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University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Certified training course COK/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 4** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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 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: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course na

Course name: Chiral auxiliaries & ligands

CPC/04

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Student must active work during semester (seminar written discussion).

The terminal examination consists of written and oral part.

Terminal examination by written form and oral presentation of the resolved synthetic problems, followed by subsequent discussion with the examiner.

The witten part is evaluated as follows: 100-91% of points = A, 90-81% of points = B, 80-71% of points = C, 70-61% = D, 60-51% of points = E, 50% and less = FX.

The final evaluation is based on combination of the obtained results from both parts.

Learning outcomes:

The general review on chiral auxiliaries and ligands and their application in asymmetric synthesis. After completing the subject, the doctoral student can combine the latest knowledge in the field of chiral auxiliary agents and ligands to solve a synthetic problem in order to obtain a solution with significant added value. He has knowledge of modern asymmetric synthesis and catalysis, which he can apply in solving given synthetic problems.

Brief outline of the course:

Enantiomerically pure chiral auxiliaries (alcohols, diols, diphenols, amines, diamines, hydrazines, amonoalcohols, amino acids, oxazolidinones, thiazolidinones, aldehydes, ketones, lactams,) Chiral reagents (chiral proton donors, chiral bases, alumínium and boron hydrides). Chiral catalysis and catalysts bearing chiral ligands (aminoalcohols, amino acids, crown ethers, Lewis acids, transition metal catalysts). Asymmetric deprotonations and protonations. Alkylations and related reactions. Additions to C=O and C=N double bond (reductions by hydrides and boranes). Additions to carbon-carbon double bonds (reductions by hydrides, hydroboration, dihydroxylation, epoxidation), Sigmatropic rearrangements (thermal and catalyzed).

Recommended literature:

- 1. J. Seyden-Penne: Chiral auxiliaries and ligands in asymmetric synthesis, John Wiley & Sons, 2005.
- 2. M. Christmann, S. Brase.: Asymmetric synthesis II: More methods and Applications, 2012 Wiley#VCH Verlag GmbH & Co. KGaA 2012, ISBN:9783527329212. Online ISBN:9783527652235.

Course language:

anglický

Notes:

Teaching is carried out in person or, if necessary, online, using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 35

N	Р
0.0	100.0

Provides: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 04.08.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Citation in the International Scientific Journal CZC/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 4** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Obtained citation in a foreign 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 course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 7 abs n 100.0 0.0 **Provides:**

Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Citation in the Local Scientific Journal CDC/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 2** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Citation in a national 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 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Citation in the Monograph CM/22Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 8** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Obtained citation registered in SCI or Scopus. **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 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Co-investigator of the applied research project SPAV/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 5** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Co-investigator of the applied research project **Learning outcomes:** 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 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Co-worker of a Local Project SDP/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 10 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Co-investigator of the domestic project **Learning outcomes:** 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 course: Recommended literature: Course language: Notes:** Course assessment Total number of assessed students: 37 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Co-worker of an International Project SMPR/04 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 15** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Membership in the research team of an international project. **Learning outcomes:** 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 course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 42 abs n 100.0 0.0 **Provides:**

Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course name: Current top

POCE/04

Course name: Current topics in organic chemistry

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

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

A student must actively work during semester (seminar written discussion).

The terminal examination consists of written and oral part.

Terminal examination by written form and oral presentation of the resolved synthetic problems, followed by subsequent discussion with the examiner.

The witten part is evaluated as follows: 100-91% of points = A, 90-81% of points = B, 80-71% of points = C, 70-61% = D, 60-51% of points = E, 50% and less = FX.

The final evaluation is based on the combination of the obtained results from both parts.

Learning outcomes:

The modern view of the several important chapters of the advanced organic chemistry. New trends in the organic synthesis.

Brief outline of the course:

Delocalisation and conjugation, delocalized bonds, reaction intermediates, base and acid, effect on equilibria. Electrophilic and nucleophilic aromatic substitution, addition to C=C and C=Heteroatom bonds, elimination reaction, rearrangements, oxidations and reductions. Nucleophillic substitution at saturated carbon (compounds bearing the carbon-heteroatom bond).

