# CONTENT

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 2

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

**Course level:** I., II., N

**Prerequisities:**

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

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

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

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

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

**Notes:**

**Course assessment**
Total number of assessed students: 400

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

**Provides:** Mgr. Viktória Mária Slovenská

**Date of last modification:** 19.09.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ANCHU/03 | **Course name:** Analytical Chemistry |
|---|---|

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

**Number of ECTS credits:** 6

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Examination.
3x test of analytical calculations.

**Learning outcomes:**
Survey of basic principles and tasks of analytical chemistry and applications of analytical methods in research and practice.

**Brief outline of the course:**
Subject and role of analytical chemistry. General principles and procedures - sampling, sample pre-treatment. Preparation of solutions. Evaluation of the results.
Classification of analytical reactions. Qualitative analysis of cations and anions.
Methods of quantitative analysis. General principles of gravimetry. Volumetric analysis.
Instrumental methods of analytical chemistry (basic principles, instrumentation and applications) - electroanalytical, optical and separation methods. Methods of thermal analysis.

**Recommended literature:**
D.Harvey, Modern Analytical Chemistry. McGraw Hill, Boston, 2000.
Skoog D.A., Principles of Instrumental Analysis. Saunders Col. Publishing, New York 1985.

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 709

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 17.21 | 19.32 | 25.11 | 25.11 | 9.59 | 3.67 |

**Provides:** doc. RNDr. Taťána Gondová, CSc.

**Date of last modification:** 08.11.2021

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 7

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

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

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

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

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1550

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

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

**Date of last modification:** 21.10.2021

**Approved:**

## COURSE INFORMATION LETTER

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|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚBEV/ SBPa/15 | **Course name:** Bachelor Thesis Seminar |
| **Course type, scope and the method:**<br>**Course type:**<br>**Recommended course-load (hours):**<br>**Per week: Per study period:**<br>**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**<br>Total number of assessed students: 181 | |

| abs | n |
|---|---|
| 99.45 | 0.55 |

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| **Provides:** |
| **Date of last modification:** |
| **Approved:** |

## COURSE INFORMATION LETTER

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|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚBEV/ SBPb/15 | **Course name:** Bachelor Thesis Seminar |
| **Course type, scope and the method:**<br>**Course type:**<br>**Recommended course-load (hours):**<br>**Per week: Per study period:**<br>**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**<br>Total number of assessed students: 178 | |

| abs | n |
|---|---|
| 95.51 | 4.49 |

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|---|
| **Provides:** |
| **Date of last modification:** |
| **Approved:** |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 4

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**

**Learning outcomes:**

**Brief outline of the course:**

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 344

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

**Provides:**

**Date of last modification:** 07.12.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚMV/ SMP/10 | **Course name:** Basic statistics for sciences |
|---|---|

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

**Number of ECTS credits:** 3

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Given on the basis of individual working out of a data evaluation project.

**Learning outcomes:**
Understanding basics of descriptive statistics used in sciences.

**Brief outline of the course:**
• Data types. Frequencies.
• Measures of location and variability. Quantiles.
• Basic probability distributions.
• Point and interval estimators.
• Testing of basic statistical hypotheses. Power of tests.
• Nonparametric tests.
• Measuring the strength of a dependence.
• Fundamentals of regression.

**Recommended literature:**
• Wonnacott, Wonnacott: Introductory Statistics, 5th ed., Wiley 1990
or any other basic statistics textbook.

**Course language:**
Slovak

**Notes:**

**Course assessment**
Total number of assessed students: 152

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 7.24 | 10.53 | 13.16 | 18.42 | 36.18 | 14.47 |

**Provides:** prof. RNDr. Ivan Žežula, CSc.

**Date of last modification:** 28.03.2022

**Approved:**

## COURSE INFORMATION LETTER

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

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

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

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

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

**Brief outline of the course:**
Basic terms and definitions, origin of minerals in nature. Basis of morphological and structural crystallography: characteristic properties of crystals, crystallographic laws, crystal structure, unit cells and their parameters, crystallographic systems with examples of minerals. Crystallochemistry: types of bonds and structures and their effect on the properties of minerals. Physical properties of minerals and their utilize in minerals classification. Basis of genetic and systematic mineralogy. Structure of silicates.

**Recommended literature:**
M. Košuth: Mineralógia. Elfa, s.r.o. Košice, 2001
V. Radzo: Mineralógia, Alfa Bratislava, 1987.

**Course language:**
Slovak

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

**Course assessment**
Total number of assessed students: 135

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

**Provides:** doc. RNDr. Ivan Potočňák, PhD.

**Date of last modification:** 21.07.2022

**Approved:**

**COURSE INFORMATION LETTER**

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|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚCHV/ BCHU/03 | **Course name:** Biochemistry |

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 5.

**Course level:** I.

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

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

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

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

**Recommended literature:**

**Course language:**

**Notes:**

| **Course assessment**<br>Total number of assessed students: 1265 | | | | | |
|---|---|---|---|---|---|
| A | B | C | D | E | FX |
| 19.6 | 16.84 | 20.79 | 20.47 | 19.53 | 2.77 |
| **Provides:** doc. RNDr. Erik Sedlák, DrSc., RNDr. Nataša Tomášková, PhD. | | | | | |
| **Date of last modification:** 14.11.2021 | | | | | |
| **Approved:** | | | | | |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ PBCHU/03 | **Course name:** Biochemistry Practical |
|---|---|

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

**Prerequisities:** ÚCHV/BCHU/03

**Conditions for course completion:**
Active participation with a maximum of one excused absence without the need for compensation. In case of excused absence from two or more practical exercises (e.g. due to illness), the student agrees with the teacher on alternative dates for practice.
Correctly prepared protocols from all completed tasks.
At least 51% of points from each of the written tests.

