

## Course descriptions

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## COURSE DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |
| <b>Course ID:</b><br>FMFL.KAG/1-INF-115/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Course title:</b><br>Algebra (1) |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                     |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
| <b>Course requirements:</b><br>homework, tests, written and oral final exam<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |
| <b>Learning outcomes:</b><br>Understanding of basic notions and methods of linear algebra and ability to use them to solve various theoretical and practical problems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |
| <b>Class syllabus:</b><br>Basic notions necessary for building abstract vector spaces (group, fields, vector spaces). Subspaces, linear dependence and independence of vectors, Steinitz theorem, basis of vector space. Matrices. Linear mappings. Composition of linear mappings. Inverse matrices. Solutions of homogenous and nonhomogenous systems of linear equations. Determinants, basic properties and applications.                                                                                                                                                                                                                                              |                                     |
| <b>Recommended literature:</b><br>Lineárna algebra a geometria : Cesta z troch rozmerov s presahmi do príbuzných odborov / Pavol Zlatoš. Bratislava : Albert Marenčin, 2011; elektronická verzia dostupná na <a href="http://thales.doa.fmph.uniba.sk/zlatos/la/LAG_A4.pdf">http://thales.doa.fmph.uniba.sk/zlatos/la/LAG_A4.pdf</a><br>Algebra a teoretická aritmetika 1 / Tibor Katriňák ... [et al.]. Bratislava : Univerzita Komenského, 2002<br>Pěstujeme lineární algebru / Luboš Motl, Miloš Zahradník. Praha : Karolinum, 2002<br>Linear algebra done right / Sheldon Axler. New York : Springer, 1997<br>Custom course materials published on the course website. |                                     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |

|                                                                                            |       |       |       |       |      |
|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|------|
| <b>Past grade distribution</b>                                                             |       |       |       |       |      |
| Total number of evaluated students: 494                                                    |       |       |       |       |      |
| A                                                                                          | B     | C     | D     | E     | FX   |
| 23,89                                                                                      | 10,12 | 12,55 | 13,16 | 30,97 | 9,31 |
| <b>Lecturers:</b> doc. RNDr. Jaroslav Guričan, CSc., RNDr. Martin Sleziak, PhD.            |       |       |       |       |      |
| <b>Last change:</b> 08.02.2018                                                             |       |       |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |       |       |       |       |      |

