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UDSE INFODMATION I ETTED

| | COURSE INFORMATION LETTER | | | | | |
|--|---|--|--|--|--|--|
| University: P. J | . Šafárik Univers | sity in Košice | | | | |
| Faculty: Faculty of Science | | | | | | |
| Course ID: KF, AFS/05 | rse ID: KF/ Course name: Ancient Philosophy and Present Times | | | | | |
| Course type, so Course type: Recommende Per week: 2 P Course metho | cope and the me Practice d course-load (h er study period: od: present | thod: nours): : 28 | | | | |
| Number of EC | TS credits: 2 | | | | | |
| Recommended | semester/trimes | ster of the cours | e: 2. | | | |
| Course level: I | [. | | | | | |
| Prerequisities: | | | | | | |
| When impleme 40% - continuo 60% - final test KF citation star In the case of a philosophical to deadline, will b to the same exte | nting the subject us assessment of , or seminar pape ndard for seminar a transition to dis exts and process be assigned point ent as in the face | in the classical - Student activity er in the range of r and qualificatio stance education, ing the task in w s (partial assesses -to-face form tea | face-to-face - for at seminars, parti 210 A4 standard n papers. students will be vritten form, which nent) and at the e ching. | rm of teaching: ial seminar work pages (with com assigned sub-tas ch must be subn end will prepare | - assignment. pliance with the sks for studying nitted by the set a seminar paper | |
| Learning outco | omes: | | | | | |
| Brief outline of Point out the ro the 3 pillars of H the interconnect of the issues of society, where which Europe a and problems of today's form of | the course: ots of Western cir European culture, etedness of ancien thought formation the emergence of and European hum of today if he disc Society, thinking | vilization that go , reveal the origin nt philosophy an on, the relationsl f mathematical n manity stand. Th covers the founda g, science and cul | back to the Greek s of democracy and d EPISTEME with hip between philo atural science in e student will be ttions and context ture. | ks. The ancient C nd critical thinkir ill enable a bette osophy and scien the 17th century able to understan ts leading to serie | Areeks, as one of ng. Emphasizing r understanding nce, and modern r is the pillar on nd the questions ous questions of | |
| Recommended literature: | | | | | | |
| Course languag | ge: | | | | | |
| Notes: | | | | | | |
| Course assessn Total number o | nent f assessed studen | nts: 31 | | | | |
| А | В | C | D | Е | FX | |
| 80.65 | 6.45 | 6.45 | 0.0 | 6.45 | 0.0 | |
| | · · · · · · · · · · · · · · · · · · · | • | • | • | A | |

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022

| Faculty: Faculty of Science | | | | | |
|---|--|--|--|--|--|
| Course ID: ÚMV/ ALA/10Course name: Applied linear algebra | | | | | |
| 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: 5 | | | | | |
| Recommended semester/trimester of the course: 1., 3. | | | | | |
| Course level: II. | | | | | |
| Prerequisities: | | | | | |
| Conditions for course completion: According to tests and to the exam. | | | | | |
| Learning outcomes: To deepen and expand your knowledge of linear algebra, to get acquainted with selected calculation methodologies and to be able to apply them to specific problems and mathematical problems. Demonstrate knowledge of mathematical content in context. Completion of the course significantly completes the profile of the graduate | | | | | |
| Brief outline of the course: Matrices over Euclidean rings, canonical forms. Polynomial matrices. Similar matrices. Jordan normal form. Functions of matrices, sequences, series. Inversion of singular matrices, pseudoinverse matrices and their application. | | | | | |
| Recommended literature: M. Fiedler: Speciálni matice a jejich použití v numerické matematice, SNTL Praha, 1981. H.E.Rose: Linear Algebra, A Pure Mathematical Approach, Birkhäuser Verlag, 2002. D.Serre: Matrices, Theory and applications, Springer Verlag, 2002. | | | | | |
| Course language: Slovak | | | | | |
| Notes: | | | | | |
| Course assessment Total number of assessed students: 51 | | | | | |
| A B C D E FX | | | | | |
| 29.41 9.8 23.53 5.88 31.37 0.0 | | | | | |
| Provides: prof. RNDr. Danica Studenovská, CSc. | | | | | |
| | | | | | |
| Date of last modification: 19.04.2022 | | | | | |

| University: P. J. Šafá | rik University in Košice |
|--|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚMV/ APS/10 | Course name: Applied statistics |
| Course type, scope a Course type: Lectur Recommended cour Per week: 3 / 2 Per Course method: pre | nd the method: e / Practice rse-load (hours): study period: 42 / 28 esent |
| Number of ECTS cr | edits: 6 |
| Recommended seme | ster/trimester of the course: 2. |
| Course level: II. | |
| Prerequisities: | |
| Conditions for cours Given at the basis of partial examination, o | e completion: Statistical processing of real data. Final evaluation is given at the basis of computing part, and oral part of the exam. |
| Learning outcomes: Learning most freque | ntly applied statistical methods. |
| Brief outline of the c o Matrices and linear o Normal distribution o Hotelling's test o Probability foundat o General linear mod o Model with incomp o Submodels testing o Regression analysis o Assesing the quality o Analysis of varianc o One-way ANOVA, o Balanced factorial n o Analysis of covaria o Statistical software Recommended litera • Rao: Linear statistic • Seber: Linear regres • Searle: Linear mode • Sen, Srivastava: Rej • Christensen: Plane a | ourse: spaces, g-inversions, projections and related distributions ions of regression and correlation el with full rank lete rank s, basic models y of a model e multiple comparison procedures, problem of heteroskedasticity nodels, hierarchical models nce for linear modeling ture: tal inference and its applications, Wiley, 1973 asion analysis, Wiley, 1977 els, Wiley, 1997 gression analysis (Theory, Methods, and Applications), Springer, 1990 answers to complex questions (The Theory of Linear Models), Springer, |
| Course language: Slovak | |

| Notes: | | | | | |
|--|------|-------|------|-------|-------|
| Course assessment Total number of assessed students: 60 | | | | | |
| А | В | С | D | E | FX |
| 3.33 | 8.33 | 18.33 | 15.0 | 31.67 | 23.33 |
| Provides: prof. RNDr. Ivan Žežula, CSc. | | | | | |
| Date of last modification: 14.04.2022 | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | |

| University: P. J | University: P. J. Šafárik University in Košice | | | | |
|--|---|---|--------------|------|------|
| Faculty: Facult | y of Science | | | | |
| Course ID: KF/ KDF/05 | Course na Centuries | Course name: Chapters from History of Philosophy of 19th and 20th Centuries (General Introduction) | | | |
| Course type, sc Course type: I Recommended Per week: 2 Pe Course metho | Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present | | | | |
| Number of EC | TS credits: 2 | | | | |
| Recommended | semester/trimes | ster of the cours | e: 2. | | |
| Course level: II | - - | | | | |
| Prerequisities: | | | | | |
| Conditions for | course completi | ion: | | | |
| Learning outcomes: | | | | | |
| Brief outline of the course: | | | | | |
| Recommended literature: | | | | | |
| Course language: | | | | | |
| Notes: | | | | | |
| Course assessment Total number of assessed students: 10 | | | | | |
| А | В | С | D | Е | FX |
| 50.0 | 20.0 | 10.0 | 0.0 | 10.0 | 10.0 |
| Provides: PhDr. Dušan Hruška, PhD. | | | | | |
| Date of last modification: 03.05.2015 | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | |

| University: P. J. Šafárik University in Košice | | | |
|---|---|--|--|
| Faculty: Faculty of S | Science | | |
| Course ID: ÚINF/ Course name: Classical and quantum computations KKV1/21 | | | |
| Course type, scope a Course type: Lectu Recommended cou Per week: 3 / 2 Per Course method: pr | and the method: re / Practice rse-load (hours): study period: 42 / 28 esent | | |
| Number of ECTS credits: 6 | | | |
| Recommended semester/trimester of the course: 3. | | | |

Course level: II., N

Prerequisities:

Conditions for course completion:

Successful completion of the subject is conditioned by proper acquisition of basic concepts, algorithms and models and demonstrating the ability to apply them creatively. The acquisition of knowledge takes place:

- continuously during the semester in the form of partial assignments,
- a written test during the semester,
- a written test at the exam,
- oral exam.

In order to receive an evaluation, it is necessary to obtain at least 50% of points from each of the three parts (assignments during the semester, written part of the exam, oral part of the exam). The detailed evaluation method is published in the AIS.

Learning outcomes:

By completing the subject, the student will get:

- knowledge of the classification and design of probabilistic algorithms,

- basic knowledge of the principles of quantum computers and their differences compared to classical computing models,

- knowledge and skills about the design and functioning of quantum computing and become familiar with the most well-known algorithms,

= basic quantum computer programming skills.

Brief outline of the course:

1. Introduction to quantum quantum computers. Basics of classical complexity theory.

- 2. Boolean circuits and their basic properties.
- 3. Probability algorithms.
- 4. BPP class and probability testing.
- 5. Basic properties of circuits and Fermat's test.
- 6. Miller Rabin's test and the position of the BPP class in the hierarchy of complexity models.
- 7. Introduction to quantum computing and mathematical foundations of quantum theory.
- 8. Spectral representation of self-adjoint operators.
- 9. Quantum states and Hilbert vector spaces.
- 10. Basic quantum operators and basic quantum algorithms.

- 11. Quantum teleportation, superdense coding and Grover's algorithm.
- 12. Fourier transformation.
- 13. Shor's algorithm.

Recommended literature:

1. BERMAN,G.P., DOOLEN,G.D., MAINIERI, R., TSIFRINOVIC, V.I. Introduction to Quantum Computers. World Scientific, 2003.

2. GRUSKA, J. Quantum Computing. McGraw-Hill, 1999.

3. JOHNSON, G. A Shortcut Through Time: The Path to the Quantum Computer, Knopf 2003.

4. KITAEV, A.Y., SHEN, A.H., VYALYI, M.N. Classical and Quantum Computation. American Mathematical Society, 2002.

5. NIELSEN, M.A., CHUANG, I.L. Quantum Computation and Quantum Information.

Cambridge University Press, 2000.

6. HIRVENSALO, M., Quantum Computing, Springer 2004

Course language:

Slovak or english

Notes:

Content prerequisites:

Linear algebra, Group theory, Probability theory, Theory of algorithms, Introduction to quantum computers.

Course assessment

Total number of assessed students: 83

| А | В | С | D | Е | FX |
|-------|-------|-------|------|------|------|
| 26.51 | 40.96 | 15.66 | 4.82 | 2.41 | 9.64 |

Provides: prof. RNDr. Gabriel Semanišin, PhD., RNDr. Marek Semjan

Date of last modification: 25.07.2022

| University: P. J. Šafárik University in Košice |
|---|
| Faculty: Faculty of Science |
| Course ID: ÚMV/ KDZ/10Course name: Combinatorial designs |
| Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present |
| Number of ECTS credits: 4 |
| Recommended semester/trimester of the course: 3. |
| Course level: II. |
| Prerequisities: |
| Conditions for course completion: To complete the course, it is necessary to demonstrate the ability to formulate definitions an theorems from the lectured material, to present the proofs of theorems and to solve selecte problems based on theory of combinatorial designs. The exam itakes written form by elaborating a test containing three questions of a theoretical natur and two questions of a practical / computational nature; the maximum number of points that ca be obtained for answering each question is 20. To pass the exam, it is necessary to obtain mor than half of the maximum number of 100 points (otherwise the exam is evaluated by FX), whil the rating E is given in the case of point range 51-59, D in case of 60-69, C in case of 70-79, B i case of 80-89 and A in case of more than 90 points. |
| Learning outcomes: After completing the course, the student is acquainted with the basics of the theory of combinatoria designs, its applications in the natural sciences and relations to other parts of mathematics. |
| Brief outline of the course: Week 1: Motivational problems using combinatorial designs, definition and basic properties of BIBDs. Week 2: Incidence matrix of a design and its properties. Week 3: Constructions of BIBDs. Week 4: Symmetrical BIBDs, derived and residual design. Week 5: Order of symmetric BIBD, its relation to the number of points. Week 6: Finite projective planes. Week 7: Hadamard designs and Hadamard matrices. Week 8: Conditions for the existence of symmetric BIBDs, Lagrange's four-square theorem. Week 9: Bruck-Ryser-Chowla theorem and its consequences. Week 10 and 11: Steiner triple systems and their constructions. Week 12: Orthogonal Latin squares, orthogonal arrays. Week 13: Strongly regular graphs. Week 14: Selected applications of combinatorial designs (group testing of samples, sharing of secret information). |
| Recommended literature: |

I. Anderson, I. Honkala: A short course in combinatorial designs, http://www.utu.fi/~honkala/ cover.html

D.R. Stinson: Combinatorial Designs: Constructions and Analysis, Springer 2004 W.D. Wallis: Combinatorial designs, Marcel Dekker 1988

Course language:

Slovak or English

Notes:

Basic knowledge of arithmetic, linear algebra and graph theory is required, as well as basic knowledge of working with the Maple computer algebra system.

Course assessment

Total number of assessed students: 75

| А | В | С | D | Е | FX |
|-------|------|------|------|------|-----|
| 30.67 | 20.0 | 24.0 | 20.0 | 5.33 | 0.0 |

Provides: prof. RNDr. Tomáš Madaras, PhD.

