COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ ACM/12 | **Course name:** Analytical Cytometry

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: 4.

Course level: II., III.

Prerequisities:

Conditions for course completion:

Learning outcomes:
The goal of the course is to teach the students fundamental theoretical and practical aspects of analytical cytometry. The course covers multiple areas of methods in microscopy with special focus on flurescence and its application in confocal microscopy, morphometric measurements and their applications in cytology, determination of vital parameters and live cell imaging, basic methods for sample preparation etc.

Brief outline of the course:
Fundamentals of fluorescent methods, principles of fluorescence and various fluorescent methods (FRET, FLIM, FLIM-FRET, FRAP etc.), utilization of flurescent and phusion proteins. Principles of confocal microscopy (spinning disc CM, laser scanning CM), principles of colocalisation studies, software image analysis. Analyses on living cells – principles, hardware requirements, methods for vital parameters analyses, imaging methods with regard to lipids, cytoskeleton dynamics or cell division. Fluorescent dyes and their applications in analytical cytometry – nucleic acid, lipid, proteins, cytosceleton stainings, visualization of cell organelles, vital stainings, membrane transport, reactive oxygen and nitrogen species (ROS, NOS), membrane potential, pH etc.

Recommended literature:
1. R.D. Goldman a kol.: Live Cell Imaging – A Laboratory Manual, Cold Spring Harbour Laboratory Press, 2010
2. J.B. Pawley a kol.: Handbook of Biological Confocal Microscopy, Springer, 2006
3. D. Anselmetti a kol.: Single Cell Analysis, Wiley-Blackwell, 2009
4. A. Hibbs a kol.: Confocal Microscopy for Biologists, Kluwer Academic/Plenum Publishers, 2004

Course language:

Course assessment
Total number of assessed students: 25

A	B	C	D	E	FX	N	P
4.0	0.0	0.0	0.0	0.0	0.0	0.0	96.0

Provides: RNDr. Rastislav Jendželovský, PhD.
Date of last modification: 24.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 31

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

Provides: Doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ AMK/15	**Course name:** Aplikovaná mikrobiológia

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., 4.

Course level: II., III.

Prerequisities:

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

Learning outcomes:
Študenti získajú prehľad o využití mikroorganizmov v priemyselných procesoch pre výrobu biochemikálií a o využití rekombinantných DNA techník v priemysle. Ďalej získajú informácie o kyselinu mliečnu produkujúcich baktériách a ich využití v potravinárskom priemysle a o využití mikroorganizmov pri ochrane životného prostredia – čistenie odpadových vôd, bioremediácia, biopalivá.

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

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 0

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

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BIG/16	**Course name:** Bioinformatics in Genetics

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

Number of credits: 5

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

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 2

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

Provides: doc. RNDr. Peter Pristaš, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ BTR1/06	**Course name:** Plant Biotechnology

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

Number of credits: 6

Recommended semester/trimester of the course: 1.

Course level: I., II., III.

Prerequisities:

Conditions for course completion:
written test, protocols,
oral examination

Learning outcomes:
To gain theoretical and practical knowledge on plant tissue culture in vitro.

Brief outline of the course:
Genetics and physiology of plant cell and tissue culture, protoplasts, embryoids and organs cultured in vitro under sterile conditions. Use of tissue culture in research and praxis. Cryopreservation of plant cells and tissues. Immobilised plant systems. Genetic transformation of plants and expression of foreign genes.

Recommended literature:
Slater A. et al.: Plant Biotechnology. Oxford University Press 2008, 376 pp.
Wink M. (Ed.): An Introduction to Molecular Biotechnology. Willey-Blackwell, 2011, 601 pp.
Periodicals and Internet sources

Course language:

Course assessment
Total number of assessed students: 135

A	B	C	D	E	FX	N	P
37.04	18.52	15.56	7.41	12.59	3.7	0.0	5.19

Provides: prof. RNDr. Eva Čellárová, DrSc., RNDr. Katarína Nigutová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ CK1/03	**Course name:** Cytogenetics and Karyology

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: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
written tests,
protocols,
oral examination

Learning outcomes:
To gain knowledge and experience in genetic processes at the cell level using the newest scientific findings of cytogenetics and moleculoar cytology. To get acquainted in detail with the results comming from human genome mapping.

Brief outline of the course:
Organisation of eukaryotic genome. Nuclear skeleton. Nucleolus, nucleolar skeleton. Chromatin structure and changes of chromatin. Levels of DNA organisation in cell nucleus. Chromosomes. Polythene chromosomes. Cell cycle. Genetic regulation of a cell cycle. Genetic regulation of cell differentiation. Apoptosis. Telomeres and function of telomerase. Molecular cytology. Basic characteristics of the Human genom project - what we can learn from it?