## COURSE DESCRIPTION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                     |      |       |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------|------|-------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                     |      |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                     |      |       |      |
| <b>Course ID:</b><br>FMFL.KAG/1-INF-156/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | <b>Course title:</b><br>Algebra (2) |      |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 1 <b>per level/semester:</b> 28 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                   |       |                                     |      |       |      |
| <b>Number of credits:</b> 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                     |      |       |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                     |      |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                     |      |       |      |
| <b>Prerequisites:</b> FMFL.KAG/1-INF-115/00 - Algebra (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                     |      |       |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                     |      |       |      |
| <b>Learning outcomes:</b><br>Understanding of basic notions and methods from group theory, ring theory and field theory and ability to use them to solve various theoretical and practical problems.                                                                                                                                                                                                                                                                                                                                                                                       |       |                                     |      |       |      |
| <b>Class syllabus:</b><br>Groups, subgroups, homomorphisms, quotient groups. Rings, ideals, maximal ideal and prime ideals, their relationship to fields in integral domains when creating quotient ring. Euclidean domains, principal ideal domains, unique factorization domains. Divisibility and unique factorization. Rings of polynomials, factorization into irreducible polynomial, (multiple) roots, derivative and Taylor expansion. Field extensions. Non-solvability of angle trisection, doubling the cube, squaring the circle. Finite fields and their classification, RSA. |       |                                     |      |       |      |
| <b>Recommended literature:</b><br>Lineárna algebra a geometria : Cesta z troch rozmerov s presahmi do príbuzných odborov / Pavol Zlatoš. Bratislava : Albert Marenčin, 2011<br>Algebra a teoretická aritmetika 1 / Tibor Katriňák ... [et al.]. Bratislava : Univerzita Komenského, 2002<br>Electronic course notes published on the course web page                                                                                                                                                                                                                                       |       |                                     |      |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                     |      |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                     |      |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 392                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                     |      |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                   | D    | E     | FX   |
| 19,39                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 10,46 | 13,52                               | 19,9 | 32,65 | 4,08 |
| <b>Lecturers:</b> doc. RNDr. Jaroslav Guričan, CSc., Mgr. Ľudovít Balko, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                     |      |       |      |
| <b>Last change:</b> 15.01.2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                     |      |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                     |      |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                              |       |                                                        |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                   |       |                                                        |       |       |      |
| <b>Course ID:</b><br>FMFL.KI/1-INF-220/00                                                                                                                                                                                                                                                                                                                         |       | <b>Course title:</b><br>Algorithms and Data Structures |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 4 <b>per level/semester:</b> 56<br><b>Form of the course:</b> on-site learning                                                                                                                                                                |       |                                                        |       |       |      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                       |       |                                                        |       |       |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                                                   |       |                                                        |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                      |       |                                                        |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                             |       |                                                        |       |       |      |
| <b>Recommended prerequisites:</b><br>1-INF-166 Programming (2) in Java                                                                                                                                                                                                                                                                                            |       |                                                        |       |       |      |
| <b>Course requirements:</b><br>Homeworks, exam<br>Scale of assessment (preliminary/final): 0/100                                                                                                                                                                                                                                                                  |       |                                                        |       |       |      |
| <b>Learning outcomes:</b><br>Students will be familiar with basics of design and analysis of efficient algorithms and data structures. The students will be able to analyze the time complexity of basic algorithms, to use basic algorithmic techniques (sorting and searching arrays), use basic efficient data structures and understand their implementation. |       |                                                        |       |       |      |
| <b>Class syllabus:</b><br>Asymptotic running time analysis, methods of estimation, notation. Sorting: meargsort, heapsort, quicksort; sorting in linear time. Data structures: priority queues, hash tables, binary search trees and their balancing. Efficient algorithm design techniques: dynamic programming, greedy algorithms.                              |       |                                                        |       |       |      |
| <b>Recommended literature:</b><br>Introduction to algorithms / Thomas H. Cormen ... [et al.]. Cambridge, Mass. : MIT Press, 2001<br>Algorithms in C : Parts 1-4 : Fundamentals, data structures, sorting, searching / Robert Sedgewick. Boston : Addison-Wesley, 1998<br>Custom course notes published at the course website                                      |       |                                                        |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                             |       |                                                        |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                     |       |                                                        |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 419                                                                                                                                                                                                                                                                                         |       |                                                        |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                 | B     | C                                                      | D     | E     | FX   |
| 39,62                                                                                                                                                                                                                                                                                                                                                             | 14,08 | 15,04                                                  | 13,84 | 12,17 | 5,25 |
| <b>Lecturers:</b> RNDr. Michal Foríšek, PhD.                                                                                                                                                                                                                                                                                                                      |       |                                                        |       |       |      |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------------|-------|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                              |       |                                         |       |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                   |       |                                         |       |     |     |
| <b>Course ID:</b><br>FMFI.KI/1-BIN-921/15                                                                                                                                                                                                                                         |       | <b>Course title:</b><br>BSc Seminar (1) |       |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 1 <b>per level/semester:</b> 14<br><b>Form of the course:</b> on-site learning                                                                                |       |                                         |       |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                       |       |                                         |       |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                   |       |                                         |       |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                      |       |                                         |       |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                             |       |                                         |       |     |     |
| <b>Course requirements:</b><br>Active participation, presentation, homework.<br>Scale of assessment (preliminary/final): 50/50                                                                                                                                                    |       |                                         |       |     |     |
| <b>Learning outcomes:</b><br>Students will be familiar with thesis requirements. They will select a thesis topic and a supervisor, find appropriate literature and submit the first portion of the thesis text.                                                                   |       |                                         |       |     |     |
| <b>Class syllabus:</b><br>Types of theses, their structure. Planning the thesis work, analyzing the problem. Specifics of interdisciplinary topics in bioinformatics. Student presentations of selected topics.                                                                   |       |                                         |       |     |     |
| <b>Recommended literature:</b><br>Ako písať vysokoškolské a kvalifikačné práce : Ako písať seminárne práce, ročníkové práce, práce študentskej vedeckej a odbornej činnosti, diplomové práce, záverečné a atestačné práce, dizertácie / Dušan Katuščák. Bratislava : Stimul, 1998 |       |                                         |       |     |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                             |       |                                         |       |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                     |       |                                         |       |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 6                                                                                                                                                                                                           |       |                                         |       |     |     |
| A                                                                                                                                                                                                                                                                                 | B     | C                                       | D     | E   | FX  |
| 33,33                                                                                                                                                                                                                                                                             | 33,33 | 16,67                                   | 16,67 | 0,0 | 0,0 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., doc. RNDr. Dana Pardubská, CSc.                                                                                                                                                                                             |       |                                         |       |     |     |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                    |       |                                         |       |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                        |       |                                         |       |     |     |