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

**Brief outline of the course:**
1. Biochemistry laboratory safety rules. Basic biochemical laboratory procedures.
2. Qualitative tests for amino acids and proteins.
3. Isolation of casein from milk. Determination of protein concentration by Lowry method.
4. Determination of the iodine number by Yasud method . Soap production. Reactions with soap. Oxidation of unsaturated fatty acids.
5. Saponification number of fats and oils. Qualitative test for cholesterol: Salkowsky reaction.
6. Qualitative tests for carbohydrates. Determination of reducing carbohydrates by the Schoorl's method.
7.Determination of reducing and nonreducing carbohydrates in germinant plants.
8. Time-dependent course of enzyme-catalyzed reaction: digestion of gelatin by trypsine.
9. Determination of catalase activity and the first order rate constant. Effect of pH on alpha-amylase activity.
10. Effect of substrate concentration on initial rate of reaction, determination of Km and Vmax for urease-catalyzed hydrolysis of urea.
11. Isolation of DNA from spleen. Isolation of RNA from yeast. Qualitative tests for DNA and RNA components.
12. Determination of vitamin C concentration by 2,4-dinitrofenylhydrazine. Determination of vitamins A, B1, and C.

13. Final evaluation of students.

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

**Course language:**
Slovak

**Notes:**
Teaching is carried out in person.

**Course assessment**
Total number of assessed students: 287

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 57.49 | 24.04 | 13.24 | 2.44 | 2.09 | 0.7 |

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

**Date of last modification:** 19.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ BAC1/04 | **Course name:** Bioinorganic Chemistry I |
|---|---|

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 5.

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

**Prerequisities:**

**Conditions for course completion:**
Test or seminar works
examination

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

**Brief outline of the course:**
Metalic and non-metalic elements and their roles in biological systems (biometals, bulk biological elements, essential trace elements). Biocoordination compounds, bioligands. Biocatalyzers. Oxygen carriers and oxygen transport proteins. Photochemical process. Catalysis and regulation processes. Calcium biominerals and biomineralization.Toxic metals. Application of knowledge of bioinorganic chemistry in pharmacy, chemotherapy (e.g. platinum complexes in cancer therapy) radiodiagnostics, mineral biotechnology, ecology and in other branches of life.

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 350

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

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

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| **Date of last modification:** 28.10.2021 |
| **Approved:** |

## 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., 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: 1863

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

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

**Date of last modification:** 05.11.2021

**Approved:**

## 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:** 4., 6.

**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: 1520

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

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

**Date of last modification:** 29.10.2021

**Approved:**

**COURSE INFORMATION LETTER**

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚGE/ KAG/15 | **Course name:** Cartography and Geoinformatics |

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

**Number of ECTS credits:** 5

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
During the semester it is necessary to pass out the work outputs from the exercises. The knowledge gained on the exercises will be verified by continuous written examinations. The number of work outputs and written examinations will be announced at the beginning of the semester. It is possible to obtain 30% of the assessment criteria for the exercise (work outputs and written examinations). The final evaluation of the exercises is determined by the instructor of the subject based on the completion of tasks in the exercises during the semester. The final evaluation of the study subject is based on the combination of the evaluation conditions from the exercise and the final exam. The final exam may be enrolled by a student who has fulfilled the requirements for attending the exercises and who achieves a raiting of at least minimum 16 % in evaluation in exercises. The final assessment is the weighted average of the exercise assessment (30 %) and the final exam (70 %). Credits are awarded only to a student who achieves rating at least at the grade level of E, i.e. he achieves the raiting of at least 51 %. Credits will not be awarded to a student who does not meet the requirements of the exercise and the exam is rated FX. Rating scale: A (100-91%), B (81-90%,) C (71-80%), D (61-70%), E (51-60%).

**Learning outcomes:**
The main learning outcomes include theoretical and practical skills in cartography and geoinformatics. Students understand cartographic and GIS terminology, students can apply cartographic approaches and methods using GIS, projections and define the content and composition of maps in GIS. The student masters the design, use and evaluation of the properties of cartographic representations in various geoinformatics applications.

**Brief outline of the course:**
Cartography - the branch of science, position in the system of sciences, the history of cartography, topographic mapping in Slovakia; Cartographic projects, cartographic interpretation; Description maps, geographical names, cartographic generalization, State map series; Cartometry and morphometry; Mathematical cartography (reference area map projection and distortion).
Geoinformatics – the branch of science, elements of GIS, digital representation of landscape, raster and vector data, data collection and processing data for GIS, geospatial database, visualization and cartographic representation using GIS, applications of GIS.

**Recommended literature:**

HOFIERKA, J., J. KAŇUK, M. GALLAY, 2014. Geoinformatika. Košice: Univerzita Pavla Jozefa Šafárika v Košiciach. ISBN 978-80-8152-178-2.
HOJOVEC, V. et al., 1987. Kartografie. Praha: Geodetický a kartografický podnik v Praze. ISBN 29-621-87.
LONGLEY, P.A., M. GOODCHILD, D. J. MAGUIRE, D. W. RHIND, 2010. Geographic Information Systems and Science. 3rd ed. Hoboken: Wiley & Sons, ISBN 978-0-470-72144-5.
PRAVDA, J., D. KUSENDOVÁ, 2004. Počítačová tvorba tematických máp. Bratislava: Univerzita Komenského v Bratislave. ISBN 80-223-2011-0.
ROBINSON, A. H. et al., 1995. Elements of Cartography. 6th ed. Hoboken: Wiley & Sons. ISBN 0-471-55579-7.
VOŽENÍLEK, V. et al., 2011. Metody tematické kartografie - Vizualizace prostorových jevů. Olomouc: Univerzita Palackého v Olomouci. ISBN 978-80-24427-90-4.

