunderstandings Arise, How to Avoid Misunderstandings)
Body language (What is body language, Active / passive body language, Dress psychology)
Signs of Physical Expression, Disadvantages of Fake Physical Expression, Difference Between Active and Passive Body Expression
Personality development (Voices in us, "child in me" - identification of one's own personality)
Rhetoric (History of rhetoric, What is rhetoric, Vigor, alertness - assumptions, techniques, prompt reactions)
Visualization - optical display (Classic media - whiteboard, magnetic whiteboard, bulletin board, flipchart, Based on computer technology - PC + Beamer)

Recommended literature:
ROSENBERG, M. B. 2023. Nenásilná komunikácia. Aktuell. 234 s.
VÝROST, Jozef - SLAMĚNÍK, Ivan. Sociální psychologie. 2., přepr. a rozš. vyd. Praha : GRADA, 2008. 408 s.
VÝROST, Jozef - SLAMĚNÍK, Ivan. Aplikovaná sociální psychologie I : Člověk a sociální instituce. 1. vyd. Praha : Portál, 1998. 384 s. ISBN 80-7178-269-6.

KOMÁRKOVÁ, Růžena - SLAMĚNÍK, Ivan - VÝROST, Jozef. Aplikovaná sociální psychologie III : Sociálněpsychologický výcvik. 1. vyd. Praha : Grada Publishing, 2001. 224 s.
VÝROST, Jozef - SLAMĚNÍK, Ivan. Aplikovaná sociální psychologie II. 1. vyd. Praha : Grada Publishing, 2001. 260 s.

Course language:
slovak

Notes:
After passing the certification exams from all 4 modules (Teamwork, Selfmarketing, Conflict Management, Communication) the student will receive an ECo-C card and an ECo-C certificate.

Course assessment
Total number of assessed students: 169

abs	n
88.76	11.24

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 14.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ PFAJKKA/07	**Course name:** Communicative Competence in English

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:
Active participation in class and completed homework assignments. Students are allowed to miss two classes at the most.
2 credit tests (presumably in weeks 6/7 and 12/13) and an oral presentation in English.
Final evaluation consists of the scores obtained for the 2 tests (50%) and the presentation (50%).
Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.

Learning outcomes:

Brief outline of the course:

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

Course language:
English language, B2-C1 level according to CEFR

Notes:

Course assessment
Total number of assessed students: 301

A	B	C	D	E	FX
45.18	20.93	17.61	7.64	5.98	2.66

Provides: Mgr. Barbara Mitríková

Date of last modification: 11.02.2024
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

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

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

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

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

Course language:

English language, level B2 according to CEFR.

Notes:

Course assessment
Total number of assessed students: 446

A	B	C	D	E	FX
41.48	19.51	15.7	7.85	5.61	9.87

Provides: Mgr. Viktória Mária Slovenská, Mgr. Lýdia Markovičová, PhD.

Date of last modification: 20.09.2023

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KGER/ NJKG/07	**Course name:** Communicative Grammar in German Language

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

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

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

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

Recommended literature:
Dreyer, H. – Schmitt, R.: Lehr- und Übungsbuch der deutschen Grammatik. Hueber Verlag GmbH & Co. Ismaning, 2009.
Krüger, M.: Motive Kursbuch, Lektion 1 – 30. Huebert Verlag GmbH & Co. Ismaning, 2020.
Brill, L.M. – Techmer, M.: Deutsch. Großes Übungsbuch. Wortschatz. Huebert Verlag GmbH & Co. Ismaning, 2011.
Földeak, Hans: Sag's besser!. Grammatik. Arbeitsbuch für Fortgeschrittene. Huebert Verlag GmbH & Co. Ismaning, 2001.
Geiger, S. – Dinsel, S.: Deutsch Übungsbuch Grammatik A2-B2. Huebert Verlag GmbH & Co. Ismaning, 2018.
Dittelová, E. – Zavatčanová, M.: Einführung in das Studium der deutschen Fachsprache. Košice: ES UPJŠ, 2000.

Course language:
German, Slovak language

Notes:

Course assessment
Total number of assessed students: 57

A	B	C	D	E	FX
61.4	10.53	8.77	3.51	8.77	7.02

Provides: Mgr. Ulrika Strömplová, PhD.

Date of last modification: 13.08.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

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

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

Brief outline of the course:

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

Course language:

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

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

Course assessment

Total number of assessed students: 2255

A	B	C	D	E	FX
19.29	19.56	24.43	20.75	11.53	4.43

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

Date of last modification: 19.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/ECo-C3/14	**Course name:** Conflict Management ECo-C3

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: 4

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

Course level: I.

Prerequisities:

Conditions for course completion:
2. Submission of the reflection on the selected topic within the specified time. Reflection topic: My strengths and weaknesses in conflict management. In a short presentation of their reflection, students will describe their strengths and weaknesses in the management of conflict situations in the form of deconstruction.
Attendance at seminars is mandatory - the student may have two absences during the semester.
The evaluation of the course and its subsequent completion will be based on clearly and objectively set requirements, which will be set in advance and will not change. The aim of the assessment is to ensure an objective and fair mapping of the student's knowledge while adhering to all ethical and moral standards. There is no tolerance for students' fraudulent behavior, whether in the teaching process or in the assessment process.

Learning outcomes:
Successful mastery and demonstration of knowledge in the field of conflict management and control of basic rules.
The method of teaching the subject will be oriented to the student. Lecturers will be interested in students' needs, expectations and opinions so as to encourage them to think critically by expressing respect and feedback on their opinions and needs.
The content of the curriculum will be based on primary and high-quality sources that will reflect the topicality of the topics so as to ensure the connection of the curriculum with other subjects and also the connection of the curriculum with practice. Students will be expected to take an active approach in lectures and seminars with an emphasis on their independence and responsibility.
The student is able to demonstrate an understanding of an individual's behavior in various conflict situations. The student is able to describe, explain and evaluate their own internal resources, competencies as well as limitations and weaknesses that are directly related to conflict management.
The student is able to apply theoretical knowledge and principles of conflict resolution to everyday situations.

Brief outline of the course:
Disputes and their causes (Types of disputes, External influences, Be able to reveal the causes of disputes), Dispute origin (Levels of disputes, Escalation warning signals, Escalation removal strategies, Know how to explain escalation stages; How do I approach a dispute?) Dispute

Resolution, Dispute Resolution Strategies, Dispute Discussion, Dispute Settlement Initiatives, Knowing how to handle a dispute and how to effectively resolve it), Dispute Resolution (Options, Public Struggle, Covert Struggle, Indefinite Postponement, Agreement, “Fair play ”, compromise, cooperation, capitulation, escape or separation), Prevention (Structures that produce disputes, The meaning and purpose of disputes, Stages and steps of dispute resolution, What does a positive corporate culture mean? Dispute is an incentive for change)

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 147

abs	n
94.56	5.44

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 12.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1061

A	B	C	D	E	FX
13.01	19.7	28.46	21.21	16.59	1.04

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

Date of last modification: 19.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ DSMa/10	**Course name:** Discrete mathematics I
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 2 / 2 **Per study period:** 28 / 28 **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course: 3.	
Course level: I.	
Prerequisities:	
Conditions for course completion: Examination.	
Learning outcomes: To be familiar with some factual knowledge of combinatorics and graph theory. To understand an appreciate mathematical notions, definitions, and proofs, to solve problems requiring more than just standard recipes, and to express mathematical thoughts precisely and more rigorously.	
Brief outline of the course: Basic principles. Counting and binomial coefficients, Binomial theorem, polynomial theorem. Recurrence: Some miscellaneous problems, Fibonacci-type relations, Using generating functions, miscellaneous methods. The inclusion-exclusion principle. Rook polynomials. Introduction to graphs: The concept of graphs, paths in graphs. Connectivity. Trees, bipartite graphs. Planarity. Polyhedra. Traveling round a graph: Eulerian graphs, Hamiltonian graphs. Partitions and colourings: Vertex colourings of graphs. Edge colourings of graphs	
Recommended literature: 1. I. Anderson, A first course in discrete mathematics, Springer-Verlag London, 2001. 2. J. Matoušek and J. Nešetřil, Invitation to discrete mathematics, Oxford University Press Inc. , New York 1999. 3. S. Jendroľ, P. Mihók: Diskrétna matematika I, UPJŠ Košice 1992.	
Course language: Slovak	
Notes:	

Course assessment
Total number of assessed students: 743

A	B	C	D	E	FX
12.79	12.38	16.02	20.32	31.36	7.13

Provides: doc. RNDr. Roman Soták, PhD., RNDr. Alfréd Onderko, PhD., RNDr. Zuzana Šárošiová, PhD.

Date of last modification: 16.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ DSM2b/22	**Course name:** Discrete mathematics II

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

Number of ECTS credits: 4

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

Course level: I.

Prerequisities: ÚMV/DSMa/10 or ÚMV/DSM3a/10

Conditions for course completion:
In the covered areas of graph theory, the ability to formulate definitions and statements, to present proofs of statements, to explain individual steps in proofs and to solve selected problems related to given topics is required.
During the semester (continuous assessment) two tests take place, from which 50% of points can be obtained, and from the oral exam alike 50% can be obtained. Evaluation: A ... at least 90%, B ... at least 80%, C ... at least 70%, D ... at least 60%, E ... at least 50%, FX ... less than 50% .

Learning outcomes:
Acquired knowledge of basic areas of graph theory, overview of used objects and properties, understanding of important statements and methods, knowledge of possible applications and the ability to formulate and solve problems in this area.

Brief outline of the course:
- (week 1) Introduction to graphs (graph relations, graph operations, special graph classes)
- (week 2-3) Connectivity and distance in graphs (connectedness of vertices, eccentricity, incidence matrix)
- (week 4) (Spanning) Trees (trees isomorphism)
- (week 5-6) Connectivity in graphs (vertex and edge k-connectedness)
- (week (7-8) Independence and coverings (independent set, matching, vertex and edge covering)
- (week 9-10) Extremal graph theory (Ramsey numbers, Turán graphs)
- (week 11-13) Graph colorings (vertex coloring, chromatic polynomial, edge coloring)
- (week 14) Directed graphs (strong/weak connectedness, tounaments, acyclic graphs)

Recommended literature:
1. A. Bondy, U.S.R. Murty, Graph theory, Springer, 2008
2. G. Chartrand, L. Lesniak, P. Zhang, Graphs and digraphs, CRC Press, 2011
3. R. Diestel, Graph Theory, Springer, 2017
4. D. West, Introduction to Graph Theory, Pearson, 2001

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 247

A	B	C	D	E	FX
14.57	11.74	25.1	24.7	18.62	5.26

Provides: RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Alfréd Onderko, PhD.