Recommended literature:
Russel, J.P.: Genetics, Third Edition, Harper Collins Publisher,
New York 1992
Periodicals
Internet sources

Course language:

Course assessment
Total number of assessed students: 1107

A	B	C	D	E	FX	N	P
24.93	14.81	15.54	14.72	17.52	11.38	0.0	1.08

Provides: prof. RNDr. Eva Čellárová, DrSc., RNDr. Katarína Bruňáková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ CTP1/01	**Course name:** Cytopathology

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: 2.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Oral examination

Learning outcomes:
To provide the students with a knowledge of basic biological principles of carcinogenesis.

Brief outline of the course:
Tumor development. Tumor growth and metastatic potential. Cell cycle regulation and pathogenesis of cancer. Apoptosis in tumor growth and metastasis. Oncogenes and cancer. Tumor suppressor genes. Metastasis suppressor genes. Angiogenesis in cancer. Cell surface glycoproteins and their receptors. Proteinases and their inhibitors in cancer invasion. Radio-, chemo- and immunotherapy.

Recommended literature:
Sherbet, G.V., Lakshmi, M. S.: The Genetics of Cancer. Genes Associated with Cancer Invasion, Metastasis and Cell Proliferation. Academic Press, London, 1997
Shebert, G. V.: The biology of tumor malignancy. Academic Press, London, 1982

Course language:

Course assessment
Total number of assessed students: 282

A	B	C	D	E	FX	N	P
40.78	21.99	19.15	9.57	4.96	2.48	0.0	1.06

Provides: prof. RNDr. Peter Fedoročko, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 734

A	B	C	D	E	FX
60.63	13.9	12.67	8.72	3.41	0.68

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ DPO/14	**Course name:** Diploma Thesis and its Defence

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

Number of credits: 20

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 122

A	B	C	D	E	FX
54.1	28.69	11.48	4.1	1.64	0.0

Provides:

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/EB1/99	**Course name:** Evolutionary Biology

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: II.

Prerequisities:

Conditions for course completion:
written test

Learning outcomes:
To understand the fundamentals of the theory of evolution, the evidence supporting contemporary views on the origin and evolution of living organisms on Earth and the mechanisms of evolution.

Brief outline of the course:
Historical overview of evolutionary theories. The origin of life. Elements of evolution: mutations, population waves, and isolation. Natural selection. Molecular evolution. Adaptations and their classification. Concept of species. Macroevolution. Evolution of functions and organs, evolution of onthogeny. Phylogeny of animals. Evolutionary progress. Anthropogenesis. Plant diversity. Primary and secondary speciation of plants. Reproduction-isolation mechanisms. Hybridisation and introgression of plants. Polyploidy. Reproductive systems in plants.

Recommended literature:
Futuyama, D.J.: Evolutionary biology, Sinauer Associates, Sunderland, 3rd ed., 1997.
Dobzhansky T. et al.: Evolution. San Francisco 1977.

Course language:

Course assessment
Total number of assessed students: 514

A	B	C	D	E	FX
11.67	23.54	23.74	25.1	14.01	1.95

Provides: prof. RNDr. Pavol Mártonfi, PhD., prof. RNDr. Beňadik Šmajda, CSc., prof. RNDr. Eva Čellárová, DrSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EFZ1/03	**Course name:** Animal and human ecophysiology

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

Number of credits: 6

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Seminar.
Test.

Learning outcomes:
The aim of lectures is to provide students with knowledge of adaptations to environmental factors and extreme environments effects.

Brief outline of the course:
Environmental factors, reaction, adaptation, deformation. Biological rhythms. Stress reaction - general adaptation syndrom. Physiology and pathology of adaptation mechanisms - fever, pain, inflammation, apoptosis, necrosis. Aging. Regulation of food intake. Food adapations, fasting, starvation, overfeeding. Thermoregulation. Hibernation, estivation, diapause. Adaptations to hypobaria and hyperbaria. Adaptations to hypergravity and microgravity. Electromagnetic fields. Biotransformation. Xenobiotics in air, water and soil. Drugs of abuse. Carcinogenesis, oncogenes, tumor supressor genes. Cancer prevention. Prions.

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

Course language:

Course assessment
Total number of assessed students: 394

A	B	C	D	E	FX
14.21	22.34	22.34	23.1	16.75	1.27

Provides: doc. RNDr. Bianka Bojková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EH1/01	**Course name:** Experimental Haematology

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: 1., 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To provide the students with a knowledge of experimental hematology.

Brief outline of the course:
Ontogeny of hematopoietic stem cells. Characterisation of hematopoietic stem cells HSC). Hematopoietic growth factors and cytokines. Differentiation and self renewal. Mobilisation of hematopoietic stem cells.Barriers to transplantation. Genes affecting formation or differentiation of HSC.