Date of last modification: 14.04.2022

| University: P. J. Šafá | rik University in Košice |
|--|--|
| Faculty: Faculty of S | cience |
| Course ID: ÚMV/ KOO/10 | Course name: Combinatorial optimization |
| Course type, scope a Course type: Lectur Recommended cour Per week: 3 / 1 Per Course method: pre | nd the method: re / Practice rse-load (hours): study period: 42 / 14 esent |
| Number of ECTS cr | edits: 6 |
| Recommended seme | ster/trimester of the course: 2. |
| Course level: II. | |
| Prerequisities: | |
| Conditions for cours The evaluation consists consists of the elabor approximation of the representation. | be completion: sts of a project (30 points) and an oral exam (70 points). The semester project ration of a computer program that returns the optimal solution or a acceptable optimal solution, respectively, of a selected graph problem given by a suitable |
| Learning outcomes: Understanding of ba algorithmic aspects o derived from mathem | asic graph algorithm, the close connection between the theoretical and of discrete mathematics, ability to understand how selected algorithms can be natical statements, ability to prove the correctness of algorithms. |
| Brief outline of the c Basic notions from gr Introduction to algori algorithms, greedy al Trees, spanning trees spanning trees of a g Prim, and Boruvka's Distance in graphs. S algorithms) and other Introduction to network Flows in networks, th Matchings, maximum weight in bipartite gr Location of centers in Eulerian graphs and G Hamiltonian graphs, S | rourse: raph theory. ithms and complexity. Basic types of algorithms - sorting algorithms, search gorithms. NP-completeness. and rooted trees. Depth first search, breadth first search. Generating of all graph, number of spanning trees. Minimum spanning tree problem (Kruskal, algorithms). Shortest path problem in (non)oriented (weighted) graphs (various types of r variations of this problem. ork analysis, critical path method. he max-flow min-cut theorem and related concepts. h matchings in bipartite and general graphs, finding a matching with maximum aphs. h graphs, finding a center, absolute center, and a median of a graph. Chinese postman's problem. Travelling salesman problem and approximation algorithms for TSP. |
| Recommended litera 1. G. Chartrand, O.R. New York 1993. 2. J.L. Gross, J. Yelle 3. D. Jungnickel: Gra | nture: . Oellermann: Applied and Algorithmic Graph Theory, McGraw-Hill, Inc. en: Graph Theory and Its Applications, Chapman & Hall/CRC 2006. aphs, Networks, and Algorithms, Springer-Verlag Berlin 2005. |
| | |

| 4. J. Plesník: Grafové algoritmy, Veda Bratislava 1983. | | | | | |
|--|-------------------|---------------|---|---|----|
| Course langu Slovak | age: | | | | |
| Notes: | | | | | |
| Course assessment Total number of assessed students: 30 | | | | | |
| А | В | С | D | Е | FX |
| 63.33 26.67 3.33 3.33 0.0 3.33 | | | | | |
| Provides: RNDr. Mária Maceková, PhD. | | | | | |
| Date of last modification: 19.04.2022 | | | | | |
| Approved: pro | of. RNDr. Tomáš l | Madaras, PhD. | | | |

| University: P. J. Šafárik University in Košice | | | | | | |
|--|--|--|--|--|--|--|
| Faculty: Faculty of Science | | | | | | |
| Course ID: KPPaPZ/KK/07 | Course name: Communication and Cooperation | | | | | |
| Course type, scope a Course type: Practic Recommended cou Per week: 2 Per stu Course method: pre | and the method: ce rse-load (hours): ady period: 28 esent | | | | | |
| Number of ECTS cr | redits: 2 | | | | | |
| Recommended seme | ester/trimester of the course: 3. | | | | | |
| Course level: II. | | | | | | |
| Prerequisities: | | | | | | |
| Conditions for course Evaluation: A condition for studed student will actively solutions. The output for evalue presentation or a vided Learning outcomes: The goal of the subjet | ent evaluation is his active participation in the seminar. It is expected that the participate in the discussions and will express their positions and possible uation will be the development of a project in the form of a Power Point eo on a selected communication topic. | | | | | |
| The student can dem contexts. The student can d assertiveness, empath The student can apply | honstrate an understanding of individual behavior in various communication hescribe, explain and evaluate communication techniques (cooperation, hy, negotiation, persuasion) in practical contexts. y these techniques in common communication schemes. | | | | | |
| Brief outline of the c Communication Communication theo Non-verbal communi- Verbal communication about active listening Empathy Short conversation communication) Cooperation About the basics of c About types, signs, ty Characteristics of the Small social group (s individual in the grou | ry ication and its means on (basic components of communication, language means of communication) and effective communication (principles and principles of effective cooperation ypes and factors of cooperation team (positions in the team) structure, development, characteristics of a small social group, position of the up) | | | | | |

About leadership (characteristics of the leader, management, leadership styles)

Recommended literature:

Course language:

Notes:

Course assessment

Total number of assessed students: 281

| abs | n | Z | | | |
|--|------|-----|--|--|--|
| 98.22 | 1.78 | 0.0 | | | |
| Provides: Mgr. Ondrej Kalina, PhD., Mgr. Lucia Barbierik, PhD. | | | | | |
| Date of last modification: 31.07.2022 | | | | | |
| | | | | | |

| | COURSE INFORMATION LETTER |
|---|--|
| University: P. J. Šafá | rik University in Košice |
| Faculty: Faculty of S | cience |
| Course ID: ÚINF/ VYZ1/15 | Course name: Computational complexity |
| Course type, scope a Course type: Lectur Recommended cour Per week: 2 Per stu Course method: pre | nd the method: re rse-load (hours): dy period: 28 esent |
| Number of ECTS cr | edits: 4 |
| Recommended seme | ster/trimester of the course: 3. |
| Course level: II., N | |
| Prerequisities: | |
| Conditions for cours Oral examination. | e completion: |
| Learning outcomes: To give students the completeness. | neoretical background in computational complexity and theory of NP- |
| Brief outline of the c 1: Introduction: the ne example - the problem 2: Basic computation these computers, sing of these computation complexity 3: The classes P and – the set of all 3-cold – the set of satisfiabl normal form 4: Variants of P and N polynomial conversion 5: NP-completeness: completeness and its 6: NP-completeness | ourse: ption of computational complexity, computational time, computational model, n of sorting, computational complexity as an asymptotic function nal models: RAM and RASP computers, the cost of an elementary step on le-tape Turing machine, multi-tape Turing machine, nondeterministic variants nal models, transformations among these models with respect to the time NP: basic definitions, presenting (un)undirected graphs on the input, 3COL prable graphs is in NP, 2COL - the set of all 2-colorable graphs is in P, SAT le Boolean formulas is in NP, CNF-SAT - Boolean formulas in conjunctive IP: decision problem, the problem of finding a solution, optimization problem, ons among different variants reducibility in polynomial time and its transitivity, definition of the NP- basic properties of SAT |
| 7: Variants of SAT: 3 kCNF-SAT, CNF-SA | CNF-SAT - satisfiability of Boolean formulas in 3-conjunctive normal form, T - satisfiability in k-conjunctive (conjunctive) normal form, 2CNF-SAT is |

in P

8: 3COL and its variants: 3COL (the problem of coloring vertices of a graph with 3 colors) in NP-complete, consequently: for each k>3, kCOL (the problem of coloring with k colors) is NPcomplete as well

9: Colorability of a planar graph with three colors: presenting a planar graph on the input, the proof of NP-completeness, coloring with a larger number of colors

10: Another NP-complete problems: Exact set cover, Clique, Vertex cover

11: Hamiltonian path: Hamiltonian path in a directed and in undirected graph

12: Subset-sum-like problems: Subset Sum - the problem of whether any subset of the integers sum to precisely a target sum, Partition - the problem of whether a given multiset of positive integers can be partitioned into two subsets with equal sums, a "more relaxed" version of Partition - achieving an approximate equality of the sums, distribution of tasks among K parallel processors

13: Beyond P a NP: a review of the basic complexity classes - L, NL, P, NP, PSpace, NPSpace, ExpTime, NExpTime, ..., simulation of (non)deterministic space in (non)deterministic time, conversions in opposite directions

14: PSpace: QBF - true quantified Boolean formulas, prenex normal form, Pspace completeness of QBF, PSpace = NPSpace

Recommended literature:

1. J.E. Hopcroft, R.Motwani, J.D. Ullman: Introduction to automata theory, languages, and computation, Addison-Wesley, 2007.

2. M. Sipser: Introduction to the Theory of Computation, Thomson, 2nd edition, 2006.

3. L.A.Hemaspaandra, M.Ogihara: Complexity theory companion, EATCS series, texts in computer science, Springer-Verlag, 2002.

4. S. Arora, B. Barak: Computational Complexity: A Modern Approach, Cambridge Univ. Pess, 2009. 5. G.Brassard, P.Bradley: Fundamentals of algorithmics, Prentice Hall, 1996.

6. D.P.Bovet, P.Crescenzi: Introduction to the theory of complexity, Prentice Hall, 1994.

7. C. Calude and J. Hromkovič: Complexity: A Language-Theoretic Point of View, in G.

Rozenberg and A. Salomaa, Handbook of Formal Languages II, Springer, 1997.

Course language:

Slovak or english

Notes:

Content prerequisities:

Basic notions from the theory of automata and formal languages.

Basic skills in programming and design of algorithms (in any programming language). Basics knowledge in mathematical logic, set theory, and graph theory.

Course assessment

Total number of assessed students: 357

| А | В | С | D | Е | FX |
|------|-------|-------|------|------|------|
| 57.7 | 15.41 | 12.04 | 7.28 | 7.28 | 0.28 |

Provides: prof. RNDr. Viliam Geffert, DrSc.

Date of last modification: 23.11.2021

| University: P. J. Šafárik University in Košice | | | | | | | |
|---|--|--|--|--|--|--|--|
| Faculty: Faculty of Science | | | | | | | |
| Course ID: ÚMV/ Course name: Control theory | | | | | | | |
| Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present | | | | | | | |
| Number of ECTS credits: 6 | | | | | | | |
| Recommended semester/trimester of the course: 1., 3. | | | | | | | |
| Course level: II. | | | | | | | |
| Prerequisities: | | | | | | | |
| Conditions for course completion: Based on two written tests during the semester and on the oral examination. | | | | | | | |
| Learning outcomes: To learn the basic notions of controllable systems. | | | | | | | |
| Brief outline of the course: Controllable systems. Pontrjagin maximum principle. Linear systems, bang-bang controls, singular controls Discrete systems, dynamic programming, Bellmann's optimality principle. Practical applications of theoretical results. | | | | | | | |
| Recommended literature: 1. K. Macki, A. Strauss: Introduction to Optimal Control Theory, Springer, 1980. 2. G. Feichtinger, R.F. Hartl: Optimale Kontrolle okonomischer Prozesse, Berlin, 1986. | | | | | | | |
| Course language: Slovak | | | | | | | |
| Notes: | | | | | | | |
| Course assessment Total number of assessed students: 77 | | | | | | | |
| A B C D E FX | | | | | | | |
| 22.08 27.27 22.08 15.58 12.99 0.0 | | | | | | | |
| Provides: prof. RNDr. Katarína Cechlárová, DrSc. | | | | | | | |
| Date of last modification: 03.05.2015 | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | |

| University: P. J. Safa | University: P. J. Safarik University in Košice | | | | | | |
|---|--|--|--|--|--|--|--|
| Faculty: Faculty of Science | | | | | | | |
| Course ID: UINF/ DBS/15 | Course name: Database systems for Mathematicians | | | | | | |
| Course type, scope a Course type: Lectur Recommended cour Per week: 3 / 2 Per Course method: pre | nd the method: re / Practice rse-load (hours): study period: 42 / 28 esent | | | | | | |
| Number of ECTS cr | edits: 6 | | | | | | |
| Recommended seme | ster/trimester of the course: 1., 3. | | | | | | |
| Course level: I., II. | | | | | | | |
| Prerequisities: | | | | | | | |
| Conditions for cours Demonstration of add evaluation, the ability project. Written works during Written and oral exar | ee completion: equate mastery of the content standard of the subject in the ongoing and final y to formulate a problem in the acquired terminology and solve it within a g the semester, project. n. | | | | | | |
| Learning outcomes: After completing the apply standard data n | course, the student acquires the principles of relational databases, is able to nodels, design relational databases and formulate filtering queries. | | | | | | |
| Brief outline of the c 1) Relational databas 2) Data types, operate 3) JOIN operations; V 4) AGGREGATION 5) Data and database 6) DB design, ER dia 7) System commands 8) Nested queries. RC 9) Three-valued logic 10) Data science and 11) Data warehouses 12) Relational algebr | ourse: es. Query language SQL, filtering; Stored procedures. ors, numerical, string and time functions; System and user functions. Views. CTE. AND GROUP BY; Recursion and transitive closure. models. Relational scheme. RDB principles. Data integrity; Transactions. orgrams; Triggers and integrity. s about DB and tables. Cascading deletion and update; Cursors. DLLUP. CASE expression; Physical organization of data. e. Quantifiers and NOT. Set operations; B-trees and indexes. knowledge acquisition using R; Functional dependencies. . Data cube. Pivot table. a. Normalization of relational databases; The latest normal form - ETNF. | | | | | | |
| Recommended litera | Iture: Design and Relational Theory 2012 O'Pailly Madia Inc. ISPN: | | | | | | |
| - C.J. Date, Database 978-1-449-32801-6 - J. Murach, Murach's 1943872368 - R. Ramakrishnan, J 9780071231510 - S. Krajčí: Databázo | s MySQL, 3rd Edition, 2019, Mike Murach & Associates, Inc., ISBN-10: . Gehrke, Database Management Systems, 2020, McGraw-Hill, ISBN13 vé systémy, UPJŠ, 2005 | | | | | | |
| | | | | | | | |