Date of last modification: 16.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

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

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

Brief outline of the course:

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

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 620

A	B	C	D	E	FX
78.55	15.81	3.71	1.45	0.16	0.32

Provides: prof. PhDr. Oľga Orosová, CSc., Mgr. Viera Čurová, PhD., Mgr. Janka Liptáková, PhDr. Anna Janovská, PhD., Mgr. Zuzana Michalove

Date of last modification: 24.06.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚINF/ EDS/15	**Course name:** Educational software
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion: Conditions for ongoing evaluation: 1. Creation of a worksheet for student. 2. Creation of a multimedia educational game. 3. Creation of an interactive educational quiz. 4. Creation of an instructional educational video. Conditions for the final evaluation: Creation and presentation of final project on the use of educational software in education. Conditions for successful completion of the course: Obtaining at least 50% of points for ongoing and final assignments.	
Learning outcomes: Students will receive, resp. deepen their basic skills in working with: a) presentation software, programs for creating and editing images, animations, diagrams, sounds, conceptual maps, b) programs for the creation of didactic tests, questionnaires, surveys, c) simulation and modeling software, d) selected subject-oriented educational programs, Students present and discuss their idea of the use of educational software and educational Internet resources and tools in the selected school subject.	
Brief outline of the course: 1. Overview of educational software and educational web resources and tools. 2. Creating and processing of materials for teaching aid . 3. Creation and use of electronic and interactive educational documents (worksheets, presentations, textbooks and workbooks). 4. Creation of instructional educational video. 5. Electronic voting and questionnaire creation. 6. Creation of didactic tests and educational games. Gamification elements, tools and environments. 7. Collaborative web applications. 8. Online communication tools. 9. Complex online learning environments.	

10. Online educational platforms, repositories, projects and competitions.
11. Simulations and modelling. Subject-focused educational programmes.
12. Use digital tools to plan, monitor, differentiate and personalise learning. Accessibility of digital tools and learning resources.

Recommended literature:

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

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

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

Course assessment
Total number of assessed students: 92

A	B	C	D	E	FX
73.91	13.04	7.61	0.0	5.43	0.0

Provides: Ing. Zuzana Tkáčová, Ing.Paed.IGIP., doc. RNDr. Ľubomír Šnajder, PhD.

Date of last modification: 16.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ PFAJ4/07	**Course name:** English Language of Natural Science

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most
Continuous assessment:
1 credit test taken presumably in weeks 6/7
1 project (quiz on the topic of the student´s field of study) 25% of the continuous assessment
5 LMS quizzes (25% of the continuous assessment)
In order to be admitted to the final exam, a student has to score at least 65 % from the continuous assessment
The exam test results represent 50% of the final grade for the course, continuous assessment results represent the other 50% of the final grade.
The final grade for the course will be calculated as follows:
A 93-100, B 86-92, C 79-85, D 72-78, E 65-71, FX 64 and less.

Learning outcomes:
Enhancement of students' language skills (speaking, writing, reading and listening comprehension) in English for specific and academic purposes and development of students' linguistic competence. Students obtain knowledge of selected phonological, lexical and syntactic aspects of professional English, improve their pragmatic competence - students can effectively use the language for a given purpose, and acquire presentation skills at B2 level (CEFR) with focus on terminology of natural sciences.

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

10. Talking about problem and solution
11. Referencing authors
12. Giving examples
13. Visual aids and numbers
14. Referencing time and place
Presentation topics related to students´study fields.

Recommended literature:
lms.upjs.sk - e-kurz Odborný anglický jazyk pre prírodné vedy.
Redman, S.: English Vocabulary in Use, Pre-intermetdiate, Intermediate. Cambridge University Press, 2003.
Armer, T.: Cambridge English for Scientists. CUP, 2011.
Wharton J.: Academic Encounters. The Natural World. CUP, 2009.
P. Fitzgerald : English for ICT studies. Garnet Publishing, 2011.
https://worldservice/learningenglish, https://spectator.sme.sk
www.isllibrary.com
linguahouse.com

Course language:
English, level B2 (CEFR)

Notes:

Course assessment
Total number of assessed students: 3239

A	B	C	D	E	FX
38.53	26.37	16.3	9.54	7.19	2.07

Provides: Mgr. Viktória Mária Slovenská, Mgr. Lenka Klimčáková, Mgr. Katarína Szabová, PhD.

Date of last modification: 06.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1163

abs	n
99.48	0.52

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

Date of last modification: 21.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
.

Brief outline of the course:
.

Recommended literature:
.

Course language:

Notes:

Course assessment
Total number of assessed students: 1490

abs	n
99.93	0.07

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

Date of last modification: 15.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ FRPa/19	**Course name:** Function of real variable

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

Number of ECTS credits: 7

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Continuous assessment of student's work during the semester (submission of compulsory homework, writing three tests). Final test and oral discussion on the topics of the subject.

Learning outcomes:
The course provides an introductory knowledge on basic tools of differential and integral calculus of real functions of one real variable, and a development of certain calculation skills in the field.

Brief outline of the course:
1. Basics of mathematical logic and notations (1 week)
2. Real functions - basic notions, operation, graphs and their transformations (2 weeks)
3. Continuity of a real-valued function (1 week)
4. Derivative of a function using the geometric concepts, rules of differentiation (2 weeks)
5. Basic of differential calculus - relations with monotonicity and convexity, extremas, using in optimisation, geometric and physics tasks (2 weeks)
6. Primitive function, methods of their finding (3 weeks)
7. Newton definite integral - methods of its computation, using in geometric and physics tasks (2 weeks)

Recommended literature:
1. Kulcsár, Š. - Kulcsárová, O.: Zbierka úloh z matematickej analýzy I., UPJŠ, 2002.
2. Kulcsár, Š. - Kulcsárová, O.: Zbierka úloh z matematickej analýzy II., UPJŠ, 2003.
3. Hutník, O. - Kulcsár, Š. - Kulcsárová, O. - Mojsej, I.: Zbierka úloh z matematickej analýzy III., UPJŠ, 2011.
4. Demidovič, B. P.: Sbírka úloh a cvičení z matematické analýzy, Fragment, Praha, 2003.
5. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006.
6. Bruckner, A. M., Bruckner J. B., Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008.
7. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 847

A	B	C	D	E	FX
8.74	8.15	17.12	21.25	31.88	12.87

Provides: prof. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD., RNDr. Jana Borzová, PhD., RNDr. Kristína Hurajová, RNDr. Barbora Hennelová

Date of last modification: 16.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚBEV/CYT1/15

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

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

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

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

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 1277

A	B	C	D	E	FX
16.29	27.02	28.03	16.84	8.46	3.37

Provides: prof. RNDr. Pavol Mártonfi, PhD., Mgr. Vladislav Kolarčik, PhD., univerzitný docent, PaedDr. Andrea Lešková, PhD.

Date of last modification: 29.10.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 7

Recommended semester/trimester of the course: 5.

Course level: I.

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

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1649

A	B	C	D	E	FX
19.35	15.46	15.65	14.31	20.5	14.74

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

Date of last modification: 15.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ GEO2a/22	**Course name:** Geometry I

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:
In the covered areas of geometry, the ability to formulate definitions and statements, to present proofs of statements, to explain individual steps in proofs and to solve selected problems related to given topics is required. Evaluation: A ... at least 90%, B ... at least 80%, C ... at least 70%, D ... at least 60%, E ... at least 50%, FX ... less than 50%

Learning outcomes:
Acquired knowledge about the axiom system of Euclidean geometry, about the validity of the basic tools of planimetry, about sets of points of a given property, about congruence transformations and homothety in the plane, about important points, lines and circles in triangles and about quadrilaterals and their properties. The ability to use the above knowledges and tools to solve problems on this area. A new look at classical geometric results.

Brief outline of the course:
- (week 1-3) Hilbert's axiom system (axioms, triangle congruence theorems, pairs of congruent or "complementary" angles, basic proportionality theorem, triangle similarity theorems)
- (week 4-5) Basic tools of planimetry (Euclid's theorem, Pythagorean theorem, Thales' theorem, law of cosines, extended law of sines, central and inscribed angle theorem, area of a triangle)
- (week 6) Point sets of the given property (bisectors, equidistants, Apollonius circle)
- (week 7) Transformations (congruence transformations of the plane, homothety in the plane)
- (week 8-11) Points and lines connected with a triangle (Menelaus's theorem, Ceva's theorem, points of interest, the incircle and excircles, pedal triangles, Euler line, nine-point circle, Simson lines)
- (week 12-13) Quadrangles (Varignon's parallelogram, cyclic quadrangles, Ptolemy's theorem, Brahmagupta's formula)

Recommended literature:
1. D. Hilbert, Grundlagen der Geometrie, Teubner, 1968.
2. H.G. Forder, Foundations of Euclidean geometry, Dover Publ., 1958.
3. H.S.M. Coxeter, S.L. Greitzer, Geometry revisited, MAA, 1967.
4. R.A. Johnson, Advanced Euclidean geometry, Dover Publ., 2007.
5. D.A. Brannan, M.F. Esplen, J.J. Gray, Geometry, Cambridge Univ. Press, 2007.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 222

A	B	C	D	E	FX
19.37	18.02	28.38	13.51	16.67	4.05

Provides: RNDr. Igor Fabrici, Dr. rer. nat.