## COURSE DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------|------|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                           |      |                                         |      |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                |      |                                         |      |     |      |
| <b>Course ID:</b><br>FMFL.KI/1-BIN-922/15                                                                                                                                                                                                                                                                                                                                                                      |      | <b>Course title:</b><br>BSc Seminar (2) |      |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                             |      |                                         |      |     |      |
| <b>Number of credits:</b> 4                                                                                                                                                                                                                                                                                                                                                                                    |      |                                         |      |     |      |
| <b>Recommended semester:</b> 6.                                                                                                                                                                                                                                                                                                                                                                                |      |                                         |      |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                   |      |                                         |      |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                          |      |                                         |      |     |      |
| <b>Course requirements:</b><br>Active participation, presentations, homework<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                 |      |                                         |      |     |      |
| <b>Learning outcomes:</b><br>Students will be familiar with research methods and principles of technical writing in computer science and bioinformatics. Students will be able to present their results in both written and oral form. They will be familiar with required thesis form and style.                                                                                                              |      |                                         |      |     |      |
| <b>Class syllabus:</b><br>Research methods, experimental evaluation. Principles of technical writing (typical document structure, references, illustrations and tables, appendices, correct use of formalism, authorship and plagiarism). Oral presentation guidelines (structure of a presentation, recommended visual aids). Regular presentation of current progress on the thesis topic, group discussion. |      |                                         |      |     |      |
| <b>Recommended literature:</b><br>Ako písať vysokoškolské a kvalifikačné práce : Ako písať seminárne práce, ročníkové práce, práce študentskej vedeckej a odbornej činnosti, diplomové práce, záverečné a atestačné práce, dizertácie / Dušan Katuščák. Bratislava : Stimul, 1998                                                                                                                              |      |                                         |      |     |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                          |      |                                         |      |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                         |      |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 219                                                                                                                                                                                                                                                                                                                                      |      |                                         |      |     |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                              | B    | C                                       | D    | E   | FX   |
| 84,02                                                                                                                                                                                                                                                                                                                                                                                                          | 9,59 | 4,57                                    | 0,46 | 0,0 | 1,37 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., doc. RNDr. Dana Pardubská, CSc.                                                                                                                                                                                                                                                                                                                          |      |                                         |      |     |      |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                                                                                                                                                 |      |                                         |      |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                     |      |                                         |      |     |      |

## STATE EXAM DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>University:</b> Comenius University in Bratislava                                                                                                     |                                            |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                          |                                            |
| <b>Course ID:</b><br>FMFI.KI/1-BIN-990/15                                                                                                                | <b>Course title:</b><br>BSc Thesis Defense |
| <b>Number of credits:</b> 12                                                                                                                             |                                            |
| <b>Educational level:</b> I.                                                                                                                             |                                            |
| <b>Course requirements:</b><br>Final state exam<br>Scale of assessment (preliminary/final): 0/100                                                        |                                            |
| <b>Learning outcomes:</b><br>By completing and defending bachelor theses, students will demonstrate their ability to work in the area of bioinformatics. |                                            |
| <b>Class syllabus:</b><br>Defense of the bachelor thesis                                                                                                 |                                            |
| <b>State exam syllabus:</b>                                                                                                                              |                                            |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                    |                                            |
| <b>Last change:</b> 08.02.2018                                                                                                                           |                                            |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                               |                                            |