**Course language:**
Slovak

**Notes:**
withot notes

**Course assessment**
Total number of assessed students: 425

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 15.29 | 21.65 | 20.94 | 19.29 | 18.12 | 4.71 |

**Provides:** doc. RNDr. Ján Kaňuk, PhD., Mgr. Patrícia Gurová, Mgr. Ondrej Tokarčík

**Date of last modification:** 28.09.2020

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Successful completion of two written tests in the middle and at the end of the semester. Accomplished test is with minimal 50% of point. The exact dates will be determined after mutual consultation between the teacher and the students.
The rating scale is determined as follows: A (100-91%), B (90-81%), C (80-71%), D (70-61%), E (60-51%), Fx (50- 0%).

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

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

**Recommended literature:**
Potočňák I.: Chemické výpočty vo všeobecnej a anorganickej chémii (skriptum), PF UPJŠ, Košice, 2017.
https://unibook.upjs.sk/sk/chemia/843-chemicke-vypocty-vo-vseobecnej-a-anorganickej-chemii
Any chemical laboratory tables.

**Course language:**
SK - slovak

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

**Course assessment**
Total number of assessed students: 1623

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

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

**Date of last modification:** 15.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

**Course level:** I., II., N

**Prerequisities:**

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

**Learning outcomes:**

**Brief outline of the course:**

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

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

**Notes:**

**Course assessment**
Total number of assessed students: 289

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

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

**Date of last modification:** 12.02.2023

| **Approved:** |
| --- |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

**Course level:** I., II., N

**Prerequisities:**

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

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

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

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

**Course language:**

English language, level B2 according to CEFR.

**Notes:**

**Course assessment**
Total number of assessed students: 432

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

**Provides:** Mgr. Lenka Klimčáková

**Date of last modification:** 13.09.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

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

**Course language:**
German, Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 56

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

**Provides:** Mgr. Ulrika Strömplová, PhD.

**Date of last modification:** 12.07.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 4

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

**Course level:** I.

**Prerequisities:**

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

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

**Brief outline of the course:**

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

**Course language:**

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

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

**Course assessment**

Total number of assessed students: 2145

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

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

**Date of last modification:** 19.10.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/OPR/12 | **Course name:** Conservation Biology |
|---|---|

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

**Number of ECTS credits:** 3

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

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

**Prerequisities:**

**Conditions for course completion:**
Mandatory participation in lectures, completion of two semestral written examinations, oral examination.

**Learning outcomes:**
The main goal of the subject is to introduce term biodiversity, principal threats and conservation of species, populations, communities and ecosystems.

**Brief outline of the course:**
Fundamental and origin of conservation biology. Different levels of biodiversity, biodiversity hotspots on Earth. Economic value of biodiversity as the principal argument of nature conservation. Factors leading to biodiversity threats. Extinctions and problems of small populations. Conservation of populations and species, conservation programs and strategies. Classification and management of protected areas, conservation outside the protected areas. Sustainable development, education to conservation of nature.

**Recommended literature:**
Primack R.B., 2010: Essentials of conservation biology. Sinauer Associates, 1-603

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 770

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 74.03 | 15.45 | 6.62 | 2.73 | 0.52 | 0.65 |

**Provides:** prof. RNDr. Ľubomír Kováč, CSc.

**Date of last modification:** 14.12.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 6

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

**Course level:** I.

**Prerequisities:**

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

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 946

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

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

**Date of last modification:** 08.09.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

**Recommended semester/trimester of the course:** 4.

**Course level:** I.

**Prerequisities:**

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

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

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

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

**Recommended literature:**

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

**Course language:**

English, level B2 (CEFR)

**Notes:**

**Course assessment**

Total number of assessed students: 3056

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

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

**Date of last modification:** 05.02.2023

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/TCE1/20 | **Course name:** Field course in Ecology I. |
|---|---|

**Course type, scope and the method:**
**Course type:** Lecture / Practice
**Recommended course-load (hours):**
**Per week:** 0 **Per study period:** 0 / 5d
**Course method:** present

**Number of ECTS credits:** 3

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Evaluation: Presentation of the own project, its results and their interpretation

**Learning outcomes:**
Acquisition of practical knowledge in ecology of aquatic and soil environment with special reference to selected model group of animals or plants. Practical skills in monitoring methods of populations, fundamental methods of ecological research in field. Evaluation of own results, and/or results of other supportive monitoring based on literature data. Basic practical skills in Conservation Biology.

**Brief outline of the course:**
Work in small groups on selected project in field conditions based on theoretical knowledge and practical skills gained in practical excercises of courses of applied ecology and other field courses.

**Recommended literature:**
Begon, M., Townsend, C.R., Harper, J.L., 2006: Ecology: from individuals to ecosystems. 3rd edition, Blackwell, 1–738.
Krebs, C. J., 2013: Ecology. The experimental analysis of distribution and abundance. 6th edition. Pearson Education, 1–646.

**Course language:**
Slovak or English language.

**Notes:**

**Course assessment**
Total number of assessed students: 0

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

**Provides:** doc. RNDr. Andrej Mock, PhD.

**Date of last modification:** 21.02.2020

**Approved:**

## 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:** 6.

**Course level:** I.

**Prerequisities:**

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

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1086

| abs | n |
|---|---|
| 99.45 | 0.55 |

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

**Date of last modification:** 07.04.2023

| **Approved:** |
| --- |

## 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:** 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: 1411

| abs | n |
|---|---|
| 99.93 | 0.07 |

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

**Date of last modification:** 15.12.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚGE/ GEP2/18 | **Course name:** Fundamentals of Geology for Geographers |
|---|---|

**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:**

**Learning outcomes:**

**Brief outline of the course:**
Courses have following objectives: firstly, to introduce the current theories of processes which occur in the Earth (global tectonics, species of magmatism), secondly, to describe the rock-forming minerals, taxology of intrusive rocks, taxology of sedimentary rocks and rocks which had overcame metamorphosis, basics of the regional geology of Slovakia, basics of the historical geology and paleontology.