Formations and reactions of enols and enolates. Reactivity of enolates, alkylation of enolates conjugate addition of enolates. Acylation of carbon. Nucleophilic substitution at C=O with loss of carbonyl oxygen. Using organometallic reagents to make C-C bonds. Pericyclic reactions. Cycloaditions and their stereochemical course. Diels-Alder reactions with the normal and reverse electron demands. Sigmatropic rearrangements and their selectivity. Aza-Claisn rearrangements and their application in the costruction of the more complex products. Chemistry of the coupling reactions and their application in organic synthesis. Protective groups in organic synthesis.

Recommended literature:

- 1. Michael B. Smith, Jerry March: March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 7th Edition, 2013.
- 2. J. Clayden, N. Greeves, S. Warren, P. Wothers Organic Chemistry, Oxford University Press, NY 2012.

Course language:

anglický

Notes:

Teaching is carried out in person or, if necessary, online, using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 39

N	P
0.0	100.0

Provides: RNDr. Slávka Hamul'aková, PhD., univerzitná docentka

Date of last modification: 20.11.2021

University: P. J. Šafá	University: P. J. Šafárik University in Košice		
Faculty: Faculty of S	cience		
Course ID: ÚCHV/ ODZP/2014/15	Course name: Defence of	Doctoral Thesis	
Course type, scope and the method: Course type: Recommended course-load (hours): Per week: Per study period: Course method: present			
Number of ECTS cr	edits: 30		
Recommended seme	ster/trimester of the cours	e:	
Course level: III.			
Prerequisities:			
Conditions for course completion: 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.			
Learning outcomes: 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 course:			
Recommended literature:			
Course language:			
Notes:			
Course assessment Total number of assessed students: 69			
	N	Р	
	0.0	100.0	

Provides:

 $\textbf{Date of last modification:}\ 08.11.2022$

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Elaboration of reviewer report VPZP/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 3** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Elaboration of reviewer report **Learning outcomes:** 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 recommend 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: 0 abs n 0.0 0.0 **Provides:** Date of last modification: 08.11.2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ Course n

Course name: High-resolution NMR spectroscopy

NSVR/04

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

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

- 1. Attendance at lectures and seminars (also online form of teaching): the student's absence from two lectures / seminars will be justified by the teacher; after a long-term absence, an understanding of the curriculum demonstrated in an alternative form (eg elaboration of assignments, preparation of a lecture, ...)
- 2. Activity at seminars (also on-line form of teaching) necessary theoretical preparation
- 3. Written assignments (20% of the total evaluation) elaboration according to the teacher's instructions.
- 4. Final test (30% of the total evaluation).
- 5. Examination (written 25% and oral part 25%).

Learning outcomes:

The aim of the course is to get acquainted with 1D and 2D NMR methods and the application of the acquired knowledge in solving NMR problems.

Brief outline of the course:

- 1. Advanced 1D NMR methods
- a) 13C NMR experiments APT, DEPT
- b) NOE experiments
- c) Selective experiments
- 2. 2D NMR methods
- a) Proton-proton correlated experiments (interactions through bonds) COSY, TOCSY
- b) Proton-proton correlated experiments (interactions across space) NOESY
- c) Proton-carbon correlated experiments HSQC/HMQC/HETCOR, HMBC, H2BC, EXSIDE
- d) Carbon-carbon correlated experiments INADEQUATE

Recommended literature:

- 1. H. Friebolin: Basic One- and Two-Dimensional NMR Spectrocopy, 5. Ed., Wiley, 2010.
- 2. T. D. W. Claridge: High-Resolution NMR Techniques in Organic Chemistry, 5. Ed., Elsevier, 2016.
- 3. Atta-ur-Rahman, M. I. Choudhary: Solving Problems with NMR spectroscopy, Academic Press 1996.

Course language:

English

Notes:

Teaching is carried out in person or, if necessary, online, using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 24

N	Р
0.0	100.0

Provides: doc. RNDr. Mária Vilková, PhD.