## COURSE DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                               |      |                                                                     |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                    |      |                                                                     |      |      |      |
| <b>Course ID:</b><br>FMFI-PriF.KAgCh/1-BIN-112/15                                                                                                                                                  |      | <b>Course title:</b><br>Basic Chemical Calculation and Nomenclature |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |      |                                                                     |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                        |      |                                                                     |      |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                    |      |                                                                     |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                       |      |                                                                     |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                              |      |                                                                     |      |      |      |
| <b>Antirequisites:</b> PriF.KAgCh/N-bBXX-019/15                                                                                                                                                    |      |                                                                     |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                        |      |                                                                     |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                          |      |                                                                     |      |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                             |      |                                                                     |      |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                     |      |                                                                     |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                 |      |                                                                     |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                      |      |                                                                     |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 10                                                                                                                           |      |                                                                     |      |      |      |
| A                                                                                                                                                                                                  | B    | C                                                                   | D    | E    | FX   |
| 10,0                                                                                                                                                                                               | 40,0 | 0,0                                                                 | 30,0 | 10,0 | 10,0 |
| <b>Lecturers:</b> RNDr. Jana Chrappová, PhD., doc. RNDr. Michal Galamboš, PhD.                                                                                                                     |      |                                                                     |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                     |      |                                                                     |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                         |      |                                                                     |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      |
| <b>Course ID:</b><br>FMFI-PriF.KBCh/1-BIN-104/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Course title:</b><br>Biochemistry |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                   |                                      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                      |
| <b>Antirequisites:</b> PriF.KBCh/N-bBXX-027/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                      |
| <b>Course requirements:</b><br>Protocols, tests, written and oral final exam.<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                                                                                                            |                                      |
| <b>Learning outcomes:</b><br>The course explains basic biochemical principles and terminology. The students will understand (i) relationship between the structure and function of biomolecules - carbohydrates, lipids and proteins (ii) important and main processes of acquiring, storing and converting energy in living organisms (photosynthesis, carbohydrate and lipid metabolism, amino acid degradation). The practical portion of the course allows students to gain experience with basic biochemical methods. |                                      |
| <b>Class syllabus:</b><br>(1) Chemistry as a logical foundation of biology. (2) Amino acids and proteins. (3) Carbohydrates (4) Lipids and biological membranes (5) Enzymes (6) Overview of metabolism (7) Metabolism of carbohydrates (8) Citric acid cycle, glyoxylate cycle (9) Oxidative phosphorylation (10) Photosynthesis {11) Metabolism of lipids (12) Amino acid degradation.                                                                                                                                    |                                      |
| <b>Recommended literature:</b><br>Voet D., Voetová J.G. Biochemie. 1. české vyd. Praha: Victoria Publishing, 1995, 1325 s. ISBN 80-85605-44-9<br>Vodrážka, Z. Biochemie. 2., opr. vyd. Praha: Academia, 1996, 180, 135, 191 s. ISBN 80-200-0600-1. Dotisk 2007<br>Mikušová, K. - Kollárová, M.: Princípy biochémie : V schémach a v príkladoch. Bratislava : Univerzita Komenského, 2005, 2008, 164 s. ISBN 978-80-223-2567-7<br>Custom course materials                                                                   |                                      |
| <b>Languages necessary to complete the course:</b><br>Slovak                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                      |

