University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ | Course name: Analytical Cytometry

ACM/12

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

Course method: present

Number of credits: 4

Recommended semester/trimester of the course:

Course level: II., III.

**Prerequisities:** 

### **Conditions for course completion:**

### **Learning outcomes:**

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

### **Brief outline of the course:**

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

### **Recommended literature:**

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

## Course language:

### Course assessment

Total number of assessed students: 25

A	В	С	D	Е	FX	N	P
4.0	0.0	0.0	0.0	0.0	0.0	0.0	96.0

Provides: RNDr. Rastislav Jendželovský, PhD.

Date of last modification: 24.02.2017

**Approved:** Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Daxnerová, CSc.Co-guaranteedoc. RNDr. Peter Pristaš, CSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/

Course name: English Language for PhD Students 1

AJD1/07

Course type, scope and the method:

Course type: Practice

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

Number of credits: 2

**Recommended semester/trimester of the course:** 1.

Course level: III.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

**Brief outline of the course:** 

**Recommended literature:** 

Course language:

**Course assessment** 

Total number of assessed students: 525

N	Ne	P	Pr	abs	neabs
0.0	0.0	58.29	0.0	41.71	0.0

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

Date of last modification: 04.10.2016

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: CJP/

Course name: English Language for PhD Students 2

AJD2/07

Course type, scope and the method:

**Course type:** Practice

Recommended course-load (hours): Per week: 2 Per study period: 28

Course method: present

**Number of credits: 3** 

**Recommended semester/trimester of the course:** 2.

Course level: III.

**Prerequisities:** 

**Conditions for course completion:** 

**Learning outcomes:** 

**Brief outline of the course:** 

**Recommended literature:** 

Course language:

**Course assessment** 

Total number of assessed students: 528

N	Ne	Р	Pr	abs	neabs
0.0	0.0	91.86	1.52	6.63	0.0

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

Date of last modification: 04.10.2016

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ C

Course name: Aplikovaná mikrobiológia

**AMK/15** 

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

**Course method:** present

**Number of credits: 5** 

#### Recommended semester/trimester of the course:

Course level: II., III.

### **Prerequisities:**

### **Conditions for course completion:**

Attendance of practicals (at least 90%), final examination

## **Learning outcomes:**

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

#### **Brief outline of the course:**

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

### **Recommended literature:**

#### **Course language:**

#### Course assessment

Total number of assessed students: 0

A	В	С	D	Е	FX	N	P
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Date of last modification: 24.02.2017

**Approved:** Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/

Course name: Plant Biotechnology

BTR1/06

Course type, scope and the method:

Course type: Lecture / Practice **Recommended course-load (hours):** 

Per week: 2 / 3 Per study period: 28 / 42

Course method: present

Number of credits: 6

Recommended semester/trimester of the course:

Course level: I., II., III.

**Prerequisities:** 

**Conditions for course completion:** 

written test, protocols, oral examination

**Learning outcomes:** 

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

#### **Brief outline of the course:**

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

### **Recommended literature:**

Slater A. et al.: Plant Biotechnology. Oxford University Press 2008, 376 pp.

Wink M. (Ed.): An Introduction to Molecular Biotechnology. Willey-Blackwell, 2011, 601 pp.

Periodicals and Internet sources

#### **Course language:**

#### Course assessment

Total number of assessed students: 135

A	В	С	D	Е	FX	N	P
37.04	18.52	15.56	7.41	12.59	3.7	0.0	5.19

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ CDC/04	$\mathbf{r}$		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 5	5		
Recommended seme	ster/trimester of the cou	rse:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asse	ssed students: 5		
	abs	n	
100.0 0.0			
Provides:			
Date of last modifica	tion: 24.02.2017		
* *	eprof. RNDr. Peter Fedore	očko, CSc.Co-guaranteedoc. RNDr. Zuzana r Pristaš. CSc	

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ | Course name: Cytogenetics and Karyology

CK1/03

Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours):

Per week: 1 / 2 Per study period: 14 / 28

Course method: present

Number of credits: 4

Recommended semester/trimester of the course:

Course level: II., III.