Date of last modification: 28.01.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course name: International Journal Course ID: ÚCHV/ ZC/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 8** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a foreign journal as an author/co-author. **Learning outcomes:** 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: 0 abs n 0.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: International Study Stay less than 30 Days ZSP1/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Completion of a foreign study stay lasting less than 30 days. **Learning outcomes:** 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: 2 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ **Course name:** International Study Stay more than 30 Days ZSP2/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 10 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Completion of a foreign study stay lasting more than 30 days. **Learning outcomes:** 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 course: Recommended literature: 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: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course name: International conference abroad Course ID: ÚCHV/ MKZ/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 10 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Active participation in an international 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: 22 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course name: Local Conference Course ID: ÚCHV/ DK/04 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 2 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 128 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Local Conference with Foreign Participation DKZU/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Active participation in a national conference with foreign participation. **Learning outcomes:** 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: 15 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Local Journal DC/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits:** 6 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a national journal as author/co-author. **Learning outcomes:** By publishing in a national 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: 0 abs n 0.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Member of the internal project team SIG/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 3** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Co-worker of project supported by internal grant schemes (VVGS) **Learning outcomes:** 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 course: Recommended literature: Course language: Notes:** Course assessment Total number of assessed students: 15 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ **Course name:** Membership in a Conference organizing Committee POVK/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 3** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Work in the organizing committee of the conference **Learning outcomes:** 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 course: Recommended literature: Course language: Notes:** Course assessment Total number of assessed students: 1 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | **Course name:** Molecular devices

MOZ/04

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Student must actively work during semester. The seminar written report on the selected topic of this subject and its oral presentation connected with the common discussion with the examiner.

The terminal examination consists of written and oral part.

Terminal examination by written form and oral presentation of the resolved problems, followed by subsequent discussion with the examiner.

The witten part is evaluated as follows: 100-91% of points = A, 90-81% of points = B, 80-71% of points = C, 70-61% = D, 60-51% of points = E, 50% and less = FX.

The final evaluation is based on combination of the obtained results from both parts.

Learning outcomes:

The general review on the principles of the molecular recognition, transformation and translation as the basic functions of the supramolecular structures as the components of the molecular machines. Series of the invited lectures of scientists working on the supramolecular chemistry.

Brief outline of the course:

EN

Receptors, molecular recognition, coordination. The genesis of interactions in supramolecular chemistry. Supramolecular chemistry in the nature. Porfyrins. DNA. Crown ethers, cryptands, cyclophanes. Selectivity and complementarity. Interactions with solvents. Macrocyclic and template effect. Receptors for the neutral molecules. Clathrates and intercalators. Cyclodextrins, calixarens. Fullerenes. Modification of fullerenes. Nanotubes. Supramolecular catalysis and transport. Proximity effect. Active and passive transport. Transporters. Molecular pumps. Bioinspired supramolecular catalysis. Devices and machines at the molecular level, the concept of molecular machines. Fundamental principles of electron and energy transfer. Micelles and bilayers, Dendrimers.

Recommended literature:

- 1. J. W. Steed, J. L. Atwood: Supramolecular chemistry, Wiley and Sons Ltd, Chichester, 2000, ISBN ISBN 0-471-98791-3.
- 2. J. M.Lehn: Supramolecular chemistry: concepts and perspectives, Wiley VCH, Weinheim, 1995.
- 3. J. W. Steed: Supramolecular chemistry, John Wiley and Sons. Ltd. 2009.

4. V. Balzani, A. Credi, M Venturi: Molecular devices and Machines - a journey into the nano world, Wiley-VCH, Verlag GmbH and Co. KGaA, Weinheim 2003, ISBN 3-527-30506-8.

Course language:

anglický

Notes:

Teaching is carried out in person or, if necessary, online, using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 1

N	P
0.0	100.0

Provides: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 20.11.2021

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Monograph MONB/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 20** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Co-author of the monograph. **Learning outcomes:** 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Monograph in a renowned publishing house MONA/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 40** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Co-author of a monograph in a renowned publishing house. **Learning outcomes:** 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

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: Nitrogen heterocycles

HZD/04

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Students must actively work during the course in a close collaboration with a teacher.

Student may only miss 1 practice.

Written exam - 100 pts. A minimum of 51 points must be obtained.

Assessment A: 91-100; B: 81-90; C: 71-80; D: 60-71; E: 51-60; FX: 0-50 pts.