- I. Ben-Gan, D. Sarka, A. Machanic, K. Farlee, T-SQL Querying, 2015, Microsoft Press, ISBN: 978-0-7356-8504-8 - I. Ben-Gan, T-SQL Fundamentals, Third Edition, 2016, Microsoft Press, ISBN: 978-1-5093-0200-0

| J16 1 50/5 0200 0 | | | | | | | |
|---|--|---------------|-------|-------|-------|--|--|
| Course langua Slovak or Engl | ge: ish | | | | | | |
| Notes: | Notes: | | | | | | |
| Course assessment Total number of assessed students: 725 | | | | | | | |
| А | В | С | D | Е | FX | | |
| 12.83 | 9.66 | 13.66 | 20.41 | 33.24 | 10.21 | | |
| Provides: doc. | Provides: doc. RNDr. Csaba Török, CSc. | | | | | | |
| Date of last modification: 08.01.2022 | | | | | | | |
| Approved: pro | f. RNDr. Tomáš M | Madaras, PhD. | | | | | |

| University: P. J. Šafárik University in Košice | | | | | | |
|--|--|-------|--|--|--|--|
| Faculty: Faculty of Science | | | | | | |
| Course ID: ÚMV/ Course name: Diploma project I DPP1a/14 | | | | | | |
| Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre | nd the method: rse-load (hours): ly period: esent | | | | | |
| Number of ECTS cr | edits: 1 | | | | | |
| Recommended seme | ster/trimester of the course | e: 2. | | | | |
| Course level: II. | | | | | | |
| Prerequisities: | | | | | | |
| Conditions for cours | e completion: | | | | | |
| Learning outcomes: | | | | | | |
| Brief outline of the c | ourse: | | | | | |
| Recommended litera | iture: | | | | | |
| Course language: Slovak | | | | | | |
| Notes: | | | | | | |
| Course assessment Total number of asses | ssed students: 120 | | | | | |
| | abs n | | | | | |
| 99.17 0.83 | | | | | | |
| Provides: | | | | | | |
| Date of last modification: 03.05.2015 | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | |

| University: P. J. Šafá | rik University in Košice | | | | | |
|--|---|-----------|--|--|--|--|
| Faculty: Faculty of Science | | | | | | |
| Course ID: ÚMV/ DPP1b/14 | Course ID: ÚMV/ Course name: Diploma project II DPP1b/14 | | | | | |
| Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre | nd the method: rse-load (hours): y period: sent | | | | | |
| Number of ECTS cr | edits: 1 | | | | | |
| Recommended seme | ster/trimester of the co | ourse: 3. | | | | |
| Course level: II. | | | | | | |
| Prerequisities: ÚMV | /DPP1a/14 | | | | | |
| Conditions for cours | e completion: | | | | | |
| Learning outcomes: | | | | | | |
| Brief outline of the c | ourse: | | | | | |
| Recommended litera | ture: | | | | | |
| Course language: Slovak | | | | | | |
| Notes: | | | | | | |
| Course assessment Total number of asses | ssed students: 42 | | | | | |
| | abs n | | | | | |
| 100.0 0.0 | | | | | | |
| Provides: | | | | | | |
| Date of last modification: 03.05.2015 | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | |

| University: P. J | . Šafárik Univers | sity in Košice | | | | |
|---|---|-------------------|------|------|------|--|
| Faculty: Facult | y of Science | | | | | |
| Course ID: ÚM DPO/14 |): ÚMV/ Course name: Diploma thesis and its defence | | | | | |
| Course type, so Course type: Recommende Per week: Pe Course metho | cope and the me d course-load (h r study period: od: present | thod: ours): | | | | |
| Number of EC | IS credits: 20 | | | | | |
| Recommended | | ster of the cours | e: | | | |
| Course level: I | l | | | | | |
| Prerequisities: | | | | | | |
| Conditions for | course complet | on: | | | | |
| Learning outco | omes: | | | | | |
| Brief outline of | f the course: | | | | | |
| Recommended | literature: | | | | | |
| Course langua Slovak | ge: | | | | | |
| Notes: | | | | | | |
| Course assessn Total number o | nent f assessed studer | its: 48 | | | | |
| А | В | С | D | Е | FX | |
| 58.33 | 20.83 | 12.5 | 4.17 | 2.08 | 2.08 | |
| Provides: | · | | | | | |
| Date of last mo | dification: 07.12 | 2.2021 | | _ | | |
| Approved: pro | f. RNDr. Tomáš I | Madaras, PhD. | | | | |

| University: P. J | University: P. J. Šafárik University in Košice | | | | | | | |
|--|---|---|---|---|--|--|--|--|
| Faculty: Faculty of Science | | | | | | | | |
| Course ID: ÚM FAN/10 | : ÚMV/ Course name: Functional analysis | | | | | | | |
| 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 EC | FS credits: 6 | | | | | | | |
| Recommended | semester/trime | ster of the cours | e: 2. | | | | | |
| Course level: II | • | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for exam | course complet | ion: | | | | | | |
| Learning outco Understanding | mes: of the basic rigo | rous ideas of App | lied Functional | Analysis. | | | | |
| Brief outline of Linear spaces. spaces. Linear to of L(p) spaces. Closed graph th | the course: Algebraic base topological spac Hilbert space. teorem. Hahn-B | and dimension. I e. Locally convex Applications of E anach theorem. Sp | Linear operators space. Normed daire category the pectrum of linea | and functionals. space. L(p) space neorem. Open ma r compact operate | Algebraic dual ces. Dual spaces apping theorem. or. | | | |
| Recommended A. M. Bruckner B. P. Rynne, M | literature: ;, J. B. Bruckner . A. Youngson: I | , B. S. Thomson: Linear Functional | Real Analysis, F Analysis, Spring | Prentice Hall, 199 ger-Verlag, 2008. | 07. | | | |
| Course languag Slovak or Engli | ge: sh | | | | | | | |
| Notes: | | | | | | | | |
| Course assessment Total number of assessed students: 70 | | | | | | | | |
| А | В | C | D | E | FX | | | |
| 5.71 | 8.57 | 8.57 | 20.0 | 45.71 | 11.43 | | | |
| Provides: prof. | RNDr. Jozef Do | boš, CSc. | | | | | | |
| Date of last mo | dification: 02.0 | 2.2022 | | | | | | |
| Approved: prof | f. RNDr. Tomáš | Madaras, PhD. | | | | | | |
| | | | | | | | | |

| University: P. J. Šafárik University in Košice | | | | | | | | |
|---|---|--|------------------------------------|---------------------------|-----------------|--|--|--|
| Faculty: Faculty | Faculty: Faculty of Science | | | | | | | |
| Course ID: ÚM THR/10 | IV/ Course name: Game theory | | | | | | | |
| Course type, sc Course type: I Recommended Per week: 3 / 1 Course metho | Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present | | | | | | | |
| Number of EC | FS credits: 6 | | | _ | | | | |
| Recommended | semester/trimes | ster of the cours | se: 1., 3. | | | | | |
| Course level: II | • | | | _ | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for Two written ex The final assess | course completi ams dring the se ment is based on | on: emester (solving the written tests | problems), presess and oral examin | entation of an intention. | eresting model. | | | |
| Learning outco Knowledge of b applications of g | mes: pasic models of n game-theoretic n | oncooperative an nodels in econon | nd cooperative ga | ume theory, solution | on methods and | | | |
| Brief outline of Examples of ga theory of utility games: core, Sh The students sho duality theory a | Brief outline of the course: Examples of games. Extensive form of a game, value of the game. Von Neumann Morgenstern theory of utility. Matrix games and their solution. Bimatrix games.Negotiations theory. n-person games: core, Shapley value. Economic applications of game theory. The students should have basic knowledge in probability theory and linear programming (including duality theory and simpley method). | | | | | | | |
| Recommended literature: 1. K. Binmore, Fun and games, D.C. Heath, 1992 2. G. Owen, Game Theory, Academic Press (existuje ruský preklad). 3. A.R. Karlin, Y.Peres, Game theory alive, American Mathematical Society, 2017 4. L.C. Thomas, Games, Theory and Applications, Wiley, New York. 5. H.S. Bierman, L. Fernandez, Game Theory with Economic Applications, Addison-Wesley, 1998. | | | | | | | | |
| Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessm Total number of | Course assessment Total number of assessed students: 87 | | | | | | | |
| Α | В | С | D | Е | FX | | | |
| 19.54 | 20.69 | 24.14 | 18.39 | 14.94 | 2.3 | | | |
| Provides: prof. | RNDr. Katarína | Cechlárová, DrS | c. | | | | | |

Date of last modification: 19.09.2021

| University: P. J | University: P. J. Šafárik University in Košice | | | | | | | |
|--|--|--|-------------------|------------------|-----------------|--|--|--|
| Faculty: Facult | y of Science | | | | | | | |
| Course ID: ÚM TGF/10 | IV/ Course na | me: Graph theo | ry | | | | | |
| Course type, sc Course type: I Recommended Per week: 2 Pe Course metho | Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present | | | | | | | |
| Number of EC | TS credits: 4 | | | | | | | |
| Recommended | semester/trimes | ster of the cours | e: 1. | | | | | |
| Course level: II | • | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for Oral exam. | course completi | on: | | | | | | |
| Learning outco Basic knowledg selected topics | mes: ge concerning me in graph theory. | ethods how new | discoveries in ma | atematics. Deepe | er knowledge on | | | |
| Proper vertex co List colorings. Edge coloring of Distance graphs Coloring of hye Acyclic colorin Strong edge col Non-repetitive | oloring of graphs of graphs and mu s and their chrom ergraphs. g. loring. Star edge coloring. | Coloring of pla ltigraphs. atic number. coloring. | nar graphs. Perfe | ect graphss. | | | | |
| Recommended literature: 1. L. W. Beineke, R. J. Wilson: Topics in Chromatic Graph Theory, Cambridge University Press 2015. 2. J. A. Bondy, U.S R. Murty: Graph Theory, Springer 2008. 3. G. Chartrand, P. Zhang: Chromatic graph theory, Chapman and Hall/CRC 2008. | | | | | | | | |
| Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessm Total number of | nent f assessed studen | ts: 40 | | | | | | |
| А | В | С | D | Е | FX | | | |
| 60.0 | 10.0 | 17.5 | 10.0 | 2.5 | 0.0 | | | |
| Provides: doc. RNDr. Roman Soták, PhD. | | | | | | | | |

Date of last modification: 19.09.2021

| University: P. J. | University: P. J. Šafárik University in Košice | | | | | | |
|--|--|--|---------------------------------------|---------------------------------------|-----------------------------------|--|--|
| Faculty: Faculty | Faculty: Faculty of Science | | | | | | |
| Course ID: ÚM TGP/10 | V/ Course name: Group theory | | | | | | |
| Course type, sco Course type: L Recommended Per week: 2 / 1 Course method | 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 ECT | S credits: 5 | | | | | | |
| Recommended s | semester/trime | ster of the cours | e: 2., 4. | | | | |
| Course level: II. | | | | | | | |
| Prerequisities: | | | | | | | |
| Conditions for c Awarded accord | course complet ing to written a | ion: nd oral examination | on. | | | | |
| Learning outcome The students lear parts of mathem | Learning outcomes: The students learn basic concepts and methods of group theory and their applications in various parts of mathematics. | | | | | | |
| Brief outline of Groups of symmetry subgroups, factor groups. Groups | the course: netries, abstrac orization. Classi in linear algebra | t groups. Subgro fication of finitely | ups, orders of e y generated abeli | lements, cyclic g an groups. Sylov | groups. Normal w subgroups, p- | | |
| Recommended literature: S. MacLane, G. Birkhoff: Algebra, Alfa Bratislava, 1973 L. Beran: Grupy a svazy, SNTL Praha, 1974 D.A.R. Wallace: Groups, Rings and Fields, Springer 1998 J. J. Rotman: Advanced Modern Algebra, Amer. Math. Soc., Providence 2010 | | | | | | | |
| Course language: Slovak or English | | | | | | | |
| Notes: | | | | | | | |
| Course assessme Total number of | ent assessed studer | nts: 34 | | | | | |
| A | В | C | D | Е | FX | | |
| 35.29 | 20.59 | 17.65 | 17.65 | 8.82 | 0.0 | | |
| Provides: doc. R | NDr. Miroslav | Ploščica, CSc. | | | | | |
| Date of last modification: 19.04.2022 | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | |

| University: P. J. Šafárik University in Košice | | | | | | | |
|---|--|--|--|--|--|--|--|
| Faculty: Faculty o | Faculty: Faculty of Science | | | | | | |
| Course ID: KF/ DF2p/03 | Course name: History of Philosophy 2 (General Introduction) | | | | | | |
| Course type, scop Course type: Lec Recommended c Per week: 2 / 1 P Course method: | 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 | Number of ECTS credits: 4 | | | | | | |
| Recommended semester/trimester of the course: | | | | | | | |
| Course level: I., II. | | | | | | | |

Prerequisities:

Conditions for course completion:

The condition for awarding the evaluation will be the active approach of students to fulfilling their study obligations, independent work with selected philosophical texts in the library, active participation and creative work in seminars. In connection with the possibility of interrupting face-to-face teaching, there will be greater demands on the student's independent study and the processing of professional literature, which will be continuously evaluated, using e-mail to communicate with the teacher, at the end of the semester, preparing and handing in the semester's seminar work by the set date, or also passing a knowledge test - about which the students will be informed in advance in sufficient time.

Learning outcomes:

Deepening knowledge about the development of spiritual culture in the European spiritual space and pointing out the most important sources of this development: (1) ancient philosophy and science, (2) Christianity as the second pillar of Europe, (3) the Renaissance and the emergence of modern science (mathematical natural science) as the third pillar of European development. Development of critical thinking skills, active position in professional (ethics of science), public and private life (ethics of responsibility). Transcending narrowly specialized views of the world.

Brief outline of the course:

Recommended literature:

Antológia z diel filozofov. Predsokratovci a Platon. Zost. J. Martinka. Bratislava: Nakladateľstvo Epocha 1970; Antológia z diel filozofov. Od Aristotela po Plotina. Zost. J. Martinka. Bratislava: Nakladateľstvo Pravda 1972. Predsokratovci a Platon. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo Iris 1998. Od Aristotela po Plotina. Antológia z diel filozofov. Zost. J. Martinka. Bratislava: Vydavateľstvo IRIS 2006. Anzenbacher, A.: Úvod do filozofie. Prel. K. Šprunk. Praha: SPN 1990. Barthes, R.: Mytologie. Prel. J. Fulka. Praha: Dokořán 2004. Bělohradský, V.: Společnost nevolnosti. Eseje z pozdější doby. Praha: SLON 2009. Benjamin, W.: Iluminácie. Prel. A. Bžoch; J. Truhlářová. Bratislava: Kalligram 1999. Borges, J. L.: Borges ústne. Prednášky a eseje. Prel. P. Šišmišová. Bratislava: Kalligram 2005. Cassirer, E.: Esej o človeku. Prel. J. Piaček. Bratislava: Nakladateľstvo Pravda 1977. Debord, G.: Společnost spektáklu. Prel. J. Fulka; P. Siostrzonek. Praha: Nakladatelství :intu: 2007. Farkašová, E.: Na rube plátna. Bratislava: Vydavateľstvo Spolku slovenských spisovateľov 2013.

