# CONTENT

1. Advanced microscopic methods in biology	3
2. Bioinformatics	5
3. Biology of Plant Symbioses	7
4. Bryology	8
5. Certified training course	10
6. Chromatographic Separation Methods	. 11
7. Citation in monograph	12
8. Citation in scientific journal published abroad	. 13
9. Citation in scientific journal published in the country of residence	14
10. Citation registered in Science Citation Index	15
11. Co-investigator of the applied research project	16
12. Co-worker of project supported by international grant schemes	17
13. Co-worker of project supported by national grant schemes	18
14. Conference in the country of residence	19
15. Dissertation examination.	. 20
16. Elaboration and defence of the thesis, successful completion of the dissertation	
examination	21
17. Elaboration and defense of the work, successfully completed dissertation exam	22
18. Elaboration of reviewer report.	. 24
19. English Language for PhD Students 1	25
20. English Language for PhD Students 2	27
21. Implementation of new experimental methodology	29
22. Internacional Journal	30
23. International Conference.	31
24. International Study Stay less than 30 Days	. 32
25. International Study Stay more than 30 Days	33
26. International conference taking place in the country of residence	34
27. Member of the internal project team	35
28. Membership in conference organising committee	. 36
29. Methods in Molecular Biology	
30. Methods of molecular biology	38
31. Monograph	40
32. Monograph in a renowned publishing house	41
33. Non-reviewed collections of papers and monographs published abroad or in the country of	
residence	42
34. Pedagogy for University Teachers	43
35. Peer-reviewed collections of papers and monographs published abroad or in in the country of	f
residence	
36. Plant Reproduction	
37 Plant microevolution	48
38 Popularisation of science	
39 Presentation at the seminar	51
40 Principal investigator of an internal grant (VVGS)	52
41 Psychology for University Lecturers	53
42. Ol journal as co-author	
43 O1 journal as first or corresponding author	
44 O2 journal as co-author	
45. O2 journal as first or corresponding author	
\[         \]     \[	

46. Q3 journal as co-author	59
47. Q3 journal as first or corresponding author	60
48. Q4 journal as co-author	61
49. Q4 journal as first or corresponding author	62
50. Scientific work after sending to the editorial office	63
51. Secondary metabolism of plants	64
52. Selected Plant physiology chapters	
53. Selected Topics in Biochemistry of Microorganisms	68
54. Self-motivated Study on Scientific Literature	70
55. Spring School for PhD Students	71
56. Supervision of Student's Scientific Activity	73
57. Teaching activities 1h/s	74
58. Teaching activities 2 h/s	75
59. Teaching activities 3 h/s	76
60. Teaching activities 4 h/s	77
61. Thesis consultant	78
62. Thesis supervising	79

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
<b>Course ID:</b> ÚBEV/ PMB/22	Course name: Advanced microscopic methods in biology		
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 cro	edits: 6		
Recommended seme	ster/trimester of the course:		
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Active presence at the	e completion: e exercises.		
Learning outcomes: Students will be able biomedical research.	e to design and realize experiment using imaging methods in the field of		
<ul> <li>biomedical research.</li> <li>Brief outline of the course: <ol> <li>design of biological experiment, legislative and ethic aspects of biological experiments</li> <li>formulation of scientific hypothesis and strategy of suitable experimental method to reach the aims of experiment</li> <li>selection of appropriate experimental animal to reach the aims of experiment</li> <li>selection of appropriate method for isolation and processing of biological material (tissue isolation, fixation, freezing, processing and sectioning of biological sample)</li> <li>immunolabelling of cells and tissues for light, fluorescent and electron microscopy</li> <li>design and preparation of probes for in situ hybridization</li> <li>methods of visualization of cells and tissues using epifluorescent microscopy</li> <li>methods of visualization of cells and tissues using scanning electron microscopy</li> <li>application of transgenic animals in experimental research</li> <li>processing of images using software ImageJ, generation of image output</li> <li>quantification and statistical analysis</li> </ol></li></ul>			
Recommended literature:			
Course language:			
Notes: If necessary, subject r	nay be realized in distant form of study.		

Course assessment		
Iotal number of assessed students: 0		
Ν	Р	
0.0 0.0		
<b>Provides:</b> RNDr. Anna Alexovič Matiašová, PhD., doc. RNDr. Juraj Ševc, PhD., RNDr. Ján Košuth, PhD.		
Date of last modification: 23.06.2022		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚCHV/ BINF/06	Course name: Bioinforma	tics	
Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 4 / 2 Per study period: 56 / 28 Course method: present			
Number of ECTS cro	edits: 10		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Independent work on Final assignment, exa	e completion: assignments during the sen m	nester	
Learning outcomes: The student will obtain information and practical experience with methods of obtaining and analyzing biological sequences using either a PC and freely available software (BioEdit, RasMol, VNTI-Viewer, MAGA), as well as using software available via the www network. In addition to basic information, students will also get information about some specialized analyzes - molecular taxonomy, phylogenetic analysis and prediction of biopolymer structures.			
<b>Brief outline of the course:</b> Use of PC and online web servers in sequence analysis. Freely available biological databases (PubMed, GenBank, SwissProt). Analysis of nucleotide sequences. Analysis of protein sequences. Pairwise sequence comparisons - blast analysis. Multiple sequence comparison - clustal program. Molecular taxonomy of bacteria. Evolutionary and phylogenetic analyses. Predicting the secondary and tertiary structure of biopolymers.			
<b>Recommended literature:</b> The phylogenetic handbook, Salemi, M. a Vandamme, A-M., Cambridge University Press, 2003, 485 pp Bioinformatics: a practical guide to the analysis of genes and proteins, Baxevanis, AD; Francis Ouellette, BF. 4th edition, Wiley, 2020, 609 pp.			
Course language: slovak, english			
Notes:			
Course assessment Total number of assessed students: 36			
	N P		
	0.0 100.0		

Provides: doc. RNDr. Peter Pristaš, CSc.

**Date of last modification:** 09.08.2022

Approved: prof. RNDr. Pavol Mártonfi, PhD.

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	Faculty: Faculty of Science		
Course ID: ÚBEV/ BRS1/22	Course ID: ÚBEV/ Course name: Biology of Plant Symbioses 3RS1/22		
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 cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:	Learning outcomes:		
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 1			
	Ν	Р	
	0.0	100.0	
Provides: doc. RNDr. Michal Goga, PhD.			
Date of last modification: 25.11.2021			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ BM1/22	Course name: Bryology		
Course type, scope a Course type: Lectu Recommended cou Per week: 2 / 2 Per Course method: pro-	and the method: re / Practice rse-load (hours): study period: 28 / 28 esent		
Number of ECTS cr	redits: 5		
Recommended seme	ester/trimester of the course:		
Course level: III.			
Prerequisities:			
Conditions for course 1. Participation in set in seminars. The re- participation of the seminars during the semester absence (for example alternative form of m 2. Demonstration of and seminars (syster bryophytes) 3. Demonstration of laboratory exercises 4. Passing an oral e biology of bryophyte	<b>Se completion:</b> minars (even in the case of online teaching) Students are obliged to participate elevant teacher who conducts the seminar will excuse the justified non- tudent (inability to work, family reasons, etc.) at a maximum of two seminars without the need for substitute performance. In case of long-term justified e due to incapacity for work), the relevant teacher will determine the student's nastering the missed material; knowledge and skills in the field of bryophyte separation acquired at lectures natics of bryophytes, distribution, ecological and physiological properties of ' sufficient skills in the use of methodologies that are part of the subject's xam, where the graduate demonstrates sufficient knowledge in the applied es		
Learning outcomes: The student will learn the basics of the second largest group of terrestrial plants, called bryophytes. The subject of the study will be the systematics, distribution, ecological and physiological properties and peculiarities of the group. In addition, the student will gain knowledge about the applied biology of bryophytes, emphasis will be placed on eco-engineering, environmental use and biotechnology. The aim of the subject is for students to have an idea of the fundamental importance as well as the importance of this neglected group of plants.			
<ul> <li>Brief outline of the of</li> <li>1. Systematics of bry</li> <li>2. Nomenclature and</li> <li>3. Chemistry of bryo</li> <li>4. Chemistry of bryo</li> <li>5. Functional charact</li> <li>6. Functional feature</li> <li>7. Functional feature</li> <li>8. Ecology of bryoph</li> </ul>	course: vophytes phylogenetics phytes (liverworts, hornworts) phytes (mosses) teristics of bryophytes (liverworts, hornworts) s of bryophytes (mosses) s of bryophytes (relationships to other organisms) mytes (idioecology)		