Learning outcomes:

The aim of the course is to obtain the knowlegde about nitrogen heterocycles, their synthesis, reactivity as well as relationship between structure and biological properties.

Brief outline of the course:

Signification, synthesis and chemical properties of different types of nitrogen heterocyclic systems. Natural substances containing nitrogen heterocycles, biological activity and drugs based on nitrogen heterocycles and their synthesis.

Attention will be paid to aromatic and non-aromatic compounds, including their biological properties and application in organic synthesis.

A. Aromatic heterocycles

- 1. Six-membered heterocycles with one heteroatom (pyridine, acridine, quinoline, isoquinoline)
- 2. Five-membered heterocycles with one heteroatom (pyrrole, indole)
- 3. Six-membered heterocycles with two or more heteroatoms (pyrimidine, pyridazine, pyrazine, purine, pteridine)
- 4. Five-membered heterocycles with two heteroatoms (oxazole, isoxazole, thiazole, isothiazole, imidazole, pyrazole)
- B. Non-aromatic heterocycles (morpholine, piperidine, piperazine)

Recommended literature:

- 1. Comprehensive Heterocyclic Chemistry; Katritzky A. R., Rees C. W., Eds., Pergamon Press, Oxford, 1984.
- 2. Gilchrist T. L.: Heterocyclic Chemistry, Longman, Harlow, 1992.
- 3. Eichler T., Hauptmann S.: The Chemistry of Heterocycles, Wiley-VCH, Weinheim 2003.

Course language:

Slovak and English

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Notes:		
Course assessment Total number of assessed students: 18		
N	P	
0.0	100.0	
Provides: RNDr. Mariana Budovská, PhD., univerzitná docentka		
Date of last modification: 17.11.2021		
Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka		

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ **Course name:** Non-Reviewed International or National Proceedings NRZ/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 2** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** A publication published in a non-reviewed foreign or national journal as an author/co-author. **Learning outcomes:** 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 course: **Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 9 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Patents, Inventions, Software PVS/04 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 2** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Patent filed, invention, software product created. **Learning outcomes:** The PhD student demonstrates the ability to create an innovative product in a given scientific field, or with impact on an interdisciplinary scale or in technical practice. **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

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University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: KPE/ **Course name:** Pedagogy for University Teachers

PgVU/17

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 credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

- 1. Development of a teaching diary—100%
- 2. Compulsory active participation and attendance in accordance with the Study Regulations.

Learning outcomes:

Students will be able to:

Apply didactic principles, methods, forms, and tools in the teaching of a specialised subject. Specify the educational procedures of a university teacher in subject teaching, pedagogical diagnostics, evaluation of learning outcomes, and self-reflection. Present rationalisation and streamlining possibilities in the teaching of specialised subjects. Apply educational competencies of university teachers taking into account the peculiarities of educating university students.

Brief outline of the course:

The personality of a university teacher. Teaching styles. Student in university education. Student learning styles. Possibilities of adapting teaching styles and student learning styles. University teacher–student interaction and communication in the teaching process. Pedagogical competencies of a university teacher. Didactic analysis of the curriculum; teaching materials and textbooks. Forms of university teaching. Methods of university teaching. Verification methods and student assessment. Creation of a didactic test. Designing university teaching process. University teacher self-reflection.

Recommended literature:

Čapek, R. (2015). Moderní didaktika. Lexikon výukových a hodnoticích metod. Praha, Grada Publishing, a.s.

Danek, J. (2014). Pedagogická komunikácia na vysokej škole. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.

Dargová, J. (2001). Tvorivé kompetencie učiteľa. Prešov, Privat Press.

Dvořáček, J. (2014). Základy pedagogiky. Praha, Oeconomica.

Hupková, M., Petlák, E. (2004). Sebareflexia a kompetencie v práci učiteľa. Bratislava, IRIS. Kyriacou, CH. (1996). Klíčové dovednosti učitele. Praha, Portál.

Mertin, V. a kol. (2012). Metody a postupy poznávaní žáka: pedagogická diagnostika. Praha, Wolters Kluwer.

Petty, G. (2013). Moderní vyučování. Praha, Portál.

Prucha, J. (2013). Moderní pedagogika. Praha, Portál.

Sirotová, M. (2014). Vysokoškolský učiteľ v edukačnom procese. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.