Feyerabend, P.: Věda jako umění. Prel. P. Kurka. Praha: JEŽEK 2004. Freud, S.: Nepokojenost v kultuře. Prel. L. Hošek. Praha: Hynek 1998. Hadot, P.: Co je antická filosofie. Prel. M. Křížová. Praha: Vyšehrad 2017. Hippokratés: Vybrané spisy. Prel. H. Bartoš; J. Černá; J. Daneš; S. Fischerová. Praha: OIKOYMENH 2012. Husserl, E.: Filosofie jako přísná věda. Prel. A. Novák. Praha: Togga 2013. Kuhn, T. S.: Štruktúra vedeckých revolúcií. Prel. J. Viceník. Bratislava: Nakladateľstvo Pravda 1981. Leško, V., Mihina, F. a kol.: Dejiny filozofie. Bratislava. Iris 1993 Leško, V.: Dejiny filozofie I. Od Tálesa po Galileiho. Prešov: v. n. 2004, 2007. Leško, V.: Dejiny filozofie II. Od Bacona po Nietzscheho. Prešov: v. n. 2008. McLuhan, M.: Jak rozumět médiím. Extenze člověka. Prel. M. Calda. Praha: Mladá fronta 2011. Patočka, J.: Duchovní člověk a intelektuál. In: Patočka, J.: Péče o duši III. Praha: OIKOYMENH 2002, s. 355 - 371. Popper, K. R.: Otevřená společnost a její nepřátelé I. Platónovo zaříkávání. Prel. M. Calda; J. Moural. Praha: OIKOYMENH 2011. Sloterdijk, P.: Kritika cynického rozumu. Prel. M. Szabó. Bratislava: Kalligram 2013. Störig, H.J.: Malé dějiny filozofie. Prel. P. Rezek. Praha: Zvon 1991. Wittgenstein, L.: Filozofické skúmania. Prel. F. Novosád. Bratislava: Nakladateľ stvo Pravda 1979. Wright von, H. G.: Humanizmus ako životný postoj. Prel. M. Žitný. Kalligram 2001. Žižek, S.: Mor fantázií. Prel. M. Gálisová; V. Gális. Bratislava: Kalligram 1998.

Course language:

| Notes: | | | | | | | | |
|---|-------------------|---------|------|------|------|--|--|--|
| Course assessm | Course assessment | | | | | | | |
| Total number o | f assessed studen | ts: 746 | | | | | | |
| А | В | С | D | E | FX | | | |
| 60.59 | 14.21 | 12.6 | 8.58 | 3.35 | 0.67 | | | |
| Provides: doc. PhDr. Peter Nezník, CSc. | | | | | | | | |
| Date of last modification: 11.07.2022 | | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | | |

| University: P. J. Šafárik University in Košice | | | | | | |
|--|---|--|--|--|--|--|
| Faculty: Faculty of | Faculty: Faculty of Science | | | | | |
| Course ID: KF/ IH2/03 | Course name: Idea Humanitas 2 (General Introduction) | | | | | |
| Course type, scope Course type: Prac Recommended co Per week: 2 Per s Course method: p | Course type, scope and the method: Course type: Practice Recommended course-load (hours): Per week: 2 Per study period: 28 Course method: present | | | | | |
| Number of ECTS | Number of ECTS credits: 2 | | | | | |
| Recommended sen | nester/trimester of the course: 3. | | | | | |
| Course level: II. | | | | | | |
| Prerequisities | | | | | | |

Conditions for course completion:

100% graded credit: 40% (evaluated participation in seminars, processing of partial seminar work - separate assignment) 60% (final seminar work - student project). In the case of implementation of the classical form of teaching - face-to-face - active participation of the student in the seminar; study and reflection of assigned philosophical texts, attempt to interpret them. In the case of the introduction of distance education (as was the case due to Covid-19), the student will have to actively fulfill tasks of a partial nature, where increased demands will be placed on the student and his independent work with philosophical texts and literature. Tasks will be assigned to the students by the teacher on an ongoing basis. The student must study the assigned philosophical texts, think through and process them, submit them as a seminar paper, i.e. in written form. In both cases, the study of literature is necessary to pass the subject. The conclusion of the subject is the preparation of a seminar paper - the final seminar paper - in the range of at least 10 - 12 pages of A4 (with compliance with the bibliographic standard of the Department of Philosophy (KF) for seminar and qualification papers).

Learning outcomes:

To supplement and expand the interest of natural science students in social science issues related to the issues of the development of philosophy, science and human leadership, which are manifested in the urgent problems of today's world and society. Special emphasis is placed on the formation of humanistic ideas, their origin, transformation and possible pitfalls and risks. In addition to thinking about serious questions of the past and present, it also includes thinking about the present and the current contexts of major topics in philosophy and Western culture in particular. Therefore, the preparation and implementation of a program aimed at cooperation with alternative directions of pedagogy in the conditions of our transforming education system is understood as a practical output.

Brief outline of the course:

The age of the image of the world. Doubt as a principle of philosophy. The emergence of the image of the world (Weltbild); the differences of ancient theoria, medieval scientia, the emergence of mathematical natural science. Science as an operation (Betrieb); institutionalization of science. Philosophy, science and the modern world. The movement of human life: acceptance, defense, freedom as struggle, submission to finitude. The modern world and the search for meaning. Bureaucracy, impersonality, predominance of technocratic approaches. Fatigue as a modern threat

to Europe. The paths to freedom lead through the rediscovery of one's own Self and creativity. The basic condition for the educability of any education is the care of the soul. The crisis of European humanity. Antiquity. Philosophy - the emergence of a special community of people, the beginnings of education - paideia. The winding road of leadership. The origin and birthplace of calculating thinking. Europe and the post-European era. Care of the soul as a basic idea of Patočka's philosophy. The difference in the position of Plato and Democritus in understanding the care of the soul. The idea of caring for the soul and Aristotle.

Recommended literature:

Hadot, P.: What is ancient philosophy. Transl. M. Křížová. Prague: Vyšehrad 2017. Hegel, G.
W. F.: Phenomenology of Spirit. Prague: NČSAV 1960 Husserl, E.: The Crisis of European Humanity and Philosophy. In: Crisis of European sciences and transcendental phenomenology.
Prague: Academie 1996. Mokrejš, A.: Eros as a Theme of Greek Thought. Prague: Triton 2009.
Patočka, J.: Péče o duši I. Prague. OIKOYMENH 1996. Patočka, J.: Care of the soul II. Prague.
OIKOYMENH 1999. Vernant, J.-P.: The beginnings of Greek thought. Prague: OIKOYMENH 1995. Wright von, G.H.: Humanism as a life attitude. Bratislava: Kalligram 2001.

Course language:

Notes:

Course assessment

Total number of assessed students: 12

| А | В | С | D | Е | FX |
|-------|------|-----|-----|-----|-----|
| 91.67 | 8.33 | 0.0 | 0.0 | 0.0 | 0.0 |

Provides: doc. PhDr. Peter Nezník, CSc.

Date of last modification: 24.08.2022

| University: P J | Šafárik Univers | sity in Košice | | | | |
|---|--|--|--|-----------------------------------|--------------------------------------|--|
| Faculty: Faculty | v of Science | | | | | |
| Course ID: ÚM TIN/10 | MV/ Course name: Information theory | | | | | |
| Course type, sco Course type: L Recommended Per week: 2 Pe Course method | ope and the me Lecture I course-load (h er study period d: present | thod: nours): : 28 | | | | |
| Number of ECT | FS credits: 4 | | | | | |
| Recommended | semester/trime | ster of the cours | e: 1., 3. | | | |
| Course level: II. | | | | | | |
| Prerequisities: | | | | | | |
| Conditions for a A student is eval chosen by him/h at maximum). E 50-59 p., FX | Conditions for course completion: A student is evaluated according to an oral examination during which he/she answers two questions chosen by him/her at random, one from the group A and one from the group B (both for 50 points at maximum). Evaluation scale: A 90-100 p., B 80-89 p., C 70-79 p., D 60-69 p., E 50-59 p. FX 0-49 p. | | | | | |
| Learning outcome A student gets ac | mes: equainted with a | mathematical att | empt to solve sor | ne problems of co | omputer science. | |
| Brief outline of A quantitative c Mutual informa entropy (3 week | the course: haracteristic of a tion (2 weeks). (s). Typical sequ | an information (2 Inequalities inv ence, typical set | weeks). Entropy olving mutual i (3 weeks). | of a random var nformation and | riable (3 weeks). those involving | |
| Recommended literature: T. M. Cover, J. A. Thomas, Elements of Information Theory, Wiley, 1991 (2nd ed. 2006) T. K. Moon, Information Theory (free online course materials), available at the address http://digitalcommons.usu.edu/ocw_ece/3/ | | | | | | |
| Course languag Slovak | Course language: Slovak | | | | | |
| Notes: | | | | | | |
| Course assessm Total number of | ent assessed studer | nts: 41 | | | | |
| A | В | C | D | E | FX | |
| 58.54 | 4.88 | 12.2 | 4.88 | 19.51 | 0.0 | |
| Provides: prof. 1 | RNDr. Mirko H | orňák, CSc. | | | | |
| Date of last modification: 31.01.2022 | | | | | | |
| Approved: prof. | . RNDr. Tomáš 🛛 | Madaras, PhD. | | | | |

| University: P. J. | Šafár | ik Univers | ity in Košice | | | | | |
|--|---|---------------------------------|----------------------------------|---------------------|--------------------|-----------------|--|--|
| Faculty: Faculty | Faculty: Faculty of Science | | | | | | | |
| Course ID: ÚM TZV/10 | V/ Course name: Lattice theory | | | | | | | |
| Course type, sc Course type: 1 Recommended Per week: 2 / 1 Course method | 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 ECT | ГS cre | edits: 5 | | | | | | |
| Recommended | semes | ster/trimes | ter of the course | e: 2., 4. | | | | |
| Course level: II | • | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for Awarded accord | course ling to | e completi written an | on: d oral examination | on. | | | | |
| Learning outco The students lea in various parts | mes: arn bas of ma | sic concept thematics. | s and methods of | f lattice theory ar | nd gain the abilit | y to apply them | | |
| Brief outline of Ordered sets an Completeness a | Brief outline of the course: Ordered sets and lattices. Distributivity and modularity. Ideals and set-theoretical representation. Completeness and completions. Formal concept analysis. | | | | | | | |
| Recommended literature: 1. G. Grätzer: General Lattice Theory (2nd edition), Birkhäuser, 1998 2. B. A. Davey, H. A. Priestley: Introduction to lattices and order, Cambridge University Press 1990 3. M. Kolibiar: Algebra a príbuzné disciplíny, Alfa Bratislava, 1991 4. S. Roman: Lattices and Ordered Sets. Springer 2008. | | | | | | | | |
| Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessm Total number of | ent f asses | sed studen | ts: 27 | | | | | |
| А | | В | С | D | Е | FX | | |
| 14.81 | 2 | 22.22 | 37.04 | 22.22 | 3.7 | 0.0 | | |
| Provides: doc. H | Provides: doc. RNDr. Miroslav Ploščica, CSc. | | | | | | | |
| Date of last modification: 24.03.2023 | | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | | |

| University: P. J. Šafá | rik University in Košice |
|--|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚMV/ MPA/19 | Course name: Markov's processes and their applications |
| Course type, scope a Course type: Lectur Recommended cou Per week: 3 / 2 Per Course method: pre | and the method: re / Practice rse-load (hours): study period: 42 / 28 esent |
| Number of ECTS cr | edits: 6 |
| Recommended seme | ester/trimester of the course: 1., 3. |
| Course level: II. | |
| Prerequisities: | |
| Conditions for course Total evaluation base At least 50% must be Final evaluation: ≥90 | Se completion: ad on 2 written tests $(2x40p)$ + assignment $(5p)$ and oral exam $(40p)$. be obtained from each part. 2% A; $\geq 80\%$ B; $\geq 70\%$ C; $\geq 60\%$ D; $\geq 50\%$ E; $<50\%$ FX. |
| Student should: 1. Obtain the knowle 2. Apply theoretical 1 3. Obtain basic skills | dge about modelling of real stochastic processes. knowledge in practical problems solving in queuing and renewal theory. with CAS software SageMath based on Python. |
| Brief outline of the of the of 1. Stochastic (random 2. Markov chains (M 3. Classification of state 4. Evaluation of trans 5. Special chains with Kolmogorov's different 6. Birth-and-death properties 10. Applications in a indicators, opened systems 10. Applications in reaction of the systems 12. Reliability of the 13. Limit theorems of the systems 10. Applications of the systems 10. Applications in reaction of the systems 10. Applications in reaction of the systems 10. Applications in reactions in reactions in the systems 11. Renewal process 12. Reliability of the systems of t | n) processes (definition, characteristics, classification of processes). arkov property, transition matrix, discrete-time Markov chains). tates of the process. sitions, optimal strategies, Howard's algorithm. th continuous time (continuous-time Markov chains, intensity of transition, ential equations, Poisson process). rocesses. queuing theory (Kendall's classification of queuing systems, efficiency rstems without waiting). s with waiting, closed systems. enewal theory and reliability. Markov chains in discrete renewal models. with continuous time. system of elements. f renewal theory. |
| Recommended litera 1. Skřivánková V., H Slovak) 2. Beichelt F.: Applie 3. Ross S. M.: Introd 4. Janková, K. a kol. | ature: ančová M.: Náhodné procesy a ich aplikácie, UPJŠ, Košice, 2018 (in ed Probability and Stochastic Processes, 2nd Ed., Chapman and Hall, 2016 uction to Probability Models, 12th ed., Elsevier, 2019 Markovove reťazce a ich aplikácie, epos, 2014 (in Slovak) |
5. Prášková Z., Lachout P.: Základy náhodných procesu, MFF UK, Praha, 1998 (in Czech)

Course language:

Slovak

Notes:

The students are required to have basic knowledge about axiomatical theory of probability, distributions and characteristics of random variables.