**Prerequisities:** 

**Conditions for course completion:** 

written tests, protocols, oral examination

### **Learning outcomes:**

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

#### **Brief outline of the course:**

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

#### **Recommended literature:**

Russel, J.P.: Genetics, Third Edition, Harper Collins Publisher,

New York 1992

Periodicals

Internet sources

#### Course language:

#### Course assessment

Total number of assessed students: 1107

A	В	С	D	Е	FX	N	P
24.93	14.81	15.54	14.72	17.52	11.38	0.0	1.08

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice					
Faculty: Faculty of S	cience				
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 credits: 2	20				
Recommended seme	Recommended semester/trimester of the course:				
Course level: III.					
Prerequisities:					
Conditions for course completion:					
Learning outcomes:	Learning outcomes:				
Brief outline of the course:					
Recommended litera	Recommended literature:				
Course language:	Course language:				
Course assessment Total number of assessed students: 0					
<b>Provides:</b>					
Date of last modifica	ntion: 24.02.2017				
<b>Approved:</b> Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Daxnerová, CSc.Co-guaranteedoc. RNDr. Peter Pristaš, CSc.					

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ CZC/04	Course ID: ÚBEV/ Course name: Citation in scientific journal published abroad CZC/04		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period: esent		
Number of credits: 1			
	ster/trimester of the co	irse:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	nture:		
Course language:			
Course assessment Total number of asse	ssed students: 33		
	abs	n	
	100.0 0.0		
Provides:		<u> </u>	
Date of last modifica	ation: 24.02.2017		
* *	eprof. RNDr. Peter Fedor guaranteedoc. RNDr. Pete	očko, CSc.Co-guaranteedoc. RNDr. Zuzana er Pristaš, CSc.	

University: P. J. Šafá	rik University in Kos	šice	
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ DK/04			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 2	2		
Recommended seme	ster/trimester of the	e course:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	ature:		
Course language:			
Course assessment Total number of asse	ssed students: 125		
	abs n		
	100.0 0.0		
Provides:		•	
Date of last modifica	ntion: 24.02.2017		
Approved: Guarantee	1	edoročko, CSc.Co-guaranteedoc. RNDr. Zuzana	

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ DKC/04			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:		
Number of credits: 1	5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b>	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	ture:		
Course language:			
Course assessment Total number of asses	ssed students: 16		
	abs	n	
	100.0 0.0		
Provides:			
Date of last modifica	tion: 24.02.2017		
	eprof. RNDr. Peter Fedoroč guaranteedoc. RNDr. Peter F	ko, CSc.Co-guaranteedoc. RNDr. Zuzana Pristaš, CSc.	

University: P. J. Šafá	rik University in Košic	e	
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ DKZU/04	5 T T T T T T T T T T T T T T T T T T T		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 4			
Recommended seme	ster/trimester of the c	ourse:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asse	ssed students: 105		
	abs	n	
	100.0 0.0		
Provides:		·	
Date of last modifica	ation: 24.02.2017		
••	eprof. RNDr. Peter Fed	oročko, CSc.Co-guaranteedoc. RNDr. Zuzana	

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ DNC/04		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:	
Number of credits: 5	<u> </u>	
Recommended seme	ster/trimester of the cou	rse:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	ture:	
Course language:		
Course assessment Total number of asse	ssed students: 37	
	abs n	
100.0 0.0		
Provides:		·
Date of last modifica	tion: 24.02.2017	
* *	eprof. RNDr. Peter Fedor guaranteedoc. RNDr. Pete	očko, CSc.Co-guaranteedoc. RNDr. Zuzana r Pristaš. CSc

University: P. J. Šafá	rik University in Košic	re
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ DZS/14		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 5	;	
Recommended seme	ster/trimester of the c	course:
Course level: III.		
Prerequisities: ÚBE	V/VEK3/11	
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asses	ssed students: 34	
	N	P
	2.94 97.06	
Provides:		·
Date of last modifica	ition: 24.02.2017	
	eprof. RNDr. Peter Fed guaranteedoc. RNDr. Pe	loročko, CSc.Co-guaranteedoc. RNDr. Zuzana eter Pristaš, CSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ C

Course name: Environmentálna mikrobiológia

EMK/15

Course type, scope and the method:

**Course type:** Lecture / Practice

Recommended course-load (hours): Per week: 2 / 2 Per study period: 28 / 28

Course method: present

Number of credits: 5

Recommended semester/trimester of the course:

Course level: II., III.

**Prerequisities:** 

**Conditions for course completion:** 

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 of microorganisms with other organisms.