<ul> <li>9. Ecology of bryophytes (cenology)</li> <li>10. Environment-related bryophytes (natural environment)</li> <li>11. Environment-related bryophytes (artificial environment)</li> <li>12. Biotechnologies of bryophytes (liverworts, hornworts)</li> <li>13. Biotechnologies of bryophytes (mosses)</li> </ul>		
Recommended literature: Goffinet B, Shaw A J (2008) Bryophyte Biology (2nd ed.). Cambridge University Press p. 580, ISBN 9780521693226 Vanderpoorten A, Goffinet B. (2009) Introduction to bryophytes. Cambridge University Press p. 328 ISBN 9780521700733		
Course language: slovak, english		
Notes:		
Course assessment Total number of assessed students: 2		
Ν	Р	
0.0 100.0		
Provides: prof. Marko Sabovljević, Dr. rer. nat.		
Date of last modification: 01.08.2022		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ COK/22	ourse ID: ÚBEV/     Course name: Certified training course       OK/22     OK/22		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 4		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Completion of a certi	<b>Conditions for course completion:</b> Completion of a certified professional/training course.		
Learning outcomes: The PhD student acquires up-to-date scientific knowledge, develops the capabilities of scientific work and familiarizes himself with the methodologies of making scientific knowledge available. He confronts his own knowledge and skills with other course participants, develops the abilities of peer discussion in the given scientific field.			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 4			
	abs	n	
	100.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚCHV/ CHR3/05	Course name: Chromatog	raphic Separation Methods	
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: distance present			
Number of ECTS cr	edits: 8		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Individual work. Solv Examination.	<b>Conditions for course completion:</b> Individual work. Solving the problem of chromatography according to the assignment Examination.		
Learning outcomes: Basic and advanced to in research and analy	theory of chromatographic s tical practice.	eparation methods and their possibilities and use	
<b>Brief outline of the course:</b> Basic principles of chromatography. Chromatographic resolution, optimization of chromatographic parameters. Theory of liquid chromatography, classification. Stationary phases. Selectivity, sensitivity of HPLC detectors Fast LC chromatography. UPLC. Combined LC techniques. Comprehensive and multidimensional LC methods. Aplications.			
Recommended literature: Skoog D.A., Leary J.J.,Principles of Instrumental Analysis, Saunders, 1997. Lehotay J., Separačné metódy v analytickej chémii,STU Bratislava 2009. Scientific journal literature.			
Course language: Slovak language			
Notes:			
Course assessment Total number of assessed students: 18			
	N	Р	
	0.0	100.0	
Provides: doc. RNDr. Taťána Gondová, CSc.			
Date of last modification: 24.11.2021			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ CM/22	Course name: Citation in monograph		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 8		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours Obtained citation reg	e completion: istered in SCI or Scopus.		
<b>Learning outcomes:</b> Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level.			
Brief outline of the c	ourse:		
<b>Recommended</b> litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 0			
	abs	n	
	0.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University P I Šafá	rik University in Košice		
Faculty: Faculty of Science			
Course ID: UBEV/ CZC/22	Course name: Citation in scientific journal published abroad		
Course type, scope a	and the method:		
Course type:			
Recommended cou	rse-load (hours):		
Course method: dis	ty period:		
Number of FCTS cr			
Recommended some	stor/trimester of the cours	<b></b>	
Course level: III			
Prerequisities:	,		
Conditions for course Obtained citation in a	se completion: a foreign scientific journal.		
Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge at the highest expert level.			
Brief outline of the c	Brief outline of the course:		
Recommended litera	ature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 0			
	abs	n	
	0.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ CDC/22	Course name: Citation in scientific journal published in the country of residence				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS cr	edits: 2				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Citation in a national	e completion: scientific journal				
Learning outcomes: Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level.					
Brief outline of the c	ourse:				
Recommended litera	iture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 0					
abs n					
0.0 0.0					
Provides:					
Date of last modification: 08.11.2022					
Approved: prof. RNDr. Pavol Mártonfi, PhD.					

Uning D I Čafá				
University: P. J. Safa	University: P. J. Safarik University in Kosice			
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ SCI/22	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: distance present				
Number of ECTS cr	edits: 8			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
Conditions for course Obtained citation reg	se completion: istered in SCI or Scopus.			
<b>Learning outcomes:</b> Obtaining a citation demonstrates broad and very well-founded scientific knowledge in the researched field, based on the ability to formulate research questions, to reflect on a scientific problem in such a way that generates new knowledge. At the same time, a citation in an indexed source demonstrates the competence to communicate new knowledge, which is a significant contribution to scientific knowledge, at the highest expert level.				
Brief outline of the c	course:			
Recommended litera	nture:			
Course language:				
Notes:	Notes:			
Course assessment Total number of assessed students: 19				
abs n				
100.0 0.0				
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	Faculty: Faculty of Science				
Course ID: ÚBEV/ SPAV/22	Course ID: ÚBEV/ Course name: Co-investigator of the applied research project PAV/22				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present					
Number of ECTS cr	edits: 5				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Co-investigator of the	e completion: e applied research project				
The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective of applied research and to take responsibility for assigned tasks. By solving an applied research project, he acquires the ability to implement the project objective according to the established procedure, to follow the project schedule, to coordinate his own activities with colleagues, to participate in the creation of applied research outputs. The PhD student gains valuable experience from the practical course of a grant project with a focus on applied research.					
Brief outline of the course:					
Recommended litera	ature:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 2					
abs n					
100.0 0.0					
Provides:	Provides:				
Date of last modification: 08.11.2022					
Approved: prof. RNDr. Pavol Mártonfi, PhD.					

University: P. J. Šafá	rik University in Košice			
Faculty: Faculty of S	cience			
Course ID: ÚBEV/ SMP/22	<b>Course name:</b> Co-worker of project supported by international grant schemes			
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 15			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> Membership in the re	se completion: esearch team of an internation	nal project.		
Active involvement by solving a specific task within a team of international project solvers. The PhD student demonstrates the ability to work in a team, take responsibility for the assigned task, adhere to the time schedule and fulfill the project outputs. The PhD student gains personal experience from the implementation of an international project, participation in its key stages, creation of measurable outputs, grant funding of science.				
Brief outline of the c	course:			
Recommended litera	ature:			
Course language:				
Notes:				
Course assessment Total number of assessed students: 3				
abs n				
100.0 0.0				
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ SDP/22	<b>rse ID:</b> ÚBEV/ <b>Course name:</b> Co-worker of project supported by national grant schemes				
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS cr	edits: 10				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Co-investigator of the	e completion: e domestic project				
The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective and to take responsibility for the assigned tasks. By solving the domestic project, he acquires the ability to implement the project intention according to the established procedure, to follow the project schedule, to coordinate his own activities with colleagues, to participate in the creation of outputs. The PhD student gains valuable experience from the practical course of the grant project.					
Brief outline of the c	ourse:				
Recommended litera	ature:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 33					
	abs n				
100.0 0.0					
Provides:	Provides:				
Date of last modification: 08.11.2022					
Approved: prof. RNDr. Pavol Mártonfi, PhD.					