Recommended literature:
Simmons, A.: Hematology. A Combined Theoretical & Technical Approach, W.B.Saunders Company, Philadelphia, 1989

Course language:

Course assessment
Total number of assessed students: 262

A	B	C	D	E	FX
39.69	28.24	19.47	8.4	2.67	1.53

Provides: prof. RNDr. Peter Fedoročko, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EMK/15	**Course name:** Environmentálna mikrobiológia

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: II., III.

Prerequisities:

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

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

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

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 27

A	B	C	D	E	FX	N	P
37.04	37.04	0.0	0.0	7.41	0.0	0.0	18.52

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ EMZ1/00	**Course name:** Vertebrate Embryology

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: 1.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To provide the students with the basic facts on normal development of animals.

Brief outline of the course:
History of embryology. Asexual and sexual reproduction. Gametogenesis. Conversion of germ cells into female and male gametes, sexual hormones. Fertilization. Development of the embryo. Cleavage of the zygote. The main concepts of embryonic
development of amphioxus: Blastulation, gastrulation, germ layers formation, throughout organogenesis. Cleavage, blastulation, gastrulation and notogenese of the amphibians. Cleavage, blastulation, gastrulation and notogenese of the reptiles. Cleavage, blastulation, gastrulation and notogenese of the aves. Cleavage, blastulation, gastrulation and notogenese of the mammals. Development of the foetal membranes. Implantation. Placentation in mammals. Organogenesis. Muscular and skeletal systems. Digestive system. Cardiovascular system Respiratory system. Urinary system. Male and female reproductive systems. Nervous system. Eye and ear.

Recommended literature:
Langman, J.: Medical Embryology. Williams & Wilkins, Baltimore, London, 1981
Moore, K. L., Persaud, T. V. N.: Before we are born. W.B. Saunders Company Philadelphia, 1993

Course language:

Course assessment
Total number of assessed students: 149

A	B	C	D	E	FX	N	P
67.79	13.42	10.74	2.68	2.68	0.67	0.0	2.01

Provides: doc. RNDr. Zuzana Daxnerová, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ ER1/01	**Course name:** Plant Embryology

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: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Oral examination/ recognition

Learning outcomes:
To provide the students with the general principles of embryogenesis of the seed plants

Brief outline of the course:
Life cycle of a typical angiosperms plants. Sporophyte and gametophyte. Development of female gametophyte. Ovule, nucellus and integuments. Megasporogenesis. Embryo sac. Egg, synergids, antipodals and polar nuclei. Types the embryo sacs. Development of male gametophyte. Microsporogenesis. Pollen grain. Generative and tube nucleus. Pollen tube. Pollination and fertilization. Double fertilization. Endosperm. Embryogenesis (mono- and dicotyledonous plants). Plumule, cotyledones, radicel. Development of the seed. Apomixis. Development the embryoids in vitro.

Recommended literature:
Johri, B.M. (1984)Plant embryology:Embryogeny of Angiosperms. Springer-Verlag, Berlin, Heidelberg. Raven, P.H., Evert, R.F. and Eichhorn S.E. (2003) Biology of Plants. W.H.Freeman and Company, New York

Course language:

Course assessment
Total number of assessed students: 120

A	B	C	D	E	FX
45.83	30.0	14.17	5.83	4.17	0.0

Provides: RNDr. Lenka Martonfiová

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 6

Recommended semester/trimester of the course: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Recognition.
Written examination.

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

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

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

Course language:

Course assessment
Total number of assessed students: 889

A	B	C	D	E	FX
39.37	24.75	26.32	7.54	1.91	0.11

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ FG/14	**Course name:** Functional genomics
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:	
Course level: II., III.	
Prerequisities:	
Conditions for course completion: Active participation in practical and theoretical courses	
Learning outcomes: Functional genomics attempts to answer questions about the function of DNA at the levels of genes, RNA transcripts, and proteins. A key characteristic of functional genomics studies is their genome-wide approach to these questions, generally involving high-throughput methods rather than a more traditional "gene-by-gene" approach. The outcome of this course will be understanding of the approaches and methods used in functional genomics and their application in research as well as in practice.	
Brief outline of the course: • Introduction to functional genomics • Genome and functional genomics: sequenced model organisms, conceptual and methodological input of genome sequencing, structural vs. functional genome annotation • Genome-wide reverse genetics: techniques to create collections of genome-wide mutants and their use in functional genomics • Transcriptomics: methods to obtain transcriptome data, data analysis, data mining • Proteomics: methods to obtain proteome data, quantitative vs. qualitative proteomics, data analysis, data mining, protein networks • Metabolomics: methods to obtain metabolomic data, quantitative vs. qualitative metabolomics, data analysis, data mining • Biological databases and other resources for functional genome analysis • A real-case applications of the functional genomics	
Recommended literature: Internet sources, PowerPoint Presentation	
Course language: English	
Course assessment Total number of assessed students: 68	