Course assessment

Total number of assessed students: 80

| А | В | С | D | Е | FX | |
|---|------|-------|------|-------|-----|--|
| 25.0 | 15.0 | 21.25 | 20.0 | 16.25 | 2.5 | |
| Provides: doc. RNDr. Martina Hančová, PhD., RNDr. Andrej Gajdoš, PhD. | | | | | | |
| | 1.0 | 2021 | | | | |

Date of last modification: 13.09.2021

| University: P. J. Satarik University in Kosice | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Faculty: Faculty of Science | | | | | | | | |
| Course ID: ÚMV/ MTE/18Course name: Mathematical economics | | | | | | | | |
| Course type, scope and the method: Course type: Lecture / Practice Recommended course-load (hours): Per week: 3 / 1 Per study period: 42 / 14 Course method: present | | | | | | | | |
| Number of ECTS credits: 5 | | | | | | | | |
| Recommended semester/trimester of the course: 2., 4. | | | | | | | | |
| Course level: II. | | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for course completion: Two written exams in solving problems. Final evaluation is based on written exams and theoretical oral exam. | | | | | | | | |
| Learning outcomes: To learn basic notions and methods of the modern mathematical economics. | | | | | | | | |
| The notion of exchange economy. Edgeworth box. Preferences and utility functions. Optimality in exchange economies. Existence of core. Walrasian equilibrium. Optimality and decentralization. Production economies. Basic knowledge of convex analysis and topology is recommended. Basic knowledge in microeconomics is also invited. | | | | | | | | |
| Recommended literature: 1. C.D. Aliprantis, D.J. Brown, O. Burkinshaw: Existence and optimality of competitive equilibria, Springer 1989 2. W. Hildenbrand, A.P. Kirman: Equilibrium analysis, North Holland, 3. A. Takayama: Mathematical economics, Cambridge University Press, 1985 | | | | | | | | |
| Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessment Total number of assessed students: 83 | | | | | | | | |
| A B C D E FX | | | | | | | | |
| 24.1 20.48 19.28 21.69 9.64 4.82 | | | | | | | | |
| Provides: prof. RNDr. Katarína Cechlárová, DrSc. | | | | | | | | |
| Date of last modification: 07.03.2018 | | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | | |

| University: P. J. S | Šafárik Univers | ity in Košice | | | | | | |
|--|--|----------------------------|---------------------|-------------------|----|--|--|--|
| Faculty: Faculty | of Science | | | | | | | |
| Course ID: ÚMV MSM/14 | V/ Course name: Mathematical modelling | | | | | | | |
| Course type, sco Course type: Recommended Per week: Per s Course method | pe and the met course-load (h study period: : present | thod: ours): | | | | | | |
| Number of ECT | S credits: 4 | | | | | | | |
| Recommended se | emester/trimes | ster of the cours | e: | | | | | |
| Course level: II. | | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for condit | ourse completi quired number o | on: of credits in the s | tructure defined | by the study plar | 1. | | | |
| Learning outcon Evaluation of stu | nes: dent's compete | nces with respect | t to the profile of | the graduate. | | | | |
| Brief outline of t | he course: | | | | | | | |
| Recommended li | iterature: | | | | | | | |
| Course language Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessment Total number of assessed students: 15 | | | | | | | | |
| A | В | С | D | Е | FX | | | |
| 53.33 | 53.33 20.0 13.33 13.33 0.0 0.0 | | | | | | | |
| Provides: | | | | • | | | | |
| Date of last mod | ification: 17.03 | 3.2022 | | | | | | |
| Approved: prof. | RNDr. Tomáš N | Madaras, PhD. | | | | | | |

| University: P. J. Šafár | rik University in Košice |
|--|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚMV/ MST/19 | Course name: Mathematical statistics |
| 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 cro | edits: 5 |
| Recommended seme | ster/trimester of the course: 1. |
| Course level: I., II. | |
| Prerequisities: | |
| Conditions for cours Total evaluation based (30p) and oral part of At least 50% must be Final evaluation: \geq 90 | e completion: d on two written tests during the semester (2x40p) and the result of the written T the exam (30p). obtained from each part. % A; \geq 80% B; \geq 70% C; \geq 60% D; \geq 50% E; <50% FX. |
| Learning outcomes: Student should obtai theoretical knowledge | n the knowledge about basic statistical methods and the ability to apply e in practical problems solving. |
| Brief outline of the c 1. Random vectors (d 2. Covariance, correla 3. Random sample, sa 4. Some important sta 5. Point estimators an 6. Maximum likeliho 7. Interval estimates, 8. Testing of statistica for searching optimal 9. Some important pa 10. Some important r | ourse: lefinition, distributions, characteristics, joint and marginal distributions). ation and regression. ampling distributions and characteristics. atistics and their distributions. ad their properties. od method. confidence interval construction (2 weeks). al hypothesis (critical region, level of significance and power of test, methods critical regions). arametric tests (2 weeks). |
| Recommended litera 1. Skřivánková V.: Pr 2. Skřivánková VHa 3. Casella, G., Berger 4. DeGroot, M. H., So 5. Anděl J.: Základy f | avdepodobnosť v príkladoch, UPJŠ, Košice, 2006 (in Slovak) nočová M.: Štatistika v príkladoch, UPJŠ, Košice, 2005 (in Slovak) r, R., Statistical Inference, 2nd ed., Duxbury Press, 2002 chervish, M. J.: Probability and Statistics, 4th ed., Pearson, Boston, 2012 matematické statistiky, MatfyzPress, Praha, 2011 (in Czech) |
| Slovak | |
| Notes: | |

| Course assessment Total number of assessed students: 158 | | | | | | | | |
|---|--|---------------|--|--|--|--|--|--|
| А | A B C D E FX | | | | | | | |
| 25.32 | 25.32 20.89 13.92 18.99 12.66 8.23 | | | | | | | |
| Provides: doc.] | Provides: doc. RNDr. Martina Hančová, PhD. | | | | | | | |
| Date of last modification: 14.04.2022 | | | | | | | | |
| Approved: prof | f. RNDr. Tomáš M | Madaras, PhD. | | | | | | |

| University: P. J. Šafárik University in Košice | | | | | | | | |
|---|---|---|--|---|--|--|--|--|
| Faculty: Faculty of Science | | | | | | | | |
| Course ID: ÚMV/ TMT/10Course name: N | JMV/ Course name: Matroid theory | | | | | | | |
| Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present | | | | | | | | |
| Number of ECTS credits: 5 | | | | | | | | |
| Recommended semester/trimester of | the cours | e: 1., 3. | | | | | | |
| Course level: II. | | | | | | | | |
| Prerequisities: | | | | | | | | |
| Conditions for course completion: A student is evaluated according to an or chosen by him/her at random, one fro group B (35 points at maximum). Eva D 60-69 p., E 50-59 p., FX 0-4 | oral examinom the grou luation sca 9 p. | nation during whi up A (65 points ale: A 90-100 | ch he/she answe at maximum) ar p., B 80-89 p | rs two questions ad one from the ., C 70-79 p., | | | | |
| Learning outcomes: A student gets acquainted with basic n in various disciplines of discrete mathe | otions of n ematics. | natroid theory an | d possibilities of | f using matroids | | | | |
| Brief outline of the course: Independent sets and bases (3 weeks). weeks). Circuits (3 weeks). Duality in | Properties matroids (2 | of rank functior 2 weeks). | n (2 weeks). Clo | sure operator (3 | | | | |
| Recommended literature: D. J. A. Welsh: Matroid Theory, Acade J. Oxley, Matroid Theory, Oxford Univ | emic Press versity Pres | , 1976 ss, 2010 | | | | | | |
| Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | |
| Course assessment Total number of assessed students: 21 | | | | | | | | |
| A B | С | D | Ε | FX | | | | |
| 19.05 14.29 28.57 14.29 9.52 14.29 | | | | | | | | |
| Provides: prof. RNDr. Mirko Horňák, CSc. | | | | | | | | |
| Date of last modification: 31.01.2022 | Date of last modification: 31.01.2022 | | | | | | | |
| Approved: prof. RNDr. Tomáš Madara | as, PhD. | | | | | | | |

| University: P. J. Šafarik University in Košice Faculty: Faculty of Science Course ID: ÚBEV/ Course name: Molecular Biology MOB2/10 Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: Term of ECTS credits: 3 Recommended semester/trimester of the course: 2. Course level: 1, 11. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postranscription processing of RNA. 8. Translation and postranscription processing of RNA. 8. Translation and postranscription in eukaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell eyele and cell cycle control. Recommended literature: E. Mišūrová:Molekulárni biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišūrová: Molekulárni biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišūrová: Molekulárni biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišūrová: Molekulárni biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišūrová: Molekulárni biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišūrová: Molekulárni biológia. Učebné texty, PF UPJŠ, 2007 S. Rosypal: Uvod do molekulárni biológia. Učebné texty, PF UPJŠ, 2007 S. Rosypal: Uvod do molekulárni biológia. Učebné texty, PF UPJŠ, 2007 S. Rosypal: Uvod do molekulárni biológia. Učebné texty, PF UPJŠ, 2007 S. Rosypal: Uvod do molekulárni biológia. Učebné texty, PF UPJŠ, 2007 S. Rosypal: Uvod | | |
|---|---|--|
| Faculty: Faculty of Science Course ID: ÚBEV/ MOB2/10 Course name: Molecular Biology Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 2. Course level: I., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brif outline of the course: 1. 1. Structure and properties of information biomacromolecules. 2. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and postranscription processing of RNA. 8. Transleription and postranscription processing of RNA. 9. Interaction of proteins with DNA. Regulation of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 10. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišárová: Molekuláran biológia. Učebné texty, PF UPJŠ Košice, 1999 5. Mokaryotic and enokeular biologia. Učebné text | University: P. J. Šafán | ik University in Košice |
| Course ID: ÚBEV/ MOB2/10 Course name: Molecular Biology Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 2. Course level: I., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translational modification of proteins. Protein degradation. 9. Interaction of proteins with DNA. Regulation of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. | Faculty: Faculty of So | cience |
| Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present Number of ECTS credits: 3 Recommended semester/trimester of the course: 2. Course level: I., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postranscription processing of RNA. 8. Translation of gene expression in eukaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová: Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová: Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová: Molekulárná biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová: Molekulárná biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová: Molekulárná biológia. Učebné texty, PF UPJŠ Košice, 1999 D. P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 D. P. Clark: N. Pazdernik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 Course language: | Course ID: ÚBEV/ MOB2/10 | Course name: Molecular Biology |
| Number of ECTS credits: 3 Recommended semester/trimester of the course: 2. Course level: I., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postranscription processing of RNA. 8. Translation and postranscription processing of RNA. 8. Translation and postraslational modification of proteins. Protein degradation. 9. Interaction of gene expression in cukaryots. 10. Regulation of gene expression in cukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová. Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 </td <td>Course type, scope an Course type: Lectur Recommended cour Per week: 3 Per stud Course method: pre</td> <th>nd the method: e rse-load (hours): dy period: 42 sent</th> | Course type, scope an Course type: Lectur Recommended cour Per week: 3 Per stud Course method: pre | nd the method: e rse-load (hours): dy period: 42 sent |
| Recommended semester/trimester of the course: 2. Course level: I., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postraslational modification of proteins. Protein degradation. 9. Interaction of proteins with DNA. Regulation of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová: Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007 S.Rosypal: Úvod do molekulární biologie. Grafex Blansko, Brno, 1999 | Number of ECTS cre | edits: 3 |
| Course level: 1., II. Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postraslational modification of proteins. Protein degradation. 9. Interaction of proteins with DNA. Regulation of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007 S.Rosypal:Uvod do molekulární biologie. Grafex Blansko, Brno, 1999 D.P. Clark: Molecular Biology, Elsevier Academic Press, Lo | Recommended semes | ster/trimester of the course: 2. |
| Prerequisities: Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and posttraskription processing of RNA. 8. Translation and posttraskription processing of RNA. 8. Translation of proteins with DNA. Regulation of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová: Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007 S. Rosspal: Úvod do molekulární biologie. Grafex Blansko, Brno, 1999 D.P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 D.P. Clark: Molecular Biology, Else | Course level: I., II. | |
| Conditions for course completion: Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: 1. Structure and properties of information biomacromolecules. 2. Chromatine molecular structure and dynamics and oragnization of chromosome. 3. Replication of chromosomal and extrachromosomal DNAs. 4. Mutations and DNA reapir. 5. Prokaryotic and eukaryotic genome. Human genome. 6. Mobile gene elements. 7. Transcription and postranscription processing of RNA. 8. Translation and postraslational modification of gene expression in prokaryots. 10. Regulation of gene expression in eukaryots. 11. Cell signaling. 12. Cell cycle and cell cycle control. Recommended literature: E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 D. P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 D.P. Clark: N. Pazdernik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 | Prerequisities: | |
| Learning outcomes: Familiarize students with the structure, properties and functions of information macromolecules and their work, focusing primarily on the molecular mechanisms of regulation of DNA replication, gene expression and cell cycle. Brief outline of the course: Structure and properties of information biomacromolecules. Chromatine molecular structure and dynamics and oragnization of chromosome. Replication of chromosomal and extrachromosomal DNAs. Mutations and DNA reapir. Prokaryotic and eukaryotic genome. Human genome. Mobile gene elements. Transcription and postranscription processing of RNA. Translation and postraslational modification of gene expression in prokaryots. Regulation of gene expression in eukaryots. Cell cycle and cell cycle control. Recommended literature: Misúrová: Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 Misúrová, P. Solár: Molekulavá biológia. Učebné texty, PF UPJŠ, 2007 SRosypal:Úvod do molekulární biologie. Grafex Blansko, Brno, 1999 P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 P. Clark, N.Pazdernik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 | Conditions for cours | e completion: |
| Brief outline of the course: Structure and properties of information biomacromolecules. Chromatine molecular structure and dynamics and oragnization of chromosome. Replication of chromosomal and extrachromosomal DNAs. Mutations and DNA reapir. Prokaryotic and eukaryotic genome. Human genome. Mobile gene elements. Transcription and postranscription processing of RNA. Translation and postraslational modification of gene expression in prokaryots. Regulation of gene expression in eukaryots. Cell signaling. Cell cycle and cell cycle control. Recommended literature: Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007 S.Rosypal:Úvod do molekulární biologie. Grafex Blansko, Brno, 1999 P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 D.P. Clark, N.Pazdernik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 | Learning outcomes: Familiarize students and their work, focusi gene expression and c | with the structure, properties and functions of information macromolecules ng primarily on the molecular mechanisms of regulation of DNA replication, cell cycle. |
| Recommended literature: E. Mišúrová:Molekulárna biológia. Učebné texty, PF UPJŠ Košice, 1999 E. Mišúrová, P. Solár: Molekulová biológia. Učebné texty, PF UPJŠ, 2007 S.Rosypal:Úvod do molekulární biologie. Grafex Blansko, Brno,1999 D.P. Clark: Molecular Biology, Elsevier Academic Press, London, 2005 D.P. Clark, N.Pazdernik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 Course language: | Brief outline of the construction of the construction of the construction. Chromatine molecular is a construction of chromatine molecular. Replication of chromatine and DNA 5. Prokaryotic and euter 6. Mobile gene elemer 7. Transcription and posses of the construction of protect 10. Regulation and posses of the construction of generation. Regulation of generation. Cell cycle and cell construction. | erties of information biomacromolecules. alar structure and dynamics and oragnization of chromosome. mosomal and extrachromosomal DNAs. A reapir. karyotic genome. Human genome. nts. postranscription processing of RNA. sttraslational modification of proteins. Protein degradation. ins with DNA. Regulation of gene expression in prokaryots. e expression in eukaryots. l cycle control. |
| Course language: | Recommended litera E. Mišúrová:Molekul E. Mišúrová, P. Solár: S.Rosypal:Úvod do m D.P. Clark: Molecular D.P. Clark, N.Pazderr | ture: árna biológia. Učebné texty, PF UPJŠ Košice, 1999 Molekulová biológia. Učebné texty, PF UPJŠ, 2007 Molekulární biologie. Grafex Blansko, Brno,1999 Biology, Elsevier Academic Press, London, 2005 Mik, M. McGehee: Molecular Biology, 3rd Edition, Elsevier 2018 |
| | Course language: | |
| Notes: | Notes: | |

