COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ PFAJAKA/07	**Course name:** Academic English

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

Number of credits: 2

Recommended semester/trimester of the course:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
kontrolný písomný test, aktivita na hodine
záverečný písomný test
povolené max. 2 absencie
stupnica hodnotenia: A 93-100, B 86-92, C 79-85, D 72-78, E 65-71, FX 64 a menej
aktivita na hodine
predmet končí hodnotením, t.j. povolený je 1 opravný test

Learning outcomes:
Osvojenie si a rozvíjanie užitočných techník akademického písomného ako aj ústneho prejavu so zameraním na rozvoj jazykových kompetencií študenta, na upevňovanie a rozvíjanie všetkých jazykových zručností na stredne pokročilej až pokročilej úrovni ovládania jazyka (B2/C1 podľa Spoločného európskeho referenčného rámca pre jazyky). Predmet kladie dôraz na používanie akademickej angličtiny v akademickom prostredí.

Brief outline of the course:
Akademická angličtina a jej charakteristiky
Čítanie odborných článkov, analýza, parafrázovanie
Spájacie slová v akademickom písaní
Formálna a neformálna angličtina a ich črty
Vyjadrovanie príčiny, následku v akademickom jazyku
Čítanie odbornej publikácie, analýza, parafrázovanie
Slovotvorba v anglickom jazyku- predpony a prípony
Ako prezentovať v angličtine
Parafrázovanie a definovanie
Ako písať abstrakt
Slovosled v akademickom diškurze

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:

Notes:

Course assessment
Total number of assessed students: 292

A	B	C	D	E	FX
29.11	22.26	16.1	11.3	8.22	13.01

Provides: PaedDr. Gabriela Bednáriková

Date of last modification: 06.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PPB/03	**Course name:** Advanced Biochemistry Practical

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 7

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/BCH1b/03 or ÚCHV/BCH1b/10

Conditions for course completion:

Learning outcomes:
To allow students the use theoretical knowledge about nucleic acids.

Brief outline of the course:
Advanced practice of biochemistry is closely connected to Practice of biochemistry. The focus of subject on the modern trends of molecular study of nucleic acids, various DNA-ligand and DNA-protein interactions.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 98

A	B	C	D	E	FX
45.92	46.94	7.14	0.0	0.0	0.0

Provides: doc. RNDr. Viktor Víglaský, PhD., RNDr. Petra Krafčíková, Mgr. Erika Demkovičová

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PPOC/03	**Course name:** Advanced organic chemistry - Lab

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/OCH1a/09 or ÚCHV/OCH1a/10

Conditions for course completion:
Two tests 2x25 p., ten reports (in English) 10x2 p., laboratory skills 10 p., short quizzes and questions 20p. A 100 p. in total. Assessment A: 91-100p, B: 81-90p, C: 71-80p, D: 61-70p, E: 51-60p, Fx: 0-50p.
Based on continuous evaluation.

Learning outcomes:
Advanced organic chemistry - laboratory practices is a preparation for the individual experimental work in a synthetic laboratory.

Brief outline of the course:
Advanced organic chemistry - laboratory practices is focused on mastering the advanced laboratory technique and methodology in synthesis of organic compounds (work in a small scale, chromatography, use of a equipment such as a magnetic stirring plates, vacuum rotary evaporator).

Recommended literature:
Harwood, L. M., Moody, CH. J. Experimental Organic Chemistry, Blackwell Scientific Publications, Oxford London 1990.

Course language:
Slovak and English

Notes:

Course assessment
Total number of assessed students: 79

A	B	C	D	E	FX
54.43	35.44	5.06	3.8	0.0	1.27

Provides: RNDr. Martin Walko, PhD., RNDr. Zuzana Kudličková, PhD., RNDr. Mariana Budovská, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/PPA1/03	**Course name:** Advanced Practical from Inorganic Chemistry

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/ACHU/03 or ÚCHV/ACH2/03

Conditions for course completion:
Evaluation is based on the success of the experimental work, the laboratory logbooks and written tests.

Learning outcomes:
To provide students with the advanced techniques and methods used in the synthesis of inorganic compounds (non-aqueous solvents, inert gas envronment...) and methods of their analysis.

Brief outline of the course:
Advanced syntheses of inorganic and coordination compounds (salen complexes, ferocene, cobaloximes, inorganic polymers...), their identification and characterisation using spectroscopic methods, methods of thermal analysis and X-ray powder diffraction.

Recommended literature:
1. G. Marr, B.W. Rockett: Practical Inorganic Chemistry, van Nostrand Reinhold Comp., London 1972.
2. Inorganic Syntheses, Mc Graw-Hill Book Comp., New York.
3. V. Zelenak: Internal study texts.

Course language:

Notes:

Course assessment
Total number of assessed students: 37

A	B	C	D	E	FX
89.19	10.81	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Vladimír Zeleňák, PhD., Mgr. Miroslav Almáši, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ANCHE/09	**Course name:** Analytical Chemistry

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 4 / 1 **Per study period:** 56 / 14
Course method: present

Number of credits: 7

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Give students basic information about current analytical chemistry

Brief outline of the course:
The subject of analytical chemistry, what is analytical chemistry, current problems of analytical chemistry. The analytical chemistry of complicated, multicomponent-consisting systems. Basic tools of analytical chemistry. Analytical experiment, classification of analytical concepts, the choice of a suitable analytical method. Signal, its evaluation, evaluation of analytical data. Equlibrium in analytical chemistry, thermodynamics and equilibrium. Equilibrium constants, types of reactions used in analytical chemistry. Dissociation, buffer systems, pH, calculation. Methods of quantitative analysis. Volumetric analysis, princiiples and basic concepts. Acidimetry and alcalimetry. Standardisation of volumetric reagent. Manganometry and iodometry. Back titration. Complex forming volumetric analysis. Coagulative volumetric analysis. Titration curves, indication of point of equivalence. Gravimetry, basic principles, gravimetric factor. Calculations in volumetric analysis and gravimetry. Qualitative analysis, separation by selective coagulation with group reagent. Organic analysis, derivatisation. Protocol of analytical measurements. Classification, basic concepts and terminology. Main components of analytical instruments. Absolute and relative methods. Linear and non-linear signal. Imprecisions of analytical measurements and evaluation of results. Distinguishing ability, range of determination, limit of detection. Calibration graph. Spectral and optical analytical methods (principle, instruments, detectors, using). Main components of instruments in spectral analysis. Source of light. Monochromatization. Absorbance. Lambert-Beer´s law. UV-VIS spectrophotometry. Photometric titration. Optical sensors. Nefelometry and turbidimetry. Luminiscent analysis. Infrared and Raman spectroscopy. Atomic absorption and atomic emission spectroscopy. Flame photometry. Mass spectrometry. Refractometry. Polarimetry. Optical rotation dispersion. Circular dichroism. Analytical methods based on RTG light. NMR spectroscopy. Laser photoacoustic spectroscopy. Radiochemical analysis. Activation analysis. Kinetic methods of analysis. Thermical analysis. Separation and preconcentration methods (principles, instruments, detectors, use). Distillation. Extraction (liquid-liquid, solid phase, supercritical fluid). Gas and liquid, ion-change, paper chromatography and thin layer chromatography. Electrochemical methods (principles, instruments, use). Potentiometry. Reference

and indication electrodes. Metal and membrane electrodes. Gas electrodes. Electrogravimetric methods. Conductometry. Coulometry. Voltamperometry. Polarography. Amperometric titration. Calculation seminars.

Recommended literature:

1.D.Harvey: Modern Analytical Chemistry. McGraw Hill, Boston, 2000.
2.Z.Holzbecher, j.Churáček a kol.: Analytická chemie, SNTL,Alfa, Praha 1987.
3.J.Majer a kol. : Analytická chémia pre farmaceutické fakulty, Osveta, 1989.
4.Garaj J., Hladký Z., Labuda J.: Analytická chémia I. Vydavateľstvo STU. Bratislava 1996.
5.Christian G.D. Analytical Chemistry. John Wiley & Sons, Inc. New York – Chichester – Brisbane – Toronto – Singapore 1994.
6.Holtzclaw H.F., Jr., Robinson W.R. College Chemistry with Qualitation Analysis. D.C. Heath and Company 1988.

Course language:

Notes:

Course assessment

Total number of assessed students: 11

A	B	C	D	E	FX
0.0	0.0	9.09	36.36	54.55	0.0

Provides: prof. Dr. Yaroslav Bazeľ, DrSc., doc. Ing. Viera Vojteková, PhD., doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ BP1a/04	**Course name:** Bachelor Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course: 5.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes: Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 384	

abs	n
100.0	0.0

Provides:
Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ BP1b/04	**Course name:** Bachelor Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 6	
Recommended semester/trimester of the course: 6.	
Course level: I.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes: Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 387	

abs	n
99.48	0.52

Provides:
Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ZCV1/08	**Course name:** Bases of chemical industry

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 credits: 3

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
The knowledge acquirement about technology procedures in Chemical industry

Brief outline of the course:
General and Inorganic Technology; Mineral raw materials; Raw materials processing, transport and storage; Chemical reactors; Chemical metallurgy – Fe, Al, Cu working; Inorganic acids manufacture; Industrial electrochemistry; Industrial fertilizers; Silicate industry – cement manufacture, ceramics; Petrochemistry, Biotechnology

Recommended literature:
P. Fellner, J. Valtýni, D. Bobok: Všeobecná a anorganická technológia, STU Bratislava 1995
S. Mocik, S. Mikulášek, S. Gavorník: Chemická technológia, SPN Bratislava 1980
Internet free sources

Course language:

Notes:

Course assessment
Total number of assessed students: 72

A	B	C	D	E	FX
29.17	30.56	25.0	5.56	9.72	0.0

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

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZAL1/02	**Course name:** Basic Analytical Chemistry
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 0	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ((ÚCHV/ANCH1a/03 or ÚCHV/ANCH1a/10 and ÚCHV/ANCH1b/03) or ÚCHV/ANCHE/09) and (ÚCHV/PANCH/06 or ÚCHV/PANCHE/09)	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: Analytical chemistry, basic concepts. Qualitative and quantitative analysis. Analytical method. Imprecisions of analytical measurements and evaluation of results. Sensitivity and selectivity of reactions. Group, selective and specific reactions. Principle and utilising of gravimetry. Volumetric analysis. Classification of volumetric methods: acid-base, oxidation-reduction, complex forming and coagulative titrations. Instrumental analytical methods. Classification, basic concepts and terminology. Main components of analytical instruments. Absolute and relative methods. Linear and non-linear signal. Distinguishing ability, range of determination, limit of detection. Calibration graph. Spectral and optical analytical methods (principle, laws and basic mathematical relations, instruments, detectors, utilizing). Sources of light. Monochromatisation. UV/VIS spectrophotometry. Luminiscent analysis. Infrared and Raman spectroscopy. Atomic absorption and atomic emission spectroscopy. Flame photometry. Mass spectroscopy. Refractometry. Polarimetry. Optical rotation dispersion. Circular dichroism. Analytical methods based on the use of RTG light. NMR spectroscopy. Radiochemical analysis. Activation analysis. Kinetic methods of analysis. Thermical analysis. Electrochemical methods (principle, laws and basic mathematic relations, instruments, use). Potentiometry. Electrogravimetric metods. Conductometry. Coulometry. Voltamperometry. Polarography. Amperometric titration. Separation and preconcentration methods (principle, laws and basic mathematic relations, instruments, use). Distillation. Extraction. Gas, liquid, ion-change, paper chromatography.	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 31