A	B	C	D	E	FX	N	P
30.88	23.53	20.59	5.88	11.76	2.94	0.0	4.41

Provides: RNDr. Katarína Bruňáková, PhD., RNDr. Andrea Kimáková, PhD., RNDr. Katarína Nigutová, PhD., RNDr. Linda Petijová, PhD., RNDr. Andrea Schreiberová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ FRV1/03	**Course name:** Physiology of Plant Growth and Development

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:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To learn about basic methods and approaches in physiology of plant growth and development

Brief outline of the course:
Growth and morphogenesis: phases and kinetics; differentiation. Hormones: metabolism and transport, physiological and developmental effects; auxin, gibberellins, cytokinnins, ethylene and abscisic acid. Photomorphogenesis and etiolation. Phytochrome: properties, physiology, ecological functions, molecular mechanisms. Blue-light responses. Rhythms. Germination and dormancy. Regulation of flowering. Senescence and programmed cell death. Orientation in space: phototropism, gravitropism and nastic movements. Stress physiology.

Recommended literature:
Taiz L., Zeiger E., Plant physiology. Fifth edition. Sinauer ass., Sunderland 2010

Course language:

Course assessment
Total number of assessed students: 99

A	B	C	D	E	FX
38.38	20.2	16.16	13.13	9.09	3.03

Provides: Mgr. Silvia Gajdošová, Ph.D., Ing. Robert Gregorek

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ GC1/01	**Course name:** Human Genetics

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: II., III.

Prerequisities:

Conditions for course completion:

Learning outcomes:
To provide students with a basics of human genetics, with the role of genetic factors in pathologic processes, with the inheritance, diagnostics and treatment of genetic disorders.

Brief outline of the course:
The genetic basics of physiological variability and pathological traits of individuals; human population genetics; the patterns of inheritance and pedigree problem solving; the basic methods used in human genetics - genealogy, linkage analysis and the gene mapping, cytogenetic analysis and karyotyping, the DNA diagnosis of pathological traits; the treatment of genetic disorders.

Recommended literature:
Thompson JS, Thompson MW (2001): Genetics in Medicine 6/e. W.B.Sounders Company, Philadelphia, Pennsylvania, USA
Friedman JM, Dill FJ, Hayden MR, McGillivray BC (1996): Genetics 2/e. Williams & Wilkins, Baltimore, Maryland, USA

Course language:

Course assessment
Total number of assessed students: 1012

A	B	C	D	E	FX	N	P
25.3	14.33	16.6	14.33	17.09	11.76	0.0	0.59

Provides: RNDr. Katarína Bruňáková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/GEP/12	**Course name:** Population Genetics

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: 1.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Exam.

Learning outcomes:
Acquire knowledge about genetic interactions in population. Describe the theoretical and historical ground of population genetics. Identify, characterize and compare fundamental mechanisms (mutation, selection, migration, genetic drift). Interactions leading to intra- and interpopulation variability in population structure. Genetic diversity analysis.

Brief outline of the course:

Recommended literature:
HALLIBURTON. R. (2004): Introduction to Population Genetics. Pearson Prentice Hall.
HARTL, D. L. and CLARK, A. G. (2007): Principles of Population Genetics. 4th ed. Sinauer.
RELICHOVÁ, J. (2001): Genetika populací. Masarykova univerzita Brno.
Hedrick, P.W.: Genetics of Populations. Jones and Bartlett Publishers 2000.

Course language:

Course assessment
Total number of assessed students: 856

A	B	C	D	E	FX	N	P
18.57	15.07	14.84	16.47	20.56	13.55	0.0	0.93

Provides: RNDr. Linda Petijová, PhD., RNDr. Miroslav Soták, PhD., RNDr. Katarína Bruňáková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ GM1/03	**Course name:** Gene Manipulations

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: 2.

Course level: II.

Prerequisities: ÚBEV/UGM1/03

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 143

A	B	C	D	E	FX	N	P
52.45	21.68	8.39	4.2	2.1	0.7	0.0	10.49

Provides: doc. RNDr. Peter Pristaš, CSc., RNDr. Mariana Kolesárová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/GMC/15	**Course name:** Genetika a molekulárna cytológia

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:

Course level: II.

