COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RANC/06	**Course name:** Analytická chémia

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RACH/06	**Course name:** Anorganická chémia

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 36s
Course method: present

Number of credits: 12

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: prof. RNDr. Katarína Györyová, DrSc., doc. RNDr. Jozef Chomič, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RMIN/06	**Course name:** Basis of Mineralogy

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 9

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

Provides: doc. RNDr. Ivan Potočňák, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RBCH/06	**Course name:** Biochemistry

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 10

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 9

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

Provides: doc. RNDr. Viktor Víglaský, PhD.

Date of last modification:

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RPBCH/06	**Course name:** Biochemistry Practical

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

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: 3

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

Provides: doc. RNDr. Viktor Víglaský, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RBAC/06	**Course name:** Bioinorganic Chemistry

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:
Content: 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 of bioenergetic processes by the alkaline earth metal ions. 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 and in other branches of life.

Recommended literature:
Recommended reading: Kaim W., Schwederski B.: Bioinorganic Chemistry: Inorganic Elements in the Chemisry of Life. Wiley, Chichester 1998.
Wilkins P. C., Wilkins R. G.: Inorganic Chemistry in Biology. OCP, Oxford 1997.

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Mária Reháková, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RBOC/06	**Course name:** Bioorganická chémia

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 1

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

Provides: prof. RNDr. Jozef Gonda, DrSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RECH/06	**Course name:** Electrochemical Methods

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

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

Recommended literature:
F. Scholtz: Electroanalytical Methods, Springer Vrlg., Heidelberg 2002, ISBN 3-540-42449-3
J. Wang: Analytical Electrochemistry, VCH Publ., New York 1994,2000 R. Kalvoda (Ed.): Electroanalytical Methods in Chemical and Environmental Analysis, Plenum Publ. Corp., New York 1987
A.J. Bard, L.R. Faulkner: Electrochemical Methods, Jofn Wiley and Sons, New York 1980
T. Riley, A. Watson: Polarography and Other Voltametric methods, John Wiley and Sons, Chichester 1987
J. Wang: Stripping Analysis, VCH Publ. Inc., Deerfield Beach 19858

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Kvetoslava Markušová, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RCHDCH/04	**Course name:** Chémia a didaktika 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: N

Prerequisities: ÚCHV/RACH/06 and ÚCHV/ROCH/06 and ÚCHV/RDCH2/06 and ÚCHV/RDCH1/06

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 9

A	B	C	D	E	FX
44.44	11.11	33.33	11.11	0.0	0.0

Provides:

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RDCH1/06	**Course name:** Methodology of Chemistry Teaching I

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 9

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: doc. RNDr. Mária Ganajová, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RDCH2/06	**Course name:** Methodology of Chemistry Teaching II

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 9

Recommended semester/trimester of the course: 5.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 9

A	B	C	D	E	FX
88.89	11.11	0.0	0.0	0.0	0.0

Provides: doc. RNDr. Mária Ganajová, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ MOSU/06	**Course name:** Metódy určovania štruktúry, spektrálne metódy

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 4.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Ján Imrich, CSc., doc. RNDr. Jozef Chomič, CSc.

Date of last modification:

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ROZP/12	**Course name:** Obhajoba záverečnej práce

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: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides:

Date of last modification:

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ROCH/06	**Course name:** Organická chémia

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 36s
Course method: present

Number of credits: 12

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: prof. RNDr. Jozef Gonda, DrSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ RPP/07	**Course name:** Pedagogická prax
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week: Per study period:** 20s **Course method:** present	
Number of credits: 6	
Recommended semester/trimester of the course: 5.	
Course level: N	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 9	

abs	n
100.0	0.0

Provides: PhDr. Silvia Kontírová, PhD., Mgr. Mária Sarková, PhD.
Date of last modification:
Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RFCH/06	**Course name:** Physical Chemistry

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 8

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:
Examination

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

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. Galvanic cells, electromotive force of cells, Nernst equation, electrodes of 1st and 2nd kind, redox electrodes, Peters ´ equation, standard electrode potentials, potentiometric measurments, ion selective electrodes. Electrode processes, polarization of electrodes, concentration cells, corrosion of metals and passivity. Principles of polarography and voltammetric methods. Chemical kinetics - reaction types and mechanism, reaction rate, molecularity and order of reaction, rate laws for 1st and 2nd order reactions, reaction mechanisms, reaction rate theories, temperature dependence of rate constants. Catalysis - homogeneous and heterogeneous, acidobasic catalysis, enzyme catalysis. Colloids - classification, preparation, stability, optical properties, dialysis.

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

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: doc. RNDr. Kvetoslava Markušová, CSc., doc. RNDr. Renáta Oriňaková, DrSc., RNDr. Daniela Kladeková, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ RPFC/06	**Course name:** Practical in Physical Chemistry

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 12s
Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

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: 0

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

Provides: RNDr. Daniela Kladeková, CSc., RNDr. František Kaľavský, RNDr. Andrea Morovská Turoňová, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RPAC/06	**Course name:** Praktikum z analytickej chémie

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 12s
Course method: present

Number of credits: 3

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Taťána Gondová, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RPACH/06	**Course name:** Praktikum z anorganickej chémie

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 2.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Jozef Chomič, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ RPOC/06	**Course name:** Praktikum z organickej chémie

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: Per study period: 24s
Course method: present

Number of credits: 6

Recommended semester/trimester of the course: 3.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 0

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

Provides: doc. RNDr. Miroslava Martinková, PhD.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/RVCH/06	**Course name:** Všeobecná chémia+chemické výpočty

Course type, scope and the method:
Course type: Lecture
Recommended course-load (hours):
Per week: Per study period: 36s
Course method: present

Number of credits: 12

Recommended semester/trimester of the course: 1.

Course level: N

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 3

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

Provides: prof. RNDr. Katarína Györyová, DrSc., doc. RNDr. Jozef Chomič, CSc.

Date of last modification: 03.05.2015

Approved: doc. RNDr. Mária Ganajová, CSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚCHV/ RSZP1/00	**Course name:** Záverečná práca
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 10	
Recommended semester/trimester of the course: 5.	
Course level: N	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment

Total number of assessed students: 9

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

Provides:
Date of last modification: 03.05.2015
Approved: doc. RNDr. Mária Ganajová, CSc.