A	B	C	D	E	FX
38.71	9.68	38.71	6.45	6.45	0.0

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ZECH/09	**Course name:** Basic Environmental Chemistry

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

Number of credits: 0

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/ACPE1/03 and ÚCHV/EECH/03 and ÚCHV/ETOX/09

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 7

A	B	C	D	E	FX
0.0	0.0	85.71	14.29	0.0	0.0

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZB1/99	**Course name:** Basic in Biochemistry
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 0	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ÚCHV/BCH1b/03 or ÚCHV/BCH1b/10 and ÚCHV/PBC1/00 and ÚCHV/ MB1b/08	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: Biochemistry specifications 1. Structure and function of proteins, protein study methods. 2. Structure and function of DNA and RNA, nucleic acids study methods. 3. Enzymes: basic concepts and kinetics, catalytic and regulatory strategies. 4. Carbohydrates (monosaccharides, disaccharides, polysaccharides – functions and properties). 5. Lipids and cell membranes, membrane channels and pumps. 6. Glycolysis. 7. Glukoneogenesis. 8. The citric acid cycle and the glyoxylate cycle. 9. Oxidative phosphorylation. 10. Degradation and synthesis of glycogen. 11. The light reactions of photosynthesis. 12. Rubisco and the calvine cycle. 13. Beta-oxidation of fatty acids and synthesis of fatty acids. 14. Degradation f proteins, the glutamate dehydrogenase. 15. The urea cycle. Molecular biology specifications 16. Replication of DNA and genome organization. 17. Transcription of DNA, DNA polymerases, promoters. 18. Translation, ribosomes, t-RNA, mRNA. 19. Regulation of gene expression, induction, repression. 20. Mobile genetic elements, viruses. 21. Mutation and repair of DNA, recombination of DNA. 22. Recombinant DNA techniques.	
Recommended literature:	

Course language:

Notes:

Course assessment
Total number of assessed students: 89

A	B	C	D	E	FX
48.31	28.09	13.48	7.87	2.25	0.0

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZOCH/00	**Course name:** Basic Organic Chemistry
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 0	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ÚCHV/OCH1a/03 or ÚCHV/OCH1a/10 and ÚCHV/OCH1b/03 and ÚCHV/ST/03	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: 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, Saccharides, Aminoacids, Biologically active compounds, Heterocyclic compounds.	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 73

A	B	C	D	E	FX
72.6	9.59	8.22	8.22	1.37	0.0

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ZFC1/99	**Course name:** Basic Physical Chemistry
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 0	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ÚCHV/FCH1a/03 and ÚCHV/FCH1b/03 or ÚCHV/FCH1b/10 and ÚCHV/ PFCH/03	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: (state bachelor examen) Properties of ideal gases (laws: Boyle´s, Gay-Lusac´s, Charles´s, Dalton´s, Ostwald´s, Avogadro ´s, combined gas equation). Properties of real gases. The euations of state for real gases, van der Waals equation of state. Liquefaction of gases, critical temperature of gases. Reduced van der Waals equation. Joule-Thomson effect. Basic thermodynamics concepts and definitions. Internal energy, heat and work. Enthalpy. Expansion and compression work of ideal gases. Application of first law of thermodynamics on ideal gases. Isothermic and adiabatic curve. Heat capacity of substances. Temperature variation of internal energy and enthalpy. Thermochemistry. First and second law of thermochemistry. Formation and combustion enthalpy, reaction enthalpy. Variation of reaction enthalpy with temperature, Kirchhoff´s law. Second law of thermodynamics. Carnot cycle, efficiency of Carnot engine. Entropy, entropy changes as the criterium for direction of processes. Criteria of thermodynamic equilibrium: entropy for isothermal process, Helmholtz energy for isochoric process, Gibbs energy for isobaric process. Definition, mathematic formulation and importance of Helmholtz and Gibbbs energies. Gibbs-Helmholtz equations. Third law of thermodynamics. Chemical potential (standard chemical potential). Chemical potential of ideal and real gases (fugacity), chemical potential of component in gaseous or liquid solution. Conditions of equilibria in heterogeneous system. Gibbs´ phase rule. Phase equilibria in 1- component system. Clapeyron-Clausius equation. Phase equilibria in 2-component systems (miscible, partialy miscible and non-miscible). Expression of solution composition. Raoult´s law. Phase diagrams of vapour-liquid equilibrium. Fractional distillation. Liquid - solid phase equilibrium. Colligative properties – nonvolatile solute. Lowering of vapour pressure of solution, ebullioscopic and cryoscopic effect. 3-component systems (Gibbs triangle, Nernst distribition law). Thermodynamics and equilibrium of chemical reaction. Chemical equilibrium in gas-phase reactions. Equilibrium constants. Chemical equilibrium conditions. Standard state selection. Reaction isotherm. Chemical equilibrium in heterogeneous reaction system. Le Chatelier- Braun principle. Factors affected	

chemical equilibrium (influence of temperature, pressure initial chemical composition and presence of inert substance).
Recommended literature:
1. Smith E. B.: Basic Chemical Thermodynamics, Oxford University Press, Oxford 1982
2. Atkins P. W.: Physical Chemical Chemistry (4th Ed.), Oxford University Press, Oxford-Melbourne–Tokyo 1990

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 16

A	B	C	D	E	FX
56.25	18.75	12.5	6.25	6.25	0.0

Provides:

Date of last modification: 03.02.2014

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ FMZ/04	**Course name:** Basic Principles of Medicinal Chemistry

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 credits: 3

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
Two tests at lectures
Written exam

Learning outcomes:
Explanation of fundamental conceptions of medicinal chemistry, understanding of structure-activity relationships including space structure and chirality and their consequences on chemical and physico-chemical properties influencing biological activity. Gaining knowledge of the present state in the field of selected important groups of drugs, such as antibacterial, antiviral or antitumor drugs.

Brief outline of the course:
Introduction, classification of drugs, factors influencing design and activity of drugs of the third generation, drug chirality, search for new drugs, structure-activity relationships, antibacterial compounds, antitumor compounds, antiviral compounds.

Recommended literature:
1. Medicinal Chemistry: Principles and Practice, King F. D., Ed., The Royal Society of Chemistry, Thomas Graham House, Cambridge, 1994.
2. Advances in Drug Discovery Techniques: Harvey A. L., Ed., Wiley & Sons, Chichester, 1998.
3. Thomas G.: Medicinal Chemistry: An introduction. John Willey & Sons, 2000.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 167

A	B	C	D	E	FX
39.52	23.35	14.97	11.38	9.58	1.2

Provides: RNDr. Zuzana Kudličková, PhD., RNDr. Mariana Budovská, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ZCH/03	**Course name:** Basics of chemistry (4)
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 0	
Recommended semester/trimester of the course:	
Course level: I.	
Prerequisities: ÚCHV/VCH/03 or ÚCHV/VCH/10 and ÚCHV/ACH2/03 and ÚCHV/ANCH1b/03 and ÚCHV/BCH1b/03 or ÚCHV/BCH1b/10 and ÚCHV/FCH1b/03 or ÚCHV/FCH1b/10 and ÚCHV/OCH1b/03	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course: Subject of inorganic chemistry. Systematic nomenclature of inorganic compounds. Reactions of inorganic compounds. Overview of the properties of nonmetallic elements and their compounds: evolution of the properties according to groups and periods. Metals and alloys. Overview of general properties of metals, semimetals and their compounds. General properties of the transition elements and their compounds with emphasis on the elements of the first transtion series. Lanthanides and actinides. Metals and semimetals of the p-block, their properties. Organic chemistry - basic concept, configuration and conformation of alkanes and cycloalkanes, stereochemistry of organic compounds, enantiomers and diastereoisomers, bonds in organic componds, reactions of alkenes, alcohols, amines, alkyl halides and aromatic compounds. Electrophiles and nucleophiles. Principles of chemical kinetics, reaction rate, reaction order and molecularity, reaction constant. Kinetic classification of reactions. Thermodynamic and kinetic control of reactions. Catalysis. Chemical thermodynamics. Reaction heat. Entropy. Thermochemical laws. Activation Gibbs energy. Chemical equilibrium, equilibrium constant, affinity and standard affinity, influence of temperature, pressure and composition on chemical equilibrium. Phase equilibrium. Cell. Proteins - primary, secondary, tertiary and quarterly structures of proteins. Enzymes - structure and enzymatic catalysis. Enzymatic activity - influence of pH and temperature on enzymatic activity. Regulation of enzymatic activity. Nucleic acids - structure and function. Mechanism of replication, transcription and translation of DNA. Methods of genetic engineering. Metabolic processes. Glycolyse. Gluconeogenesis. Citrate cycle. Oxidative phosphorylation. Respiratory chain. Photosynthesis. Metabolism of fat acids. Metabolism of aminoacids. Urea cycle. Analytical chemistry, basic concepts. Qualitative and quantitative analysis. Group, selective and specific reactions. Principle and utilising of gravimetry. Volumetric analysis. Instrumental analytical methods. Classification, basic concepts and terminology. UV/VIS spectrophotometry. Luminiscent analysis. Infrared and Raman spectroscopy. Atomic absorption and atomic emission	

spectroscopy. Mass spectroscopy. Potentiometry. Electrogravimetric metods. Conductometry. Coulometry. Voltamperometry. Polarography. Separation and preconcentration methods.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1

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

Provides:

Date of last modification: 03.02.2014

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

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 credits: 3

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

Course level: I.

Prerequisities:

Conditions for course completion:
Given on the basis of partial examination and written exam.

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.
• Measuring the strength of a dependence.

Recommended literature:
• Wonnacott, Wonnacott: Introductory Statistics, Wiley 1977
• Statsoft's Electronic Statistics Textbook, 2014

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 97

A	B	C	D	E	FX
11.34	6.19	14.43	15.46	17.53	35.05

Provides: doc. RNDr. Ivan Žežula, CSc.

Date of last modification: 14.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/MIN1/00	**Course name:** Basis of Mineralogy

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 credits: 3

Recommended semester/trimester of the course: 6.

Course level: I.

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

Conditions for course completion:
Verification of theoretical knowledge and recognizing minerals.
Semester project, practical test from recognizing of minerals, optional oral examination.

Learning outcomes:
To recognize the beauty of nature and to obtain basic knowledge from mineralogy. To familiarize students with properties of usual minerals and 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:

Notes:

Course assessment
Total number of assessed students: 134

A	B	C	D	E	FX
76.12	14.93	7.46	0.75	0.75	0.0

Provides: doc. RNDr. Ivan Potočňák, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ BCH1a/03	**Course name:** Biochemistry I

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 credits: 3

Recommended semester/trimester of the course: 3.

Course level: I., II.

Prerequisities:

Conditions for course completion:
test
Test and oral examination.