Slávik, M. a kol. (2012). Vysokoškolská pedagogika. Praha, Grada.

Šebeň Zaťková, T. (2014). Úvod do vysokoškolskej pedagogiky. Trnava, Univerzita sv.Cyrila a Metoda v Trnave.

Turek, I. (2014). Didaktika. Bratislava, Wolters Kluwer, s.r.o.

Zormanová, L. (2014). Obecná didaktika. Praha, Grada.

Course language:

slovak

Notes:

Course assessment

Total number of assessed students: 120

abs	n	neabs
98.33	0.0	1.67

Provides: doc. PaedDr. Renáta Orosová, PhD.

Date of last modification: 12.03.2024

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Popularisation of science POPV/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 5** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Active involvement in the popularization of science. **Learning outcomes:** Demonstrated ability to present science to the lay public, use interactive methods of scientific communication, identify the target group and adapt the communication language to the level of professional knowledge. A PhD student is able to arouse interest and motivate specific target groups in the field of his scientific work, but also in the wider context of science **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: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: Practical application of quantum chemical methods in

PAKM/04 organic chemistry

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

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

The examination can consist of written and/or oral examination as the examiner may determine. In order to pass this course, each student must complete ALL of the following compulsory requirements: Students may only miss 1 practise session. Students must actively work during a practise part of the course in a close collaboration with a teacher. Students must obtain at least 51 percent of the total number of points of the written examination. The final evaluation is assigned on the basis of the mark of the written examination. Students are assigned a grade in the course as follows: 100 - 91% (A), 90 - 81% (B), 80 - 71% (C), 70 - 61% (D), 60 - 51% (E), 50% and less FX.

Learning outcomes:

To provide students with a basic orientation in current quantum chemical methods used in the study of small and medium-sized organic molecules. The acquired knowledge will enable students to understand the scope and limitations of various theoretical models in solving chemical problems and assess their degree of reliability and suitability for various types of calculations. The skills acquired in the exercise will allow them to performe the basic types of calculations using available software tools (Mopac, Molden, Gamess, Gaussian, ...) and analyze the obtained results.

Brief outline of the course:

- 1. Overview of current quantum mechanical models in chemistry. (semiempirical, ab-initio, post-HF, DFT)
- 2. Conformational analysis and structure optimization of small and medium molecules. (minimization algorithms, description of PES)
- 3. Basic procedures for investigating the reaction pathways of chem. reactions. (localization of PES saddle point structures, TS optimization, IRC, calculation of thermodynamic parameters)
- 4. Qualitative theories and their practical application.

(frontier orbital theory, BEP principle - Hammond's postulate)

- 5. Calculations of molecular properties.
- (vibrational, electronic and NMR spectra, optical properties, electrostatic potential, ...)
- 6. Solvation models.

(SCRF, PCM, COSMO)

Recommended literature:

- 1. Foresman, J. B., Frisch, A.: Exploring Chemistry with electronic structure method. Gaussian Inc., 1996.
- 2. Jensen, F.: Introduction to computational chemistry, J. Willey&Sons, 1998.
- 3. Leach, A.R.: Molecular modelling. Principles and applications. Longman, 1996.

Course language:

slovak, english

Notes:

Teaching is carried out in person or, if necessary, online using the MS Teams platform. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 5

N	P
0.0	100.0

Provides: doc. RNDr. Ladislav Janovec, PhD.

Date of last modification: 10.01.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Presentation in Seminar VYS/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 4 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Principal investigator of an internal grant (VVGS) ZRIG/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 10** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Principal investigator of an internal grant (VVGS) **Learning outcomes:** 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 course: **Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 10 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: Course name: Psyc

KPPaPZ/PsVU/17

Course name: Psychology for University Lecturers

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 credits: 5

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Case study, micro-output, its analysis

Current modifications of the course are listed in the electronic bulletin board of the course.

Learning outcomes:

After completing the course, students can:

and Understand, summarize and explain selected psychological knowledge from cognitive psychology, emotion and motivation psychology, personality psychology, developmental, social, educational psychology and health psychology.