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ Course name: Conference in the country of residence OK/04				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present				
Number of ECTS credits: 2				
Recommended semester/trimester of the cours	e:			
Course level: III.				
Prerequisities:				
<b>Conditions for course completion:</b> Active participation in the home conference.				
Learning outcomes: By actively participating in the national scientific conference, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence in using existing theories and concepts in an innovative way, as well as generating new original scientific knowledge and communicating research results to a wider audience using adequate means and through the Slovak language				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 167				
abs n				
100.0 0.0				
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafá	rik University in K	lošice		
Faculty: Faculty of S	cience			
<b>Course ID:</b> ÚBEV/ DZS/14	Course ID: ÚBEV/ Course name: Dissertation examination DZS/14			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	nd the method: rse-load (hours): y period: tance, present			
Number of ECTS cr	edits: 20			
Recommended seme	ster/trimester of	the course:		
Course level: III.				
Prerequisities: ÚBEV	V/VEK3/11			
Conditions for cours	e completion:			
Learning outcomes:	Learning outcomes:			
Brief outline of the c	ourse:			
Recommended litera	ture:			
Course language:				
Notes:				
Course assessment Total number of asses	ssed students: 74			
N P				
0.0 100.0				
Provides:	Provides:			
Date of last modification: 03.05.2015				
Approved: prof. RNI	Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ PDS/22	ÚBEV/ <b>Course name:</b> Elaboration and defence of the thesis, successful completion of the dissertation examination				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present					
Number of ECTS cr	edits: 20				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
Conditions for cours Obtaining the require regulations, preparati Learning outcomes:	<b>Conditions for course completion:</b> Obtaining the required number of credits in the prescribed composition according to the UPJŠ study regulations, preparation and defense of the thesis, successfully completed dissertation examination. <b>Learning outcomes:</b>				
the conditions prescr study related to the to	The PhD student demonstrated the prerequisites for successful continuation of the study by fulfilling the conditions prescribed by the study regulations for the study and scientific part of the doctoral study related to the topic of the dissertation.				
Brief outline of the c	ourse:				
Recommended litera	nture:				
Course language:					
Notes:					
Course assessment Total number of assessed students: 12					
N P					
	0.0 100.0				
Provides:					
Date of last modification: 08.11.2022					
Approved: prof. RNDr. Pavol Mártonfi, PhD.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ ODZP/22	<b>Course name:</b> Elaboration and defense of the work, successfully completed dissertation exam				
Course type, scope a Course type: Recommended cou Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS cr	edits: 30				
Recommended seme	ster/trimester of the cours	e:			
Course level: III.					
Prerequisities:					
<b>Conditions for course completion:</b> The Dissertation thesis is the result of the student's own scientific research. It must not show elements of academic fraud and must meet the criteria of correct research practice defined in the Rector's Decision no. 21/2021, which lays down the rules for assessing plagiarism at Pavel Jozef Šafárik University in Košice and its constituents. Fulfillment of the criteria is verified mainly in the process of supervising and in the process of the thesis defense. Failure to do so is grounds for disciplinary action.					
<b>Learning outcomes:</b> The Dissertation thesis has elements of a scientific work and the student demonstrates extensive mastery of the theory and professional terminology of the field of study, acquisition of knowledge, skills and competences in accordance with the declared profile of the graduate of the field of study, as well as the ability to apply them in an original way in solving selected problems of the field of study. The student demonstrates the ability of independent scientific work in terms of content, formal and ethical aspects. Further details of the Dissertation thesis are determined by Directive no. 1/2011 on the essential prerequisites of final theses and by the Study Rules of Procedure at UPJŠ in Košice for doctoral studies. The doctoral student demonstrated the ability and readiness for independent scientific and creative activity in the field of study of philology in accordance with the expectations of the relevant qualification framework and the profile of the graduate.					
Brief outline of the c	course:				
Recommended literature:					
Course language:					
Notes:					
Course assessment Total number of assessed students: 11					
	N P				
	0.0 100.0				

**Provides:** 

**Date of last modification:** 08.11.2022

Approved: prof. RNDr. Pavol Mártonfi, PhD.

University: P. J. Šafá	rik University in Košice				
Faculty: Faculty of S	cience				
Course ID: ÚBEV/ VPZP/22	ourse ID: ÚBEV/ PZP/22Course name: Elaboration of reviewer report				
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS cr	edits: 3				
Recommended seme	ster/trimester of the cou	'se:			
Course level: III.					
Prerequisities:					
<b>Conditions for cours</b> Elaboration of review	e completion: ver report				
Learning outcomes: The PhD student der well as knowledge of assess a professional recommend another sciences to his own f	nonstrates broad and scier a wide range of methods an problem and its propose solution. He applies kno ield.	tifically based knowledge in the field of study, as ad approaches. Demonstrates the ability to critically d solution, as well as to evaluate it and possibly wledge and skills from the field of pedagogical			
Brief outline of the c	ourse:				
Recommended litera	nture:				
Course language:					
Notes:					
<b>Course assessment</b> Total number of asse	ssed students: 1				
abs n					
100.0 0.0					
Provides:					
Date of last modifica	ntion: 08.11.2022				
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.				

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: CJP/ AJD1/07	Course name: English Language for PhD Students 1
Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: dis	nd the method: ce cse-load (hours): dy period: 28 tance, present
Number of ECTS cro	edits: 2
Recommended seme	ster/trimester of the course: 1.
Course level: III.	
Prerequisities:	
Conditions for cours Completion of e-cour Written assignments	e completion: se English for PhD Students (lms.upjs.sk), consultations (1-3). - Professional/Academic CV, Short Academic Biography.
Learning outcomes: The development of s of their linguistic con syntactic aspects; dev purposeful communic purposes, level B2.	students' language skills - reading, writing, listening, speaking; improvement npetence - students acquire knowledge of selected phonological, lexical and relopment of pragmatic competence - students acquire skills for effective and eation, with focus on Academic English and English for specific/professional
Brief outline of the c Specific aspects of vocabulary developm formation, formal/inf grammar tenses, passi Biography).	<b>ourse:</b> academic and professional English with focus on correct pronunciation, ent (noun and verb collocations, phrasal verbs, prepositional phrases, word- formal language, etc.), selected aspects of English grammar (prepositions, ive voice, etc.), academic writing (professional/academic CV, Short Academic
Recommended litera Moore, J.: Oxford Ac Kolaříková, Z., Petru Košice, Vydavateľstv Tomaščíková, S., Roz Vydavateľstvo Šafáril McCarthy, M., O'Del Štepánek, L., J. De H 2011. Armer, T.: Cambridge Ims.upjs.sk	<b>ture:</b> ademic Vocabulary Practice. OUP, 2017. ňová, H., Timková, R.: Angličtina v akademickom prostredí – cvičebnica. o ŠafárikPress, 2021. zenfeld, J. Developing Academic English in Speaking and Writing. kPress, 2021. 1, F.: Academic Vocabulary in Use. CUP, 2008. aff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., e English for Scientists. CUP, 2011.
<b>Course language:</b> English, level B2 acc	ording to CEFR
Notes:	

Course assessment Total number of assessed students: 777							
N Ne P Pr abs neabs							
0.0	0.0	45.82	0.0	54.05	0.13		
Provides: Mgr. Zuzana Kolaříková, PhD.							
Date of last modification: 11.09.2023							
Approved: prof. RNDr. Pavol Mártonfi, PhD.							

COURSE INFORMATION LETTER				
University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: CJP/ AJD2/07Course 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: distance, present				
Number of ECTS credits: 3				
Recommended semester/trimester of the course: 2.				
Course level: III.				
Prerequisities:				
<b>Conditions for course completion:</b> Test, oral exam in accordance with the exam requirements (available at the web-site of the LTC and in MS TEAMS)				
The development of students' language skills - reading, writing, listening, speaking, improvement of their linguistic competence - students acquire knowledge of selected phonological, lexical and syntactic aspects, development of pragmatic competence - students can effectively use the language for a given purpose, with focus on Academic English and English for specific/professional purposes, level B2.				
<b>Brief outline of the course:</b> Academic communication (self-presentation, presenting at scientific meetings and conferences). Specific aspects of academic and professional English with focus on vocabulary development (formality, academic word-list), English grammar (passive voice, nominalisatio), language functions (expressing opinion, cause/effect, presenting arguments, giving examples, describing graphs/charts/schemes, etc.). Cross-language interference.				
Recommended literature: Moore, J.: Oxford Academic Vocabulary Practice. OUP, 2017. Kolaříková, Z., Petruňová, H., Timková, R.: Angličtina v akademickom prostredí (cvičebnica). UPJŠ Košice, 2021. Tomaščíková, S., Rozenfeld, J. Developing Academic English in Speaking and Writing. Vydavateľstvo ŠafárikPress, 2021. McCarthy, M., O'Dell, F.: Academic Vocabulary in Use. CUP, 2008. Štepánek, L., J. De Haff a kol.: Academic English-Akademická angličtina. Grada Publishing, a.s., 2011. Armer, T.: Cambridge English for Scientists. CUP, 2011. Course language: B2 level according to CEFR				
Notes:				

Course assessment Total number of assessed students: 732					
N	Ne	Р	Pr	abs	neabs
0.27	0.0	93.72	1.09	4.78	0.14
Provides: Mgr. Zuzana Kolaříková, PhD.					
Date of last modification: 05.02.2024					
Approved: prof. RNDr. Pavol Mártonfi, PhD.					