Learning outcomes:
The aim of Biochemistry I teaching is to acquire knowledge in the field of living organisms on the basis of the molecular structure and properties of biolomolecules.

Brief outline of the course:
Basic information on structure and properties of biomolecules(aminoacids, nucleotides,lipids, sugars, proteins, polynucleotides, polysaccharides, membranes, signal molecules).

Recommended literature:
Voet D., Voetová J. G., Biochemie, Victoria Publishing, Praha, 1994
Škárka B., Ferenčík M., Biochémia, Alfa, Bratislava, 2001
Musil J., Nováková O., Biochemie v obrazech a schématech, Avicenum, Praha, 1990
Berg J. M., Tymoczko J. L., Stryer L., Biochemistry, W. H. Freeman and Company, NY, 2007

Course language:

Notes:

Course assessment
Total number of assessed students: 489

A	B	C	D	E	FX
13.29	22.7	31.08	14.11	17.79	1.02

Provides: prof. Ing. Marián Antalík, DrSc.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ BCH1b/10	**Course name:** Biochemistry II

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 credits: 5

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚCHV/BCH1a/03

Conditions for course completion:
test
Test and oral examination.

Learning outcomes:
The aim of biochemistry teaching is to acquire knowledge in the field of living organisms on the basis of their molecular structure information on cell metabolism.

Brief outline of the course:
Basic principle of metabolism, basic metabolic pathways and cycles, integration of cell metabolism.

Recommended literature:
Voet D., Voetová J. G.: Biochemie, Victoria Publishing, Praha, 1994
Škárka B., Ferenčík M.: Biochémia, Alfa, Bratislava, 2001
Berg J. M., Tymoczko J. L., Stryer L.: Biochemistry, W. H. Freeman and Company, New York, 2007
Musil J., Nováková O.: Biochemie v obrazech a schématech, Avicenum, Praha, 1990

Course language:

Notes:

Course assessment
Total number of assessed students: 197

A	B	C	D	E	FX
9.14	24.87	30.46	17.77	16.75	1.02

Provides: prof. Ing. Marián Antalík, DrSc., RNDr. Rastislav Varhač, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/PBC1/00	**Course name:** Biochemistry Practical

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities: ÚCHV/BCH1a/03

Conditions for course completion:
2 written tests
Protocols + 75 % continuous evaluation.

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:
The most important biochemical laboratory methods. The qualitative tests for amino acids and proteins. Time-dependent course of enzyme-catalyzed reaction: determination of enzymatic activity, determination of the first order rate constant, calculations of math models (examples), effect of a substrate concentration on initial rate of reaction, determination of Km and Vmax for urease. Isolation and detection of nucleic acids.

Recommended literature:
Sedlák, Danko, Varhač, Paulíková, Podhradský: Practical exercises from biochemistry, 2007, http://kosice.upjs.sk/~kbch/document.php?name=pbc&lang=sk

Course language:

Notes:

Course assessment
Total number of assessed students: 288

A	B	C	D	E	FX
56.94	25.0	10.76	5.21	1.39	0.69

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

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of 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: 145

A	B	C	D	E	FX
44.14	31.03	15.86	2.07	6.9	0.0

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

Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ BTC/04	**Course name:** Biotechnology

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 credits: 5

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:
test

Learning outcomes:
Students obtained the knowledge of basic biotechnological processes and their applications in agriculture, industry, food production and medicine.

Brief outline of the course:
Characterization of biotechnology, its methods and areas of application in industry, food production, pharmaceutical and environmental industries. Biotechnological production of alcohols, solvents, acids, carbohydrates, enzymes, vitamins and antibiotics.

Recommended literature:
Z. Vodrážka: Biotechnologie, Academia Praha, 1992.
B. Sykita: Biotechnologie pro farmaceuty, FaF UK Praha, 1984.
E.M.T. El-Mansi et al, Fermentation microbiology and biotechnology,second edition, 2007.
Y.H. Hui, Food biochemistry & food processing, Blackwell Publishing 2006.
J.E. Smith, Biotechnology, Cambridge university press 2009.

Course language:

Notes:

Course assessment
Total number of assessed students: 95

A	B	C	D	E	FX
34.74	25.26	25.26	9.47	4.21	1.05

Provides: RNDr. Danica Sabolová, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KGER/ NJKK/07	**Course name:** Communication Competence in the 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 credits: 2

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 42

A	B	C	D	E	FX
57.14	14.29	7.14	4.76	14.29	2.38

Provides: Mgr. Eva Černáková, PhD.

Date of last modification: 05.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
ontrolný písomný test, aktivita na hodine
záverečný písomný test
stupnica hodnotenia A 93-100, B 86 - 92, C 79-85, D 72-78, E 65-71, FX menej ako 64
Povolené max. 2 absencie počas semestra
predmet končí hodnotením, možnosť jedného opravného testu

Learning outcomes:
Uplatnenie a aktívne používanie svojich teoretických vedomostí v praktických komunikačných situáciách. Zdokonalenie jazykových vedomostí a zručností študenta, rečovej, pragmatickej a vecnej kompetencie, predovšetkým zlepšujú komunikáciu, schopnosťprijímať a formulovať výpovede, efektívne vyjadrovať svoje myšlienky ako aj orientovať sa v obsahovom pláne výpovede. Precvičovanie rečových intencií kontaktných (napr. pozdravy, oslovenia, pozvanie, oslovenie), informatívnych (napr. získavanie a podávanie informácií, vyjadrenie priestorových a časových vzťahov), regulačných (napr. prosba, poďakovanie, zákaz, pochvala, súhlas, nesúhlas) a hodnotiacich (napr. vyjadrenie vlastného názoru, stanoviska, želania, emócií). Výsledkom budovania praktickej jazykovej kompetencie majú byť vedomosti a zručnosti zodpovedajúce požiadavkám a kritériám dokumentu Spoločný európsky referenčný rámec pre vyučovanie jazykov - úroveň B2.

Brief outline of the course:
Rodina, jej formy a problémy
Vyjadrovanie pocitov a dojmov
Dom, bývanie a budúcnosť
Formy a dialekty v anglickom jazyku
Život v meste a na vidieku
Kolokácie a idiomy, zaužívané slovné spojenia
Prázdniny a sviatky vo svete
Životné prostredie a ekológia
Výnimky zo slovosledu
Frázové slovesá a ich použitie
Charakteristiky neformálneho diškurzu

Recommended literature:

McCarthy M., O'Dell F.: English Vocabulary in Use, 1994
Misztal M.: Thematic Vocabulary, 1998
Fictumova J., Ceccarelli J., Long T.: Angličtina, konverzace pro pokročilé, Barrister and Principal, 2008
Peters S., Gráf T.: Time to practise, Polyglot, 2007
www.bbclearningenglish.com
Jones L.: Communicative Grammar Practice, CUP, 1985
Alexander L.G.: Longman English Grammar, Longman, 1988

Course language:

Notes:

Course assessment

Total number of assessed students: 174

A	B	C	D	E	FX
36.78	22.41	18.39	9.77	8.05	4.6

Provides: PaedDr. Gabriela Bednáriková, Mgr. Silvia Marcinová, PhD.

Date of last modification: 06.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course:

Course level: I., II., N

Prerequisities:

Conditions for course completion:
kontrolná písomná práca,
záverečná písomná práca
stupnica hodnotenia: A 93-100, B 86-92, C 79-85, D 65-71, 64 a menej - FX
aktivita na hodinách, povolené 2 absencie
predmet je ukončený hodnotením, možnosť jedného opravného testu

Learning outcomes:
Identifikovanie a odstránenie najfrekventovanejších gramatických chýb v ústnom prejave, ako aj v písomnom styku. Rozvoj jazykových kompetencií študenta so zameraním na funkcie gramatiky anglického jazyka v každodennej interakcii, v komunikačnom akte na stredne pokročilej úrovni ovládania jazyka (B2 podľa Spoločného európskeho referenčného rámca pre jazyky).

Brief outline of the course:
Zvieratá a rastliny na zemi
Zločin a trest
Cestovanie po mori a vzduchom
Jedlá a reštaurácie, národná kuchyňa
Vzdelanie na vysokých školách
História a viera
Vybrané problémy anglickej výslovnosti, gramatiky (nepriama reč, slovotvorba, predložkové väzby, anglická syntax, kondicionály v angličtine a slovnej zásoby príslušného zamerania
Vybrané funkcie praktického odborného jazyka potrebné na prácu s odborným textom

Recommended literature:
Misztal M.: Thematic Vocabulary, 1994
McCarthy, O'Dell: English Vocabulary in Use, 1994
Alexander L.G.: Longman English Grammar, Longman, 1988
Jones I. - Communicative Grammar Practice, CUP, 1992
Vince M.: Macmillan Grammar in Context, Macmillan, 2008
www.bbclearningenglish.com
Gráf T., Peters S.: Time to practise, Polyglot, 2007

Course language:

Notes:

Course assessment
Total number of assessed students: 378

A	B	C	D	E	FX
39.42	18.25	17.2	8.73	5.82	10.58

Provides: PaedDr. Gabriela Bednáriková

Date of last modification: 06.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

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 credits: 3

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

Course level: I.

Prerequisities:

Conditions for course completion:
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: 471

A	B	C	D	E	FX
76.01	13.59	7.64	1.49	0.42	0.85

Provides: doc. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ OBPC/03	**Course name:** Defence of bachelor thesis

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

Number of credits: 0

Recommended semester/trimester of the course:

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Presentation of the thesis before the state exam committee.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 366

A	B	C	D	E	FX
83.33	10.66	4.37	0.82	0.55	0.27

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 6.

Course level: I., II.

Prerequisities: ÚBEV/ETO1/03

Conditions for course completion:
Recognition.
Oral exmination.

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

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

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 143

A	B	C	D	E	FX
89.51	4.2	5.59	0.7	0.0	0.0

Provides: RNDr. Igor Majláth, PhD.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 6.

Course level: I., II.

Prerequisities:

Conditions for course completion:
active participation in seminars
preparation of the presentation to the given topic
semestral written test
oral examination

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

Brief outline of the course:
The subject deals with the soil as an ecological system and type of environment It is concentrated to the ecological factors ruling the life in soil, soil-dwelling animals and their adaptations to this specific habitat. Functioning of the soil system and understanding of the principal interactions of soil fauna with plant rhizosphere and soil microflora are among the main goals of the discipline.

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

Course language:

Notes:

Course assessment
Total number of assessed students: 108

A	B	C	D	E	FX
47.22	25.93	15.74	8.33	2.78	0.0

Provides: RNDr. Natália Raschmanová, PhD.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 6.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Ecological characteristic of freshwater groups and prevalent species - only Invertebrata.

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 120

A	B	C	D	E	FX
15.0	14.17	15.83	52.5	2.5	0.0

Provides: prof. RNDr. Igor Hudec, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ETOX/09	**Course name:** Ecotoxicology

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 3 / 0 **Per study period:** 42 / 0
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Test at 6 and 12 week. Exam test form.

Learning outcomes:
To get acquainted with toxic substances and their effects on environmental issues and on the individual.

Brief outline of the course:
Classification of toxic substances. The effect of chemical, energy and biological pollutants on environmental components.Toxic products plants, animals and foodstuffs. Problems of air, water pollution, endangering soil. Combustion of waste. Use properties and effect of chemicals on the protection of man and life in general.