### **Brief outline of the course:**

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

### **Recommended literature:**

#### **Course language:**

#### Course assessment

Total number of assessed students: 27

A	В	С	D	Е	FX	N	P
37.04	37.04	0.0	0.0	7.41	0.0	0.0	18.52

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

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/

Course name: Vertebrate Embryology

EMZ1/00

Course type, scope and the method:

Course type: Lecture

**Recommended course-load (hours):** Per week: 2 Per study period: 28

Course method: present

Number of credits: 3

Recommended semester/trimester of the course:

Course level: II., III.

**Prerequisities:** 

**Conditions for course completion:** 

Oral examination.

## **Learning outcomes:**

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

### **Brief outline of the course:**

History of embryology. Asexual and sexual reproduction. Gametogenesis. Conversion of germ cells into female and male gametes, sexual hormones. Fertilization. Development of the embryo. Cleavage of the zygote. The main concepts of embryonic

development of amphioxus: Blastulation, gastrulation, germ layers formation, throughout organogenesis. Cleavage, blastulation, gastrulation and notogenese of the amphibians. Cleavage, blastulation, gastrulation and notogenese of the reptiles. Cleavage, blastulation, gastrulation and notogenese of the aves. Cleavage, blastulation, gastrulation and notogenese of the mammals. Development of the foetal membranes. Implantation. Placentation in mammals. Organogenesis. Muscular and skeletal systems. Digestive system. Cardiovascular system Respiratory system. Urinary system. Male and female reproductive systems. Nervous system. Eye and ear.

### **Recommended literature:**

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

### Course language:

#### Course assessment

Total number of assessed students: 149

A	В	C	D	Е	FX	N	P
67.79	13.42	10.74	2.68	2.68	0.67	0.0	2.01

Provides: doc. RNDr. Zuzana Daxnerová, CSc.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ Course name: Pharmacology FARM/09

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

Course method: present

**Number of credits:** 8

Recommended semester/trimester of the course:

Course level: III.

**Prerequisities:** 

## **Conditions for course completion:**

### **Learning outcomes:**

To provide students with a comprehensive introduction to the fundamental Pharmacology and uses of the major classes of drugs currently used in medical practice.

### **Brief outline of the course:**

Basic pharmacology (pharmacokinetic and pharmacodynamic principles), factors influencing drug effects, routes of drug application.

Special pharmacology including drugs affecting the autonomic nervous system, myorelaxants and ganglioplegic drugs, drugs affecting CNS (drugs used to treat psychiatric disorders, antiepileptics, antiparkinson drugs, hypnotics).

### **Recommended literature:**

Finkel et al.: Lippincott's Illustrated reviews: Pharmacology 4th edition, Wolters Kluwer, 2009, pp. 564.

### Course language:

### **Course assessment**

Total number of assessed students: 25

N	P
0.0	100.0

Provides: prof. MVDr. Ján Mojžiš, DrSc., MUDr. Iveta Radváková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ GMd/12	The second secon	
Course method: pre	re / Practice rse-load (hours): study period: 28 / 28 esent	
Number of credits: 6		
	ster/trimester of the cours	e <b>:</b> 2.
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asse	ssed students: 0	
	abs	n
0.0		
Provides: doc. RNDr. Peter Pristaš, CSc., RNDr. Mariana Kolesárová, PhD.		
Date of last modifica	tion: 24.02.2017	
	eprof. RNDr. Peter Fedoročl guaranteedoc. RNDr. Peter P	to, CSc.Co-guaranteedoc. RNDr. Zuzana ristaš, CSc.

University: P. J. Šafá	rik University in Ko	šice
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ IG/04	$\mathcal{E}$	
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period: esent	
Recommended seme		a coursa.
Course level: III.		c course.
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asse	ssed students: 142	
	abs	n
	100.0 0.0	
Provides:		·
Date of last modifica	ntion: 24.02.2017	
Approved: Guarante	*	Gedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana  Peter Pristas, CSc.

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ IMU/04	Course ID: ÚBEV/ Course name: Immunology MU/04	
Course type, scope a Course type: Practic Recommended cour Per week: Per stud Course method: pre	ce rse-load (hours): ly period: 20s	
Number of credits: 5	5	
Recommended seme	ester/trimester of the cours	3.
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	course:	
Recommended litera	ature:	
Course language:		
Course assessment Total number of asse	ssed students: 28	
	N	P
	0.0 100.0	
<b>Provides:</b> RNDr. Vla	sta Demečková, PhD.	
Date of last modifica	ntion: 24.02.2017	
* *	eprof. RNDr. Peter Fedoročk guaranteedoc. RNDr. Peter P	co, CSc.Co-guaranteedoc. RNDr. Zuzana ristaš, CSc.

