CONTENT

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 ECTS 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. Principles of confocal microscopy 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:

Notes:

Course assessment
Total number of assessed students: 30

A	B	C	D	E	FX	N	P
3.33	0.0	0.0	0.0	0.0	0.0	0.0	96.67

Provides: RNDr. Rastislav Jendželovský, PhD.
Date of last modification: 29.01.2020
Approved: prof. 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 ECTS 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:

Notes:

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: 12.02.2020

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 412

A	B	C	D	E	FX
13.83	22.82	22.57	22.82	16.75	1.21

Provides: doc. RNDr. Bianka Bojková, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

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: RNDr. Miroslav Soták, PhD.

Date of last modification: 29.01.2016

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 188

A	B	C	D	E	FX
32.45	24.47	18.09	12.77	7.98	4.26

Provides: doc. RNDr. Monika Kassayová, CSc.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

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: 03.05.2015

Approved: prof. 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 ECTS 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:	
Notes:	

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: 04.09.2019
Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 1289

A	B	C	D	E	FX	N	P
24.9	14.58	15.67	14.58	17.61	11.71	0.0	0.93

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

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 323

A	B	C	D	E	FX	N	P
39.94	21.67	20.74	8.98	5.26	2.17	0.0	1.24

Provides: prof. RNDr. Peter Fedoročko, CSc.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:	
Notes:	

Course assessment
Total number of assessed students: 180

abs	n
100.0	0.0

Provides:
Date of last modification: 03.05.2015
Approved: prof. 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 ECTS 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:	
Notes:	
Course assessment Total number of assessed students: 131	
abs	n
100.0	0.0
Provides:	
Date of last modification: 03.05.2015	
Approved: prof. 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 ECTS 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:	
Notes:	
Course assessment Total number of assessed students: 137	

abs	n
100.0	0.0

Provides:
Date of last modification: 03.05.2015
Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 133

A	B	C	D	E	FX
87.97	6.77	3.01	0.75	1.5	0.0

Provides:

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 172

A	B	C	D	E	FX
57.56	26.74	9.88	3.49	2.33	0.0

Provides:

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 49

A	B	C	D	E	FX	N	P
46.94	28.57	2.04	0.0	4.08	0.0	0.0	18.37

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

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 972

A	B	C	D	E	FX
39.71	24.9	25.31	8.23	1.75	0.1

Provides: RNDr. Igor Majláth, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 561

A	B	C	D	E	FX
11.05	23.89	24.06	25.13	14.08	1.78

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

Date of last modification: 03.05.2015

Approved: prof. 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 Hematology

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

Number of ECTS credits: 3

Recommended semester/trimester of the course: 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:

Notes:

Course assessment
Total number of assessed students: 298

A	B	C	D	E	FX
38.26	28.52	20.13	9.06	2.68	1.34

Provides: prof. RNDr. Peter Fedoročko, CSc.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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
• Metabolomics: methods to obtain metabolomic data, quantitative vs. qualitative metabolomics, data analysis, data mining
* Interactomics - protein networks, methods in interactome and signalome studies, data analysis, practical use of the acquired knowledge on interactome and signalome
• 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

Notes:

Course assessment
Total number of assessed students: 91

A	B	C	D	E	FX	N	P
25.27	25.27	25.27	6.59	12.09	2.2	0.0	3.3

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

Date of last modification: 06.03.2019

Approved: prof. 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 ECTS credits: 6

Recommended semester/trimester of the course: 2.

Course level: II., III.

Prerequisities: ÚBEV/UGM1/03

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 179

A	B	C	D	E	FX	N	P
48.04	26.26	10.06	4.47	2.23	0.56	0.0	8.38

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

Date of last modification: 03.05.2015

Approved: prof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/GMC/14	**Course name:** Genetics and Molecular Cytology

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

Number of ECTS credits: 4

Recommended semester/trimester of the course:

Course level: II.