Recommended literature:
1.Tölgyessy J., Fargašová A.: Základy ekológie a toxikológie, STU Bratislava 1991
2. Janko J., Chýlková J., Rusek V., Vlček J.: Analýza znečistěnin a technika jejich odběru, VŠCHT Pardubice 1984

Course language:
Slovak language

Notes:

Course assessment
Total number of assessed students: 7

A	B	C	D	E	FX
28.57	14.29	0.0	42.86	14.29	0.0

Provides: RNDr. Slávka Hamuľaková, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: CJP/ PFAJ4/07	**Course name:** English Language of Natural Science

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

Number of credits: 2

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities:

Conditions for course completion:
test na slovnú zásobu, ústna prezentácia, záverečný písomný test, účasť na seminároch (max. 2 absencie)
stupnica hodnotenia: A 93-100, B 86-92, C 79-85, D 72-78, E 65-71, FX 64 a menej

Learning outcomes:
Rozvoj jazykových kompetencií študentov príslušného študijného odboru, upevňovanie a rozvíjanie všetkých jazykových zručností (hovorenie, písanie, čítanie, počúvanie) predovšetkým v odbornej/profesnej angličtine, na stredne pokročilej úrovni ovládania jazyka (B2). Dôraz sa kladie na aktívne správne používanie odbornej/profesnej angličtiny.

Brief outline of the course:
ANGLICKÝ JAZYK PRE GEOGRAFOV:
Veda a výskum. Odbor geografia.
Planéta Zem. Naša slnečná sústava. Litosféra, hydrosféra, atmosféra, biosféra.
Zem - dynamická planéta. Tektonické platne. Sopečná činnosť.
Zemetrasenia.
Svetové oceány. Morské prúdy. Tsunami.
Veľký koralový útes.
Atmosféra - zloženie atmosféry.
Kontinenty. Európa - krajiny, národnosti.
ANGLICKÝ JAZYK PRE EKOLÓGOV:
Veda a výskum. Odbor ekológia.
Životné prostredie. Znečistenie a dôsledky.
Sopečná činnosť, zemetrasenia.
Great Pacific Garbage Patch.
Globálne otepľovanie a dôsledky. Ľadovce.
Počasie a klíma. Búrky, hurikány, tsunami.
Život na Zemi. Ohrozené rastlinné a živočíšne druhy.
ANGLICKÝ JAZYK PRE BIOLÓGOV:
veda a výskum, odbor biológia
morfológia rastlín, koreň

stonka, list
rozmnožovanie rastlín, kvet
biológia človeka - telesné sústavy
slovná zásoba z oblasti botanickej a zoologickej nomenklatúry
ANGLICKÝ JAZYK PRE MATEMATIKOV:
Veda a výskum, odbor matematika
čísla a tvary v matematike
Elementárna algebra
Elementárna geometria
Výpočty v matematike
Pytagoras, Pytagorova veta
Grafy a diagramy
Štatistika
ANGLICKÝ JAZYK PRE FYZIKOV
Veda a výskum, odbor fyzika
Atómy a molekuly
Hmota a jej premeny
Elektrina, jej využitie
Zvuka, jeho prenos
Svetlo
Solárny systém
Matematické operácie
ANGLICKÝ JAZYK PRE CHEMIKOV:
Veda a výskum, odbor chémia:
História, alchímia
Nomenklatúra
Laboratórium a jeho vybavenie
Periodická tabuľka
Hmota a jej premeny
Organická chémia
Anorganická chémia
ANGLICKÝ JAZYK PRE INFORMATIKOV:
Veda a výskum, informatika
Život s počítačom
Typický PC
Zdravie a bezpečnosť, ergonomika
Programovanie
Emailovanie
Cybercrime
Trendy budúcnosti

Recommended literature:

študijné materiálny dodané vyučujúcim
Velebná, V. English for Chemists.
Redman, S.: English Vocabulary in Use, Pre-intermetdiate, Intermediate. Cambridge University Press. 2003.
Powel, M.: Dynamic Presentations. CUP, 2010
Armer, T.: Cambridge English for Scientists. CUP, 2011
Wharton J.: Academic Encounters. The Natural World, CUP: 2009.
Murphy, R.: English Grammar in Use. Cambridge University Press. 1994.

Redman, s.: English Vocabulary in Use, Pre-intermetdiate, Intermediate. Cambridge University Press. 2003.
P. Fitzgerald : English for ICT studies, Garnet Publishing, 2011

Course language:

Notes:

Course assessment
Total number of assessed students: 1860

A	B	C	D	E	FX
31.72	25.54	18.28	11.94	9.52	3.01

Provides: PhDr. Helena Petruňová, CSc., PaedDr. Gabriela Bednáriková, Mgr. Marianna Škultétyová, Mgr. Silvia Marcinová, PhD.

Date of last modification: 06.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ EECH/03	**Course name:** Environmental Chemistry

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

Number of credits: 5

Recommended semester/trimester of the course: 4.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Examination.

Learning outcomes:

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 85

A	B	C	D	E	FX	N	P
57.65	15.29	18.82	3.53	4.71	0.0	0.0	0.0

Provides: RNDr. Andrea Straková Fedorková, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 5

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
written test
Oral examination

Learning outcomes:
Principles and theoretical foundations the application of analytical methods in bioanalysis.

Brief outline of the course:
Introduction to Bioanalytical Chemistry. Biological samples classification. Factors that affect analytes in biological samples. Collection, transport and storage of samples, the main principles of sampling, the suppressing of undesirable phenomena. Selected methods of pretreatment of biological samples. Analyzers, equipment and organization of work in a clinical laboratory. Control and management of quality in clinical laboratory. Quality manual, calibration, control, and reference materials. Validation and Good Laboratory Practice. Buffers in bioanalysis. Enzymes in bioanalysis, introduction, distribution, Mechanism of enzyme catalysis. The kinetics of enzymatic reactions with one substrate, the Michaelis constant, constant specificity, lag phase, kinetics of reactions with two substrates. Moderators of enzyme activity. Selected methods for analysis of biomolecules.

Recommended literature:
1.Mikkelsen S.R, Cortón E.: Bioanalytical Chemistry, Wiley, 2004
2.Wilson I., Bioanalytical Separations 4, (Handbook of Analytical Separations), Elsevier, 2003
3.Lee, D.C., Webb, M. Pharmaceutical Analysis, Blackwell, 2003

Course language:

Notes:

Course assessment
Total number of assessed students: 52

A	B	C	D	E	FX
34.62	26.92	28.85	5.77	0.0	3.85

Provides: doc. RNDr. Katarína Reiffová, PhD.

Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ VCH/10	**Course name:** General Chemistry

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

Number of credits: 10

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Three tests are written during the semester. Writing of the tests is mandatory and it is not possible to correct unsuccessfully written tests. Each of the tests is evaluated as follows: 91-100% (A) = 5 points, 81-90% (B) = 4 points, 71-80% (C) = 3 points, 61-70% (D) = 2 points, 51-60% (E) = 1 point, less than 51% (FX) = 0 point. Student must obtain together at least 2 points.
Three tests are written during the semester. Writing of the tests is mandatory and it is not possible to correct unsuccessfully written tests. Each of the tests is evaluated as a percentage. Student must obtain at least 51% of at least one test.
Oral examination.

Learning outcomes:
To provide students with knowledge about atoms, chemical bonds, physical properties of elements and compounds.

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

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

Course language:
Slovak and English

Notes:

Course assessment
Total number of assessed students: 648

A	B	C	D	E	FX
9.57	22.84	31.79	18.83	10.8	6.17

Provides: doc. RNDr. Ivan Potočňák, PhD., RNDr. Juraj Kuchár, PhD., Mgr. Miroslav Almáši, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 4

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 39

A	B	C	D	E	FX
41.03	23.08	17.95	10.26	7.69	0.0

Provides: doc. RNDr. Sergej Mochnacký, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ GEE2/07	**Course name:** Geoecology

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 credits: 5

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities: ÚGE/BIG/07 or ÚGE/FYG2/05

Conditions for course completion:

Learning outcomes:

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. Synthesis of the principles of landscape and landscape-ecological planning.

Recommended literature:
BEDRNA, Z., a kol. 1992: Analýza a čiastkové syntézy zložiek krajinnej štruktúry. Bratislava. Učebné texty, 95 s..
MIČIAN, Ľ., ZATKALÍK, F. 1984: Náuka o krajine a starostlivosť o životné prostredie. UK Bratislava skriptá,137s.
MIČIAN, Ľ. 1989: Pokus o novú definíciu krajinnej ekológie. Ekológia (ČSFR), 3,1,Veda, Bratislava, s. 7-12.
MIČIAN, Ľ. 2008: Všeobecná geoekológia. Bratislava: Geo-grafika, 88 s. – Skriptá.

Course language:

Notes:

Course assessment
Total number of assessed students: 575

A	B	C	D	E	FX
5.22	13.22	20.52	25.22	33.57	2.26

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

Date of last modification: 11.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/ GPD/07	**Course name:** Geography of industry and transport

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 credits: 4

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Location theories, factors and methods of industry evaluation, territorial industrial units, industrial parks and regionalization of the industry in Slovakia. Geographic overview of chosen types of industry. Relationship between industry and environment. Trends of the development and problems of the world and Slovak industry and economy. Transformation processes of industry in the Slovak Republic.

Recommended literature:
KNOX, P., L., et al. 2010: Human geography. Places and regions in Global Context. pearson International Edition., 513 p.
KOREC, P. 1994: Humánna geografia 1. Prírodovedecká fakulta, Univerzita Komenského, Bratislava, 120 s.
MIRVALD, S., 2002: Geografie dopravy II. ZČU Plzeň, 56 s.
MIRVALD, S., 2002: Geografie dopravy III. ZČU Plzeň, 43 s.
POPJAKOVÁ, D., 1997: Základné kapitoly z geografie priemyslu, Prešov: PU, 144 s.
TOUŠEK, V. a kol., 2008: Ekonomická a sociální geografie, Plzeň, 2008, 411 s.

Course language:

Notes:

Course assessment
Total number of assessed students: 229

A	B	C	D	E	FX
15.72	18.78	23.58	27.51	12.66	1.75

Provides: Mgr. Marián Kulla, PhD.

Date of last modification: 11.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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 credits: 2

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 46

A	B	C	D	E	FX
54.35	13.04	8.7	4.35	10.87	8.7

Provides: Dr. rer. pol. Michaela Kováčová

Date of last modification: 05.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ LR1/03	**Course name:** Healing Plants

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 credits: 3

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To provide the students with healing principles of plants and production of drug.

Brief outline of the course:
History and present state. Pharmacotherapeutical and toxic effects of drug. Active substances. Inheritance, chemotypes and breeding. Cultivation and post-harvest technology. Essential oil and extracts production. Special part: Claviceps, Angelica, Valeriana, Drosera, Levandula. Digitalis, Hypericum, Althaea, Calendula, Silybum, Chamomilla, Arctostaphylos, Melissa, Mentha, Hyssopus, Thymus, Salvia, Agrimonia, Rosa, Tilia, Achillea, Plantago, Panax and tonic plants.