- b) apply the above psychological knowledge necessary for the professional, competent performance of university teaching practice of doctoral students
- c) to create and implement the teaching of a professional topic with applied psychological knowledge
- d) evaluate their performance and the performance of their classmates, provide feedback

Brief outline of the course:

The content of the course is based on selected psychological knowledge of cognitive psychology, psychology of emotions and motivation, personality psychology, developmental, social, educational psychology and health psychology. Teaching is realized by a combination of lectures with interactive, experiential methods, discussion, open communication with mutual respect, support of independence, activity and motivation of students. Syllabus: University teacher and his work in the teaching process with a focus on: teachers in relation to themselves (cognitive, personal, social and competencies in the use of methods), in relation to students and as part of the teacher-student relationship on the basis of selected areas of cognitive psychology, psychology of emotions and motivation, developmental psychology, social psychology, educational psychology and health psychology with application to the university environment

Recommended literature:

Alexitch, L. R. (2005). Applying social psychology to education. Social Psychology.–Ed.: Schneider F., Gruman J., Coutts L.–Sage Publications, Inc, 205-228.

Fry, H., Ketteridge, S., & Marshall, S. (2008). A handbook for teaching and learning in higher education: Enhancing academic practice. Routledge.

Mareš, J.: Pedagogická psychologie. Portál, 2013.

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:

slovak

Notes:

Course assessment

Total number of assessed students: 87

abs	n	neabs
98.85	0.0	1.15

Provides: PhDr. Anna Janovská, PhD.

Date of last modification: 24.06.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q1 journal as co-author O1SA/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 30** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 1 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q1 journal as first or corresponding author O11A/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 40 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a journal of category Q1 as first or corresponding author. **Learning outcomes:** 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 course: Recommended literature: Course language:** Notes: Course assessment Total number of assessed students: 2 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q2 journal as co-author Q2SA/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 20** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in 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 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q2 journal as first or corresponding author O21A/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 30** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a journal of category Q2 as first or corresponding author. **Learning outcomes:** 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 course: Recommended literature: Course language:** Notes: Course assessment Total number of assessed students: 11 abs n 100.0 0.0 **Provides:**

Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ 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: present **Number of ECTS credits: 15** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 5 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q3 journal as first or corresponding author O31A/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 25** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a journal of category Q3 as first or corresponding author **Learning outcomes:** 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 course: Recommended literature: 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q4 journal as co-author O4SA/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 10 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a journal of category Q4 as co-author. **Learning outcomes:** By publishing in a journal of category Q4 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: 1 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Q4 journal as first or corresponding author O41A/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 20 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Publication accepted in a journal of category Q4 as first or corresponding author. **Learning outcomes:** By publishing in a journal of category Q4 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 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ **Course name:** Reviewed International or Local Proceedings RZ/22Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** A publication published in a peer-reviewed foreign or national proceedings as an author/co-author. **Learning outcomes:** 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 course: Recommended literature: Course language:** Notes: Course assessment Total number of assessed students: 46 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: SCI Citation SCI/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 8** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Obtained citation registered in SCI or Scopus. **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 course: Recommended literature:** 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

University: P. J. Šafárik University in Košice

Faculty: Faculty of Science

Course ID: ÚCHV/ | Course name: Saccharides

CHSA/04

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

Course method: present

Number of ECTS credits: 8

Recommended semester/trimester of the course:

Course level: III.

Prerequisities:

Conditions for course completion:

Student must actively work during semester (seminar written discussion). The preparation of the material on the application of carbohydrates as the useful chirons in the stereoselective synthesis of the various natural products and its oral presentation.

The terminal examination consists of written and oral part.

Terminal examination by written form and oral presentation of the resolved synthetic problems, followed by subsequent discussion with the examiner.

The witten part is evaluated as follows: 100-91% of points = A, 90-81% of points = B, 80-71% of points = C, 70-61% = D, 60-51% of points = E, 50% and less = FX.

The final evaluation is based on combination of the obtained results from both parts.

Learning outcomes:

The general review on carbohydrate chemistry and applications of the simple saccharide molecules as chirons (chiral-pool strategy) in modern stereoselective syntheses of various natural products and their analogues involving multiple stereogenic centers.