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚBEV/ NEM/04	BEV/ 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: distance, present			
Number of ECTS cr	edits: 15		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes:			
Brief outline of the c	Brief outline of the course:		
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 108			
	abs	n	
	100.0	0.0	
Provides:			
Date of last modification:			
Approved: prof. RNI	Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ Cour ZC/22	se name: Internaciona	al Journal	
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS credits:	8		
Recommended semester/tr	rimester of the course	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for course com</b> Publication accepted in a fo	<b>pletion:</b> preign journal as an au	thor/co-author.	
By publishing in a foreign journal as an author/co-author, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 4			
abs		n	
100.0		0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ Course name MKZ/22	: International Conference		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS credits: 10			
Recommended semester/trimester	of the course:		
Course level: III.			
Prerequisities:			
<b>Conditions for course completion:</b> Active participation in an internation	nal conference abroad.		
Learning outcomes: By actively participating in an international scientific conference abroad, the phD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence to use existing theories and concepts in an innovative way, as well as generate new original scientific knowledge and communicate research results to a wider audience by adequate means and through a foreign language.			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 12			
abs	n		
100.0	0.0		
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ ZSP1/22Course name: International	Course name: International Study Stay less than 30 Days		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS credits: 5			
Recommended semester/trimester of the course:			
Course level: III.			
Prerequisities:			
<b>Conditions for course completion:</b> Completion of a foreign study stay lasting less than	<b>Conditions for course completion:</b> Completion of a foreign study stay lasting less than 30 days.		
By completing a shorter study stay, the PhD student demonstrates the ability to reflect on research problems and work critically with sources at an expert level and in an interdisciplinary context, while being able to generate new knowledge. He is able to actively communicate at an expert level in more than one language. He acts as a responsible independent scientist, works independently and in a group with the aim of pushing the boundaries of knowledge and transferring them to other areas of research, to practice and to the wider public. He can competently argue and explain his ideas.			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 4			
abs	n		
100.0	0.0		
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ ZSP2/22	Course name: International Study Stay more than 30 Days		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 10		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Completion of a fore	e completion: ign study stay lasting more t	han 30 days.	
By completing the study stay, the PhD student demonstrates the ability to reflect on research problems and work critically with sources at an expert level and in an interdisciplinary context, while being able to generate new knowledge. He is able to actively communicate at an expert level in more than one language. He acts as a responsible independent scientist, works independently and in a group with the aim of pushing the boundaries of knowledge and transferring them to other areas of research, to practice and to the wider public. He can competently argue and explain his ideas.			
Brief outline of the c	ourse:		
Recommended literature:			
Course language:			
Notes:	Notes:		
Course assessment Total number of assessed students: 7			
	abs	n	
	100.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science				
Course ID: ÚBEV/ DKZU/22	<b>Course name:</b> 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: distance, present				
Number of ECTS cr	edits: 5			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> Active participation i	e completion: n a national conference with	n foreign participation.		
By actively participating in a scientific conference, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology in his scientific field. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence to use existing theories and concepts in an innovative way, as well as generate new original scientific knowledge and communicate research results to a wider audience by adequate means and through Slovak or a foreign language.				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 6				
	abs	n		
	100.0	0.0		
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ SIG/22	Course name: Member of the internal project team		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 3		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for cours Co-worker of project	e completion: supported by internal grant	schemes (VVGS)	
The PhD student demonstrates the ability to participate in teamwork, to bring his own contribution to the solution of the project objective within the internal grant system at UPJŠ. By solving the internal VVGS grant, he acquires the ability to implement the project plan according to the established procedure, adhere to the project schedule, coordinate his own activities with colleagues, and participate in the creation of outputs. The PhD student gains valuable experience from the practical course of the grant project.			
Brief outline of the c	Brief outline of the course:		
Recommended litera	Recommended literature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 11			
	abs	n	
	100.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ POVK/22	Course name: Membership in conference organising committee		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 3		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Work in the organizin	e completion: ng committee of the confere	nce	
By working in the organizing committee of the conference, the PhD student demonstrates the abilities and competences to organize a scientific or professional event independently or in a team, to manage the implementation in terms of time and content, to communicate effectively verbally and in writing using various technical means as needed, including in a foreign language at a professional level with various types of people, if necessary, correctly recommend solutions or make independent decisions.			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 3			
	abs	n	
	100.0	0.0	
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			
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University: P. J. Šafárik University in Košice			
Faculty: Faculty of Seculty of Seculty	cience		
Course ID: ÚBEV/ MOBM/09	Course name: Methods in	Molecular Biology	
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 cro	edits: 4		
Recommended seme	ster/trimester of the course	2:	
Course level: III.			
Prerequisities:			
Conditions for cours	e completion:		
Learning outcomes: Acquaint the students research and to give th	s with modern methods in r nem practical basics needed f	nolecular biology and with their applications in or practical work in molecular biology laboratory.	
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:			
Notes:			
Course assessment Total number of assessed students: 32			
	Ν	Р	
	0.0	100.0	
Provides: Mgr. Martin	Provides: Mgr. Martin Panigaj, Ph.D.		
Date of last modification: 03.05.2015			
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.		

University: P. J. Šafa	irik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚFV/ MMB/14	Course name: Methods of molecular biology		
Course type, scope a Course type: Lectu Recommended cou Per week: Per stue Course method: di	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 28s Course method: distance, present		
Number of ECTS cr	redits: 5		
Recommended seme	ester/trimester of the course:		
Course level: III.			
Prerequisities:			
<b>Conditions for cour</b> Six written and elect	se completion: ronic exercises regarding course work within duration of the course		
Learning outcomes: Students will be able and predict protein c able to design prime	to analyze DNA and protein sequences. Further, they will be able to compare haracteristics at the level of primary and secondary structure. Students will be rs and mutations for protein cDNA.		
Brief outline of the of Analysis of recombi- and techniques of ge Week 1 - Complete of Week 2 - BLAST set Week 3 - Calculation Week 4 - Assignmen or plant species. Week 5 - PCR. Week 6 - Designing Week 7 - Recombina Week 8 - Assignmen Week 8 - Assignmen Week 9 - Protein vis Week 10 - RasMol a Week 11 - Individua	course: nant DNA molecules, electrophoresis, antibody protein detection, description ne manipulation (mutations and genetic diseases). coding sequence (CDS) of a gene or protein. arch and sequence comparison. of protein properties. t - analysis of selected protein - comparison of sequences from different animal basic primers. ut DNA. t - design of own primers for targeted mutation in protein. ualization. nd protein animation. l assignments		
Recommended liter B. Alberts, A. Johns Garland Science 200 Current Protocols in Mac Vector 11.0 soft http://www.ncbi.nlm http://www.ncbi.nlm http://www.ncbi.nlm http://blast.ncbi.nlm	ature: on, J. Lewis, M. Raff, K. Roberts, P. Walter: Molecular Biology of the Cell, 8 (Fifth Ed.) Molecular Biology, Wiley publishers. twer Manual .nih.gov .nih.gov/pubmed .nih.gov/sites/gquery nih.gov/Blast.cgi		

http://www.cybertory.org/exercises/primerDesign/index.html http://www.fermentas.com/templates/files/tiny_mce/media_pdf/3_PCR_Troubleshooting.pdf http://igene.invitrogen.com/products/selector/vectors http://www.genomics.agilent.com http://www.origene.com/cdna/ http://www.rcsb.org/pdb/home/home.do http://www.rasmol.org/software/RasMol_2.7.4/		
Course language:		
Slovak and English.		
Notes:		
<b>Course assessment</b> Total number of assessed students: 26		
N	Р	
0.0	100.0	
<b>Provides:</b> doc. RNDr. Katarína Štroffeková, PhD., prof. RNDr. Erik Sedlák, DrSc., RNDr. Alexandra Zahradníková, PhD.		
Date of last modification: 21.09.2021		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ MONB/22Course name: Monograph	EID: ÚBEV/ Course name: Monograph		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS credits: 20			
Recommended semester/trimester of the course:			
Course level: III.			
Prerequisities:			
<b>Conditions for course completion:</b> Co-author of the monograph.			
By publishing a monograph, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. It demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The doctoral student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 0			
abs	n		
0.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ MONA/22	Course name: Monograph in a renowned publishing house			
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present			
Number of ECTS cr	edits: 40			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> Co-author of a mono	e completion: graph in a renowned publish	ing house.		
By publishing a monograph in a renowned publishing house, the PhD student demonstrates a high level of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The doctoral student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 0				
	abs	n		
	0.0 0.0			
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ NRZ/22	<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: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present			
Number of ECTS cr	edits: 2			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> A publication publish	se completion: ned in a non-reviewed foreig	n or national journal as an author/co-author.		
By publishing in a non-reviewed foreign or national journal as an author/co-author, the PhD student demonstrates the ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The phD student demonstrates the ability to finalize his own thoughts in a written speech.				
Brief outline of the c	Brief outline of the course:			
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 8				
	abs	n		
	100.0 0.0			
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNI	Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	cience		
Course ID: KPE/ PgVU/17	Course name: Pedagogy for University Teachers		
Course type, scope a Course type: Lectur Recommended cour Per week: Per stud Course method: dis	nd the method: e rse-load (hours): y period: 28s tance, present		
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the course:		
Course level: III.			
Prerequisities:			
Conditions for cours 1. Development of a 2. Compulsory active	e completion: teaching diary—100% participation and attendance in accordance with the Study Regulations.		
Students will be able Apply didactic princip the educational proce evaluation of learnin possibilities in the tea teachers taking into a	to: ples, methods, forms, and tools in the teaching of a specialised subject. Specify edures of a university teacher in subject teaching, pedagogical diagnostics, ng outcomes, and self-reflection. Present rationalisation and streamlining aching of specialised subjects. Apply educational competencies of university ccount the peculiarities of educating university students.		
<b>Brief outline of the c</b> The personality of a learning styles. Poss teacher–student intera of a university teach Forms of university assessment. Creation self-reflection.	ourse: university teacher. Teaching styles. Student in university education. Student ibilities of adapting teaching styles and student learning styles. University action and communication in the teaching process. Pedagogical competencies her. Didactic analysis of the curriculum; teaching materials and textbooks. teaching. Methods of university teaching. Verification methods and student of a didactic test. Designing university teaching process. University teacher		
Recommended litera Čapek, R. (2015). Mo Publishing, a.s. Danek, J. (2014). Pec Metoda v Trnave. Dargová, J. (2001). T Dvořáček, J. (2014). Hupková, M., Petlák, Kyriacou, CH. (1996 Mertin, V. a kol. (201 Wolters Kluwer. Petty,G. (2013). Mod	<ul> <li>nture:</li> <li>oderní didaktika. Lexikon výukových a hodnoticích metod. Praha, Grada</li> <li>lagogická komunikácia na vysokej škole. Trnava, Univerzita sv.Cyrila a</li> <li>vorivé kompetencie učiteľa. Prešov, Privat Press.</li> <li>Základy pedagogiky. Praha, Oeconomica.</li> <li>E. (2004). Sebareflexia a kompetencie v práci učiteľa. Bratislava, IRIS.</li> <li>). Klíčové dovednosti učitele. Praha, Portál.</li> <li>2). Metody a postupy poznávaní žáka: pedagogická diagnostika. Praha,</li> </ul>		