Date of last modification: 29.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ GEO2b/22	**Course name:** Geometry 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: 2

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚMV/GEO2a/24

Conditions for course completion:
Mastering the terminology of stereometry, basic properties of geometric solids, understanding concepts, basic stereometric definitions and theorems.
Understanding and using basic transformation methods for projection of solids,
effective use of suitable methods in the construction of planar cutting bodies, in the construction of the intersection of a line with a solid and in solving metric problems.
The conditions of the continuous assessment are active participation in the exercises, elaboration of home assignments and elaboration of two tests. Evaluation: A ... at least 90%, B ... at least 80%, C ... at least 70%, D ... at least 60%, E ... at least 50%, FX ... less than 50%

Learning outcomes:
An important result of education is the deepening and developing of knowledge of school stereometry and the development of the ability to apply a synthetic approach in deriving and proving relationships in stereometry and in their use in solving problems. The construction of solid images and problem solving will develop analytical thinking and spatial imagination of students.

Brief outline of the course:
- basic properties of geometric solids in space,
- images of solids in parallel projection,
- basic stereometric theorems (relative positions of straight lines, parallelism of a line and a plane, parallelism of two planes, relative position of three planes, perpendicularity of a line and a plane, perpendicularity of two planes),
- positional and metric properties of spatial solids (cuttings of polyhedrons, distances and angles of points, straight lines, planes, intersection of a straight line with a solid, intersection of planes),
- properties of polyhedrons, Euler's theorem, regular polyhedrons (Platonic solids, their number and properties)
- volume and surface area of solids and their parts, Cavalieri's principle
- projection methods (principle of parallel and central projection, axial affinity, use of axial affinity in the construction of cuts of prisms and cylinders, basics of Monge's Projection).

Recommended literature:
1. Pomykalová, E.: Matematika pro gymnázia - Stereometrie. Prometheus, 2009.

2. Šedivý, O., Pavlovičová, G., Rumanová, L., Vallo, D.: Stereometria. Umenie vidieť a predstavovať si priestor. Nitra, 2007.
3. Kuřina, F.: Deset pohledů na geometrii. Praha: MÚ AV ČR, 1996.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 18

A	B	C	D	E	FX
11.11	5.56	16.67	16.67	44.44	5.56

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 20.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ GEO2c/22	**Course name:** Geometry III

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚMV/ALG2b/22

Conditions for course completion:
Two written tests.
Written and oral examinations
For continuous evaluation - max. 40 points
for the written test - max. 20 points
for oral exams - max. 40 points)
Final score:
A: 100-91 points, B: 90-81, C: 80-71, D: 70-61, E: 60-51, F: less than 51 points
Note: In each of the student needs to have at least 50% max. number of points

Learning outcomes:
Mastering the basics of the theory of linear and quadratic formations in the Affine and Euclidean space, mastering the methods of solving problems in analytical geometry in relation to the secondary school curriculum.

Brief outline of the course:
1. Affine n-dimensional space - definition, linear coordinate system.
2. Subspace and its parametric expression, general equation of superplane, subspace as intersection of superstructures, general equations of subspace
3. Mutual position of subspaces, orientation of affine space, change of coordinate system
4. Arrangement of points on a line, half-spaces
5. Scalar product, external product, vector product of vectors and their basic properties
6. Euclidean space and its subspaces, Cartesian coordinate system
7. Perpendicularity of subspaces, distance of point from subspace, distance of point from superstructure, distance of subspaces,
8. Deviation of two lines, two superstructures, line and superplane, deviation of line and subspace
9. Axis of two extraterrestrial subspaces, Gram determinant, examples in E2 and E3

Recommended literature:
1. M.Sekanina, L.Boček, M.Kočandrle, J.Šedivý: Geometrie 1, SPN Praha 1986
2. M.Hejný, V.Zaťko, P.Kršňák: Geometria 1, SPN Bratislava 1985
3. J.Eliaš, J.Horváth, J.Kajan: Zbierka úloh z vyššej matematiky 1, Alfa Bratislava

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 227

A	B	C	D	E	FX
19.38	23.35	22.03	17.62	10.13	7.49

Provides: doc. RNDr. Dušan Šveda, CSc., RNDr. Daniela Šabaková, RNDr. Monika Krišáková

Date of last modification: 17.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ GEO2d/22	**Course name:** Geometry IV

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
In the covered areas of geometry, the ability to formulate definitions and statements, to present proofs of statements, to explain individual steps in proofs and to solve selected problems related to given topics is required. During the semester (continuous assessment) two tests take place, from which 50% of points can be obtained, and from the oral exam alike 50% can be obtained. Evaluation: A ... at least 90%, B ... at least 80%, C ... at least 70%, D ... at least 60%, E ... at least 50%, FX ... less than 50%

Learning outcomes:
Acquired knowledge of the properties of affine, isometric and similarity transformations, understanding of important statements and methods, knowledge of the use of isometric and similarity transformations in construction and optimization problems and the ability to solve other problems in this area.

Brief outline of the course:
- (week 1-2) Quadric surfaces (circular and general quadric surfaces)
- (week 3-7) Affine transformations (associated transformation, matrix representation, affinities, fixed points and lines, pseudo-reflections)
- (week 8-10) Isometric transformations (matrix representation, isometries, classification in the plane, composiion of reflections)
- (week 11-12) Similarity transformations (matrix representation, similarities, homothety, composition of homotheties)
- (week 13-14) Geometry of circles (the power of a point with respect to a circle, radical axis of two circles, pencils of circles)

Recommended literature:
1. M. Sekanina et al, Geometry 2, SPN, 1988 (in slovak).
2. O. Šedivý et al, Geometry 2, SPN, 1987 (in slovak).
3. H.S.M. Coxeter, Introduction to geometry, Wiley, 1989.
4. J.T. Smith, Methods of geometry, Wiley, 2000.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 196

A	B	C	D	E	FX
15.31	15.82	24.49	19.39	18.37	6.63

Provides: RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Daniela Šabaková

Date of last modification: 14.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ POŽ/21	**Course name:** Getting to know the Student in Education

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 105

A	B	C	D	E	FX
70.48	15.24	8.57	0.95	0.0	4.76

Provides: PaedDr. Michal Novocký, PhD., Mgr. Beáta Sakalová, PhD.

Date of last modification: 12.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ HISE1/15	**Course name:** Histology

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚBEV/CYT1/15

Conditions for course completion:
Oral examination

Learning outcomes:
To provide the students with knowledge of basic morphology of tissues of animals.

Brief outline of the course:
1. Epithelium and glands.
2. Connective tissue.
3. Cartilage. Bone.
4. Muscle.
5. Nervous Tissue.
6. Blood and hemopoiesis.
7. Circulatory system. Lymphoid system.
8. Endocrine system.
8. Respiratory system. Integument.
9. Digestive system.
10. Urinary system.
11. Female reproductive system.
12. Male reproductive system.
13. Nervous system. Special senses.

Recommended literature:
Gartner, L.P., Hiatt, J.L.: Color Texbook of Histology. W.B. Saunders Company, Philadelphia, 1997
Juanqueira, L.C., Carneiro, J., Kelley, R.O.: Basic Histology. Prentice Hall International Inc., Apleton & Lange, 1992
Michel H. Ross, Wojciech Pawlina: Histology, Lippincott Wiliams & Wilkins, 2011

Course language:

Notes:

Course assessment
Total number of assessed students: 649

A	B	C	D	E	FX
17.26	14.33	14.79	18.18	23.57	11.86

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

Date of last modification: 11.01.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

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

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

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

13. The sensory organs

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

Course language:

Notes:

Course assessment
Total number of assessed students: 2022

A	B	C	D	E	FX
6.08	16.91	26.56	24.98	22.21	3.26

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

Date of last modification: 07.09.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 111

A	B	C	D	E	FX
69.37	22.52	3.6	1.8	2.7	0.0

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 14.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ IPU/22	**Course name:** Informatics course for teachers of mathematics

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: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
To master the use of basic algorithmic structures, to gain the ability to write algorithms for the construction of geometric shapes in the environment of turtle geometry. To be able to assess the possibilities of using interactive applications available on the Internet and to design procedures for the application of selected applications in the teaching of mathematics. To learn to use numerical and graphical means of a spreadsheet in data analysis, creating models to solve various mathematical problems.
Evaluation:
Algorithm creation paper - 6 b
Elaboration of dynamic constructions for solving geometric problems - 3 b
Seminar work on the use of interactive applications - 7 b + 3 b
Poll - 1 b
Tasks for creating numerical and graphical models in a spreadsheet - 4 b
Classification scale:
A: 91 % - 100 %,
B: 81 % - 90 %,
C: 71 % - 80 %,
D: 61 % - 70 %,
E: 51 % - 60 %,
FX: 0 % - 50 %.

Learning outcomes:
Knowledge and skills from the basics of working with standard information and communication technologies, which provide a variety of opportunities to support mathematics education. Skills to use basic commands of turtle geometry for generalization and writing algorithms for construction of geometric shapes. To master the basic principles of creating structures in the environment of dynamic geometry. Acquire creative and evaluative skills to plan and prepare a meaningful integration of modern technologies into mathematics education.

Brief outline of the course:
1-5: Use of basic algorithmic constructions in turtle geometry for the construction of geometric shapes,

6th - 7th: Basics of work in the environment of dynamic geometry, creation of dynamic constructions,
8th - 9th: Interactive teaching applications available on the Internet, selected possibilities of using digital technologies in mathematics education.
10. - 12 .: Use of numerical and graphical representations of data and modeling in a spreadsheet environment in solving mathematical problems.