Prerequisities: ÚBEV/GEP/12 and ÚBEV/MOG/03 and ÚBEV/FG/14

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 9

A	B	C	D	E	FX
22.22	22.22	22.22	22.22	11.11	0.0

Provides:

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KFaDF/IH2/03	**Course name:** Idea Humanitas 2 (General Introduction)

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

Number of credits: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 8

A	B	C	D	E	FX
87.5	12.5	0.0	0.0	0.0	0.0

Provides: Doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ IMU1/03	**Course name:** Immunology

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: 1.

Course level: II.

Prerequisities:

Conditions for course completion:
Recognition.
Oral examination.

Learning outcomes:
This course introduces the students to the basic concepts of immunology as well as highlights the role and importance of immunology in various human diseases. The aim of Immunology lessons is the presentation of the organization and function of the immune system, as well as the comprehension of complex molecular and cellular interactions during the induction of immune responses.

Brief outline of the course:
Basic immunology: Lymphatic System Anatomy, The Innate Immune System, The Induced Responses of Innate Immunity, The Adaptive Immune Response, Antigens and Antibodies, Antigen Recognition by B-cell and T-cell Receptors, Antigen Presentation to T-lymphocytes, Complement, Clinical immunology: Allergy and other Hypersensitivities, Autoimmunity and Transplantation, Tumor Immunology, Disorders of The Immune System.

Recommended literature:
Janeway Ch. A., Travers P., Walport M., Schlomchik M.: Immunobiology. Garland Science, 2004
Murphy, K. (2012): Jeneway's Immunobiology. 8th ed. Garland Science
Delves, P.J. et al. (2011): Roitt's essential immunology 12th ed Wiley-Blackwell

Course language:

Course assessment
Total number of assessed students: 834

A	B	C	D	E	FX
38.25	24.22	25.54	7.07	1.56	3.36

Provides: RNDr. Vlasta Demečková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/IMUC1/03	**Course name:** Practical in immunology

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: 1.

Course level: II.

Prerequisities: ÚBEV/IMU1/03

Conditions for course completion:
Recognition.
Recognition.

Learning outcomes:
The practical course will focus on basic techniques and skills in immunology laboratories in order to have technical foundation to suggest experimental analysis of some immunological questions.

Brief outline of the course:
Special immunology practicals cover common immunological techniques as well as techniques relevant to the research projects at the department. The main aim is to understand the host immune response to infection. Practicals also include a study of the histophysiology of animal immune organs. The students will learn to perform immunological experiments, including critical evaluation of the results.

Recommended literature:
Study materials provided by teacher.

Course language:

Course assessment
Total number of assessed students: 241

A	B	C	D	E	FX
68.05	18.26	12.86	0.41	0.0	0.41

Provides: RNDr. Vlasta Demečková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KFaDF/ KDF/05	**Course name:** Chapters from History of Philosophy of 19th and 20th Centuries (General Introduction)

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

Number of credits: 2

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 10

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

Provides: doc. PhDr. Pavol Tholt, PhD., mim. prof.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/KK/07	**Course name:** Communication and Cooperation

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

Number of credits: 2

Recommended semester/trimester of the course: 3.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 281

abs	n	z
98.22	1.78	0.0

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

Date of last modification: 16.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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: Per study period:** 36s **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:	
Course assessment Total number of assessed students: 329	

abs	n
47.11	52.89

Provides: MUDr. Peter Dombrovský, Mgr. Marek Valanský	
Date of last modification: 23.02.2017	
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ LDM/16	**Course name:** Laboratórna diagnostika v mikrobiológii

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: 4

Recommended semester/trimester of the course: 2.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 27

A	B	C	D	E	FX
59.26	22.22	11.11	3.7	3.7	0.0

Provides: prof. RNDr. Jana Sedláková, PhD., RNDr. Lenka Maliničová, PhD., RNDr. Mariana Kolesárová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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: Per study period:** 36s **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:	
Course assessment Total number of assessed students: 126	

abs	n
45.24	54.76

Provides: Mgr. Peter Bakalár, PhD.
Date of last modification: 23.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ MEB1/03	**Course name:** Cell metabolism

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: 3.

Course level: II.

Prerequisities:

Conditions for course completion:
Recognition.
Oral examination.

Learning outcomes:
To provide the students with knowledge about the principal metabolic processes in living cells.