Recommended literature:
Pahlow M.: Healing plants. New York 1993

Course language:

Notes:

Course assessment
Total number of assessed students: 292

A	B	C	D	E	FX
25.34	19.86	21.92	12.33	9.93	10.62

Provides: prof. RNDr. Miroslav Repčák, DrSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of 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
Total number of assessed students: 729

A	B	C	D	E	FX
60.49	13.85	12.76	8.78	3.43	0.69

Provides: doc. PhDr. Pavol Tholt, PhD., mim.prof., Doc. PhDr. Peter Nezník, CSc., PhDr. Katarína Mayerová, PhD., Mgr. Róbert Stojka, PhD.

Date of last modification: 26.01.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

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 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:
Abiotic and biotic factors of water environment; typology and characteristics of freshwater habitats; eutrophycation, pollution saprobity and evaluation of habitats with relation to abiotic factors.

Recommended literature:
Horn, A., Goldman, C.: Limnology. Mc Graw Hill. 2nd Edition, 1994
Wetzel, R.G.: Limnological analyses. Springer Verl., 3rd Edition, 2000

Course language:

Notes:

Course assessment
Total number of assessed students: 163

A	B	C	D	E	FX
39.88	23.93	14.72	19.63	1.84	0.0

Provides: prof. RNDr. Igor Hudec, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚGE/HYD/07	**Course name:** Hydrology and hydrogeography

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 credits: 6

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚGE/MEK/07

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Historical development of hydrology, the parameters runoff, atmospheric precipitation, runoff balance, hydrological cycle. Hydrography, morphometric characteristics of the water flow and river runoff in the process. Measurement of water levels and flow rates. Subsurface water resources formation, breakdown, mineral and thermal water springs and their classification and use. Stagnant water, physical and chemical properties, classification of lakes. Oceanografía-relief bathymetric, physical and chemical properties of seawater, seawater moves, raw materials and energy potential of the world ocean.

Recommended literature:
BEDIENT, P.B., HUBER, W.C., 1989: Hydrology and Floodplain Analysis, Addison-Wesley Publishing Company.

Course language:

Notes:

Course assessment
Total number of assessed students: 290

A	B	C	D	E	FX
1.03	3.79	12.76	24.48	46.55	11.38

Provides: RNDr. Dušan Barabas, CSc.

Date of last modification: 11.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Short written tests.
Written test.

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, 2006.

Course language:

Notes:

Course assessment
Total number of assessed students: 865

A	B	C	D	E	FX
16.07	19.31	25.09	23.12	15.72	0.69

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Zuzana Vargová, Ph.D., Mgr. Miroslav Almáši, PhD., RNDr. Lukáš Smolko

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ISC1a/00	**Course name:** Cheminformatics I

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

Number of credits: 2

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
seminar project

Learning outcomes:
Introductory course aimed at introducing students to the fundamental informatics techniques for chemistry-related disciplines. The class will cover a wide range of topics, including searching chemical information on internet, searching for patent information and work with the primary and secondary literature.

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

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

Course language:
slovak language and english language

Notes:

Course assessment
Total number of assessed students: 661

A	B	C	D	E	FX
62.48	10.29	15.73	8.62	1.97	0.91

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

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ ISCH1b/03	**Course name:** Cheminformatics II
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 credits: 4	
Recommended semester/trimester of the course: 6.	
Course level: I.	
Prerequisities: ÚCHV/ISC1a/03 or ÚCHV/ISC1a/00	
Conditions for course completion: seminár project	
Learning outcomes: The main goal is to introduce students to subject of cheminformatics, mainly the chemical structures representation, storing in databases, searching and retrieving. Basics of current approachs of delivering chemical information on Internet. Using the structural and factual databases (Beilstein, CSD, PDB, PubChem). Lectures are completed with practical training in computer laboratory.	
Brief outline of the course: Representing and visualizing 2D chemical structures. Representing and visualizing 3D chemical structures. Chemistry databases - basics. Chemistry databases - substructure searching. Chemistry databases - similarity searching. Chemical information and web applications. Factual databases - Beistein CrossFire, PubChem, ... Structural databases - CSD, PDB, ...	
Recommended literature: 1. Gasteiger J.(Editor), Engel T.(Editor): Chemoinformatics : A Textbook. John Wiley & Sons, 2004, ISBN 3-527-30681-1 2. Internet resources	
Course language: slovak language and english language	
Notes:	

Course assessment
Total number of assessed students: 30

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

Provides: doc. RNDr. Ivan Potočňák, PhD., RNDr. Ladislav Janovec, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PRCH1/10	**Course name:** Chemistry seminar I

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 0 / 1 **Per study period:** 0 / 14
Course method: present

Number of credits: 1

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
2 written tests from the anorganic compounds nomenclature and 2 written tests from the organic compounds nomenclature, min. 51% from each test is required.
Final evaluation will be calculated from all four written tests, 100% attendance at seminars.

Learning outcomes:
The students will become familiar with the basics of IUPAC nomenclature of inorganic and organic compounds.

Brief outline of the course:
1. Nomenclature of binary and pseudobinary compounds, acids, salts, double salts and coordination compounds.
2. Noenclature of alkanes, alkenes, alkynes, cyclic and aromatic hydrocarbons
3. Nomenclature of the basic heterocyclic compounds.
4. Nomenclature of halogen derivatives of hydrocarbons.
5. Nomenclature of hydroxy compounds and their derivatives.
6. Nomenclature of carbonyl compounds and their derivatives.
7. Nomenclature of carboxylic acids and their derivatives.

Recommended literature:
M. Zikmund: Ako tvoriť názvy v anorganickej chémii, SPN 1995.
A. Sirota, E. Adamkovič, Názvoslovie anorganických látok, SPN, Bratislava, 2003.
Heger, J., Hnát, I., Putala, M.: Názvoslovie organických zlúčenín, SPN, Bratislava, 2004.

Course language:
slovak

Notes:

Course assessment
Total number of assessed students: 384

A	B	C	D	E	FX
19.79	34.38	23.96	11.72	2.08	8.07

Provides: RNDr. Kvetoslava Stanková, PhD., doc. RNDr. Zuzana Vargová, Ph.D., RNDr. Jana Špaková Raschmanová, PhD., RNDr. Juraj Kuchár, PhD.
Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PRCH2/10	**Course name:** Chemistry seminar II

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 0 / 1 **Per study period:** 0 / 14
Course method: present

Number of credits: 1

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚCHV/VCH/03 or ÚCHV/VCH/10

Conditions for course completion:
No one.
Oral verification of knowledge.

Learning outcomes:
Theoretical training of studenst for practical course „Practical from Inorganic Chemistry“

Brief outline of the course:
Priciples and calculations to practical course: Elements, oxides and nitrides, acids, salts and complexes – their laboratory preparation.

Recommended literature:
Z. Vargová, J. Kuchár, Základné praktikum z anorganickej chémie, UPJŠ Košice, 2009
D. Valigura, T. Gracza, A. Mašlejová, B. Papánková, J. Šíma, K. Špirková, Chemické tabuľky, STU, Bratislava, 2004

Course language:

Notes:

Course assessment
Total number of assessed students: 227

A	B	C	D	E	FX
66.96	29.96	2.64	0.44	0.0	0.0

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Zuzana Vargová, Ph.D., RNDr. Juraj Kuchár, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB10/14	**Course name:** IB10 - Medzinárodný certifikát ECo-C
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB11/14	**Course name:** IB11 - Medzinárodný certifikát ECDL
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 14	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB12/14	**Course name:** IB12 - Používanie, administrácia a vývoj v systéme SAP
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 54	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB1/14	**Course name:** IB1 - Etika v biomedicínskych vedách pre zdravotnícku prax
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB2/14	**Course name:** IB2 - Právne minimum – súkromnoprávne aspekty
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB3/14	**Course name:** IB3 - Právne minimum – verejnoprávne aspekty
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB4/14	**Course name:** IB4 - Projektový manažment
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 20	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB5/14	**Course name:** IB5 - Manažérska ekonomika
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB6/14	**Course name:** IB6 - Riešenie konfliktných a krízových situácií v školskej praxi
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB7/14	**Course name:** IB7 - Štatistika pre prax
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB8/14	**Course name:** IB8 - Environmentálne aspekty záťaže životného prostredia
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 16	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: R UPJŠ/ IB9/14	**Course name:** IB9 - Medzinárodný certifikát TOEFL
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 17	
Recommended semester/trimester of the course:	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 0

abs	n	neabs
0.0	0.0	0.0

Provides:
Date of last modification: 11.08.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 5

Recommended semester/trimester of the course: 1.

Course level: I., II.

Prerequisities:

Conditions for course completion:
On the basis of the written tests and seminary work.
On the basis of the continuous assessment and examination.

Learning outcomes:
The concept of industrial ecology in the frame of environmental chemistry.

Brief outline of the course:
The concept of industrial ecology.
Selected topics of environmental chemistry in the context of industrial ecology.
Selected topics of industrial, clinical toxicology and ecotoxicology.

Recommended literature:
S. E. Manahan: Industrial Ecology., CRC Press, New York, 1999.
S. E. Manahan: Environmental Chemistry. , CRC Press, New York, 2005.

Course language:

Notes:

Course assessment
Total number of assessed students: 139

A	B	C	D	E	FX
27.34	20.14	23.74	14.39	13.67	0.72

Provides: doc. Ing. Viera Vojteková, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/IKT/03	**Course name:** Information-Communication Technologies

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 credits: 2

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Provide necessary skills in area of information a communication technologies in extent required for basic ECDL certificate.

Brief outline of the course:
1. Text processing.
2. Table calculators.
3. Database systems for storing data.
4. Presentations.
5. Network services.

Recommended literature:
1. Guides for software packages.
2. Support from faculty MOODLE server.

Course language:

Notes:

Course assessment
Total number of assessed students: 283

A	B	C	D	E	FX
62.54	16.96	14.49	3.89	1.06	1.06

Provides: doc. RNDr. Ivan Potočňák, PhD., RNDr. Juraj Kuchár, PhD., RNDr. František Kaľavský, doc. Ing. Viera Vojteková, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ACH1/10	**Course name:** 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 credits: 5

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚCHV/VCH/10 or ÚCHV/VCH/03 or ÚCHV/VCHU/10 or ÚCHV/VCHU/15

Conditions for course completion:
Written test.

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

Brief outline of the course:
Electronic configuration, abundance, use, physical and chemical properties, preparation, reactivity of non-metallic elements hydrogen, halogens, oxygen, sulphur, nitrogen, phosphorus, carbon, silicon, boron and rare gases. Binary and other compounds formed by these elements, their properties and reactivity.

Recommended literature:
1. Greenwood, N. N., Earnshaw, A: Chemistry of the Elements. Pergamon Press, Oxford, 1984
2. Shriver, D.F., Atkins, P.W., Langford, C. H.: Inorganic Chemistry. 4th Ed., Oxford University Press, Oxford, 2006

Course language:

Notes:

Course assessment
Total number of assessed students: 249

A	B	C	D	E	FX
7.63	19.28	26.51	31.33	13.25	2.01

Provides: prof. RNDr. Juraj Černák, CSc., RNDr. Juraj Kuchár, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 7

Recommended semester/trimester of the course: 3.