Recommended literature:

Brdička, B.: Role internetu ve vzdělávaní, 2003, http://it.pedf.cuni.cz/~bobr/role/econt.htm.
Lukáč, S. a kol.: IKT vo vyučovaní matematiky, Asociácia projektu Infovek 2002.
Vaníček, J.: Počítačové kognitivní technologie ve výuce geometrie. Pedagogická fakulta Univerzity Karlovy, 2009.
Šťastný, Z.: Matematické a statistické výpočty v Microsoft Excelu, Computer Press 2001.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 136

A	B	C	D	E	FX
52.21	25.0	16.18	5.15	1.47	0.0

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 17.02.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ IIŠP/21	**Course name:** Integration and Inclusion in School Practice

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 54

A	B	C	D	E	FX
37.04	38.89	14.81	7.41	1.85	0.0

Provides: PaedDr. Michal Novocký, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 14.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 3

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:
oral examination

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1827

A	B	C	D	E	FX
21.02	17.62	24.9	17.19	11.77	7.5

Provides: RNDr. Natália Raschmanová, PhD., univerzitná docentka, doc. RNDr. Marcel Uhrin, PhD., univerzitný profesor

Date of last modification: 16.03.2023

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: Dek. PF UPJŠ/USPV/13	**Course name:** Introduction to Study of Sciences
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week: Per study period:** 12s / 3d **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 2206	

abs	n
89.39	10.61

Provides: doc. RNDr. Marián Kireš, PhD.
Date of last modification: 30.08.2022
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ UAD/10	**Course name:** Introduction to data analysis
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: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion: Test (40p) and individual project work (20p). Oral presentation of the individual project work (5p). At least 50% must be obtained from each part. Final evaluation: ≥90% A; ≥80% B; ≥70% C; ≥60% D; ≥50% E; <50% FX.	
Learning outcomes: To know the basic purpose of statistical data analysis, its methods and statistical thinking and understand its importance for science and practical life. To understand elementary statistical concepts. To gain experience in handling real data using spreadsheet Excel and statistical software R.	
Brief outline of the course: 1. Introduction (the basic philosophy and aim of statistical data analysis, descriptive and inductive statistics) 2. Collecting Data (types of data, random sample, randomized experiment) 3. Handling Data (visualization, summarizing – measures of center, measures of variability, skewness and kurtosis, empirical rule) - 5 weeks 4. Relationships in data (introduction to regression and correlation) - 4 weeks 5. Statistical inference (elementary view into estimation and testing hypothesis) - 2 weeks	
Recommended literature: 1. Rossman, A.J. et al.: Workshop Statistics: Discovery with Data, 4th ed. Wiley, 2011 2. Utts, J.M.: Seeing Through Statistics, 5th ed., Cengage Learning, 2024 3. Utts, J.M., Heckard R.F.: Mind on Statistics, 6th ed.. Cengage Learning, 2021 4. Anděl, J.: Statistické metody, Matfyzpress, 5. vydanie, Praha, 2019 (in Czech)	
Course language: Slovak	
Notes:	

Course assessment
Total number of assessed students: 436

A	B	C	D	E	FX
36.7	25.23	26.15	10.32	0.46	1.15

Provides: doc. RNDr. Martina Hančová, PhD., RNDr. Andrej Gajdoš, PhD.

Date of last modification: 21.11.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ UDM/22	**Course name:** Introduction to mathematics

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Two tests during the semester.

Learning outcomes:
Repetition of problematic sections of the secondary mathematics by interesting tasks. Explanation of basic terms, properties and proof methods used in various areas of mathematics.

Brief outline of the course:
Simplification of algebraic expressions. Real number, absolute value of real numbers; equations and inequalities. Irrational equations and inequalities. Concept of function. Linear and quadratic function; equations and inequalities. Exponencial and logarithmic function; equations and inequalities. Goniometric functions; equations and inequalities. Complex numbers.

Recommended literature:
1. V. Medek - L. Mišík - T. Šalát: REPETITÓRIUM STREDOŠKOLSKEJ MATEMATIKY, Alfa Bratislava, 1976
2. S. Richtárová - D. Kyselová: MATEMATIKA (pomôcka pre maturantov a uchádzačov o štúdium na vysokých školách), Enigma Nitra, 1998
3. O. Hudec – Z. Kimáková – E. Švidroňová: PRÍKLADY Z MATEMATIKY (pre uchádzačov o štúdium na TU v Košiciach), EF TU Košice, 1999
4. F. Peller – V. Šáner – J. Eliáš – Ľ. Pinda: MATEMATIKA – Podklady na prijímacie testy pre uchádzačov o štúdium, Ekonóm Bratislava, 2000/2001
5. F. Vesajda – F. Talafous: ZBIERKA ÚLOH Z MATEMATIKY pre stredné všeobecnovzdelávacie školy a gymnáziá, SPN Bratislava, 1973
6. J. Lukášová – O. Odvárko – B. Riečan – J. Šedivý – J. Vyšín: ÚLOHY Z MATEMATIKY pre 4. ročník gymnázia, SPN Bratislava, 1976

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 600

A	B	C	D	E	FX
23.83	20.5	18.17	15.33	9.67	12.5

Provides: RNDr. Veronika Hubeňáková, PhD., Mgr. Enikő Schnürerová

Date of last modification: 29.01.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/LCO/10	**Course name:** Linear and integer programming

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: 5.

Course level: I.

Prerequisities: ÚMV/ALGa/10

Conditions for course completion:
Continuous evaluation: a small test during each tutorial, two large tests, a project with real data and commercial software. Bonus points awarded for homeworks (formulation of proofs). A necessary condition for final exam is at least 50% of points from th semester. Final exam: demonstrate the understanding of the theory and ability of argumentation.

Learning outcomes:
Ability to formulate practical tasks in a form of a linear program. Proficiency in solving linear programs by several methods, also using software. Understanding of the underlying theory and ability of exact argumentation.

Brief outline of the course:
Formulation of linear and integer programs. Geometric solution. Simplex method, its correctness an finiteness. Duality and its economic interpretation. Dual and revised simplex method. Sensitivity analysis and parametric programming. Algorithms for integer programming: branch and bound, Gomory cuts. Computational complexity of LP and ILP. Solution of practical problems.

Recommended literature:
lms.upjs.sk - podklady k prednáškam a zadania úloh na cvičenia.
Plesník, Dupačová, Vlach: Lineárne programovanie, Alfa, Bratislava 1990
Ch. Papadimitriou – K. Steiglitz: Combinatorial Optimization: Algorithms and Complexity, 1984
R.J. Vanderbei, Linear Programming:Foundations and Extentions, Springer 2020, electronic version: http://www.princeton.edu/~rvdb/LPbook/

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 164

A	B	C	D	E	FX
22.56	17.07	19.51	20.12	17.68	3.05

Provides: prof. RNDr. Katarína Cechlárová, DrSc., RNDr. Adam Marton, PhD.
Date of last modification: 17.04.2022
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MAE/10	**Course name:** Macroeconomics

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
The final mark is given based on the results of the tests written during the semester ("small" written exams every week, two written exams checking the ability of computations). The final oral exam evaluates the ability of argumentation about the studied models. The student has to obtain at least 50% of points in the written exams to have the right to take part in the oral exam.

Learning outcomes:
The student understands the basic macroeconomic models and is able to use them to explain the real economic phenomena.

Brief outline of the course:
Basic macroekonomic notions: Gross domestic product, inflation, unemployment.. Analysis of godds markets. Financial markets. IS-LM model in closed economy. Open economy. IS-LM model in open economy. Models of labour market. Inflation and economic growth. High depth.

Recommended literature:
1. Olivier Blanchard, Alessia Amighini, Francesco Giavazzi, Macroeconomics, a European perspective, Pearson Education, 2021
2. N. Gregory Mankiw, Macroeconomics, 7th Edition, Harvard University, Worth Publishers 2009

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 86

A	B	C	D	E	FX
25.58	13.95	20.93	19.77	13.95	5.81

Provides: prof. RNDr. Katarína Cechlárová, DrSc.

Date of last modification: 24.11.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MAN2c/22	**Course name:** Mathematical analysis III

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚMV/MAN2b/22

Conditions for course completion:
During the term, each student receives marks for two written exams each worth 25 points. Final marking is assigned based on the overall points for the work throughout the term followed by a written and oral examination where the student can obtain further 30+20 points.
Marking classification: A:91%-100%, B:81%-90%, C:71%-80%, D:61%-70%, E:51%-60%, FX:0%-50%

Learning outcomes:
Deepening the knowledge of real analysis of function with a single variable. The student will
1. familiarise themselves with mathematical culture, ways of thinking, self-expression and putting forward arguments,
2. gain a deeper understanding of the base terminology of real analysis, their properties and interconnections,
3. be able to define and interpret key terms, prove their basic properties and relationships,
4. know how to solve tasks focused on utilising the aforementioned concepts and interpret the obtained results.

Brief outline of the course:
Definite Riemann integral - definition, elementary properties, calculation methods, applications. Improper Riemann integral. Sequences and series of real functions – pointwise and uniform convergence, properties of the limit function and the sum. Power series, Taylor series and their applications.

Recommended literature:
1. Mihalíková, B. - Ohriska, J.: Matematická analýza II (skriptum), UPJŠ Košice, 2007.
2. Hutník, O.: Určitý integrál (elektronický učebný text), UPJŠ, Košice, 2012.
3. Kluvánek, I. - Mišík, L. - Švec, M.: Matematika I, ALFA, Bratislava, 1971.
4. Demidovič, B. P.: Sbírka úloh a cvičení z matematické analýzy, Fragment, Praha, 2003.
5. Eliaš, J. - Horváth, J. - Kajan, J.: Zbierka úloh z vyššej matematiky 2, 3, 4, Alfa, Bratislava, 1971.
6. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006.

7. Bruckner, A. M. - Bruckner J. B. - Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008.
8. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 252

A	B	C	D	E	FX
11.11	15.08	12.7	20.24	34.52	6.35

Provides: prof. RNDr. Jozef Doboš, CSc., prof. RNDr. Ondrej Hutník, PhD.

Date of last modification: 25.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MAN2d/22	**Course name:** Mathematical analysis IV

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

Number of ECTS credits: 4

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

Course level: I.

Prerequisities: ÚMV/MAN2b/22

Conditions for course completion:
Continuous assessment is taken the form of two main tests during the semester. Final evaluation is given by continuous assessment (60%), written and oral part of the exam (40%).

Learning outcomes:
The student understands the basic concepts and their properties, which are defined in the content of the course. He has developed skills to use this theory in solving theoretical and practical problems. The student is able to do connections in solving problem tasks.