Prerequisities: ÚBEV/GEP/12 or ÚBEV/MZO1/03 and ÚBEV/MOG/03 and ÚBEV/CK1/03

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 33

A	B	C	D	E	FX
42.42	18.18	18.18	18.18	3.03	0.0

Provides:

Date of last modification: 22.01.2016

Approved: prof. 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 ECTS credits: 4

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 739

A	B	C	D	E	FX
60.89	13.8	12.58	8.66	3.38	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: 25.03.2020

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 1208

A	B	C	D	E	FX	N	P
25.33	14.49	16.39	14.16	17.22	11.92	0.0	0.5

Provides: RNDr. Katarína Bruňáková, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

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: 12.02.2020

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 903

A	B	C	D	E	FX
38.54	24.47	24.81	7.09	1.88	3.21

Provides: RNDr. Vlasta Demečková, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 153

A	B	C	D	E	FX	N	P
68.63	1.31	5.88	1.96	1.96	0.0	0.0	20.26

Provides: RNDr. Rastislav Jendželovský, PhD.

Date of last modification: 02.09.2015
Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 242

A	B	C	D	E	FX
60.74	27.27	8.68	2.48	0.41	0.41

Provides: RNDr. Mariana Kolesárová, PhD., Ing. Ľudmila Hamarová, PhD.

Date of last modification: 07.10.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 82

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: 03.05.2015

Approved: prof. 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 ECTS 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. Viral models in genetics (Tobacco mosaic virus, Lambda phage, PhiX174 phage). Prokaryotic model systems (Escherichia coli, Diplococcus pneumoniae, Agrobacterium tumefaciens and A. rhizogenes). Another prokaryotic models (Bacillus subtilis, Caulobacter crescentus, Mycoplasma genitalium, Synechocystis sp.), Model systems of simple eukaryotic organisms (Saccharomyces cerevisiae, Neurospora crassa, Aspergillus nidulans, Dictiostelium discoideum). Animal model systems (Drosophila melanogaster, Caenorhabditis elegans, Danio rerio, Mus musculus). Another animal models (Xenopus laevis, Ambystoma mexicanum, Chrysemys picta, Anolis carolinensis, Fugu rubripes, Gallus gallus, Heterocephalus glaber). Plant model organisms (Pisum sativum, Arabidopsis thaliana, Nicotiana tabacum, Zea mays, Selaginella moellendorffii, Brachypodium distachyon, Lotus japonicus, Populus trichocarpa). Mendel´s laws. Morgan´s rules. Genetic databases. Model organisms and their role in the treatment of human genetic disorders.

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

Course language:

Notes:

Course assessment
Total number of assessed students: 1272

A	B	C	D	E	FX	N	P
23.9	15.02	15.8	14.31	18.08	11.95	0.0	0.94

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

Date of last modification: 06.03.2019

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 369

A	B	C	D	E	FX	N	P
35.5	21.68	12.2	14.63	8.67	5.96	0.0	1.36

Provides: prof. RNDr. Eva Mišúrová, CSc., RNDr. Veronika Sačková, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

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: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 104

A	B	C	D	E	FX
36.54	21.15	17.31	13.46	8.65	2.88

Provides: prof. RNDr. Miroslav Repčák, DrSc., Mgr. Silvia Gajdošová, Ph.D., Ing. Robert Gregorek

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS credits: 6

Recommended semester/trimester of the course: 1.

Course level: I., II., III.

Prerequisities:

Conditions for course completion:
Active participation at the practicals, written test, protocols,
oral examination

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

Brief outline of the course:
History of plant tissue culture. Genetics and physiology of plant cell and tissue culture, protoplasts, embryoids and organs cultured in vitro under sterile conditions. Use of the 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:

Notes:

Course assessment
Total number of assessed students: 159

A	B	C	D	E	FX	N	P
38.99	19.5	13.84	8.81	11.32	3.14	0.0	4.4

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

Date of last modification: 06.03.2019

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 125

A	B	C	D	E	FX
46.4	28.8	14.4	6.4	4.0	0.0

Provides: prof. RNDr. Pavol Mártonfi, PhD., RNDr. Lenka Martonfiová

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 107

A	B	C	D	E	FX
26.17	15.89	18.69	16.82	19.63	2.8

Provides: prof. RNDr. Miroslav Repčák, DrSc., doc. RNDr. Peter Paľove-Balang, PhD.