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1159

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 7.85 | 16.91 | 32.36 | 26.83 | 10.44 | 5.61 |

**Provides:** doc. Ing. Katarína Bónová, PhD., Ing. Ján Bóna

**Date of last modification:** 30.09.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/VeB/15 | **Course name:** General Ecology |
|---|---|

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

**Number of ECTS credits:** 4

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

**Course level:** I.

**Prerequisities:** (ÚBEV/VEK1/03 and ÚBEV/OZP1/07 and ÚGE/KRE1/03) or (ÚBEV/VEK1/03 and ÚCHV/ANCHU/03 and ÚCHV/UECH/03)

**Conditions for course completion:**

**Learning outcomes:**

**Brief outline of the course:**

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 18

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 33.33 | 27.78 | 11.11 | 27.78 | 0.0 | 0.0 |

**Provides:**

**Date of last modification:** 14.06.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/VACH/10 | **Course name:** General and Inorganic Chemistry |
|---|---|

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

**Number of ECTS credits:** 6

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

**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: 431

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 22.04 | 25.75 | 27.38 | 18.56 | 5.34 | 0.93 |

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

**Date of last modification:** 24.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 6

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

**Course level:** I.

**Prerequisities:** ÚBEV/CYT1/15

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

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

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

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

**Course language:**
Slovak

**Notes:**

**Course assessment**
Total number of assessed students: 1196

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

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

**Date of last modification:** 29.10.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/ GEE1/03 | **Course name:** Genetics |
|---|---|

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

**Number of ECTS credits:** 7

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
written tests
oral examination

**Learning outcomes:**
To provide the students with knowledge of basic genetic principles of inheritance.

**Brief outline of the course:**
Mendel´s principles of inheritance. Gene interactions. Sex-linked traits. Cytogenetics, mutations and mutagenesis. Structure and function of DNA, mRNA, tRNA and rRNA. Genetic code. Mechanism of replication, transcription and translation. Post-transcriptional and post-translational modifications. Regulation of gene expression. Genetic mechanisms at subcellular level. Genetics of bacteria. Cytogenetics and mutations. Basis of human genetics. Population genetics. Quantitative traits. Human genome project.

**Recommended literature:**
Darnell, J., Lodish, H., Baltimore, D.: Molecular Cell Biology. Scientific American, New York, 1992
Lewin, B.: Genes IV. Oxford University Press, Oxford, 1990
Loewy, A. G.,, Ciekewitz, P., Menninger, J. R., Gallant, J. A. N.: Cell Structure and Function. Saunders College Publ., Philadelphia, 1991
Russell, P. J.: Genetics. Harper Collins Publ., New York, 1992
Van Dam-Mieras, M. C. a kol.: Genome Management in Eukaryotes. Butterworth-Heinemann Ltd., Oxford, 1993

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 192

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 11.46 | 6.77 | 18.23 | 19.27 | 29.17 | 15.1 |

| |
|---|
| **Provides:** prof. RNDr. Eva Čellárová, DrSc., doc. RNDr. Katarína Bruňáková, PhD. |
| **Date of last modification:** 01.12.2020 |
| **Approved:** |

## 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:**

**Course level:** I.

**Prerequisities:** ÚBEV/CYT1/15

**Conditions for course completion:**
Oral examination

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 574

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

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

**Date of last modification:** 11.01.2022

**Approved:**

## 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:**

**Course level:** I.

**Prerequisities:**

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

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

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

13. The sensory organs

**Recommended literature:**

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

**Course language:**

**Notes:**

**Course assessment**

Total number of assessed students: 1956

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

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

**Date of last modification:** 07.09.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 3

**Recommended semester/trimester of the course:** 5.

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

**Prerequisities:**

**Conditions for course completion:**

**Learning outcomes:**

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 222

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

**Provides:** doc. RNDr. Andrej Mock, PhD.

**Date of last modification:** 18.10.2021

| **Approved:** |
| --- |

**COURSE INFORMATION LETTER**

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚCHV/ IMACHU/03 | **Course name:** Instrumental Methods of Analytical Chemistry |

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

**Number of ECTS credits:** 5

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

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Active participation in laboratory exercises and seminars; successful completion of the tests.
1. Participation in laboratory exercises is required. Assigned teacher who leads exercises justifying the student's absence (incapacity for work, family reasons, etc.) for a maximum of one exercises during the semester without substitute supplying.
2. The assigned teacher, who leads the seminar, assesses the preparation of students and their activity in seminars. For the active participation in the exercises, the student can get a maximum of 10 points.
3. Written test is obligatory (30 points). To successful completion of the exam, it is necessary to achieve at least 16 points from test.
Overall score:
Max. number of points: 50 (elaboration of protocols / assignments - 10 points; active participation in practical exercises - 10 points; written test - 30 points).
Min. number of points to successful completion of course: 26.
Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

**Learning outcomes:**
Gain knowledge of the latest instrumental methods used in analytical chemistry.

**Brief outline of the course:**
Selected lectures are focused on electrochemical, optical, separation and other methods, especially those that students may encounter in their pedagogical practice, as well as in the field of research, development and application of new materials. Classification of methods, their principles, advantages and disadvantages. Calculations of analysis results and several examples of their use in solving specific tasks.specific tasks.

**Recommended literature:**
1. J. Labuda a kol.: Analytická chémia, STU, Bratislava 2014.
2. D. Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000.
3. J. Zýka a kol.: Analytická příručka 1 a 2. ALFA –Vydavateľstvo technickej a ekonomickej literatúry, SNTL - Nakladatelství technické literatury, Praha 1980.