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: Dek. PF UPJŠ/JSD/14	Course ID: Dek. PF Course name: Spring School for PhD Students UPJŠ/JSD/14	
Course type, scope a Course type: Lectur Recommended cour Per week: Per stud Course method: pre	e rse-load (hours): y period: 4d	
Number of credits: 2	,	
Recommended seme	ster/trimester of the cours	e:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	ture:	
Course language:		
Course assessment Total number of asses	ssed students: 115	
	abs	n
100.0 0.0		
Provides: doc. RNDr. Vladimír Zeleňák, PhD.		
Date of last modification: 13.02.2017		
<b>Approved:</b> Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Daxnerová, CSc.Co-guaranteedoc. RNDr. Peter Pristaš, CSc.		

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ MK/04		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:	
Number of credits: 6		
Recommended seme	ster/trimester of the cou	rse:
Course level: III.		
Prerequisities:		
Conditions for cours	e completion:	
Learning outcomes:		
Brief outline of the c	ourse:	
Recommended litera	ture:	
Course language:		
Course assessment Total number of asses	ssed students: 186	
	abs	n
100.0 0.0		
Provides:		
Date of last modifica	tion: 24.02.2017	
••	eprof. RNDr. Peter Fedor uaranteedoc. RNDr. Pete	očko, CSc.Co-guaranteedoc. RNDr. Zuzana r Pristaš, CSc.

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/

Course name: Methods in Molecular Biology

MOBM/09

Course type, scope and the method:

Course type: Lecture / Practice

**Recommended course-load (hours):** Per week: 1/3 Per study period: 14/42

Course method: present

Number of credits: 4

Recommended semester/trimester of the course:

Course level: III.

**Prerequisities:** 

## **Conditions for course completion:**

### **Learning outcomes:**

Acquaint the students with modern methods in molecular biology and with their applications in research and to give them practical basics needed for practical work in molecular biology laboratory.

#### **Brief outline of the course:**

Basics of laboratory practice for work under sterile/aseptic conditions in cell culture lab, cell culturing of tumour cell lines, methods for isolation of nucleic acids from cells, determination of protein concentration in cell lysates, measurements of enzymatic concentrations. Polymerase chain reaction, Western blot, dot-blot, fluorescent microscopy, flowcytometric analyses of cellular processes (cell cycle, cell death, mitochondrial parameters, proteomic applications).

#### **Recommended literature:**

- J. Reinders a A.Sickmann: Proteomics: Methods and Protocols (Methods in Molecular Biology), Humana Press, 2009
- G. Ecker et al.: Transporters as Drug Carriers: Structure, Function, Substrates: 44 (Methods and Principles in Medicinal Chemistry), Wiley-VCH, 2009
- J. Pawley: Handbook of Biological Confocal Microscopy, Springer, 2006

## Course language:

### Course assessment

Total number of assessed students: 25

N	P
0.0	100.0

Provides: RNDr. Veronika Sačková, PhD., doc. RNDr. Peter Solár, PhD., RNDr. Martina Šemeláková, PhD.

Date of last modification: 24.02.2017

Approved: Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana

University: P. J. Šafá	rik University in Koš	ice
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ NEM/04	F	
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:	
Number of credits: 1	5	
Recommended seme	ster/trimester of the	course:
Course level: III.		
Prerequisities:		
Conditions for cours	se completion:	
Learning outcomes:		
Brief outline of the c	course:	
Recommended litera	iture:	
Course language:		
Course assessment Total number of asse	ssed students: 69	
	abs	n
	100.0	0.0
Provides:		•
Date of last modifica	ition: 24.02.2017	
Approved: Guaranteo Daxnerová, CSc.Co-g	•	edoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Peter Pristaš, CSc.