Brief outline of the course:
1. Function of several real variables - basic notions, limits and continuity. (3 weeks)
2. Differential calculus of functions of several real variables - partial derivative, differentiability, directional derivative, local and global extrema, constrained local extrema. (5 weeks)
3. Multivariable Riemann integral - definition, calculation methods, applications. (2 weeks)
4. Metric space - Euclidean space, topological properties of points and sets in metric space, completeness (3 weeks)

Recommended literature:
1. J. Kuben a kol: Diferenciální počet funkcí více proměnných, Brno a Ostrava, 2012.
2. L. Kluvánek, I. Mišík, M. Švec: Matematika I, II, SVTL, Bratislava, 1959.
3. P. Vodstrčil, J. Bouchala: Integrální počet funkcí více proměnných, Ostrava a Plzeň, 2012.
4. Z. Došlá, O. Došlý: Metrické prostory, Teorie a príklady. 3.vydání, 2006.
5. J. Eliaš, J. Horváth, J. Kajan: Zbierka úloh z vyššej matematiky 3, 4, SVTL, Bratislava, 1966.
6. D. Hughes-Hallett et al.: Calculus, Wiley, 1998.
7. B. S. Thomson, J. B. Bruckner, A. M. Bruckner: Elementary real analysis, Prentice Hall (Pearson), Lexington, 2008.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 79

A	B	C	D	E	FX
25.32	18.99	22.78	13.92	16.46	2.53

Provides: RNDr. Lenka Halčinová, PhD.

Date of last modification: 17.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MAN2b/22	**Course name:** Mathematical analysis of function of real variable

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 4 / 3 **Per study period:** 56 / 42
Course method: present

Number of ECTS credits: 7

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚMV/FRPa/19

Conditions for course completion:
Two written tests during semeter and activity student to practice. Final evaluation is given by continuous assessment, written and oral part of the exam.

Learning outcomes:
The purpose of the course is to strengthen the knowledge in differential and integral calculus of real functions of one real variable and to develop computational skills in the field.

Brief outline of the course:
Limit and continuity of real functions, elementary functions. Differential calculus - derivatives of the first and of higher orders, the basic theorems of differential calculus and their use to investigate properties and behavior of functions.

Recommended literature:
1. Mihalíková, B. - Ohriska, J.: Matematická analýza I (elektronický učebný text), UPJŠ Košice, 2012.
2. Mihalíková, B. - Ohriska, J.: Matematická analýza II (skriptum), ES UPJŠ Košice, 2007.
3. Kluvánek, I. - Mišík, L. - Švec, M.: Matematika I, ALFA, Bratislava, 1971.
4. Demidovič, B. P.: Sbírka úloh a cvičení z matematické analýzy, Fragment, Praha, 2003.
5. Brannan, D.: A First Course in Mathematical Analysis, Cambridge University Press, Cambridge 2006.
6. Bruckner, A. M., Bruckner J. B., Thomson, B. S.: Real Analysis, Second Edition, ClassicalRealAnalysis.com, 2008.
7. Zorich, V. A.: Mathematical Analysis I, Springer-Verlag 2002.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 139

A	B	C	D	E	FX
13.67	15.83	17.27	20.14	24.46	8.63

Provides: prof. RNDr. Ondrej Hutník, PhD., RNDr. Lenka Halčinová, PhD., RNDr. Jana Borzová, PhD.

Date of last modification: 17.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MMD/22	**Course name:** Mathematical modeling

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: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Submitting a project from the specified list of projects and, possibly, a related short presentation.

Learning outcomes:
Using concrete examples of problems from real life, students will become familiar with several approaches and strategies for creating a mathematical model of specified problem as well as with defining the conditions related a real problem and transforming them into created mathematical model.

Brief outline of the course:
One specified real-life problem will be discussed, explored and modeled each week.

Recommended literature:
1. E. Lindner, A. Micheletti, C. Nunes (eds.), Mathematical Modelling in Real Life Problems, Springer, 2020.
2. K.K. Tung, Topics in Mathematical Modeling, Princeton University Press, 2007.
3. H. P. Williams, Model Building in Mathematical Programming, Wiley, 2013.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 29

A	B	C	D	E	FX
89.66	10.34	0.0	0.0	0.0	0.0

Provides: RNDr. Jana Borzová, PhD., prof. RNDr. Katarína Cechlárová, DrSc., RNDr. Igor Fabrici, Dr. rer. nat., RNDr. Andrej Gajdoš, PhD., RNDr. Lenka Halčinová, PhD., RNDr. Jaroslav Šupina, PhD., doc. RNDr. Martina Hančová, PhD., Mgr. Martin Vodička, prof. RNDr. Ondrej Hutník, PhD., prof. RNDr. Ivan Žežula, CSc., RNDr. Lucia Kőszegyová, PhD., doc. Mgr. Jozef Kiseľák, PhD., doc. RNDr. Daniel Klein, PhD., prof. RNDr. Tomáš Madaras, PhD.

Date of last modification: 25.08.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MRUa/22	**Course name:** Mathematical problem solving strategies 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: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
Assessment is given on the basis of the results of written examinations carried out during the semester and active participation in exercises.
Classification scale:
A: 91 % - 100 %, B: 81 % - 90 %, C: 71 % - 80 %, D: 61 % - 70 %, E: 51 % - 60 %, FX: 0 % - 50 %.

Learning outcomes:
The student is able to explain the basic concepts and methods of solving mathematical problems selected from various areas of school mathematics. The student is able to apply the acquired knowledge in finding and using various strategies for solving problems. The student will get acquainted with typical and more demanding tasks in school mathematics and with specific problems and misconceptions that occur in their solution in the teaching of mathematics in primary and secondary school.

Brief outline of the course:
1. - 7. Solving equations, inequalities and systems of equations (equations and inequalities with absolute values, equations with parameters, irrational equations and inequalities, exponential and logarithmic equations and inequalities, trigonometric equations and inequalities).
8. - 13. Concept of function, properties of elementary functions, graphs of functions.

Recommended literature:
Kubáček, Z., Černek, P., Žabka J. a kol.: Matematika a svet okolo nás, zbierka úloh. FMFI UK Bratislava, 2008
Kopka, J., Hrozny problémů ve školské matematice, Univerzita J. E. Purkyně, Ústí nad Labem,1999.
Učebnice a zbierky úloh z matematiky ZŠ a SŠ.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 253

A	B	C	D	E	FX
28.06	21.74	22.13	11.86	14.23	1.98

Provides: prof. RNDr. Jozef Doboš, CSc.

Date of last modification: 25.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ MRUb/22	**Course name:** Mathematical problem solving strategies 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: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity.
3. Homework and written test.
4. Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to a student who scores at least 50% on homework assignments and at least 50% on written test. A grade of A requires at least 90%, a grade of B requires at least 80%, a grade of C requires at least 70%, a grade of D requires at least 60%, and a grade of E requires at least 50%.

Learning outcomes:
Students demonstrate a shift in different methods of problem-solving from combinatorics, probability and statistics. They will be aware of the connections between different methods of solution, and also the connections of these methods of solution with other topics of school mathematics.
While solving problems on written tests, the students will show that they have a conceptual understanding of the concepts of school combinatorics, probability and statistics. They are ready to use several methods of solving problems from these topics, they are able to consider whether a non-standard student's solution is correct or not, and they can explain this solution.

Brief outline of the course:
The content is focuses on different methods of problem-solving in combinatorics, probability and statistics. We are dealing with developing combinatorial, probabilistic and statistical thinking through different methods of problem-solving. The content of the course is based on current research results in this area. In solving combinatorial problems, students are introduced to the components of the model of combinatorial thinking - the listing of possibilities, the counting process, and combinatorial formulas and methods, and the connections between these components. When solving probability problems, we emphasize the different approaches to probability -

statistical, classical, geometric, and subjective and their connections. In part aimed at statistics, we focus on descriptive statistics and on the connection between probability and statistics.

Recommended literature:
Hecht, T., Sklenáriková, Z., Metódy riešenia matematických úloh, Bratislava, SPN, 1992. (in slovak)
Krantz, S.G., Techniques of Problem Solving, AMS, 1997.
Larson, L.C., Metódy riešenia matematických problémov, Bratislava, Alfa, 1990. (in slovak)
Textbooks for secondary and middle schools.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 139

A	B	C	D	E	FX
35.25	16.55	24.46	12.23	10.07	1.44

Provides: doc. RNDr. Ingrid Semanišinová, PhD.

Date of last modification: 17.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MST/19	**Course name:** Mathematical statistics

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: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Total evaluation based on two written tests during the semester (2x40p) and the result of the written (30p) and oral part of the exam (30p).
At least 50% must be obtained from each part.
Final evaluation: ≥90% A; ≥80% B; ≥70% C; ≥60% D; ≥50% E; <50% FX.

Learning outcomes:
Student should obtain the knowledge about basic statistical methods and the ability to apply theoretical knowledge in practical problems solving.

Brief outline of the course:
1. Random vectors (definition, distributions, characteristics, joint and marginal distributions).
2. Covariance, correlation and regression.
3. Random sample, sampling distributions and characteristics.
4. Some important statistics and their distributions.
5. Point estimators and their properties.
6. Maximum likelihood method.
7. Interval estimates, confidence interval construction (2 weeks).
8. Testing of statistical hypothesis (critical region, level of significance and power of test, methods for searching optimal critical regions).
9. Some important parametric tests (2 weeks).
10. Some important nonparametric tests (2 weeks).

Recommended literature:
1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)
2. Skřivánková V.-Hančová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005 (in Slovak)
3. Casella, G., Berger, R., Statistical Inference, 2nd ed., Chapman and Hall/CRC, 2024
4. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012
5. Anděl J.: Základy matematické statistiky, MatfyzPress, Praha, 2011 (in Czech)

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 175

A	B	C	D	E	FX
25.14	22.29	14.29	18.86	12.0	7.43

Provides: doc. RNDr. Martina Hančová, PhD.

Date of last modification: 21.11.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MTM/22	**Course name:** Mathematics

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚMV/MAN2c/22 and ÚMV/ATC/22

Conditions for course completion:
Acquiring the required number of credits in the structure defined by the study plan.

Learning outcomes:
Evaluation of student‘s competences with respect to the profile of the graduate.

Brief outline of the course:

Recommended literature:

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 120

A	B	C	D	E	FX
16.67	24.17	25.83	22.5	9.17	1.67

Provides:

Date of last modification: 26.01.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ MKŠP/21	**Course name:** Mentoring and Coaching in School Practice

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 63

A	B	C	D	E	FX
84.13	12.7	3.17	0.0	0.0	0.0

Provides: Mgr. Zuzana Vagaská, PhD.

Date of last modification: 18.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

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

Course level: I.

