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:

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: 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 ECTS credits: 5

Recommended semester/trimester of the course:

Course level: 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:

Notes:

Course assessment
Total number of assessed students: 14

A	B	C	D	E	FX	N	P
50.0	14.29	21.43	7.14	0.0	0.0	0.0	7.14

Provides: 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/ PVS/04	**Course name:** Author's patents, discoveries, software
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment

Total number of assessed students: 1

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/BI/14	**Course name:** Bioinformatics

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:

Course level: III.

Prerequisities:

Conditions for course completion:
Active participation on seminars, accomplishment of bioinformatic tasks, oral examination

Learning outcomes:
Grasp of specialized bioinformatic knowledge in the field of genetics of the selected organisms. Gain experiences in working with the various databases and data processing of various types.

Brief outline of the course:
Introduction to the basic and advanced bioinformatic tools in the field of genetics. Work with the databases dedicated for the students specialized in biological disciplines. Basics of Linux operating system, command line approaches. Computational tools in the analysis of the PCR reaction dependent methods. Possibilities of sequencing and genotyping. Study of individual sequences of DNA, RNA and proteins. Presentation of biological data originating from the different "Omics" areas. Cloud analysis and NGS data. RNAseq data testing, asssembly, contigs mapping, analysis of different expression levels of genes.

Recommended literature:
Zvelebil, Baum: Understanding Bioinformatics. Taylor & Francis 2008.
Fatima Cvrčková: Úvod do praktické bioinformatiky, ISBN: 80-200-1360-1, Academia, 2006.
Neil C. Jones, Pavel A. Pevzner: An Introduction to Bioinformatics Algorithms, ISBN: 0262101068, MIT Press, 2004.
Andreas D. Baxevanis, B. F. Francis Ouellette: Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins, ISBN: 0-471-47878-4, Wiley-Interscience, 2005.

Course language:
slovak, english

Notes:

Course assessment
Total number of assessed students: 18

A	B	C	D	E	FX	N	P
38.89	11.11	5.56	5.56	11.11	0.0	0.0	27.78

Provides: RNDr. Miroslav Soták, 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/ CM/04	**Course name:** Citation in monograph
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: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 0	
Provides:	
Date of last modification:	
Approved: prof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ CZC/04	**Course name:** Citation in scientific journal published abroad
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 41

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ CDC/04	**Course name:** Citation in scientific journal published in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 5

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SCI/04	**Course name:** Citation registered in Science Citation Index
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: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment

Total number of assessed students: 63

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SMPR/04	**Course name:** Co-worker of project supported by international grant schemes
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
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	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SDPR/04	**Course name:** Co-worker of project supported by national grant schemes
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 397

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ DK/04	**Course name:** Conference in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment

Total number of assessed students: 138

abs	n
100.0	0.0

Provides:
Date of last modification:
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:

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:

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/ ODZP/14	**Course name:** Defence of Doctoral Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 30	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 38	

N	P
0.0	100.0

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/ DZS/14	**Course name:** Dissertation examination
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: III.	
Prerequisities: ÚBEV/VEK3/11	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 51

N	P
0.0	100.0

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: CJP/ AJD1/07	**Course name:** English Language for PhD Students 1

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

Number of ECTS credits: 2

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 584

N	Ne	P	Pr	abs	neabs
0.0	0.0	56.85	0.0	43.15	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD.

Date of last modification: 03.10.2019

Approved: prof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/ AJD2/07	**Course name:** English Language for PhD Students 2

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: 3

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 569

N	Ne	P	Pr	abs	neabs
0.0	0.0	92.44	1.41	6.15	0.0

Provides: PhDr. Helena Petruňová, CSc., Mgr. Zuzana Kolaříková, PhD., Mgr. Barbara Mitríková

Date of last modification: 26.02.2020

Approved: prof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ 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:

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/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:

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/ 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:

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: ÚBEV/ NEM/04	**Course name:** Implementation of new experimental methodology
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 75	
abs	n
100.0	0.0
Provides:	
Date of last modification:	
Approved: prof. RNDr. Eva Čellárová, DrSc.	

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ MK/04	**Course name:** International 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: 6	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 213	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ DKZU/04	**Course name:** International conference taking place in the country of residence
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: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 114	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ZNC/04	**Course name:** Journals not registered in the Current Contents Connect database and published abroad

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

Number of ECTS credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Learning outcomes:

Brief outline of the course:

Recommended literature:

Course language:

Notes:

Course assessment
Total number of assessed students: 54

abs	n
100.0	0.0

Provides:

Date of last modification:

Approved: prof. RNDr. Eva Čellárová, DrSc.

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ DNC/04	**Course name:** Journals not registered in the Current Contents Connect database and published in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 42

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ ZKC/04	**Course name:** Journals registered in the Current Contents Connect database and published abroad
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: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 245	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ DKC/04	**Course name:** Journals registered in the Current Contents Connect database and published in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 15	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 16	

abs	n
100.0	0.0

Provides:
Date of last modification:
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:

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:

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: ÚBEV/NZ/04	**Course name:** Non-reviewed collections of papers and monographs published abroad or in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 125	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ RZ/04	**Course name:** Peer-reviewed collections of papers and monographs published abroad or in in the country of residence
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 5	
Recommended semester/trimester of the course:	
Course level: III.	
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
100.0	0.0

Provides:
Date of last modification:
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:

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/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:

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/ ZSP/04	**Course name:** Realisation of study/research stay abroad
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 95	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ IG/04	**Course name:** Receiving a grant under Internal Scientific Grant System (VVGS)
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 10	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 150	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ VPBB/11	**Course name:** Review of a Bachelor Thesis
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 17	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ SSOL/04	**Course name:** Samostatné štúdium odbornej literatúry
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 239

abs	n
100.0	0.0

Provides:
Date of last modification:
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/JSD/14	**Course name:** Spring School for PhD Students
Course type, scope and the method: **Course type:** Lecture **Recommended course-load (hours):** **Per week: Per study period:** 4d **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 135

abs	n
100.0	0.0

Provides: prof. RNDr. Vladimír Zeleňák, 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/ VPSV/04	**Course name:** Supervision of Student's Scientific Activity
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 6	
Recommended semester/trimester of the course: 6., 8.	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 18	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ VYS/04	**Course name:** Talk given at scholar seminars of department or institute
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 2	
Recommended semester/trimester of the course:	
Course level: III.	
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

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ PPC/04	**Course name:** Teaching activities
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment

Total number of assessed students: 462

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ PPC/04	**Course name:** Teaching activities
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 1	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	

Course assessment
Total number of assessed students: 462

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ POVK/04	**Course name:** Work in Organizing Committee of 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: 2	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 45	

abs	n
100.0	0.0

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

COURSE INFORMATION LETTER

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ PDS/14	**Course name:** Writing Dissertation Work
Course type, scope and the method: **Course type:** **Recommended course-load (hours):** **Per week: Per study period:** **Course method:** present	
Number of ECTS credits: 0	
Recommended semester/trimester of the course:	
Course level: III.	
Prerequisities:	
Conditions for course completion:	
Learning outcomes:	
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
Course assessment Total number of assessed students: 38	

abs	n
100.0	0.0

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