| Course assessment Total number of assessed students: 1 | | | | | | | | |
|---|---------------------------|--|--|--|--|--|--|--|
| ABCDEFX | | | | | | | | |
| 100.0 | 100.0 0.0 0.0 0.0 0.0 0.0 | | | | | | | |
| Provides: doc. RNDr. Peter Pristaš, CSc. | | | | | | | | |
| Date of last modification: 19.12.2021 | | | | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | | | | |

| University: P. J. Šafá | árik University in Košice |
|---|---|
| Faculty: Faculty of S | Science |
| Course ID: ÚMV/ POT/10 | Course name: Polyhedral theory |
| Course type, scope a Course type: Lectu Recommended cou Per week: 2 Per stu Course method: pr | and the method: re urse-load (hours): udy period: 28 esent |
| Number of ECTS cr | redits: 4 |
| Recommended seme | ester/trimester of the course: 2. |
| Course level: II. | |
| Prerequisities: | |
| Conditions for cour To complete the cou theorems from the le the relationships betw The evaluation of the questions). | se completion: urse, it is necessary to demonstrate the ability to formulate definitions and ectured material together with their proofs, and to present an understanding of ween particular concepts and results. e subject is based on the results of an oral exam (consisting of two theoretical |
| Learning outcomes: After completing the convex polyhedra an | e course, the student will be acquainted with basic overview of the theory of ad polyhedral maps. |
| Brief outline of the Week 1: Polyhedra, Week 2: Basic prop Euler's formula and Week 3: Platonic, An Weeks 4-6: Characte Week 7: Hamiltonian Week 8: The longest Week 9: Face vector Weeks 10-11: Local Week 12: Sphere ins Week 13: Applicatio | course: complexes, maps, planar graphs. perties of three-dimensional convex polyhedra (operations with polyhedra, its consequences). rchimedean and related polyhedra. erization of graphs of convex polyhedra, Steinitz's theorem. n polyhedra. cycles in convex polyhedra. s of polyhedra, Eberhard's theorem. structure of polyhedra. cribability and circumscribability of polyhedra. ns of polyhedra in sciences. |
| Recommended liter E. Jucovič: Konvexr B. Grünbaum: Conv G.M. Ziegler: Lectur S. Jendrol', HJ. Vos Math. 313 (2013), 40 | ature: né mnohosteny, Veda Bratislava 1981 ex polytopes (2nd edition), Springer New York, 2003 res on Polytopes, Springer-Verlag, New York, 1996 ss: Light subgraphs of graphs embedded in the plane - a survey, Discrete 06-421 |
| Course language: Slovak or English | |

Notes: Basic knowledge of geometry and advanced knowledge of graph theory are assumed. **Course assessment** Total number of assessed students: 11 В С Е А D FX 100.0 0.0 0.0 0.0 0.0 0.0 Provides: prof. RNDr. Tomáš Madaras, PhD. Date of last modification: 19.04.2022 Approved: prof. RNDr. Tomáš Madaras, PhD.

| University: P. J. Šafán | rik University in Košice |
|--|--|
| Faculty: Faculty of So | cience |
| Course ID: KPPaPZ/PPZMg/12 | Course name: Psychology and Health Psychology (Master's Study) |
| Course type, scope an Course type: Lectur Recommended cour Per week: 1 / 2 Per s Course method: pre | nd the method: e / Practice rse-load (hours): study period: 14 / 28 sent |
| Number of ECTS cre | edits: 4 |
| Recommended semes | ster/trimester of the course: |
| Course level: II. | |
| Prerequisities: | |
| Conditions for the con Active work (maximu Preparation, presentat Written examination (Conditions for admiss Conditions for the fin Exam: written form (n Conditions for succe assignments and at lea Detailed information subject will be realized Learning outcomes: | ntinuous assessment during the semester: um 5 points, 2 absences are allowed). tion and discussion on a selected topic - max. 15 points. (maximum 30 points). sion to the exam: min. 25 points. al assessment: max. 50 points, min. 25 points) essful completion of the course: participation in lessons, fulfillment of ast 66 points from the overall evaluation. in the electronic bulletin board of the course in AIS2. The teaching of the ed by a combined method. |
| The student will und salutogenic factors as the knowledge especi health in the work of | erstand the basic concepts and theories of health psychology, can explain well as the consequences of risk behavior related to health. He is able to apply ially in the field of prevention of burnout syndrome and support of mental a teacher. |
| Brief outline of the co 1 Introduction to heal 2 Psychoimmunology 3 Personality factors a 4 Social support as a 5 Subjective well-bein 6 Stress and stressful 7 Burnout syndrome 8 Health-promoting b 9 Health risk behavio 10 School as an impo | ourse: th psychology and health protective factor in relation to health ng situations and ways to manage them ehavior, mental hygiene r rtant factor of health |
| Recommended litera Křivohlavý, J.: Psych | ture: ologie zdraví. Portál, Praha 2001. |

Křivohlavý, J.: Psychologie nemoci. Grada, Praha, 2002.

Křivohlavý, J.: Psychologie moudrosti a dobrého života. Grada, Praha, 2009.

Kebza, V.: Psychosociální determinanty zdraví. Academia, Praha 2005.

Kahneman, D., Diener, E., Schwarz, N.(Eds), Well-Being. The Foundations of Hedonic

Psychology. New York, Russell Sage Foundation, 2003.

Kaplan, R. M.: Zdravie a správanie človeka. SPN, Bratislava 1996.

Sarafino, E. P.: Health Psychology. Biopsychosocial interactions. John Wiley and sons 1994.

Baštecký, J., Šavlík, J., Šimek, J. 1993. Psychosomatická medicína. Praha: Grada

Tress, W., Krusse, J., Ott, J.: Základní psychosomatická péče. Portál, Praha 2008.

Course language:

slovak

Notes:

Course assessment

Total number of assessed students: 226

| А | В | С | D | Е | FX |
|-------|-------|-------|-------|-------|------|
| 19.47 | 25.22 | 25.66 | 13.27 | 15.93 | 0.44 |

Provides: PhDr. Anna Janovská, PhD., Mgr. Lucia Barbierik, PhD.

Date of last modification: 07.07.2021

| University: P. J. | Šafárik Univers | sity in Košice | | | | | | | |
|--|--|---|---|--|--|--|--|--|--|
| Faculty: Faculty | of Science | | | | | | | | |
| Course ID: ÚM THO/10 | Ourse ID: ÚMV/ HO/10Course name: Queueing theory | | | | | | | | |
| Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 4 Per study period: 56 Course method: present | | | | | | | | | |
| Number of ECT | S credits: 6 | | | | | | | | |
| Recommended s | semester/trimes | ster of the cours | e: 1., 3. | | | | | | |
| Course level: II. | | | | | | | | | |
| Prerequisities: | | | | | | | | | |
| Conditions for c A student is eval chosen by him/h maximum. Evalu p., FX 0-49 p. | course completi uated according uer at random, o uation scale: A . | ion: to an oral examine ne from the grou 90-100 p., B | nation during wh p A and one fro 80-89 p., C 7 | tich he/she answe m the group B, t 0-79 p., D 60-0 | ers two questions both 50 points at 69 p., E 50-59 | | | | |
| Learning outcome A student gets a queuing systems | nes: cquainted with | analysis of input | requests stream | s and with funct | ioning of simple | | | | |
| Brief outline of Queuing system week). The simp weeks). Auxilian memoryless inpu | the course: (1 week). Bas lest input request ry lemmas (1 we ut requests strea | ic properties of i sts stream (2 weel eek). Stationary n m (3 weeks). An | nput requests st (s). Ordinary me nemoryless input alysis of a simpl | treams into a qu moryless input re t requests stream e queuing systen | euing system (1 equests stream (2 (1 week). Finite n (2 weeks). | | | | |
| Recommended B.V. Gnedenko a Birkhäuser Bost | Recommended literature: B.V. Gnedenko and I.N. Kovalenko, Introduction to Queueing Theory, Second Edition, Birkhäuser Boston, Cambridge MA, 1989 | | | | | | | | |
| Course languag Slovak | Course language: Slovak | | | | | | | | |
| Notes: | | | | | | | | | |
| Course assessment Total number of assessed students: 31 | | | | | | | | | |
| A | В | С | D | E | FX | | | | |
| 29.03 22.58 9.68 16.13 16.13 6.45 | | | | | | | | | |
| Provides: prof. I | Provides: prof. RNDr. Mirko Horňák, CSc. | | | | | | | | |
| Date of last mod | lification: 13.09 | 9.2021 | | | | | | | |
| Approved: prof. | RNDr. Tomáš l | Madaras, PhD. | | | | | | | |
| | | | | | | | | | |

| University: P. J. Šafá | rik University in Košice |
|---|--|
| Faculty: Faculty of S | cience |
| Course ID: ÚTVŠ/ ÚTVŠ/CM/13 | Course name: Seaside Aerobic Exercise |
| Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre | nd the method: ce rse-load (hours): dy period: 28 esent |
| Number of ECTS cr | edits: 2 |
| Recommended seme | ster/trimester of the course: |
| Course level: I., II. | |
| Prerequisities: | |
| Conditions for cours Completion: passed Condition for success - active participation - effective performan | e completion: sful course completion: in line with the study rule of procedure and course guidelines ce of all tasks- aerobics, water exercise, yoga, Pilates and others |
| Learning outcomes: Content standard: The student demonstricourse syllabus and re Performance standard Upon completion of t - perform basic aerob - conduct verbal and - organise and manag | rates relevant knowledge and skills in the field, which content is defined in the ecommended literature. d: the course students are able to meet the performance standard and: ics steps and basics of health exercises, non-verbal communication with clients during exercise, e the process of physical recreation in leisure time |
| Brief outline of the c Brief outline of the co 1. Basic aerobics – lo 2. Basics of aqua fith 3. Basics of Pilates 4. Health exercises 5. Bodyweight exercises 5. Bodyweight exercises 6. Swimming 7. Relaxing yoga exee 8. Power yoga 9. Yoga relaxation 10. Final assessment Students can engage volleyball, football, tag | ourse: burse: burse: burse: burse: burse: burse: burse: ses ses reises in different sport activities offered by the sea resort – swimming, rafting, able tennis, tennis and other water sports in particular. |
| Recommended litera 1. BUZKOVÁ, K. 20 | t ure: 106. Fitness jóga. Praha: Grada. 167 s. |

| ČECHOVSKÁ, I., MILEROVÁ, H., NOVOTNÁ, V. Aqua-fitness. Praha: Grada. 136 s. EVANS, M., HUDSON, J., TUCKER, P. 2001. Umění harmonie: meditace, jóga, tai-či, strečink. 192 s. JARKOVSKÁ, H., JARKOVSKÁ, M. 2005. Posilováni s vlastním tělem 417 krát jinak. Praha: Grada. 209 s. KOVAŘÍKOVÁ, K. 2017. Aerobik a fitness. Karolium, 130 s. | | | | |
|--|-------|--|--|--|
| Course language: Slovak language | | | | |
| Notes: | | | | |
| Course assessment Total number of assessed students: 54 | | | | |
| abs | n | | | |
| 11.11 | 88.89 | | | |
| Provides: Mgr. Agata Dorota Horbacz, PhD. | | | | |
| Date of last modification: 29.03.2022 | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | |

| University: | Р | T | Šafárik | University | y in | Košice |
|-------------|----|----|---------|------------|-------|--------|
| University. | 1. | J. | Salarik | University | y 111 | KUSICC |

Faculty: Faculty of Science

| Course ID: ÚMV/ | Course name: Seminar on history of mathematics |
|------------------------|---|
| SHM/10 | |

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

Per week: 2 Per study period: 28

Course method: present

Number of ECTS credits: 2

Recommended semester/trimester of the course: 2.

Course level: I., II.

Prerequisities:

Conditions for course completion:

Conditions for continuous evaluation:

1. Participation in teaching in accordance with the study rules and instructions of the teacher.

- 2. Activity.
- 3. Homework and tests.