<ul> <li>Prucha, J. (2013). Moderní pedagogika. Praha, Portál.</li> <li>Sirotová, M. (2014). Vysokoškolský učiteľ v edukačnom procese. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.</li> <li>Slávik, M. a kol. (2012). Vysokoškolská pedagogika. Praha, Grada.</li> <li>Šebeň Zaťková, T. (2014). Úvod do vysokoškolskej pedagogiky. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.</li> <li>Turek, I. (2014). Didaktika. Bratislava, Wolters Kluwer, s.r.o.</li> <li>Zormanová, L. (2014). Obecná didaktika. Praha, Grada.</li> </ul>			
Course language: slovak	Course language: slovak		
Notes:	Notes:		
Course assessment Total number of assessed student	s: 120		
abs	n	neabs	
98.33	0.0	1.67	
Provides: doc. PaedDr. Renáta Orosová, PhD.			
Date of last modification: 12.03.2024			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ RZ/22	<b>Course name:</b> Peer-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: dis	Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present			
Number of ECTS cr	edits: 5			
Recommended seme	ster/trimester of the cours	e:		
Course level: III.				
Prerequisities:				
<b>Conditions for cours</b> A publication publish	e completion: led in a peer-reviewed foreig	gn or national proceedings as an author/co-author.		
By publishing in a peer-reviewed foreign or national journal as an author/co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.				
Brief outline of the c	Brief outline of the course:			
Recommended literature:				
Course language:				
Notes:				
<b>Course assessment</b> Total number of asses	ssed students: 16			
	abs	n		
	100.0 0.0			
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
Course ID: ÚBEV/ RR/08	Course name: Plant Reproduction
Course type, scope a Course type: Lectur Recommended cour Per week: 2 / 2 Per Course method: pre	nd the method: re / Practice rse-load (hours): study period: 28 / 28 esent
Number of ECTS cr	edits: 8
Recommended seme	ster/trimester of the course:
Course level: III.	
Prerequisities:	
<b>Conditions for cours</b> Completion of the sub are solved in the con connection with plan	<b>e completion:</b> oject is realized through lectures and self-study of literature. Practical questions ntexts that currently arise from the topic of the solved dissertation and its t reproduction. At the end of the lectures, there is an oral exam.
To gain deep knowled of reproduction and the synthesize knowledge of reproductive biolo the relationships between the acquired knowled conditions, e.g. in age	ge about the evolution of reproductive systems, the mechanisms and processes ne impact of different reproductive systems on the evolution of taxa. Be able to e from plant embryology and evolutionary biology for a better understanding gy issues. Learn the influence of ecological factors on plant reproduction and ween plants and animals that relate to plant reproduction. Be able to apply dge to solving various tasks within plant physiology, but also in practical riculture, forestry, biota assessment and nature conservation.
<b>Brief outline of the c</b> 1. History of plant rep 2. Evolutionary trend 3. Reproductive struct 4. Female and male g 5. Phenological repro 6. Ultraviolet reflecta 7. Pollination vectors 8. Propagation of plat 9. Reproductive syste 10. Evolutionary sign 11. Plant reproduction 12. Application of kn	ourse: productive biology. s in plant reproduction. tures of spore and seed plants. ametophyte. Fertilization, endosperm, embryo. ductive data. nce and absorbance of reproductive structures. . Nectar. nts. ems of plants. Panmixis, self-fertilization, apomixis. hificance of individual breeding systems. n and breeding. we have about plant reproduction in agriculture.
Recommended litera Cresti M.: Sexual Pla Pullaiah T: Plant Rep Erdelská O., Švubova Bratislava 2017.	<ul> <li>ture:</li> <li>nt Reproduction Springer Science, 2012.</li> <li>roduction, 2nd. ed., Scientific Publishers, 2019.</li> <li>A., Mártonfiová L., Lux, A.: Embryológia krytosemenných rastlín, Veda,</li> </ul>

<ul> <li>Horandl E., Grossniklaus U., van Dijk P. J., Sharbel T. F.: Apomixis. Evolution, Mechanisms and Perspectives A.R.G. Gantner Verlag K. G., Rugell, Liechtenstein, 2007.</li> <li>Richards A.J.: Plant Breeding Systems. 2nd. ed Chapman &amp; Hall, London, 1997.</li> <li>Simpson M. G.: Plant Systematics, 3rd ed Academic Press, 2019.</li> <li>Stuessy T. F., Crawford D. J., Soltis D. E., Soltis P. S.: Plant Systematics. The Origin, Interpretation, and Ordering of Plant Biodiversity Koeltz Scienfific Books, 2014.</li> </ul>		
Course language:		
Notes:		
<b>Course assessment</b> Total number of assessed students: 23		
N	Р	
0.0 100.0		
Provides: prof. RNDr. Pavol Mártonfi, PhD.		
Date of last modification: 24.07.2022		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science		
Course ID: ÚBEV/ Course name: Plant microevolution MER/22		
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: III.

Prerequisities:

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

1. Active participation in practical exercises.

2. Preparation of semestral work on a topic agreed in advance with the teacher is also a condition for the completion of the course.

3. The examination of the subject takes place orally. Any changes or modifications to the conditions for completing the subject due to the COVID19 pandemic or other serious reasons are continuously published on the course's electronic bulletin board.

#### Learning outcomes:

After completing the course, the student should understand microevolutionary processes and patterns of plant adaptability in response to various environmental factors in the modern era, the Anthropocene. Emphasis is placed on hybridization and polyploidization as the two main microevolutionary processes of plants, and their consequences in the genetic and cytotype structure of populations. Hybridization and polyploidization lead to the sudden emergence of species, while various processes stabilize or disrupt their emergence. The microevolution of plants is accelerated by intensive environmental change, primarily by human activity. Students will become familiar with the consequences of climate change, polluted environment on the microevolution of plants in natural and anthropogenic landscapes.

#### Brief outline of the course:

1. Biological evolution. Natural and sexual selection. Heredity. Mutations. Speciation and phylogenetics. Macro- and micro-evolution of plants. Speciation genes. Overview of evolutionary processes in algae, fungi, bryophytes, seedless and seed vascular plants. Evolutionary drives.

2. Population, population structure, genetic flow. Study of population history, identification of genetic lineages and their genetic, morphological and spatial differentiation in relation to the evolutionary history of the species and biological processes.

3. Plant nuclear genome. Genome size, phenotype. Transposons. Genome obesity, genome downsizing.

4. Cytogenetics, accessory chromosomes and microevolution. Genomic rearrangements accompanying microevolutionary processes.

5. Ecological changes and microevolutionary responses of plants. Evolution of the ecological niche of plants. Invasive plants and their interaction with native species. Critically endangered plant species. Microevolution of plants in a stressful environment.

6. Evolutionary trends of plants, hybridization and polyploidization. Basic terms, homoploid hybrids, auto- and allo-polyploidization. Natural and anthropogenically influenced origin of polyploids. Microevolution in the Anthropocene.

7. Polyploidization and microevolution of populations. Cytotypialy pure and mixed populations, primary and secondary contact zone of cytotype different subpopulations. Cytotypicaly differentiated species. "Triploid block" and "triploid bridge". Reproductive isolation. The principle of "minority cytotype exclusion".

8. Genome multiplication and microevolutionary processes in plant physiology. Transcriptomic, proteomic and metabolomic patterns in examples.