Brief outline of the course:
Carbohydrates – significance and role in animal organisms. Inborn errors of carbohydrate and lipid metabolism in humans. Lipid metabolism. Role of the liver and adipose tissue in lipid metabolism. Plasma lipoproteins – metabolism and disorders. Cholesterol and atherosclerosis. Protein metabolism and its inborn errors. Water and solute metabolism. Physiology and regulatory mechanisms of water-base balance in animal organisms. Metabolic regulation. Topochemistry of metabolic processes

Recommended literature:
1. Murray, R. K., Grammer, D. K., Mayes, P. A., Rodwell, V.W.: Harper‘s Biochemistry. Prentice-Hall, Appleton & Lange, 1993
2. Vasudevan D.M. and co.: Textbook of Biochemistry for Medical Students. Jaypee Brothers Medical Publishers 2011

Course language:

Course assessment
Total number of assessed students: 157

A	B	C	D	E	FX
37.58	24.2	17.83	8.28	7.64	4.46

Provides: doc. RNDr. Monika Kassayová, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ MEM1/99	**Course name:** Light and Electron Microscopy techniques

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.

Course level: II.

Prerequisities:

Conditions for course completion:
Recognition.

Learning outcomes:
To provide the students with the methods of light and electron microscopy.

Brief outline of the course:
Light microscope. Electron microscope; transmission and scanning electron microscope. Specimen preparation for microscopy. Fixation. Embedding. Sectioning. Staining. Special histochemical methods.

Recommended literature:
Bancroft, J. D., Steven, A.: Theory and practice of Histological Techniques. Churchill Livingstone, 1977
Wischnitzer, S.: Introduction to Electron microscopy. Cambridge University Press, 1982
Internet sources

Course language:

Course assessment
Total number of assessed students: 58

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

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MOG/03 | **Course name:** Model Organisms in Genetics

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: II., III.

Prerequisities:

Conditions for course completion:
protocols,
participation at a mini conference: Model organism for my diploma thesis,
oral examination

Learning outcomes:
To provide the students with an information on model systems of prokaryotic and eukaryotic organisms used in genetic research.

Brief outline of the course:
Basic properties of model organisms used in genetics. Prokaryotic model systems (Escherichia coli, Diplococcus pneumoniae, Agrobacterium tumefaciens and A. rhizogenes). Model systems of simple eukaryotic organisms (Saccharomyces cerevisiae, Neurospora crassa). Plant and animal model systems in vitro and in vivo. Caenorhabditis elegans. Arabidopsis thaliana. Mendel´s laws. Drosophila melanogaster. Morgan´s rules. Danio rerio. Mus musculus. Human genome. Transgenic plants and animals. HeLa cells. Stem cells. Genetic importance of the study of twins. Genetic databases.

Recommended literature:
Snustad, P.D., Simmons, M.J.: Genetika. Nakladatelství Masarykovy univerzity, Brno, 2009, 871 str.,
Genetic periodicals,
Internet sources

Course language:

Course assessment
Total number of assessed students: 1091

A	B	C	D	E	FX	N	P
23.56	15.67	15.77	14.21	18.06	11.64	0.0	1.1

Provides: prof. RNDr. Eva Čellárová, DrSc., RNDr. Andrea Kimáková, PhD., RNDr. Miroslav Soták, PhD., RNDr. Katarína Nigutová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/MR1/03	**Course name:** Plant Metabolism

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:

Course level: II.

Prerequisities:

Conditions for course completion:
Examen

Learning outcomes:
To provide the students with pathways of biosynthesis in plant and functions of primary and secondary metabolites

Brief outline of the course:
Photosynthesis: structure of photosynthetic apparatus, light absorption, electron and proton transport, photophosphorylation. Calvin cycle, rubisco and photorespiration. C4 and CAM plants. Synthesis of starch and sucrose. Respiration: glycolysis, citric acid cycle, electron transport and ATP synthesis. Lipid biosynthesis and convertion into carbohydrates. Polyacetylenes. Nitrogen metabolism: fixation, nitrate assimilation, ammonium conversion to amino acids. Sulfur assimilation and metabolism. Terpenes: biosynthesis and functions. Phenolic compounds: pathways of biosynthesis, phenylpropanes, flavonoids and lignins. Alkaloids. Mechanisms of plant defense.

Recommended literature:
Lawlor D. W. Photosynthesis. Third edition. BIOS, Oxford 2001; Taiz L., Zeiger E., Plant physiology. Fifth edition. Sinauer ass., Sunderland 2010

Course language:

Course assessment
Total number of assessed students: 103

A	B	C	D	E	FX
26.21	16.5	17.48	16.5	20.39	2.91

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ MZO1/03	**Course name:** Molecular basis of ontogenetic development

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: 1.

Course level: II., III.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
Acquiring of basic knowledge of principles and molecular-biological mechanisms of ontogenetic development of animal and plant organisms.

Brief outline of the course:
Regulation of the ontogenetic development in eukaryotic organisms. Program of the ontogenetic development. Cell determination and differentiation. Molecular mechanisms of formation of specialised cell types. Epigenetic mechanisms of cellular memory. Imprinting. Combinatory control of eukaryotic genes. Regulatory genes. Establishment of cell position. Formation of the embryonic body plan. Establishment of the main axis of body. Shape formation. Cloning of multicellular organisms.