4. A. Košturiak P. Meľuch, A. Ninčáková: Inštrumentálne metódy v analytickej chémii. SNT, Bratislava. 5. J. Garay, D. Bustin, Z. Hladký: Analytická chémia. SNTL/Alfa. Praha 1987.

**Course language:**
Slovak

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

**Course assessment**
Total number of assessed students: 113

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 71.68 | 18.58 | 7.08 | 1.77 | 0.88 | 0.0 |

**Provides:** prof. Mgr. Vasiľ Andruch, DSc., RNDr. Jana Šandrejová, PhD.

**Date of last modification:** 15.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 3

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

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

**Prerequisities:**

**Conditions for course completion:**
oral examination

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1770

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 20.23 | 17.68 | 25.14 | 17.4 | 11.81 | 7.74 |

**Provides:** RNDr. Natália Raschmanová, PhD.

**Date of last modification:** 16.03.2023

**Approved:**

**COURSE INFORMATION LETTER**

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚCHV/ UECH/03 | **Course name:** Introduction to Environmental Chemistry |

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

**Number of ECTS credits:** 5

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

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

**Prerequisities:**

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

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

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

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

**Course language:**

**Notes:**

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

**Course assessment**

Total number of assessed students: 223

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

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

**Date of last modification:** 21.01.2022

**Approved:**

## 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:**<br>**Course type:** Lecture / Practice<br>**Recommended course-load (hours):**<br>**Per week: Per study period:** 12s / 3d<br>**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**<br>Total number of assessed students: 2012 | |

| abs | n |
|---|---|
| 88.37 | 11.63 |

| |
|---|
| **Provides:** doc. RNDr. Marián Kireš, PhD. |
| **Date of last modification:** 30.08.2022 |
| **Approved:** |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚGE/ KRE1/03 | **Course name:** Landscape ecology |
|---|---|

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

**Number of ECTS credits:** 3

**Recommended semester/trimester of the course:** 5.

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**

**Learning outcomes:**
Focus will be put on the development of this discipline, different dimensions of the physical – geographic complexes, regularities of the space differentiation of the physical – geographic sphere, evolution, and dynamics of the physical – geographic complexes.

**Brief outline of the course:**
Focus will be put on the development of this discipline, different dimensions of the physical – geographic complexes, regularities of the space differentiation of the physical – geographic sphere, evolution, and dynamics of the physical – geographic complexes.

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 192

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 7.81 | 10.94 | 18.23 | 22.92 | 38.54 | 1.56 |

**Provides:** RNDr. Dušan Barabas, CSc., doc. Mgr. Michal Gallay, PhD.

**Date of last modification:** 19.08.2020

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 5

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

**Course level:** I.

**Prerequisities:**

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

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

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

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

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

**Course language:**
Slovak

**Notes:**

**Course assessment**
Total number of assessed students: 758

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

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

**Date of last modification:** 28.10.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ GLP/12 | **Course name:** Methodology of experiment. Fundamentals. |
|---|---|

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

**Prerequisities:**

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

**Learning outcomes:**
After completing the course, the student will acquire knowledge in the area of:
statistical evaluation of the results,
interpretation of the results and methods,
the suitability of the chosen methods for analysis (or measurement),
estimation of uncertainties and validation of newly developed methods in research and laboratory practice.

**Brief outline of the course:**
Introduction and basics of statistical evaluation of experimental results.
The basic formulas used in the processing of the results of the chemical and biological experiments.
Distribution of the results of measurements, measures of central tendency and spread. Assessment of the precision, of accuracy, and reliability of the results.
Calibration in analytical chemistry.
Solving of the typical examples in the frame of the practical lectures.

**Recommended literature:**
Brereton R. G.: Chemometrics, Wiley, 2003
Harvey D.: Modern Analytical Chemistry, McGraw-Hill, 2000
J.N. Miller, J.C. Miller: Statistics and Chemometrics for Analytical Chemistry, Pearson Education Limited, 2010

**Course language:**
English language

**Notes:**

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

**Course assessment**
Total number of assessed students: 25

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 40.0 | 24.0 | 16.0 | 0.0 | 20.0 | 0.0 |

**Provides:** doc. Ing. Viera Vojteková, PhD.

**Date of last modification:** 03.08.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 5

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

**Course level:** I.

**Prerequisities:** ÚBEV/CYT1/15

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

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

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

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1464

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

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

**Date of last modification:** 10.12.2021

**Approved:**

## 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:**

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Oral examination.

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1114

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

**Provides:** doc. RNDr. Peter Pristaš, CSc.

**Date of last modification:** 03.05.2015

**Approved:**

**COURSE INFORMATION LETTER**

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚCHV/ OCHU/03 | **Course name:** Organic chemistry |

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

**Number of ECTS credits:** 6

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

**Course level:** I.

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

**Conditions for course completion:**
Two tests at lecture in 7 and 14th week. Test max 50 points. At least 25 points required. Written exam, 100 points. At least 51% of points required. Final evaluation: A 91-100 pts, B 81-90 pts, C 71-80 pts, D 61-70 pts, E 51-60 pts, FX 0-50 pts

**Learning outcomes:**
Basic organic chemistry course.

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

**Recommended literature:**
1. on-line ppt presentation in MOODLE, moodle science.upjs.sk
2. Organic chemistry, Clayden, Greeves Warren & Wothers, Oxford University Press, 2010.

3. Organic chemistry, John McMurry, Brooks/Cole, a Thomson Learning Company 2004, Sixth Eddition, ISBN 0534389996.
4. Organic chemistry, Pavol Zahradník, Mária Mečiarová, Peter Magdolen, Univerzita Komenského v Bratislave, 2019, ISBN: 978-80-223-4589-7.