4. Seminar work and its presentation at the seminar – poster from history of mathematics on the selected topic

Conditions for successful completion of the course:

1. Participation in teaching in accordance with the study regulations and according to the instructions of the teacher;

2. Credits will be awarded to students who score at least 50% on homework assignments and tests. Additional points can be achieved for the presentation of a seminar paper.

Learning outcomes:

Students will demonstrate an understanding of the history of the development of some mathematical disciplines and selected concepts, and parallels between the phylogeny and ontogeny of mathematical thinking. They will demonstrate this understanding by scoring at least 50% on tests given at the beginning of the seminar on previous topics and on homework assignments.

Brief outline of the course:

Prehistory, ontogeny and phylogeny.

Mathematics in ancient cultures: Egypt, Mesopotamia, China, India.

Mathematics in ancient Greece: Origins of Greek natural philosophy and mathematics. The discovery of incommensurability and its consequences (Pythagoras and his school). Classical problems of Greek mathematics. Problems with infinity (Zeno). Eudoxus' method. Plato, Aristotle, Euclid and his Foundations. Archimedes of Syracuse, Eratosthenes, Apollónios, Claudios Ptolemy, Diophantos.

Arabic mathematics and its relation to medieval European mathematics.

The origins of modern mathematics. The search for the roots of polynomial equations. The origins of analytic geometry. Probability. Infinitesimal calculus. Number theory. Non-Euclidean geometry. The origin of set theory.

Development of mathematical symbolism.

Selected topics in school mathematics from the perspective of the history of mathematics.

Recommended literature: Burton, D. M.: The History of Mathematics: An Introduction. McGraw-Hill, 2007. Devlin, K.: Jazyk matematiky. Dokořán, 2002. (in czech) Čižmár, J. Dejiny matematiky (Od najstarších čias po takmer súčasnosť) Perfekt, 2017. (in slovak) Mareš, M. Příběhy matematiky. Pistorius, 2011. (in czech) **Course language:** Slovak Notes: **Course assessment** Total number of assessed students: 125 С Α В D Е FX 72.0 12.0 8.8 3.2 3.2 0.8 Provides: doc. RNDr. Ingrid Semanišinová, PhD. Date of last modification: 31.01.2022

| University: P. J. Šafá | rik Univers | ity in Košice | | | | |
|---|---|---|---|--|--|--|
| Faculty: Faculty of S | cience | | | | | |
| Course ID: KPPaPZ/SPVKE/07 | Course na Situations | Course name: Social-Psychological Training of Coping with Critical Life ituations | | | | |
| Course type, scope a Course type: Practic Recommended course Per week: 2 Per stu Course method: pre | nd the met ce rse-load (h dy period: esent | thod: ours): 28 | | | | |
| Number of ECTS cr | edits: 2 | | | | | |
| Recommended seme | ster/trimes | ster of the course: 2. | | | | |
| Course level: II. | | | | | | |
| Prerequisities: | | | | | | |
| Conditions for cours | e completi | on: | | | | |
| Learning outcomes: | | | | | | |
| Brief outline of the c | ourse: | | | | | |
| Recommended litera | iture: | | | | | |
| Course language: | | | | | | |
| Notes: | | | | | | |
| Course assessment Total number of asses | Course assessment Total number of assessed students: 126 | | | | | |
| abs | | n | Z | | | |
| 97.62 2.38 0.0 | | | | | | |
| Provides: Mgr. Ondrej Kalina, PhD. | | | | | | |
| Date of last modification: 24.06.2022 | | | | | | |
| Approved: prof. RNI | Dr. Tomáš N | Madaras, PhD. | | | | |

| University: P. J. Šafa | árik University in Košice | | | | |
|--|--|--|--|--|--|
| Faculty: Faculty of S | Science | | | | |
| Course ID: ÚTVŠ/ TVa/11 | Course name: Sports Activities I. | | | | |
| Course type, scope a Course type: Practi Recommended cou Per week: 2 Per stu Course method: pr | and the method: ice irse-load (hours): udy period: 28 resent | | | | |
| Number of ECTS credits: 2 | | | | | |
| Recommended seme | ester/trimester of the course: 1. | | | | |
| Course level: I., I.II. | , II. | | | | |
| Prerequisities: | | | | | |
| Conditions for cour | se completion: | | | | |

Min. 80% of active participation in classes.

Learning outcomes:

Sports activities in all their forms prepare university students for their professional and personal life. They have a great impact on physical fitness and performance. Specialization in sports activities enables students to strengthen their relationship towards the selected sport in which they also improve.

Brief outline of the course:

Brief outline of the course:

Within the optional subject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik University provides for students the following sports activities: aerobics, aikido, basketball, badminton, body form, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, indoor football, S-M systems, step aerobics, table tennis, tennis, volleyball and chess.

In the first two semesters of the first level of education students will master basic characteristics and particularities of individual sports, motor skills, game activities, they will improve level of their physical condition, coordination abilities, physical performance, and motor performance fitness. Last but not least, the important role of sports activities is to eliminate swimming illiteracy and by means of a special program of medical physical education to influence and mitigate unfitness. In addition to these sports, the Institute offers for those who are interested winter and summer physical education trainings with an attractive program and organises various competitions, either at the premises of the faculty or University or competitions with national or international participation.

Recommended literature:

BENCE, M. et al. 2005. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. [online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345. LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 14548

| abs | abs-A | abs-B | abs-C | abs-D | abs-E | n | neabs |
|-------|-------|-------|-------|-------|-------|------|-------|
| 86.46 | 0.07 | 0.0 | 0.0 | 0.0 | 0.05 | 8.41 | 5.02 |

Provides: Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

| University: P. J. Šafá | rik University in Košice | | | | |
|--|---|--|--|--|--|
| Faculty: Faculty of S | cience | | | | |
| Course ID: ÚTVŠ/ TVb/11 | urse ID: ÚTVŠ/ Course name: Sports Activities II. | | | | |
| Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre | nd the method: ce rse-load (hours): idy period: 28 esent | | | | |
| Number of ECTS cr | edits: 2 | | | | |
| Recommended seme | ster/trimester of the course: 2. | | | | |
| Course level: I., I.II., | II. | | | | |
| Prerequisities: | | | | | |
| Conditions for cours active participation in | are completion: n classes - min. 80%. | | | | |
| Learning outcomes: Sports activities in all They have a great im enables students to s improve. | their forms prepare university students for their professional and personal life. pact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also | | | | |
| Brief outline of the c Within the optional s University provides badminton, body form indoor football, S-M In the first two seme and particularities of physical condition, c Last but not least, the means of a special pr In addition to these physical education tra the premises of the fac | ourse: ubject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, aikido, basketball, n, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, systems, step aerobics, table tennis, tennis, volleyball and chess. sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their oordination abilities, physical performance, and motor performance fitness. important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. sports, the Institute offers for those who are interested winter and summer ainings with an attractive program and organises various competitions, either at culty or University or competitions with national or international participation. | | | | |
| Recommended litera BENCE, M. et al. 200 [online] Dostupné na BUZKOVÁ, K. 2006 8024715252 | i ture: 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. : https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 5. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN | | | | |

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 13211

| abs | abs-A | abs-B | abs-C | abs-D | abs-E | n | neabs |
|-------|-------|-------|-------|-------|-------|-------|-------|
| 84.35 | 0.51 | 0.02 | 0.0 | 0.0 | 0.05 | 10.78 | 4.29 |

Provides: Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Marcel Čurgali, Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

| University: P. J. Šafá | rik University in Košice |
|---|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚTVŠ/ TVc/11 | Course name: Sports Activities III. |
| Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre | nd the method: ce rse-load (hours): dy period: 28 esent |
| Number of ECTS cro | edits: 2 |
| Recommended seme | ster/trimester of the course: 3. |
| Course level: I., I.II., | <u>II.</u> |
| Prerequisities: | |
| Conditions for cours min. 80% of active pa Learning outcomes: Sports activities in all They have a great im enables students to s | e completion: articipation in classes their forms prepare university students for their professional and personal life pact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also |
| Brief outline of the c Within the optional s University provides badminton, body form indoor football, S-M In the first two semes and particularities of i physical condition, c Last but not least, the means of a special pro In addition to these s physical education tra the premises of the fac | ourse: ubject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, aikido, basketball, n, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, systems, step aerobics, table tennis, tennis, volleyball and chess. sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their oordination abilities, physical performance, and motor performance fitness important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. sports, the Institute offers for those who are interested winter and summer tinings with an attractive program and organises various competitions, either are culty or University or competitions with national or international participation |
| Recommended litera BENCE, M. et al. 200 [online] Dostupné na | ture: 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. : https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 |

BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal. Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 8879

| abs | abs-A | abs-B | abs-C | abs-D | abs-E | n | neabs |
|-------|-------|-------|-------|-------|-------|------|-------|
| 88.62 | 0.07 | 0.01 | 0.0 | 0.0 | 0.02 | 4.25 | 7.03 |

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

| University: P. J. Šafá | rik University in Košice |
|---|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚTVŠ/ TVd/11 | Course name: Sports Activities IV. |
| Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre | nd the method: ce rse-load (hours): dy period: 28 esent |
| Number of ECTS cr | edits: 2 |
| Recommended seme | ster/trimester of the course: 4. |
| Course level: I., I.II., | II. |
| Prerequisities: | |
| Conditions for cours min. 80% of active p | e completion: articipation in classes |
| Learning outcomes: Sports activities in all They have a great im enables students to s improve. | their forms prepare university students for their professional and personal life spact on physical fitness and performance. Specialization in sports activities strengthen their relationship towards the selected sport in which they also |
| Brief outline of the c Within the optional s University provides badminton, body forr indoor football, S-M In the first two seme and particularities of physical condition, c Last but not least, the means of a special pr In addition to these physical education tra the premises of the fac | ourse: ubject, the Institute of Physical Education and Sports of Pavol Jozef Šafárik for students the following sports activities: aerobics, aikido, basketball, n, bouldering, floorball, yoga, power yoga, pilates, swimming, body-building, systems, step aerobics, table tennis, tennis, volleyball and chess. sters of the first level of education students will master basic characteristics individual sports, motor skills, game activities, they will improve level of their oordination abilities, physical performance, and motor performance fitness important role of sports activities is to eliminate swimming illiteracy and by ogram of medical physical education to influence and mitigate unfitness. sports, the Institute offers for those who are interested winter and summer ainings with an attractive program and organises various competitions, either at culty or University or competitions with national or international participation. |
| Recommended litera BENCE, M. et al. 20 | oture: 05. Plávanie. Banská Bystrica: FHV UMB. 198s. ISBN 80-8083-140-8. |

[online] Dostupné na: https://www.ff.umb.sk/app/cmsFile.php?disposition=a&ID=571 BUZKOVÁ, K. 2006. Fitness jóga, harmonické cvičení těla I duše. Praha: Grada. ISBN 8024715252.

JARKOVSKÁ, H, JARKOVSKÁ, M. 2005. Posilování s vlastním tělem 417 krát jinak. Praha: Grada. ISBN 9788024757308.

KAČÁNI, L. 2002. Futbal:Tréning hrou. Bratislava: Peter Mačura – PEEM. 278s. ISBN 8089197027.

KRESTA, J. 2009. Futsal.Praha: Grada Publishing, a.s. 112s. ISBN 9788024725345.

LAWRENCE, G. 2019. Power jóga nejen pro sportovce. Brno: CPress. ISBN 9788026427902. SNER, Wolfgang. 2004. Posilování ve fitness. České Budějovice: Kopp. ISBN 8072322141. STACKEOVÁ, D. 2014. Fitness programy z pohledu kinantropologie. Praha: Galén. ISBN 9788074921155.

VOMÁČKO, S. BOŠTÍKOVÁ, S. 2003. Lezení na umělých stěnách. Praha: Grada. 129s. ISBN 8024721743.

Course language:

Slovak language

Notes:

Course assessment

Total number of assessed students: 5628

| abs | abs-A | abs-B | abs-C | abs-D | abs-E | n | neabs |
|-------|-------|-------|-------|-------|-------|------|-------|
| 82.66 | 0.28 | 0.04 | 0.0 | 0.0 | 0.0 | 8.05 | 8.97 |

Provides: Mgr. Marcel Čurgali, Mgr. Agata Dorota Horbacz, PhD., Mgr. Dávid Kaško, PhD., Mgr. Zuzana Küchelová, PhD., doc. PaedDr. Ivan Uher, PhD., MPH, prof. RNDr. Stanislav Vokál, DrSc., Mgr. Patrik Berta, Mgr. Ladislav Kručanica, PhD., Mgr. Richard Melichar, Mgr. Petra Tomková, PhD., MUDr. Peter Dombrovský

Date of last modification: 29.03.2022

| University: P I Šafá | rik University in Košice |
|---|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚMV/ NPR/19 | Course name: Stochastic processes |
| Course type, scope a Course type: Lectur Recommended cour Per week: 3 / 2 Per Course method: pre | nd the method: re / Practice rse-load (hours): study period: 42 / 28 esent |
| Number of ECTS cr | edits: 6 |
| Recommended seme | ster/trimester of the course: 2., 4. |
| Course level: II. | |
| Prerequisities: | |
| Conditions for cours Total evaluation base At least 50% must be Final evaluation: ≥90 | e completion: d on a written test (30p) + individual project work (30p) and oral exam (40p). obtained from each part. % A; \geq 80% B; \geq 70% C; \geq 60% D; \geq 50% E; <50% FX. |
| Learning outcomes: To obtain knowledge domain. To study properties of their application in fi To obtain skills in tim | of the stationary stochastic processes analysis in time domain and spectral f random processes with discrete time (time series) and continuous time and nance. The series analysis with software R. |
| Brief outline of the c 12. Stationary prece 3. Causal and invertil 4. Time domain analy 5. Sample characteris 67. Frequency doma 8. Prediction of time 9. Random processes 10. Brownian motion 1112. The Black-Sc | ourse: ss, linear process. ble process. visis (autocovariance, autocorrelation and partial autocorrelation function). tic of time series and their properties. ain analysis (spectral density and distribution function, periodogram). series. with continuous time (fundamental concepts). , Itô's process, Itô's lemma and its application. holes formula. |
| Recommended litera 1. Brockwell P., Davi York, 2016 2. Prášková Z.: Zákla 3. Tsay R.: Analysis o 4. Shumway R., Stoff Springer, New York, 5. Melicherčík I., Olš 2005 (in Slovak) 6. Oksendal B.K.: Sto | s R.: Introduction to Time Series and Forecasting, 3rd ed., Springer, New dy náhodných procesů II, Karolinum, Praha, 2004 (in Czech) of Financial Time Series, 3rd ed., Wiley Interscience, New Jersey, 2010 fer D.: Time Series Analysis and Its Applications with R Examples, 4th ed., 2017 arová L., Úradníček V.: Kapitoly z finančnej matematiky, Epos, Bratislava, ochastic Differential Equations, 6th ed., Springer, 2014 |