Prerequisities: ÚBEV/CYT1/15

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

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

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1502

A	B	C	D	E	FX
24.03	13.52	18.31	18.91	20.97	4.26

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

Date of last modification: 10.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MIE/13	**Course name:** Microeconomics

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Continuous assessment: feedback in MOODLE, small tests during tutorial (notions), two written exams (solving problems). Final oral exam: ability of verbal argumentation and graphical explanation of studied models.

Learning outcomes:
Understanding of basic principles of microeconomics and ability to apply them in practical situations.

Brief outline of the course:
Economics and economy. Supply and demand. Consumer Theory. Theory of firm. Perfect competition. Monopoly. Labour market. Market failure. Externalities and Public goods.

Recommended literature:
1. lms.upjs.sk: lectures, tutorials and other material
2. H.L. Varian, Intermediate Mikroekonomics, WW Norton, 1993
3. J.M. Perloff, Microeconomics, 6th Edtion, Addison Wesley, 2012
4. J. Sloman, Economics, 6th Edition, Prentice Hall, 2006

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 90

A	B	C	D	E	FX
24.44	22.22	18.89	18.89	13.33	2.22

Provides: prof. RNDr. Katarína Cechlárová, DrSc.

Date of last modification: 24.11.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
Oral examination.

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1173

A	B	C	D	E	FX
8.61	12.02	18.5	19.52	30.09	11.25

Provides: doc. RNDr. Peter Pristaš, CSc., univerzitný profesor, RNDr. Mária Piknová, PhD., RNDr. Zuzana Jendželovská, PhD., RNDr. Ján Košuth, PhD., RNDr. Jana Vargová, PhD., RNDr. Viktória Dečmanová, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MBGNm/22	**Course name:** Molecular Biology and Genetics

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

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

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 36

A	B	C	D	E	FX
30.56	22.22	27.78	8.33	8.33	2.78

Provides:

Date of last modification: 15.05.2023

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 242

A	B	C	D	E	FX
40.08	41.32	16.94	0.83	0.41	0.41

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 12.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ NUM/19	**Course name:** Numerical methods

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: (ÚMV/MANb/19 or ÚMV/MAN2b/22 or ÚMV/FRPb/19) and (ÚMV/ALG1b/24 or ÚMV/ALG2b/22 or ÚMV/ALG3b/22 or ÚMV/ALG4b/22)

Conditions for course completion:
Form: Lectures and practices using computers. Solving problems and programming algorithms using the computational platform SageMath (including Python, NumPy, SciPy, SymPy, R, Maxima, matplotlib, GAP, FLINT, and many other packages).
Interim assessment (50% of the total assessment): Solving assigned tasks e.g. in the form of implementation of algorithms or their parts, modification of existing codes or use of available packages in solving real problems.
Final examination (50% of the total assessment): It consists of verifying the understanding of the theory taken over and demonstrating the practical skills acquired.

Learning outcomes:
After completing the course, the student will acquire theoretical knowledge and practical skills regarding the principles and implementation of basic numerical algorithms with emphasis on algorithms used in the field of data analysis.
The student should be able to understand and implement numerical algorithms in programming language independently, to be able to modify components of existing algorithms
and also be able to solve (real) problems by selecting an appropriate numerical method with the available effective computational packages.

Brief outline of the course:
1. Basic principles and techniques of numerical analysis - computer implementation and representation of real numbers, numerical vs. symbolic (analytical) calculations, method vs. algorithm, error measurement of numerical solution, conditionality of numerical problems, stability and convergence of numerical algorithms.
2. Solution of nonlinear equations - methods of bisection and simple iteration, the false position method and Newton method, Newton-Raphson method.
3. Numerical differentiation and integration - trapezoidal method, Simpson method, Newton-Cotes formulas.
4. Approximation of functions and smoothing of data, using polynomials, interpolation, splines, kernel methods.

5. Linear systems - Gaussian elimination with and without pivoting, forward and backward substitution, scaled partial pivoting, singularity and perturbation, matrix conditionality, Thomas method, iterative methods - Jacobi, Gauss-Seidel, SOR method, gradient methods - gradient descent, conjugate directions.
6. Eigenvalues and eigenvectors of matrices - estimation of eigenvalues, partial eigenvalue problem (power method and Rayleigh method, Hessenberg shape), complete eigenvalue problem (calculation of dominant eigenvalue, LU, QU, QR - decomposition, Jacobi method), SVD - Singular Matrix Decomposition.
7. Optimization - MLS, Cauchy method of the highest gradient, Newton method, conjugated gradient method of Fletcher-Reeves, Quasi-Newton methods, Regularization of ill-conditioned problems.

Recommended literature:

1. Ackleh, A. S., Allen, E. J., Kearfott, R. B., & Seshaiyer, P. (2009). Classical and Modern Numerical Analysis: Theory, Methods and Practice (1 edition). Boca Raton: Chapman and Hall/ CRC.
2. Anastassiou, G. A., & Mezei, R. (2015). Numerical Analysis Using Sage. Springer International Publishing.
3. Cheney, E. W., & Kincaid, D. R. (2012). Numerical Mathematics and Computing (7 edition). Boston, MA: Cengage Learning.
4. O'Leary, D. P. (2008). Scientific Computing with Case Studies. Philadelphia: Society for Industrial and Applied Mathematics.
5. Sauer, T. (2017). Numerical Analysis. (3 edition). Hoboken, NJ? Pearson.
6. Segethová, J. (2002). Základy numerické matematiky. Karolinum.
7. M. Vicher (2003). Numerická matematika.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 142

A	B	C	D	E	FX
13.38	16.9	8.45	14.79	34.51	11.97

Provides: RNDr. Andrej Gajdoš, PhD.

Date of last modification: 18.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1155

A	B	C	D	E	FX
23.81	28.57	22.68	13.85	9.18	1.9

Provides: PaedDr. Michal Novocký, PhD., doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 14.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

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

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

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

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

Recommended literature:

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

Course language:

Notes:

Course assessment

Total number of assessed students: 401

A	B	C	D	E	FX
38.4	22.19	21.45	8.73	8.48	0.75

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

Date of last modification: 24.07.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BRNm/22	**Course name:** Plant Biology

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I.

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

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 20

A	B	C	D	E	FX
30.0	10.0	25.0	15.0	15.0	5.0

Provides:

Date of last modification: 29.05.2023

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

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

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

Number of ECTS credits: 6

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚBEV/VB1/01

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

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 2013

A	B	C	D	E	FX
16.44	13.51	17.14	14.61	22.01	16.29

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

Date of last modification: 28.07.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/PP/15	**Course name:** Positive Psychology

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

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

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 462

A	B	C	D	E	FX
98.27	1.3	0.22	0.0	0.22	0.0

Provides: Mgr. Jozef Benka, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ TPP2/22	**Course name:** Probability theory

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚMV/MAN2c/22

Conditions for course completion:
To obtain at least 50% in two written tests during the semester.
Total evaluation based on written tests and oral exam.

Learning outcomes:
To obtain knowledge of the axiomatic theory of probability, random variables and their characteristics, special types of distributions and their applications.

Brief outline of the course:
Probability space, definitions and properties of probability.
Conditional probability and independence.
Random variables, their distribution function and characteristics.
Mean, variance and skewness.
Discrete and absolutely continuous distributions.
Quantile and characteristic functions, their properties. Relation between characteristic function and moments. Median and mode.
Transformation of random variables.
Special types of distributions with applications (binomial, Poisson, geometric, uniform, exponential, normal, chi-square, Student, Fisher).
Central limit theorem.

Recommended literature:
1. Skřivánková V.: Pravdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak)
2. DeGroot, M. H., Schervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012
3. Evans, M. J., Rosenthal, J. S.: Probability and Statistics: The Science of Uncertainty, 2nd Ed., W. H. Freeman, 2009
4. Riečan et al.: Pravdepodobnosť a matematická štatistika, Alfa, Bratislava, 1984 (in Slovak)
5. Potocký a kol.: Zbierka úloh z pravdepodobnosti a matematickej štatistiky, Alfa, Bratislava, 1991

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 138

A	B	C	D	E	FX
26.81	15.22	11.59	10.87	35.51	0.0

Provides: doc. RNDr. Daniel Klein, PhD., RNDr. Andrej Gajdoš, PhD.

Date of last modification: 17.02.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚINF/ PAZ1a/15	**Course name:** Programming, algorithms, and complexity

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 3 / 4 **Per study period:** 42 / 56
Course method: present

Number of ECTS credits: 8

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

Course level: I.

Prerequisities:

Conditions for course completion:
Graded activities during semester: assignments, small exams, midterm, final project.
Final examination: practical finalterm focused on a complex task.
Rules to pass the subject: Pass the minimal limit of points for category of homeworks (assignments, final project) and tests (small exams, midterm). Get at least 42% from the finalterm and pass the defined limit of total points for all graded activities.

Learning outcomes:
Get an ability to implement basic Java programs and obtain essential knowledge related to object-oriented programming.

Brief outline of the course:
1. Introduction to Java and JPAZ2 framework, first Eclipse project, interactive communication with objects using turtle graphics, repeating code in loops, notion of class, object, and method.
2. For-loops, local variables, variable types, arithmetic expressions, random numbers, random walk, conditions.
3. While-loop, returning a value from a method, reference and reference variables, debugging.
4. Primitive and reference types, chars, String objects (including basic algorithms), mouse events, instance variables.
5. Array of primitive values and array of references, simple array algorithms.
6. Advanced array algorithms, two-dimensional array.
7. Exceptions and exception handling, files and directories, writing to text files.
8. Reading from text files.
9. Creating classes, encapsulation, getters and setters, constructors and their hierarchy, method overloading.
10. Inheritance and polymorphism.
11. Java Collections Framework, ArrayList class, wrapper classes for primitive types and autoboxing, interfaces List, Set, Map and their implementations, methods equals and hashCode.
12. Access modifiers, abstract classes and methods, creating and implementing interfaces, sorting, static methods and variables.
13. Creating and throwing exceptions, checked and runtime exceptions, JavaDoc, Maven.

Recommended literature:

1. ECKEL, Bruce. Thinking in Java. Fourth edition. Upper Saddle River, NJ: Prentice Hall, c[2006]. ISBN 978-01-318-7248-6.
2. PECINOVSKÝ, Rudolf. OOP: naučte se myslet a programovat objektově. Brno: Computer Press, 2010. ISBN 978-80-251-2126-9.
3. SIERRA, Kathy a Bert BATES. Head first Java. Vyd. 2. Sebastopol: O´Reilly, 2005. ISBN 978-05-960-0920-5.