9. Reproductive ecology. Interaction of sexually and asexually reproducing individuals. Interaction of pollen grains, "mentor effect". Apomeiosis, pseudogamy and microevolutionary impact on populations and species.

10. Emergence of reproduction-isolation barriers. Prezygotic and postzygotic barriers. Pollinatorplant relationship. Coevolutionary patterns in plant microevolution. Founder effect, genetic drift and adaptive radiation.

11. Microevolution in an agrarian landscape I. Mutual interactions between wild plants and their cultural, cultivated, evolutionarily related crops.

12. Microevolution in an agrarian landscape II. Mutual interactions between the environment, animals and cultural, cultivated crops. Assessing the risks of a managed landscape to biodiversity and biodisparity from a microevolutionary point of view.

13. Climate changes, pollutants, toxic substances in the environment and the effect on plant communities and the rate of plant evolution.

#### **Recommended literature:**

Briggs: Plant Microevolution and Conservation in Human-influenced Ecosystems (2009) Wendel J.F.: Plant Genome Diversity, Vol. 1 (2014)

Briggs a Walters: Plant variation and evolution (2016)

Szulkin et al.: Urban Evolutionary Biology (2020)

Templeton: Population Genetics and Microevolutionary Theory (2021)

#### **Course language:**

Notes:

#### **Course assessment**

Total number of assessed students: 0

Ν	Р
0.0	0.0

Provides: Mgr. Vladislav Kolarčik, PhD., univerzitný docent

**Date of last modification:** 31.07.2022

Approved: prof. RNDr. Pavol Mártonfi, PhD.

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ POP/22	ÚBEV/ Course name: Popularisation of science		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 5		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for course Active involvement in	Conditions for course completion: Active involvement in the popularization of science.		
Learning outcomes: Demonstrated ability communication, iden professional knowled in the field of his scie	to present science to the latify the target group and ac ge. A PhD student is able to a entific work, but also in the v	ay public, use interactive methods of scientific lapt the communication language to the level of arouse interest and motivate specific target groups wider context of science.	
Brief outline of the c	Brief outline of the course:		
Recommended litera	nture:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 28			
	abs	n	
100.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science		
Ourse ID: ÚBEV/       Course name: Presentation at the seminar         YS/22       YS/22		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present		
Number of ECTS credits: 5		
Recommended semester/trimester of the course:		
Course level: III.		
Prerequisities:		
<b>Conditions for course completion:</b> Presentation at the seminar		
Learning outcomes: By actively participating in the seminar, the PhD student demonstrates the ability to identify, evaluate, and apply correct scientific methods or research methodology in his field of study. He demonstrates the ability to reflect on a specific scientific problem by using the latest approaches and applying them critically. Demonstrates competence in using existing theories and concepts in an innovative way, as well as generating new original scientific knowledge and communicating research results by adequate means and through Slovak or a foreign language.		
Brief outline of the course:		
Recommended literature:		
Course language:		
Notes:		
Course assessment Total number of assessed students: 29		
abs n		
100.0 0.0		
Provides:		
Date of last modification: 08.11.2022		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ ZRIG/22	EV/ <b>Course name:</b> Principal investigator of an internal grant (VVGS)		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 10		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Principal investigator	se completion: r of an internal grant (VVGS	5)	
The PhD student demonstrates the ability to process a successful application for his own research problem within the internal grant system at UPJŠ. Acquires skills with the design of research stages, their time schedule, measurable outputs and adequate distribution of funds. The very solution of the internal VVGS grant acquires the ability to implement the project intention according to the established procedure, to be responsible for achieving the set outputs. As a responsible researcher, the PhD student acquires competencies in project management, its administration, and presentation of results.			
Brief outline of the c	Brief outline of the course:		
Recommended litera	ature:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 13			
abs n			
100.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: KPPaPZ/PsVU/17	Course name: Psychology for University Lecturers		
Course type, scope Course type: Lectu Recommended cou Per week: Per stu Course method: di	Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 28s Course method: distance present		
Number of ECTS c	redits: 5		
Recommended sem	ester/trimester of the course:		
Course level: III.			
Prerequisities:			
Conditions for cour Case study, micro-o Current modification	<b>se completion:</b> utput, its analysis ns of the course are listed in the electronic bulletin board of the course.		
Learning outcomes After completing the and Understand, su psychology, emotion educational psychol b) apply the above ps of university teachir c) to create and in knowledge d) evaluate their per	course, students can: immarize and explain selected psychological knowledge from cognitive n and motivation psychology, personality psychology, developmental, social, ogy and health psychology. sychological knowledge necessary for the professional, competent performance ng practice of doctoral students nplement the teaching of a professional topic with applied psychological formance and the performance of their classmates, provide feedback		
Brief outline of the The content of the c psychology of emoti psychology and he interactive, experier of independence, ac in the teaching proc social and competer student relationship and motivation, dev psychology with app	<b>course:</b> ourse is based on selected psychological knowledge of cognitive psychology, ons and motivation, personality psychology, developmental, social, educational alth psychology. Teaching is realized by a combination of lectures with itial methods, discussion, open communication with mutual respect, support tivity and motivation of students. Syllabus: University teacher and his work cess with a focus on: teachers in relation to themselves (cognitive, personal, ncies in the use of methods), in relation to students and as part of the teacher- on the basis of selected areas of cognitive psychology, psychology of emotions elopmental psychology, social psychology, educational psychology and health plication to the university environment		
Alexitch, L. R. (200 Schneider F., Gruma Fry, H., Ketteridge, education: Enhancir Mareš, J.: Pedagogio	<ul> <li>5). Applying social psychology to education. Social Psychology.–Ed.:</li> <li>In J., Coutts L.–Sage Publications, Inc, 205-228.</li> <li>S., &amp; Marshall, S. (2008). A handbook for teaching and learning in higher is academic practice. Routledge.</li> <li>cká psychologie. Portál, 2013.</li> </ul>		

Kniha psychologie. Universum, 2014 Čáp, J., Mareš, J.: Psychologie pro učitele. Praha: Portál 2007. Vágnerová, M.: Školní poradenská psychológie pro pedagogy. Praha: Karolínum 2005.				
Course language:				
SIOVAK				
Notes:	Notes:			
Course assessment Total number of assessed students: 87				
abs	abs n neabs			
98.85 0.0 1.15				
Provides: PhDr. Anna Janovská, PhD.				
Date of last modification: 24.06.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science		
Course ID: ÚBEV/ Course name: Q1 journal as co-author Q1SA/22		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present		
Number of ECTS credits: 30		
Recommended semester/trimester of the course	e:	
Course level: III.		
Prerequisities:		
<b>Conditions for course completion:</b> Publication accepted in a journal of category Q1	as co-author.	
Learning outcomes: By publishing in a journal of category Q1 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.		
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: 08.11.2022		
Approved: prof. RNDr. Pavol Mártonfi, PhD.		

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚBEV/ Q11A/22	V/ <b>Course name:</b> Q1 journal as first or corresponding author		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 40		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Publication accepted	e completion: in a journal of category Q1	as first or corresponding author.	
By publishing in a journal of category Q1 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 1			
	abs	n	
100.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ Q2SA/22	eurse ID: ÚBEV/ Course name: Q2 journal as co-author 2SA/22		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS crea	<b>dits:</b> 20		
Recommended semest	ter/trimester of the course	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for course</b> Publication accepted in	<b>completion:</b> n a journal of category Q2	as co-author.	
Learning outcomes: By publishing in a journal of category Q2 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the co	urse:		
Recommended literat	ure:		
Course language:	Course language:		
Notes:			
Course assessment Total number of assessed students: 10			
	abs	n	
10	100.0 0.0		
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ Q21A/22	Course name: Q2 journal as first or corresponding author		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 30		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Publication accepted	e completion: in a journal of category Q2	as first or corresponding author.	
By publishing in a journal of category Q2 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 8			
	abs	n	
100.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice			
Faculty: Faculty of Science			
Course ID: ÚBEV/ Course name: Q3 journal as co-author Q3SA/22			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance present			
Number of ECTS credits: 15			
Recommended semester/trimester of the cours	e:		
Course level: III.			
Prerequisities:			
<b>Conditions for course completion:</b> Publication accepted in a journal of category Q3	as co-author		
Learning outcomes: By publishing in a journal of category Q3 as a co-author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 0			
abs n			
0.0	0.0		
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of Science			
Course ID: ÚBEV/ Q31A/22	<b>ID:</b> ÚBEV/ <b>Course name:</b> Q3 journal as first or corresponding author 2		
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present			
Number of ECTS cr	edits: 25		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Publication accepted	e completion: in a journal of category Q3	as first or corresponding author	
By publishing in a journal of category Q3 as the first or corresponding author, the PhD student demonstrates a high degree of ability to identify, evaluate, and apply correct scientific methods or research methodology. He demonstrates the ability to reflect on a scientific problem by using the latest approaches and applying them critically. He demonstrates the competence to use existing theories and concepts in an innovative way, as well as to generate new original scientific knowledge, which he can publish according to the highest qualitative and ethical standards of the field. The PhD student demonstrates the ability to critically evaluate and respond to reviewers' suggestions, to finalize his own ideas.			
Brief outline of the c	ourse:		
Recommended litera	iture:		
Course language:			
Notes:			
Course assessment Total number of assessed students: 1			
	abs	n	
100.0 0.0			
Provides:			
Date of last modification: 08.11.2022			
Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice	
Faculty: Faculty of Science	
Course ID: ÚBEV/ Course name: Q4 journal Q4SA/22	as co-author
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present	
Number of ECTS credits: 10	
Recommended semester/trimester of the cours	e:
Course level: III.	
Prerequisities:	
<b>Conditions for course completion:</b> Publication accepted in a journal of category Q4	as co-author.
Learning outcomes: By publishing in a journal of category Q4 as a degree of ability to identify, evaluate, and apply co He demonstrates the ability to reflect on a scient applying them critically. He demonstrates the cor an innovative way, as well as to generate new or according to the highest qualitative and ethical stat the ability to critically evaluate and respond to re	co-author, the PhD student demonstrates a high prrect scientific methods or research methodology. tific problem by using the latest approaches and mpetence to use existing theories and concepts in iginal scientific knowledge, which he can publish andards of the field. The PhD student demonstrates eviewers' suggestions, to finalize his own ideas.
Brief outline of the course:	
Recommended literature:	
Course language:	
Notes:	
<b>Course assessment</b> Total number of assessed students: 0	
abs	n
0.0	0.0
Provides:	
Date of last modification: 08.11.2022	
Approved: prof. RNDr. Pavol Mártonfi, PhD.	