Course level: I.

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

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

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 494

A	B	C	D	E	FX
10.93	18.02	30.77	26.52	8.91	4.86

Provides: prof. RNDr. Juraj Černák, CSc., RNDr. Juraj Kuchár, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

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

Course assessment
Total number of assessed students: 539

abs	n
95.18	4.82

Provides: doc. RNDr. Mária Kožurková, CSc., prof. RNDr. Katarína Cechlárová, DrSc., prof. RNDr. Beňadik Šmajda, CSc., prof. Mgr. Jaroslav Hofierka, PhD., doc. RNDr. Ivan Žežula, CSc., doc. RNDr. Vladimír Zeleňák, PhD., Doc. RNDr. Jozef Hanč, PhD., RNDr. Ondrej Krídlo, PhD., Mgr. Vladislav Kolarčik, PhD., RNDr. Janetta Nestorová-Dická, PhD.
Date of last modification: 17.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MTCa/13	**Course name:** Mathematics I for chemists

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

Number of credits: 6

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

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

Learning outcomes:
To obtain basic knowledge on functions of one variable and their properties; to be able to apply the theory in concrete excercises.

Brief outline of the course:
Functions, basic properties. Elementary functions. Continuous functions. Limits. Derivation and its geometric aplications. Theorems about continuous functions. Behaviour of functions. Indefinite integrals, basic methods of integration. Definite integral and its applications.

Recommended literature:
S. Lang: A First Course in Calculus, Springer Verlag, 1998

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 393

A	B	C	D	E	FX
9.67	10.43	18.07	19.85	26.21	15.78

Provides: doc. RNDr. Roman Soták, PhD., RNDr. Jana Borzová, Mgr. Timea Gábová, RNDr. Eva Oceľáková

Date of last modification: 14.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚMV/ MTCb/13	**Course name:** Mathematics II for chemists

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

Number of credits: 5

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

Course level: I.

Prerequisities: ÚMV/MTCa/13

Conditions for course completion:
Two written tests and one homework with excercises from the whole semester, final test.
According to the results from the semester and in view of the results of the written final test.

Learning outcomes:
To develop acquired knowledge of mathematical analysis with knowledge on linear algebra and functions of more variables. To learn to solve basic types of differential equations and know how to use them to model real-world phenomena. To learn to solve problems about infinite series.

Brief outline of the course:
System of linear algebraic equations, determinants. Functions of more variables, continuity and limits, partial derivations, local extremes of functions of two variables. Some types of differential equations. Series, functional series, Taylor and MacLaurin series.

Recommended literature:
1. S. Lang: A First Course in Calculus, Springer Verlag, 1998
2. Huťka V., Benko E., Ďurikovič V.: Matematika, Alfa, Bratislava 1991.
3. Došlá, Z.: Matematika pro chemiky, 1.díl. Masarykova univerzita, Brno, 2010.

Course language:
Slovak

Notes:

Course assessment
Total number of assessed students: 95

A	B	C	D	E	FX
12.63	15.79	24.21	17.89	26.32	3.16

Provides: doc. RNDr. Stanislav Lukáč, PhD.

Date of last modification: 14.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MKC1/01	**Course name:** Microbiology

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 credits: 3

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Oral examination

Learning outcomes:
To provide the students with basic knowledge of microorganisms.

Brief outline of the course:

Recommended literature:
Jawetz, E., Melnick, J.L., Adelberg, E.A.: Medical microbiology. Appleton and Lange Norwalk, CT, USA, 1995

Course language:

Notes:

Course assessment
Total number of assessed students: 18

A	B	C	D	E	FX
55.56	16.67	22.22	5.56	0.0	0.0

Provides: doc. RNDr. Katarína Kropáčová, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/MB1a/03	**Course name:** Molecular Biology I

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 credits: 5

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities: ÚCHV/BCH1b/03 or ÚCHV/BCH1b/10

Conditions for course completion:
2x test
Examination

Learning outcomes:
To provide students with knowledge of the structure and function of RNA and DNA and of genomes.

Brief outline of the course:
The structure and biological function of proteins, RNA and DNA structure, the structure of prokaryotic and eukaryotic chromosomes. Genetic information, genetic code, gene and transcription unit of prokaryotes and eukaryotes, exones and introns, codon and anticodon. DNA in the nucleus and extrachomosomal DNA. Replication of bacterial genome, chromosomal and plasmid DNA, replication of eukaryotic genome. Trancription of bacteria genome, structural genes, rRNA and tRNA, transcription of eukaryotic genome. RNA polymerase II, I and III. Post-transcription modification of eukaryotic RNA, hnRNA, pre-mRNA, pre-tRNA. Translation of nucleic acids, post-translation modification of proteins. Regulation of gene expression in eukaryotes and prokaryotes on the transcription and translation levels. Life cycle of cells and its regulation, ontogenic development. DNA recombination, sexual transmission of genetic material. Heredity, inheritance disease, gene therapy. DNA transposition, essential of mutagenesis. DNA repair.

Recommended literature:
S. Rosypal: Úvod do molekulárnej biológie (I, II, III diel)

Course language:

Notes:

Course assessment
Total number of assessed students: 190

A	B	C	D	E	FX
11.58	13.68	29.47	26.84	16.32	2.11

Provides: doc. RNDr. Peter Javorský, DrSc., doc. RNDr. Peter Pristaš, CSc., doc. RNDr. Viktor Víglaský, PhD.

Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/MB1b/08	**Course name:** Molecular Biology II

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 credits: 5

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/MB1a/03

Conditions for course completion:
test
Oral examination

Learning outcomes:
To provide students with more advanced knowledge of DNA and its uses based on material provided in Molecular Biology I.

Brief outline of the course:
Basic principles of isolation and purification of nucleic acids and their characterization,
Gene engineering and enzymatic tools,
Preparation of recombinant DNA,
DNA amplification methods; PCR, RT PCR, SELEX, etc.,
Analyses of nucleic acids, DNA sequencing,
Applying of genetic manipulations.

Recommended literature:
J. Turňa a kol.: Rekombinantná DNA a biotechnológie
J. Sambrook a kol.: Molecular cloning - a laboratory manual

Course language:

Notes:

Course assessment
Total number of assessed students: 83

A	B	C	D	E	FX
32.53	21.69	21.69	21.69	2.41	0.0

Provides: doc. RNDr. Peter Javorský, DrSc., doc. RNDr. Peter Pristaš, CSc., doc. RNDr. Viktor Víglaský, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MZP/09	**Course name:** Monitoring životného prostredia

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 credits: 2

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:
Test
Examination

Learning outcomes:
Getting a knowledge about the methods of environmental analysis.

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 8

A	B	C	D	E	FX
62.5	0.0	37.5	0.0	0.0	0.0

Provides: doc. Mgr. Vasiľ Andruch, CSc.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ NJ//13	**Course name:** Naval Yachting
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 2

abs	n
100.0	0.0

Provides: doc. Mgr. Rastislav Feč, PhD.
Date of last modification: 15.01.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ JCH1/04	**Course name:** Nuclear 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 credits: 4

Recommended semester/trimester of the course: 6.

Course level: I., II.

Prerequisities:

Conditions for course completion:
test
examination

Learning outcomes:
To explain a basics of radioactivity and nuclear reactions.
The course is to provide the students with a knowledge of preparation of the radionuclides and its use in the technical practise, to give the survey of biological effects of nuclear radiation.

Brief outline of the course:
Fundamentals of nuclear chemistry. Elementary particles. Nuclear core. Nuclides and isotopes. Radioactivity and radioactive disintegration kinetics. Radioactive disintegration. Decay law. Half life period. Units of radioactivity. Nuclear reactions. Sources of nuclear radiation. Detection and registration of radiation. Nuclear chemical technology. Radioactive analytical methods. Isotopic dilution method, activation analysis. Biological effects of the nuclear radiation. Nuclear medicine. Nuclear power station.

Recommended literature:
G. R. Choppin, J. Rydberg: Nuclear Chemistry, Theory and Applications, Pergamon Press, 1980.
G. R. Choppin, J. O. Liljenzin, J. Rydberg: Radiochemistry and Nuclear Chemistry, 3rd edition, Woburn, USA, Butterworth-Heinemann, 2002.
W. D. Ehmann, D. E. Vance: Radiochemistry and Nuclear Methods of Analysis, Wiley, New York, 1991.
A. Vértes, I. Kiss: Nuclear Chemistry, Elsevier, 1987.

Course language:

Notes:

Course assessment
Total number of assessed students: 21

A	B	C	D	E	FX
28.57	28.57	19.05	14.29	9.52	0.0

Provides: RNDr. Andrea Morovská Turoňová, PhD., RNDr. František Kaľavský
Date of last modification: 03.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ OCH1a/10	**Course name:** Organic Chemistry I

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 credits: 6

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

Conditions for course completion:
Written test

Learning outcomes:
Aim of the course is to provide the students with a knowledge of basic organic chemistry

Brief outline of the course:
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, Saccharides, Aminoacids, Biologically active compounds

Recommended literature:
1. on-line PowerPoint presentations in the MOODLE at http://moodle science.upjs.sk/.
2. Organic Chemistry, Clayden, Greeves Warren & Wothers, Oxford University Press, 2010.
3. Organic Chemistry, Solomon, Willey, 2009.

Course language:

Notes:

Course assessment Total number of assessed students: 665					
A	B	C	D	E	FX
15.19	9.92	18.2	24.51	30.98	1.2
Provides: prof. RNDr. Jozef Gonda, DrSc., doc. RNDr. Miroslava Martinková, PhD.					
Date of last modification: 03.02.2014					
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.					

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 7

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities:

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

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

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

Recommended literature:

1. on-line moodle.science.upjs.sk
2. Organic Chemistry, Clayden, Greeves Warren & Wothers, Oxford University Press, 2010
3. Organic Chemistry, Solomon, Willey, 2009

Course language:

Notes:

Course assessment

Total number of assessed students: 463

A	B	C	D	E	FX
12.1	12.53	17.28	22.46	32.4	3.24

Provides: prof. RNDr. Jozef Gonda, DrSc., doc. RNDr. Miroslava Martinková, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/POC1/03	**Course name:** Organic chemistry - Lab

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚCHV/OCH1a/03 or ÚCHV/OCH1a/09 or ÚCHV/OCH1a/10

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.
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:
Slovak or English

Notes:

Course assessment
Total number of assessed students: 310

A	B	C	D	E	FX
45.48	31.94	16.13	5.16	0.65	0.65

Provides: RNDr. Kvetoslava Stanková, PhD., RNDr. Jana Špaková Raschmanová, PhD., RNDr. Margaréta Takácsová, RNDr. Slávka Hamuľaková, PhD., RNDr. Martin Walko, PhD., RNDr. Zuzana Kudličková, PhD., RNDr. Mária Vilková, PhD., RNDr. Ladislav Janovec, PhD., RNDr. Mariana Budovská, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ FCH1a/03	**Course name:** Physical Chemistry I

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 credits: 7

Recommended semester/trimester of the course: 3.

Course level: I.