Date of last modification: 21.02.2019

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 122

A	B	C	D	E	FX
40.16	20.49	18.85	10.66	6.56	3.28

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

Date of last modification: 03.05.2015
Approved: prof. 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 ECTS 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:
Factors affecting populations. Genetic variability in populations. Polymorphism, heterozygosity. Fundamental models in population genetics. Hardy-Weinberg theorem for 2, 3 and n alleles. Special cases of random mating (Bruce's genotype ratios, Sex-linked genes). Population genetics and mutations. Assortative mating, calculation and interpretation of inbreeding coefficient. Genetic drift, fixation/elimination of alleles in small populations. One-way, two-way migration. Natural selection in haploid and diploid populations. Populations of plants, animals and human. Darwin's evolution theory, molecular evolution.

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:

Notes:

Course assessment
Total number of assessed students: 1056

A	B	C	D	E	FX	N	P
20.27	14.68	15.06	16.0	19.98	13.26	0.0	0.76

Provides: RNDr. Miroslav Soták, PhD.

Date of last modification: 06.03.2019
Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 289

A	B	C	D	E	FX
68.51	19.03	11.76	0.35	0.0	0.35

Provides: RNDr. Vlasta Demečková, PhD.

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

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: 07.03.2018

Approved: prof. 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 ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:
Conditions for course completion:
Attendance

Learning outcomes:
Learning outcomes:
Students will be provided an overview of possibilities how to spend leisure time in seaside conditions actively and their skills in work and communication with clients will be improved. Students will acquire practical experience in organising the cultural and art-oriented events, with the aim to improve the stay and to create positive experiences for visitors.

Brief outline of the course:
Brief outline of the course:
1. Basics of seaside aerobics
2. Morning exercises
3. Pilates and its application in seaside conditions
4. Exercises for the spine
5. Yoga basics
6. Sport as a part of leisure time
7. Application of projects of productive spending of leisure time for different age and social groups (children, young people, elderly)
8. Application of seaside cultural and art-oriented activities in leisure time

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 42

abs	n
11.9	88.1

Provides: Mgr. Alena Buková, PhD., Mgr. Agata Horbacz, PhD.
Date of last modification: 15.03.2019
Approved: prof. 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 ECTS 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:

Notes:

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: 18.03.2019

Approved: prof. 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 ECTS credits: 2	
Recommended semester/trimester of the course: 1.	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion: Conditions for course completion: Min. 80% of active participation in classes.	
Learning outcomes: Learning outcomes: Increasing physical condition and performance within individual sports. Strengthening the relationship of students to the selected sports activity and its continual improvement.	
Brief outline of the course: Brief outline of the course: Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, basketball, badminton, floorball, yoga, pilates, swimming, body-building, indoor football, self-defence and karate, table tennis, sports for unfit persons, streetball, tennis, and volleyball. In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 12947

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
88.64	0.06	0.0	0.0	0.0	0.03	7.22	4.05

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

Date of last modification: 18.03.2019

Approved: prof. 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 ECTS credits: 2	
Recommended semester/trimester of the course: 2.	
Course level: I., I.II., II.	
Prerequisities:	
Conditions for course completion: Conditions for course completion: Final assessment and active participation in classes - min. 75%.	
Learning outcomes: Learning outcomes: Increasing physical condition and performance within individual sports. Strengthening the relationship of students to the selected sports activity and its continual improvement.	
Brief outline of the course: Brief outline of the course: Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, basketball, badminton, floorball, yoga, pilates, swimming, body-building, indoor football, self-defence and karate, table tennis, sports for unfit persons, streetball, tennis, and volleyball. In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 11186

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.58	0.55	0.02	0.0	0.0	0.05	9.99	3.8

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

Date of last modification: 18.03.2019

Approved: prof. 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 ECTS credits: 2

Recommended semester/trimester of the course: 3.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 7741

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
90.03	0.04	0.01	0.0	0.0	0.03	4.04	5.85

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

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS credits: 2

Recommended semester/trimester of the course: 4.