Course language:
Slovak language, english language is required only to read Java API documentation.

Notes:

Course assessment
Total number of assessed students: 897

A	B	C	D	E	FX
16.05	8.7	11.71	18.28	14.05	31.22

Provides: RNDr. Juraj Šebej, PhD., RNDr. Miroslav Opiela, PhD., RNDr. Zoltán Szoplák, RNDr. Viktor Pristaš, doc. RNDr. Ondrej Krídlo, PhD., RNDr. Richard Staňa, Mgr. Viktor Olejár

Date of last modification: 04.01.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 870

A	B	C	D	E	FX
37.47	21.15	15.98	12.41	11.26	1.72

Provides: doc. Mgr. Gabriel Baník, PhD.

Date of last modification: 24.06.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

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

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

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

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 230

A	B	C	D	E	FX
41.74	25.22	26.52	4.78	1.3	0.43

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 12.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/RKS/14	**Course name:** Resolving Conflict Situations in Educational Practice
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: 3., 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 179	

abs	n
94.41	5.59

Provides: PhDr. Anna Janovská, PhD.	
Date of last modification: 27.05.2024	
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 325

A	B	C	D	E	FX
45.23	29.85	14.46	6.46	3.38	0.62

Provides: PaedDr. Michal Novocký, PhD.

Date of last modification: 14.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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: 62

abs	n
9.68	90.32

Provides: Mgr. Agata Dorota Horbacz, PhD.

Date of last modification: 29.03.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KF/ VKFV/07	**Course name:** Selected Topics in Philosophy of Education (General Introduction)

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 33

A	B	C	D	E	FX
66.67	18.18	12.12	3.03	0.0	0.0

Provides: PhDr. Dušan Hruška, PhD.

Date of last modification: 13.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ VEM/22	**Course name:** Selected topics in elementary mathematics

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: 5.

Course level: I.

Prerequisities: ÚMV/MAN2c/22

Conditions for course completion:
During the term, each student receives marks for two written exams. Final marking is assigned based on the overall points for the work throughout the term, for homework and their presentation. Marking classification: A:91%-100%, B:81%-90%, C:71%-80%, D:61%-70%, E:51%-60%, FX:0%-50%

Learning outcomes:
Obtain knowledge about the structure of elementary mathematics with respect to advanced mathematics; the development of mathematical skills of prospective teachers. The student will
1. familiarise themselves with mathematical culture, ways of thinking, self-expression and putting forward arguments,
2. gain a deeper understanding of the base terminology of real analysis, their properties and interconnections,
3. be able to define and interpret key terms, prove their basic properties and relationships,
4. know how to solve tasks focused on utilising the aforementioned concepts and interpret the obtained results.

Brief outline of the course:
Theory of Equations and Inequalities, Solving Higher Order Polynomials, The Role of CAS systems in Solving Equations and Inequalities,
Building the Real Number System, Rational and Irrational Numbers, Farey Sequences, Review of Geometric Series: Preparation for Decimal Representation, Decimal Expansion, Decimal Periodicity, Building the Complex Numbers, Operating on the Complex Numbers, Picturing Complex Numbers and Connections to Transformation Geometry, The Polar Form of Complex Numbers and De Moivre's Theorem, Some Connections to Roots of Polynomials, Euler's Identity and the Irrationality of e,
Functions and Modeling, Ways of Representing Functions, Solutions of Cubic Equations Using Trigonometry

Recommended literature:
J. Doboš: Rovnice a nerovnice, Bolchazy-Carducci Publ., 2003.
W.W. Esty: The language of mathematics, Montana State University, 2007.
F. Klein: Elementary Mathematics from an Advanced Standpoint, Dower Publications, 1945.

F. Kuřina, Z. Půlpán: Podivuhodný svět elementární matematiky, Academia, Praha, 2006.
P. Vrábel: Heuristika a metodológia matematiky, Nitra, 2005.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 58

A	B	C	D	E	FX
6.9	27.59	13.79	24.14	27.59	0.0

Provides: prof. RNDr. Jozef Doboš, CSc.

Date of last modification: 25.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/ECo-C2/14	**Course name:** Self Marketing ECo-C2

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: 4

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

Course level: I.

Prerequisities:

Conditions for course completion:
1. Active participation in lessons (absence is allowed max. 90 min.), 2. Realization of assignments according to the teacher's instructions.
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 is able to understand and explain the basic assumptions of good self-marketing, knows the possibilities for the correct presentation of his own person and understands the related knowledge and principles of personal and communication area. He / she can understand his / her competencies, his / her goals, how to make his / her strengths visible and he / she can apply this knowledge and social and professional skills in the personal and professional sphere of his / her life, which will also improve his / her employment opportunities.

Brief outline of the course:
What is marketing? (Marketing - Mix)
Basics of self-marketing (Personal opinion is crucial, Goal setting, Proper use of opportunity)
Me and my influence (What can I offer? What does he / she have unlike me? How do others see me? Ability to defend one's own opinion, Think positively!, I know how to explore myself - what options do I have?),
Competence (Have your own opinion, How to withstand criticism, Be a team player, Competence at work),
Draw attention to yourself (Voice and word selection, Active in meetings, Present yourself successfully).

Recommended literature:
VÝROST, Jozef - SLAMĚNÍK, Ivan. Sociální psychologie. 2., přepr. a rozš. vyd. Praha : GRADA, 2008. 408 s.
VÝROST, Jozef - SLAMĚNÍK, Ivan. Aplikovaná sociální psychologie I : Člověk a sociální instituce. 1. vyd. Praha : Portál, 1998. 384 s. ISBN 80-7178-269-6.
KOMÁRKOVÁ, Růžena - SLAMĚNÍK, Ivan - VÝROST, Jozef. Aplikovaná sociální psychologie III : Sociálněpsychologický výcvik. 1. vyd. Praha : Grada Publishing, 2001. 224 s.

VÝROST, Jozef - SLAMĚNÍK, Ivan. Aplikovaná sociální psychologie II. 1. vyd. Praha : Grada Publishing, 2001. 260 s.

Course language:
slovak

Notes:
After passing the certification exams from all 4 modules (Teamwork, Selfmarketing, Conflict Management, Communication) the student will receive an ECo-C card and an ECo-C certificate.

Course assessment
Total number of assessed students: 171

abs	n
90.64	9.36

Provides: Mgr. Ondrej Kalina, PhD.

Date of last modification: 12.09.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚMV/ SMK/17	**Course name:** Seminar to mathematical clubs

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: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Conditions for continuous evaluation:
1. Participation in teaching in accordance with the study rules and instructions of the teacher.
2. Activity.
3. Homework and written tests.
4. Seminar work and its presentation at the seminar - plan the selected topic for one math circle
Conditions for successful completion of the course:
1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;
2. Credits will be awarded to a student who scores at least 50% on homework assignments, at least 50% on written tests, and at least 50% on a seminar work. A grade of A requires at least 90%, a grade of B requires at least 80%, a grade of C requires at least 70%, a grade of D requires at least 60%, and a grade of E requires at least 50%.

Learning outcomes:
While solving homework, the student will become familiar with different types of problems from mathematical competitions and demonstrate the ability to solve them with the mathematical apparatus of the student for whom the problem is intended.
While solving problems in written tests, the student will gain proficiency in solving problems from mathematical competitions such as Pythagorean and Mathematical Kangaroo.
The student will demonstrate in the seminar work that he/she can prepare the content of a mathematics circle that are motivating for his/her students.

Brief outline of the course:
The content is focuses on solving problems from mathematical competitions, and on familiarization with activities that will be motivating and fun for pupils and will develop their mathematical thinking
Students will also learn about the structure of mathematical competitions for middle and high school students and will be theoretically prepared for guiding mathematics circle.
The seminars focus on the following topics:
Number theory.
Equations, inequalities, inequalities.

Word problems.
Planimetry.
Stereometry.
Combinatorics. Dirichlet principle. Combinatorial geometry. Probability.
Mathematical games.

Recommended literature:
Acheson, D.: 1089 a další parádní čísla, Dokořán, 2006. (in czech)
Brožúry z edície Škola mladých matematikov. (in slovak)
Séria brožúr: XY. ročník matematickej olympiády. (in slovak)
Ziegler, G.M.: Matematika Vám to spočítá, Universum, Praha, 2011. (in czech)
Zhouf, J. a kol.: Matematické příběhy z korespondenčních seminářu, Prometheus, Praha, 2006. (in czech)

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 149

A	B	C	D	E	FX
57.05	21.48	11.41	6.71	3.36	0.0

Provides: doc. RNDr. Ingrid Semanišinová, PhD.

Date of last modification: 18.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

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

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

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

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

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

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

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 201

A	B	C	D	E	FX
60.7	20.9	10.95	4.48	1.49	1.49

Provides: Mgr. Ján Ruman, PhD.

Date of last modification: 13.04.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
Active participation in class and completed homework assignments. Students are allowed to miss 2 classes at the most (2x90 min.). 1 control tests during the semester and written assignments. Final grade will be calculated as follows: A 93-100 %, B 86-92%, C 79-85%, D 72-78%, E 65-71%, FX 64 % and less.

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

Brief outline of the course:

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

Course language:
German

Notes:

Course assessment
Total number of assessed students: 149

A	B	C	D	E	FX
24.16	23.49	24.16	20.13	7.38	0.67

Provides: Mgr. Ulrika Strömplová, PhD.