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 786

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 3.18 | 7.0 | 13.23 | 23.41 | 47.58 | 5.6 |

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

**Date of last modification:** 08.09.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/POCHU/03 | **Course name:** Organic chemistry - Lab. |
|---|---|

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

**Number of ECTS credits:** 5

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

**Course level:** I.

**Prerequisities:** ÚCHV/OCHU/03

**Conditions for course completion:**
Two tests 2x25 p., twelve reports 12x2 p., laboratory skills 12 p., short quizzes and questions 14 p. A 100 p. in total.
Grades: A: 91-100pt, B: 81-90pt, C: 71-80pt, D: 61-70pt, E: 51-60pt, Fx: 0-50pt.
Based on continuous evaluation.

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 293

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 33.45 | 26.28 | 22.18 | 12.63 | 5.46 | 0.0 |

**Provides:** RNDr. Slávka Hamuľaková, PhD., RNDr. Martin Walko, PhD., doc. RNDr. Mária Vilková, PhD., doc. RNDr. Ladislav Janovec, PhD., RNDr. Ján Elečko, PhD.

**Date of last modification:** 18.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/ PAR1/03 | **Course name:** Parasitology I. |
|---|---|

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

**Number of ECTS credits:** 6

**Recommended semester/trimester of the course:** 5.

**Course level:** I., II., III.

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

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

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

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

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

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

**Course language:**
slavak, english

**Notes:**

**Course assessment**
Total number of assessed students: 475

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

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

**Date of last modification:** 17.09.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ FCHU/10 | **Course name:** Physical Chemistry |
|---|---|

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

**Number of ECTS credits:** 6

**Recommended semester/trimester of the course:** 4.

**Course level:** I.

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

**Conditions for course completion:**
Active participation in seminars. Two partial tests from computational seminars, each must be mastered at A-E. In the case of distance learning, it is necessary to prepare 2 assignments, each must be mastered at 80%.
Examination, unerstanding of three thematic areas of the subject (thermodynamics, electrochemistry, kinetics).

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

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

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

**Course language:**

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

**Course assessment**
Total number of assessed students: 324

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 32.72 | 19.75 | 14.2 | 17.9 | 12.35 | 3.09 |

| |
|---|
| **Provides:** RNDr. Andrea Morovská Turoňová, PhD., RNDr. Ján Macko, PhD., RNDr. Ivana Šišoláková, PhD. |
| **Date of last modification:** 24.11.2021 |
| **Approved:** |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚFV/ FPB/13 | **Course name:** Physics for Biologists |
|---|---|

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

**Number of ECTS credits:** 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: 895

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 14.53 | 17.21 | 26.59 | 22.68 | 17.65 | 1.34 |

**Provides:** RNDr. Gabriela Fabriciová, PhD.

**Date of last modification:** 25.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 5.

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

**Prerequisities:**

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

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

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

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

**Recommended literature:**

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

**Course language:**

**Notes:**

**Course assessment**

Total number of assessed students: 388

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

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

**Date of last modification:** 24.07.2022

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 6

**Recommended semester/trimester of the course:** 4.

**Course level:** I.

**Prerequisities:** ÚBEV/VB1/01

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

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

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

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

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1921

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

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

**Date of last modification:** 28.07.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 4

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

**Course level:** I.

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

**Conditions for course completion:**

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

**Brief outline of the course:**
The utilization of common laboratory techniques for preparation of elements (H2, O2, Cu, Ni), oxides(CO2, Al2O3·xH2O), nitrides(Mg3N2), acids (HNO3, H3BO3), salts((NH4)2SO4, KMnO4), binary salts(NH4)Fe(SO4)2·12H2O), halides (CuCl, CuCl2·2H2O, CuBr2) and coordination compounds [Cu(NH3)4]SO4·H2O, K3[Al(C2O4)3]·3H2O).

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

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 623

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

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

**Date of last modification:** 22.07.2022

| **Approved:** |
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## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ PAEC/03 | **Course name:** Practical in Analytical Chemistry |
|---|---|

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

**Number of ECTS credits:** 4

**Recommended semester/trimester of the course:** 4.

**Course level:** I.

**Prerequisities:**

**Conditions for course completion:**
Active participation in laboratory exercises and seminars; successful completion of the tests.
1. Participation in laboratory exercises is required. Assigned teacher who leads exercises might excuse without substitute the student's absence (incapacity for work, family reasons, etc.) for a maximum of two exercises during the semester with substitute supplying.
2. The assigned teacher, who leads the seminar, assesses the preparation of students and their activity in seminars. For the active participation in the exercises, the student can get a maximum of 10 points.
3. Two written tests are obligatory. The written test will consist of 15 questions with 15 points, together for 2 written testes of 30 points. To successful completion of the exam, it is necessary to achieve at least 8 points from each test.
Overall score: Max. number of points: 50 (elaboration of protocols / assignments - 10 points; active participation in practical exercises - 10 points; written tests - 2 × 15 points). Min. number of points to successful completion of course: 26.
Note: Detailed conditions are updated annually within the repository for digital support materials (LMS UPJŠ).

**Learning outcomes:**
Application of theoretical knowledge of qualitative and quantitative analytical chemistry into analytical laboratory practise.

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

**Recommended literature:**
1. Y. Bazel a kol.: Praktikum z analytickej chémie, PF UPJŠ, Košice 2019.
2. T. Gondová a kol.: Praktikum z analytickej chémie, PF UPJŠ, Košice 1999.
3. V. Szmereková, P.Meľuch: Praktikum z analytickej chémie, PF UPJŠ, Košice 1988.
4. J. Labuda a kol. Analytická chémia, STU, Bratislava 2014.
5. Z. Holzbecher a kol: Analytická chemie, SNTL, ALFA Praha 1987.