Prerequisities: ÚMV/MTCa/13 and ÚMV/MTCb/13

Conditions for course completion:
Two partial tests from computational seminars in 6th and 12th week of semester.
Examination.

Learning outcomes:
Basic course on thermodynamics, chemical and phase equilibria.

Brief outline of the course:
State of aggregation,laws for ideal and real gases, liquids and solids - characteristics and properties. Principles of thermodynamics, thermodynamic equilibrium, characteristic thermodynamic changes, heat, work, internal energy, enthalpy, entropy, 1st, 2nd and 3rd law of thermodynamics, Gibbs energy. Thermochemistry, heat of reaction, 1st and 2nd thermometric laws, enthalpy of formation, enthalpy of combustion, calorimetry. Phase equilibria, Gibbs´ phase rule, phase diagrams for 1-, 2- and 3-componental systems, colligative properties, activity. Adsorption, adsorption isotherms. Diffusion. Chemical equilibrium, van´t Hoff´s reaction isotherm, isobar and isochore, influence of temperature and pressure on chemical equilibrium. Electrochemistry. Conductivity of electrolytes, utilization, Faraday´s law, strong electrolytes - theory, activity coefficients, ionic strength. Weak electrolytes, theories of acids and bases, buffer solutions, hydrolysis of salts.

Recommended literature:
T. Engel, P. Reid : Physical Chemistry, Pearson Educat. Inc., San Francisco 2006
P.W. Atkins : Physical Chemistry,Oxford University Presss, Oxford 1986, 1990, 1994, 1998
W.J. Moore : Physical Chemistry,Longman, London 1972 and newer editions

Course language:

Notes:

Course assessment
Total number of assessed students: 454

A	B	C	D	E	FX
14.98	19.16	17.84	18.94	16.96	12.11

Provides: doc. RNDr. Renáta Oriňáková, PhD., RNDr. Lenka Lorencová, PhD.

Date of last modification: 11.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚCHV/FCH1a/03 or ÚCHV/FCHU/10

Conditions for course completion:
Two partial tests from computational seminars in 6th and 12th week of semester.
Examination.

Learning outcomes:
Understandable explain to students the principles of chemical kinetics of processes, to elucidate the kinetics and mechanism of some reactions. To analyse particularly the equilibrium and kinetics of electrode processes.

Brief outline of the course:
Electrochemistry. Equilibrium homogeneous processesn electrolyte solutions. Charge transfer in electrolyte solutions. Nonequilibrium homogeneous processes. Trnasport processes in electrolyte solutions. Conductance and molar conductivity. Hindering effects. Transport numbers. Equilibrium in heterogeneous electrochemical systems. Pocesses on charged interfaces. Electrochemical cells and fuel cells. Classification of electrode types. Concentration cells. Electrolysis. Electrochemical power sources. Potentiometry. Electrical double layer. Surface tension.
Chemical kinetics. Homogeneous processes. Reaction rate. Reaction order. Classification of chemical reactions. Elementary chemical reactions. Mechanism and kinetics equations of complicated chemical processes. Methods of rate low determination. Theory of chemical kinetics. Ttemperature dependence of reaction rates. Collision theory. Activated complex theory. Chain reactions. Structure and rate lows of chain reactions. Explosion. Polymerisation reactions. Photochemical reactions. Catalysis. Theory of homogeneous catalysis. Chemical oscillation reactions. Heterogeneous processes. Difusion. Physical and chemical adsorption. Adsorption and diffusion. Processes in heterogeneous electrochemical systems. Electrode kinetics, activation and diffusive mechanism of charge transfer.
Application of theoretical relationships on the solving of concrete problems and on the calculation of examples during seminars.

Recommended literature:
T. Engel, P. Reid : Physical Chemistry, Pearson Educat. Inc., San Francisco 2006
P.W. Atkins : Physical Chemistry,Oxford University Presss, Oxford 1986, 1990, 1994, 1998
W.J. Moore : Physical Chemistry,Longman, London 1972 and newer editions

Course language:

Notes:

Course assessment
Total number of assessed students: 416

A	B	C	D	E	FX
16.35	18.51	21.63	20.19	19.23	4.09

Provides: doc. RNDr. Renáta Oriňáková, PhD., RNDr. Lenka Lorencová, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ CHF1a/03	**Course name:** Physics I

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 credits: 6

Recommended semester/trimester of the course: 1.

Course level: I.

Prerequisities:

Conditions for course completion:
Test
Examination

Learning outcomes:
To learn basic knowledges of mechanics, thermodynamics and electrostatics. To learn to apply the well- handled curriculum for numeric solving of relevant physical problems and exercises.

Brief outline of the course:
Kinematics and mechanics of a particle. Motion in the gravitational field. Newton's laws of motion. Newton's law of gravitations. Work and mechanical energy. Mechanics of a system of particles. 1st and 2nd impulse theorems. Rotational movement of particles. Moment of inertia. Deformation of solids. Hooke's law. Hydrostatics and hydrodynamics of fluids. Kinetic theory of gases. Thermodynamic laws. Entropy. Heat transfer.

Recommended literature:
1. H.E.Gettys, F.J.Keller, M.J.Skove: Physics – classical and modern, Mc Graw – Hill Book Co., New York, 1989.
2. F.J.Keller, H.E.Gettys, M.J.Skove: Physics, Mc Graw – Hill, Inc., New York, 1993.

Course language:

Notes:

Course assessment
Total number of assessed students: 646

A	B	C	D	E	FX
12.07	14.86	20.74	20.59	19.04	12.69

Provides: doc. RNDr. Adriana Zeleňáková, PhD.

Date of last modification: 18.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ CHF1b/12	**Course name:** Physics II

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 credits: 5

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

Course level: I.

Prerequisities: (ÚFV/CHF1a/03 and ÚFV/UVF/12)

Conditions for course completion:
2x in semester (7th and 13th weeks), tests of exercises and tests of the theory
Exam

Learning outcomes:
Introduction to basic knowledge of classical electricity and magnetism, Electric and magnetic properties of gases, liquids and solids, electric oscillations, electromagnetic waves, optics and quantum-mechanical properties of atom.

Brief outline of the course:
Electrostatics. Electrodynamics. Electric current. Ohm's law. Kirchhoffs' laws. Work and power of electric current. Magnetism. Magnetic field. Electromagnetic induction. Transformers. Magnetic materials in magnetic field. Types of magnetic materials. Electric oscillations. Alternating current. LCR circuits. Band theory of solids. Semiconductors. Thermoelectric effect. Electric current in liquids and gasses. Electromagnetic waves. Maxwell's equations. Optics. Interferency and diffraction of light. Polarization. Sources of light. Radiation laws. Photoelectric effect. Lasers. Quantum mechanics. Wave function. Spin. Pauli's exclusion principle. The hydrogen atom, multielectron atoms.

Recommended literature:
1. F.J.Keller, H.E.Gettys, M.J.Skove: Physics, Mc Graw – Hill, Inc., New York, 1993.

Course language:
english

Notes:

Course assessment
Total number of assessed students: 543

A	B	C	D	E	FX
6.26	12.34	23.2	25.6	19.15	13.44

Provides: doc. RNDr. Alžbeta Orendáčová, DrSc., Mgr. Tomáš Samuely, PhD., Mgr. Katarína Ráczová, Mgr. Daniela Šoltésová

Date of last modification: 18.02.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚFV/ZP2/99	**Course name:** Physics practical

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 credits: 3

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

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
The goal is to get acquainted with the real physical experiments, a complement theoretical knowledge connected in the subject of General Physics by the practical way.
Prekladač Google pre firmy:Nástroje pre prekladateľovPrekladač webových stránokNástroj na hľadanie nových trhov
The goal is to get acquainted with the real physical experiments, a comp

Brief outline of the course:
The goal of this laboratory exercises is to familialize the students with measurement metods, with kinds and calculus of mistakes, with measured results processing, and with presentation of results. Students selected for practical tasks completed and verified knowledge of mechanics and molecular physics, electricity and magnetism, and optics.

Recommended literature:
Degro, J., Ješková, Z., Onderová Ľ., Kireš, M.: Basic physical measurements I, Ed. PF UPJŠ Košice 2007 (in slovak)
Brož, J. and all.: Fundamental physical measurements (I), SPN, 1967
(in czech)

Course language:

Notes:

Course assessment
Total number of assessed students: 319

A	B	C	D	E	FX
36.05	37.93	21.0	3.45	0.63	0.94

Provides: doc. RNDr. Adriana Zeleňáková, PhD., doc. RNDr. Ján Füzer, PhD.

Date of last modification: 18.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 5

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Written work.
Exam.

Learning outcomes:
To obtain theoretical and practical knowledge from phytogeography.

Brief outline of the course:
History of phytogeography. Plants and environment. Chorology, area, area disjunctions, relics, endemites, vicariancy, floral elements. Main course of florogenesis since paleozoic to quaternary ages. Postglacial evolution of Slovak vegetation. Regional phytogeography of Earth. Vegetation geography: from tropical rainforests to tundras. Changes of earth vegetation and their study. Geographical origin of cultivated plants.
Practices: Fieldworks. Preparing of maps. Phytogeographical division of Slovakia. Students seminar works on phytogeography.

Recommended literature:
Hendrych R.: Fytogeografie. - SPN, Praha 1984.
Brown J. H., Lomolino M. V.: Biogeography. - Sinauer Associates, Sunderland, 1998.

Course language:

Notes:

Course assessment
Total number of assessed students: 249

A	B	C	D	E	FX
41.77	22.09	21.69	6.02	6.83	1.61

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

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities: ÚCHV/VCH/03 or ÚCHV/VCHU/10 or ÚCHV/VCH/10 or ÚCHV/PRCH2/10

Conditions for course completion:
test
Results from reports, tests. Achieved practical abilities.

Learning outcomes:
The practical acquirements at preparation and study of inorganic compounds and their physico-chemical properties by common laboratory techniques.

Brief outline of the course:
The utilization of common laboratory techniques and also the work in anaerobic, inert and non-aqueous conditions at 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, SnI4, CuBr2) and coordination compounds ([Cr2(CH3COO)4(H2O)2], [CoCl2(en)2]Cl, [Cu(NH3)4]SO4·H2O, K3[Al(C2O4)3]·3H2O).

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 320

A	B	C	D	E	FX
54.06	36.88	5.63	2.5	0.94	0.0

Provides: RNDr. Martin Vavra, PhD., doc. RNDr. Zuzana Vargová, Ph.D., RNDr. Juraj Kuchár, PhD., Mgr. Miroslav Almáši, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/PFCH/03	**Course name:** Practical in Physical Chemistry

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 6 **Per study period:** 84
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 4.

Course level: I.