Course language: Slovak

Notes:

The students are required to have basic knowledge about random vectors and their characteristics, conditional distribution, estimation theory and hypothesis testing.

| Course assessn Total number o | nent f assessed studen | ts: 78 | | | |
|--|---------------------------|--------|-------|------|------|
| А | В | С | D | Е | FX |
| 39.74 | 23.08 | 17.95 | 10.26 | 6.41 | 2.56 |
| Provides: doc. RNDr. Martina Hančová, PhD. | | | | | |
| Date of last modification: 19.04.2022 | | | | | |
| Approved: prof. RNDr. Tomáš Madaras, PhD. | | | | | |

| University: P. J. Šafá | rik University in Košice |
|---|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚFV/ SEV/10 | Course name: Structure and Evolution of the Universe |
| Course type, scope a Course type: Lectur Recommended cou Per week: 2 Per stu Course method: pre | and the method: re rse-load (hours): ady period: 28 esent |
| Number of ECTS cr | edits: 4 |
| Recommended seme | ester/trimester of the course: 2. |
| Course level: I., II. | |

Prerequisities:

Conditions for course completion:

To successfully complete the course, the student must demonstrate sufficient understanding of the basic knowledge of the structure and evolution of the universe. Knowledge of the basic properties of stars and methods of their determination, the structure, evolution and energy sources of stars, the structure of matter in the universe and its evolution is required. The condition for obtaining credits is passing a written or oral exam, preparation, and presentation of a semester essay. The credit evaluation of the course considers the following student workload: direct teaching (1 credit), self-study (2 credit) and assessment (1 credits). The minimum threshold for completing the course is to obtain at least 50% of the total score, using the following rating scale: A (90-100%), B (80-89%), C (70-79%), D (60- 69%), E (50-59%), Fx (0-49%).

Learning outcomes:

After completing the lectures, the student will master the basic knowledge about the properties of stars and methods of their determination, structure, evolution and energy sources of stars, the structure of matter in the universe and its evolution. It will also have sufficient physical knowledge and mathematical apparatus to enable independent solving of a wide range of tasks related to space research.

Brief outline of the course:

1. Basic properties of stars and methods of their determination: radiation flux, apparent and absolute magnitude, distances of stars, colors of stars.

2. Temperature of stars, black body radiation, spectra of atoms and molecules, non-thermal radiation.

3. Spectral classifications, luminosity classes, HR diagram, masses of stars.

4. Structure of stars: basic equations of stellar structure, transfer of energy by radiation and convection, production of energy in stars, fusion reactions.

5. Evolution of stars: interstellar matter and formation of stars and stellar systems, Jeans' criterion, protostars.

6. Evolution of stars: main sequence stars, giants, final stages of star evolution - white dwarfs, neutron stars and black holes.

7. Distribution of matter in the universe: Milky Way, its structure, dynamics, and evolution, types of galaxies, quasars, intergalactic matter, local group of galaxies.

8. Clusters and super-clusters of galaxies, large-scale structure of the universe, dark matter, and dark energy.

9. Evolution of the universe: historical development of views on the universe, Olberson's paradox, gravitational paradox, Cosmological principle.

10. Isotropicity and homogeneity of the universe, relic radiation, expansion of the universe. Steady state theory.

11. Relativistic cosmology: cosmological solutions of Einstein's equations, models of the universe and their properties, theory of the expanding universe, the Big Bang, the age of the universe.

12. Origin of the universe: the initial stages of the expansion of the universe, inflationary expansion and nucleogenesis, the formation of galaxies and galaxy clusters.

Recommended literature:

1. Carroll, B. W., Ostlie, D. A., An Introduction to Modern Astrophysics, Addison-Wesley Publishing Company, Reading, Massachusetts, 1996;

2. Contopoulos, D. Kotsakis, Cosmology, the structure and evolution of the Universe, Springer, 1984;

3. Pasachoff, J.M., Filippenko, A., The Cosmos: Astronomy in the New Millennium, Cambridge University Press, 2013;

4. Vanýsek, V., Základy astronomie a astrofyziky, Academia, Praha, 1980;

5. Čeman, R., Pittich, E., Vesmír 1 - Slnečná sústava, MAPA Slovakia, Bratislava, 2002;

6. Čeman, R., Pittich, E., Vesmír 2 - Hviezdy - Galaxie, MAPA Slovakia, Bratislava, 2003;

Course language:

Slovak, English

Notes:

Course assessment

Total number of assessed students: 140

| А | В | С | D | Е | FX |
|-------|-------|-------|-------|------|-----|
| 35.71 | 28.57 | 14.29 | 11.43 | 10.0 | 0.0 |

Provides: doc. RNDr. Rudolf Gális, PhD.

Date of last modification: 20.09.2021

| University: P. J. Šafá | rik University in Košice | | |
|--|--|--|--|
| Faculty: Faculty of S | Faculty: Faculty of Science | | |
| Course ID: ÚMV/ SVK/10 | The State of State o | | |
| Course type, scope a Course type: Recommended cour Per week: Per stud Course method: pre | nd the method: rse-load (hours): ly period: esent | | |
| Number of ECTS cr | edits: 4 | | |
| Recommended seme | ster/trimester of the cours | e: | |
| Course level: I., II. | | | |
| Prerequisities: | Prerequisities: | | |
| Conditions for course completion: | | | |
| Learning outcomes: Individual scientific v public presentation. | work of students. Publishing | g of obtained results in a written form and as a | |
| Brief outline of the c | ourse: | | |
| Recommended litera With respect to the re | ature: esearch problematics (article | in journals, books). | |
| Course language: Slovak or English | | | |
| Notes: | | | |
| Course assessment Total number of asses | Course assessment Total number of assessed students: 17 | | |
| | abs n | | |
| | 100.0 | 0.0 | |
| Provides: | | | |
| Date of last modifica | tion: 01.12.2021 | | |
| Approved: prof. RNI | Dr. Tomáš Madaras, PhD. | | |

| University: P. J. Šafá: | rik University in Košice |
|--|---|
| Faculty: Faculty of S | cience |
| Course ID: ÚTVŠ/ LKSp/13 | Course name: Summer Course-Rafting of TISA River |
| Course type, scope a Course type: Practic Recommended cour Per week: 2 Per stu Course method: pre | nd the method: ce rse-load (hours): dy period: 28 esent |
| Number of ECTS cr | edits: 2 |
| Recommended seme | ster/trimester of the course: |
| Course level: I., II. | |
| Prerequisities: | |
| Conditions for cours Completion: passed Condition for success - active participation - effective performance paddling | e completion: sful course completion: in line with the study rule of procedure and course guidelines ce of all tasks: carrying a canoe, entering and exiting a canoe, righting a canoe, |
| Learning outcomes: Content standard: The student demonstr course syllabus and re Performance standard Upon completion of t - implement the acqu - implement basic ski - determine the right - prepare a suitable m | rates relevant knowledge and skills in the field, which content is defined in the ecommended literature. d: the course students are able to meet the performance standard and: ired knowledge in different situations and practice, lls to manipulate a canoe on a waterway, spot for camping, haterial and equipment for camping. |
| Brief outline of the c Brief outline of the co 1. Assessment of diff 2. Safety rules for raff 3. Setting up a crew 4. Practical skills train 5. Canoe lifting and co 6. Putting the canoe in 7. Getting in the canoe 8. Exiting the canoe on 10. Steering a) The pry stroke (on b) The draw stroke | ourse: burse: iculty of waterways ing ning using an empty canoe carrying n the water without a shore contact be ut of the water fast waterways) |

| Prešov: FHPV PU v Prešove. 2002. ISBN Prešove. 1999. F8qh/name/Nahrane-7-5-2021-v-14-46-39#! RLjnGqSomICMmOyZN== |
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| 62.68 |
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|--|--|--|--|--|---|
| University: P. J. | Šafárik Univers | sity in Košice | | | |
| Faculty: Faculty | y of Science | | | | |
| Course ID: ÚM TKO/10 | V/ Course name: Theory of codes | | | | |
| Course type, sc Course type: I Recommended Per week: 4 Pe Course metho | ope and the me Lecture I course-load (h er study period d: present | thod: nours): : 56 | | | |
| Number of EC | FS credits: 6 | | | | |
| Recommended | semester/trime | ster of the course | e: 1., 3. | | |
| Course level: II | • | | | | |
| Prerequisities: | | | | | |
| Conditions for A student is eva chosen by him/l at maximum). H 50-59 p., FX | course complet luated according her at random, o Evaluation scale: 0-49 p. | ion: to an oral examir ne from the group A 90-100 p., | nation during who A and one from B 80-89 p., 0 | nich he/she answe m the group B (bo C 70-79 p., D . | rs two questions oth for 50 points 60-69 p., E |
| Learning outco A student gets a of their applicat | mes: cquainted with b ion. | asic principles an | d theoretical bas | ses of text coding | and possibilities |
| Brief outline of Monoids (1 we generated by c recognising cod code (1 week). | the course: ek). Basic notio odes (1 week). les (2 weeks). M | ns of theory of co Stable submono leasure of a code | odes, examples ids (1 week). (1 week). Berno | of codes (2 week Group codes (1 pulli distribution (| as). Submonoids week). Test for (3 weeks). Dyck |
| Recommended J. Berstel and D | literature: 9. Perrin, Theory | of Codes, Acade | mic Press, 1985 | ; | |
| Course languag Slovak | ge: | | | | |
| Notes: | | | | | |
| Course assessm Total number of | ent f assessed studer | nts: 25 | | | |
| А | В | C | D | E | FX |
| 44.0 | 16.0 | 4.0 | 4.0 | 20.0 | 12.0 |
| Provides: prof. | RNDr. Mirko H | orňák, CSc. | | <u> </u> | |
| Date of last mo | dification: 31.0 | 1.2022 | | | |
| Approved: prof | . RNDr. Tomáš 1 | Madaras, PhD. | | | |
| · | | 1 | | | |

| University: P. J. Šaf | árik Univers | ity in Košice | | | |
|--|---|--|---|---|---|
| Faculty: Faculty of | Faculty: Faculty of Science | | | | |
| Course ID: ÚMV/ TOP/15 | Course name: Topology | | | | |
| Course type, scope Course type: Lectu Recommended cou Per week: 2 Per st Course method: pr | and the met ire irse-load (h udy period: resent | hod: ours): 28 | | | |
| Number of ECTS c | redits: 4 | | | | |
| Recommended sem | ester/trimes | ster of the course | e: 2. | | |
| Course level: II. | | | | | |
| Prerequisities: | | | | | |
| Conditions for cour Exam | Conditions for course completion: Exam | | | | |
| Learning outcomes: To acquaint the student with basic knowledge of point-set topology. | | | | | |
| Brief outline of the Basic notions and Compactness and co Dimension and its ba homotopy group. | course: results of ompactificationsic propertie | point-set topolo ion. Uniform spaces. The notion of a | gy. Connected ce, basic propert manifold and ex | and arcwise co ies. Metric and s amples of manifo | nnected space. separable space. olds. Homotopy, |
| Recommended liter R. Engelking, General J.L. Kelley, General I.M. Singer and J.A. 1967. | ature: cal Topology Topology, S Thorpe, Lee | , Heldermann, Be pringer, 1955. cture Notes on El | erlin, 1989. ementary Topolo | ogy and Geometr | y, Springer, |
| Course language: Slovak | | | | | |
| Notes: | Notes: | | | | |
| Course assessment Total number of ass | Course assessment Total number of assessed students: 12 | | | | |
| А | B C D E FX | | | | |
| 91.67 | 0.0 | 8.33 | 0.0 | 0.0 | 0.0 |
| Provides: RNDr. Jar | oslav Šupina | a, PhD. | | | |
| Date of last modific | ation: 19.04 | .2022 | | | |
| Approved: prof. RN | Dr. Tomáš N | Madaras, PhD. | | | |

| Faculty: Faculty of Science |
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| Course ID: ÚMV/ UAL/10Course name: Universal algebra |
| Course type, scope and the method: Course type: Lecture Recommended course-load (hours): Per week: 3 Per study period: 42 Course method: present |
| Number of ECTS credits: 5 |
| Recommended semester/trimester of the course: 1., 3. |
| Course level: II. |
| Prerequisities: |
| Conditions for course completion: According to results of the exam (written+oral). |
| Learning outcomes: To develop students' abstract thinking. Gain basic knowledge of universal algebra and be able to apply it to problems and mathematical problems. Demonstrate knowledge of mathematical conten in context. Completion of the course significantly completes the profile of the graduate. |
| Brief outline of the course: Algebraic structures. Homomorphisms and congruences. Direct and subdirect products. Terms. Free algebras. Birkhoff theorems about varieties. |
| Recommended literature: M. Kolibiar a kol.: Algebra a príbuzné disciplíny. Bratislava, 1991. S. Burris, H.P. Sankappanavar: A Course in Universal Algebra. Springer-Verlag, 1981. B. Jónsson: Topics in universal algebra, Springer-Verlag 1972. G. Grätzer: Universal Algebra, 2nd edition, Springer Verlag, 1979. |
| Course language: Slovak |
| Notes: |
| Course assessment Total number of assessed students: 27 |
| A B C D E FX |
| 33.33 25.93 25.93 3.7 7.41 3.7 |
| Provides: prof. RNDr. Danica Studenovská, CSc. |
| Date of last modification: 19.04.2022 |
| Approved: prof. RNDr. Tomáš Madaras, PhD. |