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

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 5086

abs	abs-A	abs-B	abs-C	abs-D	abs-E	n	neabs
85.19	0.29	0.04	0.0	0.0	0.0	6.78	7.69

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

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 277

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: prof. 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 ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion: Conditions for course completion: Attendance Final assessment: Raft control on the waterway (attended/not attended)	
Learning outcomes: Learning outcomes: Students have knowledge of rafts (canoe) and their control on waterway.	
Brief outline of the course: Brief outline of the course: 1. Assessment of difficulty of waterways 2. Safety rules for rafting 3. Setting up a crew 4. Practical skills training using an empty canoe 5. Canoe lifting and carrying 6. Putting the canoe in the water without a shore contact 7. Getting in the canoe 8. Exiting the canoe 9. Taking the canoe out of the water 10. Steering a) The pry stroke (on fast waterways) b) The draw stroke 11. Capsizing 12. Commands	
Recommended literature:	
Course language:	
Notes:	

Course assessment Total number of assessed students: 151	
abs	n
45.03	54.97
Provides: Mgr. Peter Bakalár, PhD.	
Date of last modification: 18.03.2019	
Approved: prof. 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 ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: I., II.	
Prerequisities:	
Conditions for course completion: Conditions for course completion: Attendance Final assessment: continuous fulfilment of all tasks within the course	
Learning outcomes: Learning outcomes: Students will be familiarized with principles of safe stay and movement in extreme natural conditions as they will obtain theoretical knowledge and practical skills to solve the extraordinary and demanding situations connected with survival and minimization of damage to health. The course develops team work and students will learn how to manage and face the situations that require overcoming of obstacles.	
Brief outline of the course: Brief outline of the course: Lectures: 1. Principles of behaviour and safety for movement and stay in unknown mountains 2. Preparation and leadership of tour 3. Objective and subjective danger in mountains 4. Principles of hygiene and prevention of damage to health in extreme conditions Exercises: 1. Movement in terrain, orientation and navigation in terrain (compasses, GPS) 2. Preparation of improvised overnight stay 3. Water treatment and food preparation.	
Recommended literature:	
Course language:	
Notes:	

Course assessment Total number of assessed students: 392	
abs	n
44.39	55.61
Provides: Mgr. Marek Valanský, MUDr. Peter Dombrovský	
Date of last modification: 15.03.2019	
Approved: prof. 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 ECTS 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:

Notes:

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: 18.03.2019

Approved: prof. 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 ECTS 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:

Notes:

Course assessment
Total number of assessed students: 158

A	B	C	D	E	FX	N	P
63.92	17.72	10.13	2.53	2.53	0.63	0.0	2.53

Provides: doc. RNDr. Zuzana Daxnerová, CSc.

Date of last modification: 03.05.2015

Approved: prof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚTVŠ/ZKLS//13	**Course name:** Winter Ski Training Course

Course type, scope and the method:
Course type: Practice
Recommended course-load (hours):
Per week: 36 **Per study period:** 504
Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 97

abs	n
32.99	67.01

Provides: doc. PhDr. Ivan Šulc, CSc., Mgr. Marek Valanský

Date of last modification: 03.05.2015

Approved: prof. 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 ECTS credits: 6

Recommended semester/trimester of the course:

Course level: I., II.

Prerequisities:

Conditions for course completion:
Active participation in seminars.
Preparation of oral presentation to selected topic.
Semestral written test.
Oral examination.

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

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

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

Course language:

Notes:

Course assessment
Total number of assessed students: 913

A	B	C	D	E	FX
23.77	23.33	24.64	18.51	7.78	1.97

Provides: prof. RNDr. Ľubomír Kováč, CSc.

Date of last modification: 05.10.2017

Approved: prof. RNDr. Eva Čellárová, DrSc.