Prerequisities: ÚCHV/FCH1a/03

Conditions for course completion:
Approved laboratory reports
Assessment

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:

Course assessment
Total number of assessed students: 271

A	B	C	D	E	FX
59.78	26.94	10.33	0.74	2.21	0.0

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

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ PANCHE/09	**Course name:** Praktikum z analytickej chémie

Course type, scope and the method:
Course type: Lecture / Practice
Recommended course-load (hours):
Per week: 0 / 4 **Per study period:** 0 / 56
Course method: present

Number of credits: 4

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

Conditions for course completion:
Test

Learning outcomes:
The application of theoretical knowledges from analytical chemistry in laboratory practice

Brief outline of the course:
Confirmation reactions of cations and anions. Gravimetry. Volumetric analysis: neutralisation volumetric methods, coagulative volumetric methods, oxidation-reduction volumetric methods, complex forming volumetric methods. Selected methods of instrumental analysis: electrochemical (potentiometry, conductometry, polarography), optical (spectrophotometry, AAS, refractometry), separation (paper and thin-layer chromatography). Possibilites of evaluation of results of analysis of instrumental methods in analytical chemistry.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 13

A	B	C	D	E	FX
76.92	7.69	7.69	0.0	7.69	0.0

Provides: RNDr. Rastislav Serbin, PhD., RNDr. Lívia Kocúrová, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ REK1/01	**Course name:** Radiation ecology

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

Number of credits: 3

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
Oral examination.

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 15

A	B	C	D	E	FX
33.33	26.67	33.33	6.67	0.0	0.0

Provides: prof. RNDr. Beňadik Šmajda, CSc.

Date of last modification: 13.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ÚTVŠ/CM/13	**Course name:** Seaside Aerobic Exercise
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 7

abs	n
57.14	42.86

Provides: Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.
Date of last modification: 15.01.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/SACH/10	**Course name:** Seminár z analytickej chémie

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

Number of credits: 2

Recommended semester/trimester of the course: 2.

Course level: I.

Prerequisities:

Conditions for course completion:
Test
Test

Learning outcomes:
Expand knowledge about analytical chemistry.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 12

A	B	C	D	E	FX
41.67	16.67	41.67	0.0	0.0	0.0

Provides: doc. Mgr. Vasiľ Andruch, CSc.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ASM/03	**Course name:** Separation Methods
Course type, scope and the method: **Course type:** Lecture / Practice **Recommended course-load (hours):** **Per week:** 2 / 1 **Per study period:** 28 / 14 **Course method:** present	
Number of credits: 5	
Recommended semester/trimester of the course: 6.	
Course level: I.	
Prerequisities: (ÚCHV/ANCHU/03 or ÚCHV/ANCHE/09 or ÚCHV/ANCH1b/03) and (ÚCHV/PAEC/03 or ÚCHV/PANCH/06 or ÚCHV/PANCHE/09 or ÚCHV/PACU/03)	
Conditions for course completion: Examination	
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, retention mechanisms, stationary phases and their selection. Instrumentation, detectors in GC. Data evaluation - qualitative and quantitative analysis. High-performance liquid chromatography, principles, classification. Stationary and mobile phases in LC, instrumentation. Applications. Comparison of GC and HPLC methods. Planar chromatographic methods - TLC, HPTLC, PC. Electrophoretic techniques - CE, ITP, HPCE. MEKC - micellar electrokinetic capillary chromatography. Lab-on-a-Chip (LOC), TAS, electrophoresis on a chip, principles and applications.	
Recommended literature: Krupčík, J.: Separačné metódy, SVŠT CHTF, Bratislava 1983. 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. Churáček J., Jandera P.: Úvod do vysokoúčinné kapalinové chromatografie, SNTL, Praha 1984.	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 392

A	B	C	D	E	FX
28.32	25.51	25.0	11.99	6.38	2.81

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

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 credits: 5

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities: ÚCHV/ASM/03

Conditions for course completion:
Laboratory reports, test.
Assessment

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:
Krupčík, J.: Separation methods (in slovak), SVŠT CHTF, Bratislava 1983.
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.: Praktikum zo separačných metód - aktuálne texty k cvičeniu na www. science.upjs.sk

Course language:

Notes:

Course assessment
Total number of assessed students: 95

A	B	C	D	E	FX
87.37	11.58	1.05	0.0	0.0	0.0

Provides: doc. RNDr. Katarína Reiffová, PhD., doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 1.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 7160

abs	n	neabs
88.42	7.82	3.76

Provides: PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc., doc. Mgr. Rastislav Feč, PhD., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 2.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 6364

abs	n	neabs
84.95	11.06	3.99

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., Mgr. Peter Bakalár, PhD., PaedDr. Milena Švedová, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 3.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 4191

abs	n	neabs
89.91	4.72	5.37

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, doc. PaedDr. Ivan Uher, PhD., PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 4.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3363

abs	n	neabs
86.14	6.78	7.08

Provides: PaedDr. Imrich Staško, doc. Mgr. Rastislav Feč, PhD., doc. PhDr. Ivan Šulc, CSc., Mgr. Ivan Matúš, PhD., Mgr. Zuzana Küchelová, PaedDr. Milena Švedová, PhD., Mgr. Peter Bakalár, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Agata Horbacz, PhD., Mgr. Marek Valanský, Mgr. Dávid Kaško

Date of last modification: 15.01.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ ST/03	**Course name:** Stereochemistry

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 credits: 5

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

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

Learning outcomes:
Chemistry in three dimensions. Stereochemistry of molecules deals with the counting of stereoisomers, with their structure, energy, physical and spectral properties.

Brief outline of the course:
Isomerism, Configuration and Conformation Isomers
Alkene Stereoisomers, Nature of cis-trans Isomerism, Nomenclature
Interconversion of cis-trans-isomers
Configurational Stereoisomers of Alkenes
The Sequence Rule for Assignment of Alkene Configurations
Conformation and Reactivity, Curtius-Hammet Priciple
Cycloalkane Stereoisomers, Stability of Cyclic Molecules
Three, Four, Five –Membered Rings, Ring Larger than Six-Membered
Conformation and Reactivity in Cyclohexanes
Conformational Stereoisomers, Fused and Bridged Rings
Ethane Conformations, Butane Conformations
Relationship Between Ethane's and Butane`s Potential Energy and its Dihedral Angle
Some Important Aspects of Conformational Stereoisomerism
Ring Conformations, Substituted Cyclohexane Compounds
Chirality and Symmetry
Enantiomorphism, Enantiomers, Diastereoisomers
Polarimetry, Chiroptical Properties, Optical Activity
Designating the Configuration of Stereogenic Centers
Absolute configuration, Relative Configuration
Determination of Absolute and Relative Configuration
X-ray Structure analysis, Chemical Correlation
Properties of Stereoisomers, Stereoisomers Discrimination

The Sequence Rule for Assignment of Configurations to Stereogenic Carbons
Compounds Having Two or More Stereogenic Centers
Stereogenic Nitrogen
Fischer Projection Formulas, Zig-Zag Projection Formulas, Harworth Formulas
Interconversion from Fischer Projection Formulas to Zig-Zag
Achiral Diastereomers (meso-Compounds)
Stereochemistry of Carbohydrates, Epimers, alfa/beta Notification, Mutarotation
Other Configuration Notations
Separation of Stereoisomers, Resolution of Racemates, Racemisation
Determination of Enantiomer and Diastereoisomer Composition, NMR methods, Chromatographic and related Separation Methods
Conformational Enantiomorphism, Heterotopic ligands and faces, Prochirality
Conformations of Biphenyls, Atropoisomers, Chirality in molecules devoid of chiral centres, Allenes, Biphenyls, Helicenes, Stereoisomerism in Disubstituted Cyclohexanes
General Summary of Isomerism and Molecular Descriptors

Recommended literature:
Eliel L. E.: Stereochemistry of Organic Compounds, John Wiley & Sons, Inc. 2001.
http://uchv.upjs.sk/

Course language:

Notes:

Course assessment
Total number of assessed students: 147

A	B	C	D	E	FX
68.03	10.88	12.24	2.72	6.12	0.0

Provides: prof. RNDr. Jozef Gonda, DrSc.

Date of last modification: 03.02.2014

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/MUS/03	**Course name:** Structure determination - spectroscopic methods

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

Number of credits: 10

Recommended semester/trimester of the course: 5.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:

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

Recommended literature:
1. M. Hesse, H. Meier, B. Zeeh: Spectroscopic Methods in Organic Chemistry. Thieme, NY 1997.
2. L.G.Wade, Jr.: Organic Chemistry. Prentice Hall International, Inc. Englewood Cliffs, New Yersey 1995.

Course language:

Notes:

Course assessment
Total number of assessed students: 398

A	B	C	D	E	FX
19.35	25.88	30.4	19.6	4.77	0.0

Provides: doc. RNDr. Ján Imrich, CSc., RNDr. Jana Špaková Raschmanová, PhD., RNDr. Juraj Kuchár, PhD.

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ SVKB/04	**Course name:** Students Scientific Conference

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

Number of credits: 4

Recommended semester/trimester of the course: 6.

Course level: I.

Prerequisities:

Conditions for course completion:

Learning outcomes:
Individual scientific work of students. Publishing of obtained results in a written form and as a public presentation.

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 129

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

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ LKSp//13	**Course name:** Summer Course-Rafting of TISA River
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 63

abs	n
41.27	58.73

Provides: Mgr. Peter Bakalár, PhD.
Date of last modification: 15.01.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

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:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 185

abs	n
41.62	58.38

Provides: Mgr. Marek Valanský	
Date of last modification: 15.01.2014	
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ ZKLS//13	**Course name:** Winter Ski Training Course
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 36 **Per study period:** 504 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 59

abs	n
25.42	74.58

Provides: PaedDr. Imrich Staško, doc. PhDr. Ivan Šulc, CSc.
Date of last modification: 15.01.2014
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ZAN/03	**Course name:** Základy anorganickej chémie

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

Number of credits: 0

Recommended semester/trimester of the course:

Course level: I.

Prerequisities: ÚCHV/ACH1/03 or ÚCHV/ACH1/10 and ÚCHV/ACH2/03 and ÚCHV/VCH/03 or ÚCHV/VCH/10

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Overview of the properties of non-metallic elements and their compounds: hydrogen, halogens, oxygen, sulfur, nitrogen, phosphorus, carbon, silicon, boron, rare gases. Evolution of the properties along the groups and periods. Structure and properties of metals, formation of alloys. Overview of the general properties of metals and metalloids and their compounds. Alkali metals and alkaline earth metals, beryllium and magnesium. General properties of transition elements. Coordination compounds, their properties, and isomers thereof. An overview of the properties of the elements of the first transition series: scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper. The elements of the second and third transition series along the groups. Inner-transition elements. Ending elements of the transition series: zinc, cadmium and mercury. Metals and metalloids of the p-block: a group of aluminum, germanium, tin, lead, arsenic, antimony and bismuth. Selenium, tellurium and polonium.

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 33

A	B	C	D	E	FX
48.48	33.33	12.12	3.03	3.03	0.0

Provides:

Date of last modification: 03.02.2014

Approved: prof. Dr. Yaroslav Bazeľ, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 5.

Course level: I., II.

Prerequisities:

Conditions for course completion:
active participation in seminars
preparation of the oral presentation to the selected topic
semestral written test
oral examination

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

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

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

Course language:

Notes:

Course assessment Total number of assessed students: 692					
A	B	C	D	E	FX
20.66	23.41	25.0	20.09	8.09	2.75
Provides: doc. RNDr. Ľubomír Kováč, CSc.					
Date of last modification: 13.02.2014					
Approved: prof. Dr. Yaroslav Bazeľ, DrSc.					