6. L. Koller: Analytická chémia, TU Košice, 2002, skriptum a v digitálnej forme.
7. D. Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000.

**Course language:**
Slovak

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

**Course assessment**
Total number of assessed students: 112

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 41.07 | 42.86 | 13.39 | 1.79 | 0.0 | 0.89 |

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

**Date of last modification:** 15.11.2021

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 4

**Recommended semester/trimester of the course:** 5.

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

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

**Conditions for course completion:**
1. Adequate theoretical preparation for individual tasks of experimental practice according to the recommended literature.
2. Passing tasks with relevant results.
3. Processing of experimental work results in the form of a protocols and its acceptance.
4. Assessment.
<p>
In the case of distance learning:
1. Elaboration of a paper on a selected topic and its presentation.
2. Theoretical preparation in the form of protocols, where the basic principles of individual tasks are stated.
3. Teaching is realized in blocks without limiting the scope in the alternative term.

**Learning outcomes:**
Theoretical principles, description of each technique and appropriate physical chemistry experiments.

**Brief outline of the course:**
Experimental verification of theoretical knowledge on thermodynamics, thermochemistry, chemical equilibria (determination of enthalpy, phase diagrams), colligative properties (cryoscopy, ebulioscopy), adsorption.
Experimental verification of theoretical knowledge on electrochemistry (conductivity, dissociation constants, activity coefficients, electromotive force of galvanic cell, Daniell cell, potentials, polarography) and chemical kinetics (determination of rate constants).

**Recommended literature:**
B.P. Levitt: Findlay´s Practical Physical Chemistry, Longman, London 1973
W.J. Moore: Physical Chemistry, Longman, London 1972
P.W. Atkins: Physical Chemistry, Oxford University Press, Oxford, New York 2002

**Course language:**

**Notes:**

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

**Course assessment**
Total number of assessed students: 387

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

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

**Date of last modification:** 09.02.2022

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

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

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

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

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 54

| abs | n |
|---|---|
| 11.11 | 88.89 |

**Provides:** Mgr. Agata Dorota Horbacz, PhD.

**Date of last modification:** 29.03.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/VS/02 | **Course name:** Selected seminar |
|---|---|

**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:** 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: 13

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

**Provides:** prof. RNDr. Ľubomír Kováč, CSc.

**Date of last modification:** 09.12.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ASM/03 | **Course name:** Separation Methods |
|---|---|

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

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

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

**Conditions for course completion:**
1. Preparation and presentation of a project focused on the application of separation methods.
2. Examination. The exam consists of 3 questions (each of 33%), 50% must be obtained for the pass exam.

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

**Brief outline of the course:**
Basic principles, classification, theory and applications of separation methods. Extraction - LLE, SPE, SPME. Chromatographic methods - theory, classification. Gas chromatography, stationary phases. Instrumentation, detectors in GC. Data evaluation - qualitative and quantitative analysis. High-performance liquid chromatography, principles, classification. Stationary and mobile phases in LC, instrumentation. Applications.
Planar chromatographic methods - TLC, HPTLC, PC.
Electrophoretic techniques and their applications.

**Recommended literature:**
Skoog D. A., Leary J. J.: Principles of instrumental analysis. Saunders College Publishing, New York 1997.
Pawliszyn J., Lord H. L.: Handbook of sample preparation, Wiley 2010.
Current scientific literature

**Course language:**
Slovak, english language

**Notes:**

**Course assessment**
Total number of assessed students: 494

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 28.14 | 25.91 | 25.3 | 12.96 | 5.47 | 2.23 |

**Provides:** doc. RNDr. Taťána Gondová, CSc.

**Date of last modification:** 01.08.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚCHV/ASC1/99 | **Course name:** Separation Methods Practicals |
|---|---|

**Course type, scope and the method:**
**Course type:** Practice
**Recommended course-load (hours):**
**Per week:** 5 **Per study period:** 70
**Course method:** present

**Number of ECTS credits:** 5

**Recommended semester/trimester of the course:** 6.

**Course level:** I.

**Prerequisities:** ÚCHV/ASM/03

**Conditions for course completion:**
1.Take part in all exercises.
2. Assessment is based on active participation in all exercises according to the schedule and submitted protocols from individual tasks.

**Learning outcomes:**
To obtain practical experiences for applications of separation methods in analytical practice.

**Brief outline of the course:**
Application of gas chromatography, high-performance liquid chromatography and thin-layer chromatography methods in analysis. Application of electrophoretic methods. Spectrophotometric determination of selected analytes after extraction treatment of sample. Application of ion-exchange chromatography in analytical practice.

**Recommended literature:**
Skoog D. A., Leary J. J.: Principles of instrumental analysis. Saunders College Publishing, New York 1997.
Pawliszyn J., Lord H. L.: Handbook of sample preparation, Wiley 2010.
T.Gondová a kol.: Separation methods practicals - actual texts for exercises

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 140

| A | B | C | D | E | FX |
|---|---|---|---|---|---|
| 89.29 | 10.0 | 0.71 | 0.0 | 0.0 | 0.0 |

**Provides:** doc. RNDr. Taťána Gondová, CSc.

**Date of last modification:** 15.11.2021

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

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

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.
LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.
STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.
VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 14548

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

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

**Date of last modification:** 29.03.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

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

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.
STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.
VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 13211

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

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

**Date of last modification:** 29.03.2022

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

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

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.
STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.
VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 8879

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

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

**Date of last modification:** 29.03.2022

**Approved:**

**COURSE INFORMATION LETTER**

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 2

**Recommended semester/trimester of the course:** 4.

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

**Prerequisities:**

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

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

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

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

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902.
SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141.
STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.
VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 5628