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ Q41A/22	Course name: Q4 journal a	as first or corresponding author
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	nd the method: rse-load (hours): ly period: tance, present	
Number of ECTS cr	edits: 20	
Recommended seme	ster/trimester of the cours	e:
Course level: III.		
Prerequisities:		
<b>Conditions for cours</b> Publication accepted	e completion: in a journal of category Q4	as first or corresponding author.
By publishing in a jo demonstrates a high or research methodol the latest approaches theories and concepts which he can publish PhD student demonst to finalize his own id	burnal of category Q4 as the degree of ability to identify logy. He demonstrates the a and applying them critically in an innovative way, as well according to the highest q trates the ability to critically eas.	e first or corresponding author, the PhD student y, evaluate, and apply correct scientific methods bility to reflect on a scientific problem by using the demonstrates the competence to use existing l as to generate new original scientific knowledge, ualitative and ethical standards of the field. The y evaluate and respond to reviewers' suggestions,
Brief outline of the c	ourse:	
Recommended litera	iture:	
Course language:		
Notes:		
<b>Course assessment</b> Total number of asses	ssed students: 2	
	abs	n
	100.0	0.0
Provides:		
Date of last modifica	tion: 08.11.2022	
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.	

University: P. J. Šafán	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ VPZ/22	Course name: Scientific w	ork after sending to the editorial office
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis Number of ECTS cro	nd the method: rse-load (hours): y period: tance, present edits: 5	
Recommended seme	ster/trimester of the course	e:
Course level: III.		
Prerequisities:		
<b>Conditions for cours</b> Scientific work after	e completion: being sent to the editorial of	fice as an author/co-author.
Learning outcomes:		
Brief outline of the c	ourse:	
<b>Recommended litera</b>	ture:	
Course language:		
Notes:		
<b>Course assessment</b> Total number of asses	ssed students: 7	
abs n		
	100.0	0.0
Provides:		
Date of last modifica	tion: 08.11.2022	
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.	

	COURSE INFORMATION LETTER
University: P. J. Šafá	rik University in Košice
Faculty: Faculty of S	cience
<b>Course ID:</b> ÚBEV/ SMR/08	Course name: Secondary metabolism of plants
Course type, scope a Course type: Lectur Recommended cour Per week: 3 Per stu Course method: pre	nd the method: re rse-load (hours): dy period: 42 esent
Number of ECTS cr	edits: 6
Recommended seme	ster/trimester of the course:
Course level: III.	
Prerequisities:	
<b>Conditions for cours</b> 1. Elaboration of one 2. The examination of student will present th on the given topic.	e completion: term paper on a pre-specified topic. of the subject takes place in an oral form on a randomly drawn question. The ne topic of his term paper and then a discussion will take place with the teacher
<b>Learning outcomes:</b> The student updates, substances in plants v plants and humans. D informations.	expands and consolidates knowledge about the biosynthesis of secondary with an emphasis on their accumulation, regulation and significance for both Demonstration of the ability to work with scientific literature and process the
<ul> <li>Brief outline of the c</li> <li>Primary and secon</li> <li>Enzymatic pathway</li> <li>Terpenes</li> <li>Phenolic substance</li> <li>Flavonoids, isoflave</li> <li>Condensed tannings</li> <li>Nitrogenous secon</li> <li>Polyketides</li> <li>Secondary substan</li> <li>Extraction of secon</li> <li>Absorption prope</li> <li>Analysis of secon</li> <li>New knowledge a</li> </ul>	ourse: dary metabolism of plants and their biosynthesis ys and enzyme complexes (metabolons). es, formation of lignins ronoids , anthocyanins dary substances, alkaloids ces in conditions of stress ondary substances, polarity. rties of substances, UV-VIS spectrum idary substances bout plant metabolites, a selected topic from the latest publications in the field.
Recommended litera Wink M, Biochemistr Wink M, Functions o Sheffield Academic H	iture: ry of Plant Secondary Metabolism. Sheffield Academic Press . f Plant Secondary Metabolites and their Expoitation in Biotechnology. Press 1999.

Taiz L, Zeiger E, Plant Physiology. 4th ed. Sunderland, Sinauer Ass. 2006

Course language:	
Notes:	
Course assessment Total number of assessed students: 23	
Ν	Р
0.0	100.0
Provides: doc. RNDr. Peter Pal'ove-Balang, PhD.	
Date of last modification: 31.07.2022	
Approved: prof. RNDr. Pavol Mártonfi, PhD.	

Faculty: Faculty of Science

Course ID: ÚBEV/	Course name: Selected Plant physiology chapters
VKFR/08	

# Course type, scope and the method:

**Course type:** Lecture / Practice

**Recommended course-load (hours): Per week:** 3 / 2 **Per study period:** 42 / 28

Course method: present

#### Number of ECTS credits: 8

Recommended semester/trimester of the course: 1.

Course level: III.

Prerequisities:

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

1. Elaboration of one term paper on a previously assigned topic.

2. The examination of the subject takes place in an oral form on a randomly drawn question. The student will present the topic of his term paper and then a discussion will take place with the teacher on the given topic.

#### Learning outcomes:

#### Brief outline of the course:

1. Metabolism, metabolome, transcriptome and their significance for plant physiology.

2. Photosynthesis: the influence of light on plant growth and development, response to ecological factors

3. Photosynthesis II: Enzyme Rubisco and its importance for photosynthetic processes. Metabolic adaptations and their significance for plants.

4. Plant membranes and their physiological significance. Transport processes of plants.

5. Nitrogen intake, nitrogen reduction and their regulation, function of NO and other nitrogenous substances.

6. Primary and secondary assimilation of nitrogen, regulation of nitrogen and carbon metabolism. Connections between photosynthesis and nitrogen metabolism.

7. Amino acids, their formation, transport, accumulation and importance of free amino acids

8. Importance of catabolic processes in plant leaves

- 9. Lipid metabolism, importance of lipids, lipid peroxidation. Stress hormones, jasmonates
- 10. Oxidative stress, antioxidants and enzymes.
- 11. Stress metabolites, phytoalexins
- 12. Regulation of plant flowering, plant biorhythms
- 13. New knowledge from plant physiology, selected topic from the latest publications in the field.

#### **Recommended literature:**

Murphy A.S. et al. The plant plasma membrane. Springer-Verlag Berlin Heidelberg 2011; Taiz L.et al. Plant Physiology and Development. Sixth editon. Sinauer ass.,Sunderland 2014; Bhatla S.C., Lal M.A. Plant Physiology, development and metabolism. Springer Nature Singapore Pte Ltd. 2018;

Papers in scientific journals.

Course language:	
Notes:	
Course assessment Total number of assessed students: 32	
Ν	Р
0.0	100.0
Provides: doc. RNDr. Peter Pal'ove-Balang, PhD.	
Date of last modification: 31.07.2022	
Approved: prof. RNDr. Pavol Mártonfi, PhD.	