University: P. J. Šafá	rik University in Košio	ce		
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ NZ/04	<b>Course name:</b> Non-reviewed collections of papers and monographs published abroad or in the country of residence			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:			
Number of credits: 2				
Recommended seme	ster/trimester of the	course:		
Course level: III.				
Prerequisities:				
Conditions for cours	Conditions for course completion:			
Learning outcomes:				
Brief outline of the c	Brief outline of the course:			
Recommended literature:				
Course language:				
Course assessment Total number of asses	ssed students: 108			
	abs	n		
	100.0 0.0			
Provides:		·		
Date of last modifica	tion: 24.02.2017			
	eprof. RNDr. Peter Fed	doročko, CSc.Co-guaranteedoc. RNDr. Zuzana		

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science				
Course ID: ÚBEV/ ODZP/14				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:			
Number of credits: 3	0			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for cours	e completion:			
Learning outcomes:				
Brief outline of the course:				
Recommended literature:				
Course language:	Course language:			
Course assessment Total number of asses	ssed students: 27			
	N P			
	0.0 100.0			
Provides:				
Date of last modification: 24.02.2017				
<b>Approved:</b> Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Daxnerová, CSc.Co-guaranteedoc. RNDr. Peter Pristaš, CSc.				

University: P. J. Šafá	rik University in Koš	ice	
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ PDS/14	: ÚBEV/ Course name: Writing Dissertation Work		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:		
Number of credits: 1	5		
Recommended seme	ster/trimester of the	course:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asse	ssed students: 37		
	abs	n	
100.0 0.0			
Provides:		•	
Date of last modifica	tion: 24.02.2017		
<b>Approved:</b> Guaranteo Daxnerová, CSc.Co-g	•	edoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Peter Pristaš, CSc.	

University: P. J. Šafá	rik University in Ko	šice	
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ PVS/04	ÚBEV/ Course name: Author's patents, discoveries, software		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 2	2		
Recommended seme	ester/trimester of th	e course:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Course assessment Total number of asse	ssed students: 1		
	abs n		
100.0 0.0			
Provides:		<u> </u>	
Date of last modifica	ntion: 24.02.2017		
Approved: Guarante	1	Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana	

University: P. J. Šafá	rik University in Košic	e e		
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ RZ/04	5 T			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:			
Number of credits: 5	5			
Recommended seme	ster/trimester of the o	course:		
Course level: III.				
Prerequisities:				
Conditions for cours	se completion:			
Learning outcomes:	Learning outcomes:			
Brief outline of the course:				
Recommended litera	nture:			
Course language:				
Course assessment Total number of asse	ssed students: 242			
	abs	n		
	100.0 0.0			
Provides:				
Date of last modifica	ation: 24.02.2017			
••	eprof. RNDr. Peter Fed	oročko, CSc.Co-guaranteedoc. RNDr. Zuzana		

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of Science					
Course ID: ÚBEV/ SCI/04	Course name: Citation registered in Science Citation Index				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:				
Number of credits: 2	20				
Recommended seme	ster/trimester of the cou	rse:			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b>	e completion:				
Learning outcomes:					
Brief outline of the c	Brief outline of the course:				
Recommended literature:					
Course language:					
Course assessment Total number of asse	ssed students: 38				
	abs	n			
	100.0 0.0				
<b>Provides:</b>					
Date of last modifica	tion: 24.02.2017				
	eprof. RNDr. Peter Fedoro guaranteedoc. RNDr. Peter	čko, CSc.Co-guaranteedoc. RNDr. Zuzana Pristaš, CSc.			

University: P. J. Šafá	rik University in Košic	ee		
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ SDPR/04	Course name: Co-worker of project supported by national grant schemes			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): ly period:			
Number of credits: 2				
Recommended seme	ster/trimester of the o	course:		
Course level: III.				
Prerequisities:				
Conditions for cours	Conditions for course completion:			
Learning outcomes:				
Brief outline of the c	ourse:			
Recommended litera	iture:			
Course language:				
Course assessment Total number of asses	ssed students: 364			
	abs	n		
	100.0 0.0			
Provides:				
Date of last modifica	tion: 24.02.2017			
	eprof. RNDr. Peter Fedguaranteedoc. RNDr. Pe	loročko, CSc.Co-guaranteedoc. RNDr. Zuzana eter Pristaš, CSc.		

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ SMPR/04			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:		
Number of credits: 1	5		
Recommended seme	ster/trimester of the cour	se:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Course assessment Total number of asse	ssed students: 38		
	abs		
	100.0 0.0		
Provides:			
Date of last modifica	tion: 24.02.2017		
	eprof. RNDr. Peter Fedoroč guaranteedoc. RNDr. Peter I	ko, CSc.Co-guaranteedoc. RNDr. Zuzana Pristaš. CSc.	