Brief outline of the course:

General introduction, nomenclature of monosaccharides, configuration and stereochemistry of monosaccharides (the Fischer projection, the Haworth projection, conformation of sugars). Reactions of monosaccharides (reactions of carbonyl groups and hydroxyl groups, protective group strategies, production of ethers, esters, acetals, ketals. Monosaccharide derivatives, their nomenclature and preparation. Ascending and descending reactions of monosaccharides. Functionalization of saccharides. Nucleophilic substitutions, oxidations, reaction of the anomeric carbon. Glycosylation methods. Synthesis of C-, N- and O-glycosides. Oligosaccharide synthesis. Application of monosaccharides and their derivatives as the chiral templates in the stereoselective organic synthesis.

Recommended literature:

Levy, D. E., Fügedi, P.: The organic chemistry of sugars. Taylor & Francis Group, LLC 2006, ISBN: 0-8247-5355-0.

2. El Khadem, H. S.: Carbohydrate Chemistry: Monosaccharides and Their Oligomers. Academic Press 1988, INC. (London) Ltd., ISBN: 0-12-236870-3.

- 3. Miljković, M.: Carbohydrates. Synthesis, mechanisms and stereoelectronic effects. Springer Science and Business Media, LLC, New York, 2009. ISBN: 978-0-387-92265-2.
- 4. Sinnott, M. L.: Carbohydrate Chemistry and Biochemistry. RSC Publishing 2007, UK, .ISBN 978-0-85404-256-2.

Course language:

anglický

Notes:

Teaching is carried out in person or, if necessary, online, using the MS Teams tool. The form of teaching is specified by the teacher at the beginning of the semester, updated continuously.

Course assessment

Total number of assessed students: 26

N	P
0.0	100.0

Provides: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

Date of last modification: 20.11.2021

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Scientific work after sending to the editorial office **VPZ/22** Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present Number of ECTS credits: 5 Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Scientific work after being sent to the editorial office as an author/co-author. **Learning outcomes:** By sending a manuscript to the editors of a scientific 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 formulate his own ideas in a structured form. Brief outline of the course: **Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 2 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice				
Faculty: Faculty of Science				
Course ID: Dek. PF Course name: Spring School UPJŠ/JSD/14	ool for PhD Students			
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 cours	e:			
Course level: III.				
Prerequisities:				
Conditions for course completion: Active participation in the Spring School of PhD students of UPJŠ.				
demonstrates a high level of ability to process the audience with an emphasis on clarifying the methodology and own contribution to the soldemonstrates the ability to professionally discuss	of PhD Students of UPJŠ, the PhD student e issues of his dissertation for a multidisciplinary ne motivation, scientific problem, processing lution of the selected topic. The PhD student various research topics, present his own positions the ability to communicate research results to a stand 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

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Supervision of a Students Scientific Work VPSV/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 8** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Supervision of Student's Scientific Activity **Learning outcomes:** By guiding a student within the SOČ or ŠVOČ, 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: 4 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Teaching activities 1 h/s PPC1/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 2** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Direct teaching activity 1 semester hour **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: 8 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Teaching activities 2 h/s PPC2/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 4** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 9 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Teaching activities 3 h/s PPC3/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 6** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** Direct teaching activity 3 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: 1 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Teaching activities 4 h/s PPC4/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 8** Recommended semester/trimester of the course: 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: 7 abs n 100.0 0.0 **Provides:** Date of last modification: 08 11 2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Thesis consultant KZP/22Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 4** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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: 30 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Thesis supervising VZP/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: 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: 1 abs n 100.0 0.0 **Provides:** Date of last modification: 08.11.2022

University: P. J. Šafárik University in Košice Faculty: Faculty of Science Course ID: ÚCHV/ Course name: Writing Dissertation Work PDS/22 Course type, scope and the method: **Course type:** Recommended course-load (hours): Per week: Per study period: Course method: present **Number of ECTS credits: 20** Recommended semester/trimester of the course: Course level: III. **Prerequisities: Conditions for course completion:** 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. Learning outcomes: 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 course: Recommended literature:** Course language: **Notes:** Course assessment Total number of assessed students: 8 N P 0.0 100.0 **Provides:** Date of last modification: 08.11.2022 Approved: doc. RNDr. Miroslava Martinková, PhD., univerzitná profesorka