Recommended literature:
Gerhard,J.,Kirschener,M.: Cells, Embryos and Evolution. Blacwell Science Inc., Massachusett,Oxford,London,1997

Course language:

Course assessment
Total number of assessed students: 327

A	B	C	D	E	FX	N	P
36.7	22.32	12.23	14.07	8.56	4.59	0.0	1.53

Provides: prof. RNDr. Eva Mišúrová, CSc., RNDr. Zuzana Jendželovská, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Dek. PF UPJŠ/PPZ/13	**Course name:** Personality Development and Key Competences for Success on a Labour Market

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

Number of credits: 2

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

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 39

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

Provides: RNDr. Peter Stefányi, PhD.

Date of last modification: 13.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPPaPZ/PPZMg/12	**Course name:** Psychology and Health Psychology (Master´s Study)

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

Number of credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 226

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

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

Date of last modification: 16.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPa/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 4	
Recommended semester/trimester of the course: 1.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Course assessment Total number of assessed students: 121	
abs	n
100.0	0.0
Provides:	
Date of last modification: 24.02.2017	
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPb/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 4	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Course assessment Total number of assessed students: 86	

abs	n
100.0	0.0

Provides:	
Date of last modification: 24.02.2017	
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPc/15	**Course name:** Diploma Thesis Seminar
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of credits: 4	
Recommended semester/trimester of the course: 3.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Course assessment Total number of assessed students: 83	

abs	n
100.0	0.0

Provides:	
Date of last modification: 24.02.2017	
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

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

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

Number of credits: 4

Recommended semester/trimester of the course: 4.

Course level: II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 80

A	B	C	D	E	FX
85.0	6.25	5.0	1.25	2.5	0.0

Provides:

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/SPVKE/07	**Course name:** Social-Psychological Training of Coping with Critical Life Situations
Course type, scope and the method: **Course type:** Practice **Recommended course-load (hours):** **Per week:** 2 **Per study period:** 28 **Course method:** present	
Number of credits: 2	
Recommended semester/trimester of the course: 2.	
Course level: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	

Course assessment

Total number of assessed students: 126

abs	n	z
97.62	2.38	0.0

Provides: Mgr. Ondrej Kalina, PhD.
Date of last modification: 16.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ SVK/01	**Course name:** Student Scientific Conference

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

Number of credits: 4

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Course assessment
Total number of assessed students: 230

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

Provides:

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ TR1/99	**Course name:** Plant Taxonomy

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:

Course level: II.

Prerequisities:

Conditions for course completion:
Information on selected taxonomic work.
Exam.

Learning outcomes:
To learn about basic methods and approaches in plant taxonomy.

Brief outline of the course:
Plant taxonomy. Approaches to biological classification. Source of informationa and taxonomic data. Variation in plants and their study. Numerical taxonomy (phenetics). Cladistics and their utilization in taxonomy. Molecular data as important data of recent systematics. Overview of phylogeny of tracheophytes according to the newest data. Evolution in populations, principles of plant evolutions, primary and secondary speciation. Basics of botanical nomenclature. International Code of botanical nomenclature.

Recommended literature:
Briggs D., Walters S. M.: Proměnlivost a evoluce rostlin. - Univerzita Palackého, Olomouc, 2001.
Stuessy T. F.: Plant Taxonomy. - New York, Oxford 1990.
Judd W. S., Campbell Ch. S., Kellogg E. A., Stevens P. F., Donoghue M. J.: Plant Systematics. A Phylogenetic Approach, 2nd ed. - Sinauer Associates, Sunderland, 2002.
Greuter W. et al. (Eds.): Medzinárodný kód botanickej nomenklatúry (Saint Louis Code). - Praha, Bratislava, 2000.

Course language:

Course assessment
Total number of assessed students: 118

A	B	C	D	E	FX
40.68	20.34	17.8	11.02	6.78	3.39

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course assessment
Total number of assessed students: 10457

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.25	0.0	0.0	0.0	0.0	0.02	7.81	3.92

Provides: Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., PaedDr. Jana Potočníková, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Aurel Zelko, PhD., Mgr. Marcel Čurgali, doc. PhDr. Ivan Šulc, CSc.

Date of last modification: 23.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course assessment
Total number of assessed students: 9779

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.09	0.61	0.02	0.0	0.0	0.02	10.36	3.9

Provides: Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., PaedDr. Jana Potočníková, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Aurel Zelko, PhD., Mgr. Marcel Čurgali, doc. PhDr. Ivan Šulc, CSc.