University: P. J. Šafárik Un	iversity in Košice
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Faculty: Faculty of Science

**Course ID:** ÚCHV/ **Course name:** Selected Topics in Biochemistry of Microorganisms VKBM/13

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

Per week: 4 / 2 Per study period: 56 / 28

Course method: present

Number of ECTS credits: 8

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

Course level: III.

Prerequisities:

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

Elaboration of a seminar paper on a topic related to the subject biochemistry of microorganism and the topic of the student's doctoral studies. A discussion with the examiner about the topic of the seminar work, in which the student is given the opportunity to prove that they possess sufficient knowledge of the subject.

#### Learning outcomes:

Familiarize postgraduate students with newest knowledge from Biochemistry of microorganism.

#### Brief outline of the course:

Diversity of microbial world – microbial evolution, taxonomy and diversity.

Ecology and symbiosis – Biogeochemical cycling and introductory microbial ecology, microbial interactions.

Antimicrobial chemotherapy – development of chemotherapy, general characteristics of antimicrobial drugs, determining the level of antimicrobial activity, antibacterial drugs, factor influencing antimicrobial drug effectiveness, drug resistance, antifungal, antiviral and antiprotozoal drugs.

Food and industrial microbiology – microbiology of food, food-borne pathogens.

Applied and industrial microbiology – microorganisms used in industrial microbiology, major products of industrial microbiology.

#### **Recommended literature:**

1. Black, J. G.: Microbiology, Wiley & Sons, Inc., 2008.

2. Johnson, T. R., Case, J.: Laboratory Experiments in Microbiology, 9th Ed., Pearson, 2010.

3. Kayser, F. H., Bienz, K. A., Eckert, J., Zinkernagel, R. M.: Medical Microbiology, Thieme, Stitgart-New York, 2001.

4. Levinson, W.: Review of Medical Microbiology and Immunology, McGraw-Hill International Edition, 2010.

5. Willey, J. M., Sherwood, L. M., Woolverton, C. J.: Prescott, Harley, and Klein's Microbiology, McGraw-Hill International Edition, 2008.

### Course language:

English

#### Notes:

Teaching is carried out either face-to-face or remotely/hybrid learning using the MS Teams program. The teaching format is specified by the teacher at the beginning of the semester and updated continuously.

<b>Course assessment</b> Total number of assessed students: 14	
N	Р
0.0	100.0
Provides: prof. RNDr. Mária Kožurková, CSc.	
Date of last modification: 07.03.2023	
Approved: prof. RNDr. Pavol Mártonfi, PhD.	

University: P. J. Šafá	rik University in Košice	
Faculty: Faculty of S	cience	
Course ID: ÚBEV/ SSOL/04	Course name: Self-motiva	ted Study on Scientific Literature
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	nd the method: rse-load (hours): ly period: tance, present	
Number of ECTS cr	edits: 2	
Recommended semester/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:		
Notes:		
Course assessment Total number of asses	ssed students: 286	
abs n		
	100.0	0.0
Provides:		
Date of last modifica	tion:	
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.	

<b>University:</b> P. J. Safarik	University	/ In Kosice
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Faculty: Faculty of Science

Course ID: Dek. PF	Course name: Spring School for PhD Students
UPJŠ/JSD/14	

Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: Per study period: 4d

**Course method:** distance, present

**Number of ECTS credits: 2** 

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

Course level: III.

Prerequisities:

**Conditions for course completion:** 

Active participation in the Spring School of PhD students of UPJŠ.

#### Learning outcomes:

By actively participating in the Spring School of PhD Students of UPJŠ, the PhD student demonstrates a high level of ability to process the issues of his dissertation for a multidisciplinary audience with an emphasis on clarifying the motivation, scientific problem, processing methodology and own contribution to the solution of the selected topic. The PhD student demonstrates the ability to professionally discuss various research topics, present his own positions and accept a plurality of opinions. Demonstrates the ability to communicate research results to a wider professional audience with adequate means and through the Slovak language.

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

1. Interdisciplinary lectures from the fields of medicine, natural sciences, law, public affairs, humanities. Lecturers - top foreign or national experts from the mentioned fields.

2. Scientific lectures in sections created within related disciplines. Lecturers - top experts from UPJŠ from the mentioned fields.

3. Scientific contributions of PhD students in sections of related fields.

4. Panel discussions on the issue of PhD studies and current trends in the development of scientific disciplines at UPJŠ.

#### **Recommended literature:**

Proceedings of the Spring School of Doctoral Students.

#### **Course language:**

Notes:

#### Course assessment

Total number of assessed students: 187

abs	n
100.0	0.0

Provides: doc. RNDr. Marián Kireš, PhD.

Date of last modification: 08.11.2022

Approved: prof. RNDr. Pavol Mártonfi, PhD.
University: P. J. Šafá	rik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚBEV/ VPSV/22	Course name: Supervision of Student's Scientific Activity		
Course type, scope a Course type: Recommended cour Per week: Per stud Course method: dis	nd the method: rse-load (hours): ly period: tance, present		
Number of ECTS cr	edits: 8		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
<b>Conditions for cours</b> Supervision of Stude	e completion: nt's Scientific Activity		
By guiding a stude scientifically based ki and approaches. Dem solution, as well as to skills from the field of	nt within the SOČ or ŠV nowledge in the field of study onstrates the ability to critica evaluate it and possibly pro of pedagogical sciences to h	OČ, the PhD student demonstrates broad and y, as well as knowledge of a wide range of methods ally assess a professional problem and its proposed pose another solution. He applies knowledge and s own field.	
Brief outline of the c	ourse:		
Recommended litera	ature:		
Course language:			
Notes:			
<b>Course assessment</b> Total number of asse	ssed students: 0		
	abs	n	
	0.0	0.0	
Provides:			
Date of last modifica	tion: 08.11.2022		
Approved: prof. RNI	Dr. Pavol Mártonfi, PhD.		

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ PPC1/22Course name: Teaching a	Course name: Teaching activities 1h/s			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 2				
Recommended semester/trimester of the cour	se:			
Course level: III.				
Prerequisities:				
Conditions for course completion: Direct teaching activity 1 semester hour				
Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.				
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: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

Faculty: Faculty of Science				
Course ID: ÚBEV/ PPC2/22Course name: Teaching activities 2 h/s				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 4				
Recommended semester/trimester of the course:				
Course level: III.				
Prerequisities:				
Conditions for course completion: Direct teaching activity 2 semester hours				
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 6				
abs n				
100.0 0.0				
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

Faculty: Faculty of Science				
Faculty. Faculty of Science				
Course ID: ÚBEV/ PPC3/22Course name: Teaching activities 3 h/s				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 6				
Recommended semester/trimester of the course:				
Course level: III.				
Prerequisities:				
Conditions for course completion: Direct teaching activity 3 semester hours				
<b>Learning outcomes:</b> Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.				
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: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ PPC4/22Course name: Teaching ac	Course name: Teaching activities 4 h/s			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 8				
Recommended semester/trimester of the course	e:			
Course level: III.				
Prerequisities:				
Conditions for course completion: Direct teaching activity 4 semester hours				
Learning outcomes: Through pedagogical activity, the PhD student demonstrates the ability to transfer and integrate knowledge from his own field of study into education. He is able to select and apply the right techniques and strategies of study group management, higher education and evaluation of learning outcomes. He is capable of designing and implementing part of the educational process in accordance with current trends in higher education and the requirements placed on the level of communication and digital competencies.				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 11				
abs	n			
100.0	0.0			
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.	Approved: prof. RNDr. Pavol Mártonfi, PhD.			

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ KZP/22Course name: Thesis consultant				
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 4				
Recommended semester/trimester of the course:				
Course level: III.				
Prerequisities:				
Conditions for course completion: Final thesis consultant.				
Learning outcomes: By consulting the final thesis, the PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly propose another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.				
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: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: ÚBEV/ VZP/22Course name: Thesis supervis	Course name: Thesis supervising			
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: distance, present				
Number of ECTS credits: 8				
Recommended semester/trimester of the course:				
Course level: III.				
Prerequisities:				
Conditions for course completion: Supervisor of the final thesis.				
Learning outcomes: By supervising the final thesis, the PhD student demonstrates broad and scientifically based knowledge in the field of study, as well as knowledge of a wide range of methods and approaches. Demonstrates the ability to critically assess a professional problem and its proposed solution, as well as to evaluate it and possibly propose another solution. He applies knowledge and skills from the field of pedagogical sciences to his own field.				
Brief outline of the course:				
Recommended literature:				
Course language:				
Notes:				
Course assessment Total number of assessed students: 6				
abs	n			
100.0	0.0			
Provides:				
Date of last modification: 08.11.2022				
Approved: prof. RNDr. Pavol Mártonfi, PhD.				