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

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

**Date of last modification:** 29.03.2022

**Approved:**

## COURSE INFORMATION LETTER

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚBEV/ SVK/01 | **Course name:** Student Scientific Conference |
| **Course type, scope and the method:**<br>**Course type:**<br>**Recommended course-load (hours):**<br>**Per week: Per study period:**<br>**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**<br>Total number of assessed students: 20 | |

| abs | n |
|---|---|
| 100.0 | 0.0 |

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| **Provides:** |
| **Date of last modification:** 30.11.2021 |
| **Approved:** |

## COURSE INFORMATION LETTER

| | |
|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚCHV/ SVK/00 | **Course name:** Students Scientific Conference (Presentation) |
| **Course type, scope and the method:**<br>**Course type:**<br>**Recommended course-load (hours):**<br>**Per week: Per study period:**<br>**Course method:** present | |
| **Number of ECTS credits:** 4 | |
| **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**<br>Total number of assessed students: 6 | |

| abs | n |
|---|---|
| 100.0 | 0.0 |

| |
|---|
| **Provides:** |
| **Date of last modification:** 03.05.2015 |
| **Approved:** |

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 2

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

**Course level:** I.

**Prerequisities:**

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

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

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

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

**Recommended literature:**

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

**Course language:**
slovak

**Notes:**

**Course assessment**
Total number of assessed students: 81

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

**Provides:** doc. RNDr. Jozef Hanč, PhD.

**Date of last modification:** 26.01.2022

**Approved:**

**COURSE INFORMATION LETTER**

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

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

**Number of ECTS credits:** 2

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

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

**Prerequisities:**

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

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

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

11. Capsizing
12. Commands

**Recommended literature:**
1. JUNGER, J. et al. Turistika a športy v prírode. Prešov: FHPV PU v Prešove. 2002. ISBN 8080680973.
Internetové zdroje:
1. STEJSKAL, T. Vodná turistika. Prešov: PU v Prešove. 1999.
Dostupné na: https://ulozto.sk/tamhle/UkyxQ2lYF8qh/name/Nahrane-7-5-2021-v-14-46-39#!ZGDjBGR2AQtkAzVkAzLkLJWuLwWxZ2ukBRLjnGqSomICMmOyZN==

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 209

| abs | n |
|---|---|
| 37.32 | 62.68 |

**Provides:** Mgr. Dávid Kaško, PhD.

**Date of last modification:** 29.03.2022

**Approved:**

## COURSE INFORMATION LETTER

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|---|---|
| **University:** P. J. Šafárik University in Košice | |
| **Faculty:** Faculty of Science | |
| **Course ID:** ÚTVŠ/ KP/12 | **Course name:** Survival Course |

**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 the tasks defined in the course syllabus

**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 should:
- acquire knowledge about safe stay and movement in natural environment,
- obtain theoretical knowledge and practical skills to solve extraordinary and demanding situations connected with survival and minimization of damage to health,
- be able to resist and face situations related to overcoming barriers and obstacles in natural environment,
- be able implement the acquired knowledge as an instructor during summer sport camps for children and youth within recreational sport.

**Brief outline of the course:**
Brief outline of the course:
1. Principles of conduct and safety in the movement in unfamiliar natural environment
2. Preparation and guidance of a hike tour
3. Objective and subjective danger in the mountains
4. Principles of hygiene and prevention of damage to health in extreme conditions
5. Fire building
6. Movement in the unfamiliar terrain, orientation and navigation
7. Shelters
8. Food preparation and water filtering
9. Rappelling, Tyrolian traverse
10. Transport of an injured person, first aid

**Recommended literature:**

1. JUNGER, J. et al. Turistika a športy v prírode. Prešov: Fakulta humanitných a prírodných vied PU v Prešove. 2002. 267s. ISBN 80-8068-097-3.
2. PAVLÍČEK, J. Člověk v drsné přírodě. 3. vyd. Praha: Práh. 2002. ISBN 8072520598.
3. WISEMAN, J. SAS: příručka jak přežít. Praha: Svojtka & Co. 2004. 566s. ISBN 8072372807.

**Course language:**
Slovak language

**Notes:**

**Course assessment**
Total number of assessed students: 439

| abs | n |
|---|---|
| 46.01 | 53.99 |

**Provides:** Mgr. Ladislav Kručanica, PhD.

**Date of last modification:** 16.05.2023

**Approved:**

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

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

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

**Number of ECTS credits:** 6

**Recommended semester/trimester of the course:** 5.

**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**<br>Total number of assessed students: 989 | | | | | |
|---|---|---|---|---|---|
| A | B | C | D | E | FX |
| 24.47 | 23.56 | 23.56 | 18.91 | 7.79 | 1.72 |
| **Provides:** prof. RNDr. Ľubomír Kováč, CSc. | | | | | |
| **Date of last modification:** 10.12.2021 | | | | | |
| **Approved:** | | | | | |

## COURSE INFORMATION LETTER

**University:** P. J. Šafárik University in Košice

**Faculty:** Faculty of Science

| **Course ID:** ÚBEV/ 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., 5.

**Course level:** I.

**Prerequisities:** ÚBEV/PMZ/10

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

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

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

**Recommended literature:**

**Course language:**

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

**Course assessment**
Total number of assessed students: 1248

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

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

**Date of last modification:** 01.03.2023

**Approved:**

## 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., 6.

**Course level:** I.

**Prerequisities:** ÚBEV/PMZ/10

**Conditions for course completion:**

**Learning outcomes:**
Fundamental information on taxonomy and morphology of vertebrates

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

**Recommended literature:**

**Course language:**

**Notes:**

**Course assessment**
Total number of assessed students: 1108

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

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

| |
|---|
| **Date of last modification:** 20.09.2021 |
| **Approved:** |