Date of last modification: 23.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course assessment
Total number of assessed students: 6188

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
89.66	0.03	0.0	0.0	0.0	0.0	4.36	5.95

Provides: PaedDr. Jana Potočníková, PhD., Mgr. Marcel Čurgali, Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Aurel Zelko, PhD., doc. PhDr. Ivan Šulc, CSc.

Date of last modification: 23.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course assessment
Total number of assessed students: 4644

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.66	0.32	0.04	0.0	0.0	0.0	6.61	7.36

Provides: Mgr. Marcel Čurgali, Mgr. Peter Bakalár, PhD., Mgr. Dana Dračková, PhD., Mgr. Agata Horbacz, PhD., Mgr. Dávid Kaško, Mgr. Zuzana Küchelová, PhD., PaedDr. Jana Potočníková, PhD., doc. PaedDr. Ivan Uher, PhD., Mgr. Marek Valanský, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Aurel Zelko, PhD., doc. PhDr. Ivan Šulc, CSc.

Date of last modification: 23.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ UFCM/10 | **Course name:** Introduction to Flow Cytometry

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: 1., 3.

Course level: II., III.

Prerequisities:

Conditions for course completion:

Learning outcomes:
The goal is to teach the students on II. and III. stage some theoretical and practical aspects of analytical cytometry with special focus on flow cytometry. The course will cover theoretical bases of fluorescence, its detection, multiparametric analyses and practical applications in clinical diagnosis and scientific research.

Brief outline of the course:
Fluorescence: physical bases, detection, various designs of instruments exploiting fluorescence detection, fluorescent dyes, fluorescently labeled antibodies
Flow cytometry: principle of hydrodynamic focusing, signal detection, analog and digital data processing, data plotting, gating. Various types of analyses, basic applications, summary of commercial hardware and software.
Cell sorting: physical principles of cell sorting – advatages and disadvantages, sorting strategies, summary of applications and commercial hardware and software.
Practical software data analyses.

Recommended literature:
1. H.M. Shapiro: Practical Flow Cytometry, WILEY-LISS, 2003. (ISBN:0-471-41125-6)
2. A.L. Givan: Flow Cytomtery: First principles, WILEY-LISS, 2001, (ISBN 0-471-22394-8)
3. J. Dolezel a kol.: Flow Cytometry with Plant Cells, Willey-VCH, 2007, (ISBN: 978-3-527-31487-4)

Course language:

Course assessment
Total number of assessed students: 113

A	B	C	D	E	FX	N	P
67.26	0.0	7.96	2.65	2.65	0.0	0.0	19.47

Provides: RNDr. Rastislav Jendželovský, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ UGM1/03	**Course name:** Introduction to Gene Manipulations

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: II.

Prerequisities:

Conditions for course completion:
Oral examination.

Learning outcomes:
To provide the students with the principles of preparation and application of techniques of recombinant DNA.

Brief outline of the course:
Isolation of nucleic acids. Restriction endonucleases. Digestion and ligation of DNA.Other enzymes used for DNA manipulation. Labeling of DNA. Nucleic acid hybridization. PCR. Preparation of recombinant DNA. Recombinant vectors. Selection markers. Transfer of recombinant DNA to the cells. Selection of recombinants.Expression of heterologous genes in E. coli. DNA sequencing.

Recommended literature:
Old, R.W., Primrose, S. B.: Principles of Genetic Manipulation. An Introduction to Genetic Engineering. Blackwell Scientific Publication, London, 1992
Fitzgerald-Hayes, M and Reichsman, F: DNA and Biotechnology. Academic Press, 2009. Third edition. ISBN 9780080916354

Course language:

Course assessment
Total number of assessed students: 201

A	B	C	D	E	FX
58.71	27.86	9.45	2.99	0.5	0.5

Provides: RNDr. Mariana Kolesárová, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: KPPaPZ/UPR/03	**Course name:** The Art of Aiding by Verbal Exchange
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: II.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	

Course assessment

Total number of assessed students: 49

A	B	C	D	E	FX
85.71	4.08	2.04	2.04	2.04	4.08

Provides: Mgr. Ondrej Kalina, PhD.
Date of last modification: 16.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, 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:

Course level: I., II.

Prerequisities:

Conditions for course completion:
Active participation in seminars.
Preparation of oral presentation to 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:

Course assessment
Total number of assessed students: 845

A	B	C	D	E	FX
23.2	23.55	24.85	18.22	8.17	2.01

Provides: doc. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 24.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, 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: Per study period:** 36s **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:	
Course assessment Total number of assessed students: 15	

abs	n
26.67	73.33

Provides: Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.
Date of last modification: 23.02.2017
Approved: Guaranteeprof. RNDr. Eva Čellárová, DrSc.