Date of last modification: 09.02.2023

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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., 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:
The Institute of physical education and sport at the Pavol Jozef Šafárik University offers 20 sports activities aerobics; aikido, basketball, badminton, body-balance, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, fitness, indoor football, SM system, step aerobics, table tennis, chess, volleyball, tabata, cycling.
Additionally, the Institute of physical education and sport at the Pavol Jozef Šafárik University offers winter courses (ski course, survival) and summer courses (aerobics by the sea, rafting on the Tisza River) with an attractive programme, sports competitions with national and 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: 15203

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
86.07	0.07	0.0	0.0	0.0	0.05	8.67	5.15

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

Date of last modification: 07.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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., 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:
Brief outline of the course:
The Institute of physical education and sport at the Pavol Jozef Šafárik University offers 20 sports activities aerobics; aikido, basketball, badminton, body-balance, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, fitness, indoor football, SM system, step aerobics, table tennis, chess, volleyball, tabata, cycling.
Additionally, the Institute of physical education and sport at the Pavol Jozef Šafárik University offers winter courses (ski course, survival) and summer courses (aerobics by the sea, rafting on the Tisza River) with an attractive programme, sports competitions with national and 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: 13788

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
83.84	0.49	0.01	0.0	0.0	0.04	11.18	4.43

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

Date of last modification: 07.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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., 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:
The Institute of physical education and sport at the Pavol Jozef Šafárik University offers 20 sports activities aerobics; aikido, basketball, badminton, body-balance, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, fitness, indoor football, SM system, step aerobics, table tennis, chess, volleyball, tabata, cycling.
Additionally, the Institute of physical education and sport at the Pavol Jozef Šafárik University offers winter courses (ski course, survival) and summer courses (aerobics by the sea, rafting on the Tisza River) with an attractive programme, sports competitions with national and 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: 9104

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.38	0.07	0.01	0.0	0.0	0.02	4.46	7.06

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

Date of last modification: 07.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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., 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:
The Institute of physical education and sport at the Pavol Jozef Šafárik University offers 20 sports activities aerobics; aikido, basketball, badminton, body-balance, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, fitness, indoor football, SM system, step aerobics, table tennis, chess, volleyball, tabata, cycling.
Additionally, the Institute of physical education and sport at the Pavol Jozef Šafárik University offers winter courses (ski course, survival) and summer courses (aerobics by the sea, rafting on the Tisza River) with an attractive programme, sports competitions with national and 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: 5839

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
82.51	0.27	0.03	0.0	0.0	0.0	8.25	8.92

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

Date of last modification: 07.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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: 31

abs	n
100.0	0.0

Provides:
Date of last modification: 30.11.2021
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ SVK/10	**Course name:** Students 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:
Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.

Brief outline of the course:

Recommended literature:
With respect to the research problematics (article in journals, books).

Course language:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 24

abs	n
100.0	0.0

Provides:

Date of last modification: 01.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

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

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

Number of ECTS credits: 2

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

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

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

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

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

Recommended literature:

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

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 163

A	B	C	D	E	FX
69.33	4.29	4.29	0.0	22.09	0.0

Provides: doc. RNDr. Jozef Hanč, PhD.

Date of last modification: 26.01.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

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: 232

abs	n
36.64	63.36

Provides: Mgr. Dávid Kaško, PhD.

Date of last modification: 29.03.2022

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ SSU/15	**Course name:** Teachers´ Support Groups

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: 6.

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: 59

A	B	C	D	E	FX
88.14	10.17	0.0	0.0	0.0	1.69

Provides: doc. PaedDr. Renáta Orosová, PhD., Mgr. Zuzana Vagaská, PhD.

Date of last modification: 12.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/ECo-C1/14	**Course name:** Team Work ECo-C1
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: 4	
Recommended semester/trimester of the course: 4., 6.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 142	

abs	n
97.89	2.11

Provides: PhDr. Anna Janovská, PhD.
Date of last modification: 14.09.2024
Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 2

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

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 678

A	B	C	D	E	FX
45.13	30.24	16.08	4.72	1.92	1.92

Provides: Mgr. Katarína Petríková, PhD., Mgr. Beáta Sakalová, PhD.

Date of last modification: 12.03.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ ZOG1/03	**Course name:** Zoogeography

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

Number of ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:
Active participation in seminars.
Preparation of oral presentation to a selected topic.
Completion of two semestral written examinations.
Oral examination.

Learning outcomes:
The main goal of the subject is to get knowledge on the basic reasons of recent distribution of the animals on the Earth, zoogeographic regionalization of the Earth´s surface and human influence on the faunal distribution in the history.

Brief outline of the course:
This course will review our current understanding of the patterns of animal distribution and the processes that influence distributions of species and their attributes. Zoogeography will integrate information on the historical and current ecology, genetics, and physiology of animals and their interaction with environmental processes (continental drift, climate) in regulating geographic distributions. The course will emphasize descriptive and analytical approaches useful in hypothesis testing in zoogeography and will illustrate applied aspects of zoogeography (e.g. refuge design in conservation).

Recommended literature:
Buchar, J., 1983: Zoogeografie. SPN Praha
Darlington, P.J., 1998: Zoogeography: The geographical distribution of animals. Krieger, USA
Lomolino M.V., Brown J.H., Riddle B. R., 2005: Biogeography. Sinauer Associates, 1-845
Plesník, P., Zatkalík, F., 1996: Biogeografia. Vysokoškolské skriptá, PríFUK Bratislava

Course language:

Notes:

Course assessment
Total number of assessed students: 1021

A	B	C	D	E	FX
25.17	23.41	23.41	18.61	7.74	1.67

Provides: prof. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 10.12.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ZO1/15	**Course name:** Zoology I

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:
The condition for passing the course is active participation in mandatory exercises, completion of all interim assessments during the exercises and successful completion of 3 interim tests on topics currently covered in lectures.
Continuous evaluations during the exercises are: a test on zoological terms and determination of animals according to the picture. To successfully complete the exercises, students must obtain at least 28 out of a maximum of 40 points.
Mid-term tests from the lectures will be written using the Moodle environment. There are no correction dates for these tests. Students earn points for each test.
The final grade for the subject is determined by adding up the points from the exercises and the points from the tests within lecture topics, with the points from the exercises making up 40% and the points from the tests making up 60% of the final grade.
Continuous evaluations during the exercises are: a test on zoological terms (know how to define selected terms; the list is published at the beginning of the semester), determnation of animals according to the picture (assign the Slovak and scientific genus and species name and classify them into a class or series; the list of animals is published at the beginning semester, the students' task is to find the correct animal pictures for the names and learn to name the animal according to the picture). Students have one correction period for the test of terms and one of animal determination. All interim assessments are scored.
In addition to the points from the exercises, the points obtained for the 3 mid-term tests from the content of the teached topics will also be reflected in the final grade for the subject. Test dates will be announced at the first lecture and will also be listed in the Moodle course for the subject. For tests, taxonomic classification needs to be controlled to the level of classes, for insects to the level of orders.
By adding up all the points from the interim evaluation within the exercises and tests from the previous lectures, the final grade for the subject is determined.
Point limits for individual grades:
A - 100.0-93.0 points
B - 92.9-86.0 points
C - 85.9-79.0 points
D - 78.9-72.0 points

E - 71.9-65.0 points
FX - less than 65 points

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

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

Recommended literature:

Course language:

Notes:
If necessary, students have the opportunity to consult with the lecturer. The exact date has not been set. Consultations must be arranged individually with the lecturer at the email address peter.luptacik@upjs.sk.

Course assessment
Total number of assessed students: 328

A	B	C	D	E	FX
9.15	18.9	22.56	25.0	16.77	7.62

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

Date of last modification: 21.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ZO1/03	**Course name:** Zoology I

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:
The condition for passing the subject is active participation in mandatory exercises, completion of all interim assessments during the exercises and successful completion of the final exam.
After successfully completing the exercises, students proceed to the final exam, bringing with them points from the exercises that make up 40% of the final grade. Students receive 60% of the final grade from the final oral exam.
Continuous evaluations during the exercises are: a test on zoological terms (knowing how to define selected terms; the list is published at the beginning of the semester), recognizing animals according to the picture (assign the Slovak and scientific genus and species name to the depicted animal and classify it into a class or series; the list of animals is published at the beginning of the semester, the students' task is to find the correct animal pictures for the names and learn to name the animal according to the picture). Students have one correction period for the paper and animal knowledge. All interim assessments are scored. The maximum number of points from the exercises is 40, while the student must obtain at least 28 points to pass the exercises.
If students get less than 28 points from the interim evaluations in the exercises, they have not completed the exercises and must enroll in the subject again in the next academic year. If the students get at least 28 points, they have successfully completed the exercises and can register for the final exam, bringing with them the points from the exercises, which make up 40% of the final grade.
The exam is always oral. Specific exam dates will be posted in AIS2 at the end of the semester. More detailed information on the types of questions on the exam is published in the Moodle course for the subject. Students get 60% of the final grade from the exam.
Point limits for individual grades:
A - 100.0-93.0 points
B - 92.9-86.0 points
C - 85.9-79.0 points
D - 78.9-72.0 points
E - 71.9-65.0 points
FX - less than 65 points

Learning outcomes:

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

Brief outline of the course:

1. Fundamentals of the history of zoology.

System, anatomy, morphology, development, phylogenetic relationships and exemplary species of selected groups of invertebrates:

2. Porifera, Cnidaria, Ctenophora
3. Platyhelminthes, Rotifera, Acantocephala
4. Entoprocta, Ectoprocta, Cycliophora
5. Mollusca, Annelida
6. Nematode, Onychophora, Tardigrad
7. Arthropoda - Chelicerata
8. Arthropoda - Myriapoda
9. Arthropoda - Crustacea (Branchiata)
10. Arthropoda - Hexapoda / Entogantha
11. Arthropoda - Hexapoda / Insecta Heterometabola
12. Arthropoda - Hexapoda / Insecta Holometabola
13. Deusterostomia - Echinodermata

Recommended literature:

Course language:

Notes:

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

Course assessment

Total number of assessed students: 1311

A	B	C	D	E	FX
8.47	16.4	22.12	21.82	23.11	8.09

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

Date of last modification: 21.02.2024

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 4

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:

Learning outcomes:
Fundamental information on taxonomy and morphology of vertebrates

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 273

A	B	C	D	E	FX
1.47	19.41	30.77	18.68	18.68	10.99

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

Date of last modification: 20.09.2021

Approved: doc. RNDr. Stanislav Lukáč, PhD., doc. RNDr. Peter Pristaš, CSc., univerzitný profesor

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of ECTS credits: 5

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚBEV/PMZ/10

Conditions for course completion:

Learning outcomes:
Fundamental information on taxonomy and morphology of vertebrates

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1167

A	B	C	D	E	FX
22.02	28.96	18.94	15.0	9.34	5.74

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

Date of last modification: 20.09.2021
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