University: P. J. Šafá	rik University in Ko	ošice		
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ SSOL/04	$\mathbf{j}$			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:			
Number of credits: 2	2			
Recommended seme	ster/trimester of th	ne course:		
Course level: III.				
Prerequisities:				
Conditions for cours	Conditions for course completion:			
Learning outcomes:				
Brief outline of the course:				
Recommended literature:				
Course language:				
Course assessment Total number of asse	ssed students: 224			
	abs n			
100.0 0.0				
Provides:		<u> </u>		
Date of last modifica	ntion: 24.02.2017			
Approved: Guarantee	1	Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana		

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚBEV/ C

**Course name:** Introduction to Flow Cytometry

UFCM/10

Course type, scope and the method: Course type: Lecture / Practice

Recommended course-load (hours): Per week: 1 / 2 Per study period: 14 / 28

Course method: present

Number of credits: 4

#### **Recommended semester/trimester of the course:**

Course level: II., III.

**Prerequisities:** 

### **Conditions for course completion:**

### **Learning outcomes:**

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

### **Brief outline of the course:**

Fluorescence: physical bases, detection, various designs of instruments exploiting fluorescence detection, fluorescent dyes, fluorescently labeled antibodies

Flow cytometry: principle of hydrodynamic focusing, signal detection, analog and digital data processing, data plotting, gating. Various types of analyses, basic applications, summary of commercial hardware and software.

Cell sorting: physical principles of cell sorting – advatages and disadvantages, sorting strategies, summary of applications and commercial hardware and software.

Practical software data analyses.

### **Recommended literature:**

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

978-3-527-31487-4)

### Course language:

#### Course assessment

Total number of assessed students: 113

A	В	С	D	Е	FX	N	Р
67.26	0.0	7.96	2.65	2.65	0.0	0.0	19.47

Provides: RNDr. Rastislav Jendželovský, PhD.

Date of last modification: 24.02.2017

**Approved:** Guaranteeprof. RNDr. Peter Fedoročko, CSc.Co-guaranteedoc. RNDr. Zuzana Daxnerová, CSc.Co-guaranteedoc. RNDr. Peter Pristaš, CSc.

University: P. J. Šafá	rik University in Koši	ce	
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ VYS/04			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pro	rse-load (hours): ly period:		
Number of credits: 2	2		
Recommended seme	ster/trimester of the	course:	
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the o	course:		
Recommended litera	nture:		
Course language:			
Course assessment Total number of asse	ssed students: 200		
	abs	n	
	100.0 0.0		
Provides:		·	
Date of last modifica	ntion: 24.02.2017		
	eprof. RNDr. Peter Fe	doročko, CSc.Co-guaranteedoc. RNDr. Zuzana	

University: P. J. Šafá	rik University in Košico				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ ZKC/04					
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period:				
Number of credits: 2	20				
Recommended seme	ster/trimester of the co	ourse:			
Course level: III.					
Prerequisities:					
Conditions for cours	se completion:				
Learning outcomes:	Learning outcomes:				
Brief outline of the course:					
Recommended literature:					
Course language:	Course language:				
Course assessment Total number of asse	ssed students: 214				
	abs n				
100.0 0.0					
Provides:		·			
Date of last modifica	ation: 24.02.2017				
••	eprof. RNDr. Peter Fedo	pročko, CSc.Co-guaranteedoc. RNDr. Zuzana			

University: P. J. Šafá	rik University in Košic		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ ZNC/04	Course name: Journals not registered in the Current Contents Connect database and published abroad		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre	rse-load (hours): y period:		
Number of credits: 5			
Recommended semester/trimester of the course:			
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Course assessment Total number of asse	ssed students: 48		
	abs	n	
	100.0	0.0	
Provides:			
Date of last modifica	tion: 24.02.2017		
* *	eprof. RNDr. Peter Federuaranteedoc. RNDr. Pe	oročko, CSc.Co-guaranteedoc. RNDr. Zuzana ter Pristaš. CSc	

University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ ZSP/04	Course name: Realisation of study/research stay abroad		
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: pre	rse-load (hours): ly period: esent		
Number of credits: 2			
Recommended semester/trimester of the course: 4., 6., 8.			
Course level: III.			
Prerequisities:			
Conditions for cours	se completion:		
Learning outcomes:			
Brief outline of the course:			
Recommended literature:			
Course language:			
Course assessment Total number of asse	ssed students: 84		
	abs	n	
	100.0	0.0	
Provides:			
Date of last modifica	ation: 24.02.2017		
* *	eprof. RNDr. Peter Fedoro	čko, CSc.Co-guaranteedoc. RNDr. Zuzana Pristaš, CSc	