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|--------------------------------------------------------------------------------------------|------|-------|-------|-------|-------|
| <b>Past grade distribution</b>                                                             |      |       |       |       |       |
| Total number of evaluated students: 18                                                     |      |       |       |       |       |
| A                                                                                          | B    | C     | D     | E     | FX    |
| 0,0                                                                                        | 5,56 | 16,67 | 33,33 | 11,11 | 33,33 |
| <b>Lecturers:</b> RNDr. Petra Čermáková, PhD., doc. RNDr. Jana Korduláková, PhD.           |      |       |       |       |       |
| <b>Last change:</b> 08.02.2018                                                             |      |       |       |       |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |      |       |       |       |       |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |     |                                        |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |     |                                        |     |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KMB/1-BIN-311/15                                                                                                                                                                          |     | <b>Course title:</b><br>Bioinformatics |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |     |                                        |     |     |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                              |     |                                        |     |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                          |     |                                        |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                             |     |                                        |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                    |     |                                        |     |     |     |
| <b>Antirequisites:</b> PriF.KMB/N-bBMO-009/15                                                                                                                                                                            |     |                                        |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                              |     |                                        |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |     |                                        |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |     |                                        |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                           |     |                                        |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |     |                                        |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                            |     |                                        |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1                                                                                                                                                  |     |                                        |     |     |     |
| A                                                                                                                                                                                                                        | B   | C                                      | D   | E   | FX  |
| 0,0                                                                                                                                                                                                                      | 0,0 | 100,0                                  | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Ľuboš Kľučár, PhD.                                                                                                                                                                                |     |                                        |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                           |     |                                        |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |     |                                        |     |     |     |

## STATE EXAM DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                             |                                        |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                  |                                        |
| <b>Course ID:</b><br>FMFL.KI/1-BIN-950/15                                                                                                                                                                                                                                        | <b>Course title:</b><br>Bioinformatics |
| <b>Number of credits:</b> 4                                                                                                                                                                                                                                                      |                                        |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                     |                                        |
| <b>Course requirements:</b><br>Final state exam<br>Scale of assessment (preliminary/final): 0/100                                                                                                                                                                                |                                        |
| <b>Learning outcomes:</b><br>Final state exam before graduation in the bachelor study program Bioinformatics                                                                                                                                                                     |                                        |
| <b>Class syllabus:</b><br>Fundamentals of discrete mathematics, calculus, algebra, probability and statistics. Programming. Design and analysis of efficient algorithms and data structures. Methods in bioinformatics. Fundamentals of biochemistry, cell biology and genetics. |                                        |
| <b>State exam syllabus:</b>                                                                                                                                                                                                                                                      |                                        |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                            |                                        |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                   |                                        |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                       |                                        |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                 |      |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                 |      |      |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-101/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | <b>Course title:</b><br>Biology |      |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                 |      |      |     |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                                 |      |      |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                 |      |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                 |      |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                 |      |      |     |
| <b>Antirequisites:</b> PriF.KGe/N-bCXX-007/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                 |      |      |     |
| <b>Course requirements:</b><br>Test<br>Scale of assessment (preliminary/final): 100/0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                 |      |      |     |
| <b>Learning outcomes:</b><br>Students will be familiar with the reconstruction of the main events leading from the origin of life to the present state of the biosphere. The lectures revolve around three main themes (i) life organisms extract energy from the outside environment to maintain their organization (ii) life organisms reproduce to achieve survival of the copies of their genes in the future generations (iii) phenomena (i) and (ii) are enabled by adaption of the organisms to the properties of their environment. Students will learn general biological principles on concrete examples. |      |                                 |      |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                 |      |      |     |
| <b>Recommended literature:</b><br>Heller, C., Purves, W.K., Sadava, D., Orians, G.H. (2009). Life: The Science of Biology. 9th Edition, W.H. Freeman.<br>Campbell, N.A., Reece, J.B. (2006). Biologie, (český preklad), Computer Press.<br>Darwin, Ch. (2006). Pôvod druhov. Kalligram                                                                                                                                                                                                                                                                                                                              |      |                                 |      |      |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                 |      |      |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                 |      |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                                 |      |      |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | B    | C                               | D    | E    | FX  |
| 15,0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 35,0 | 15,0                            | 10,0 | 25,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Ľubomír Tomáška, DrSc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                 |      |      |     |
| <b>Last change:</b> 09.02.2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |                                 |      |      |     |

**Approved by:** prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------|------|------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |       |                                        |      |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |       |                                        |      |      |     |
| <b>Course ID:</b><br>FMFI.KAI/1-AIN-407/15                                                                                                                                                        |       | <b>Course title:</b><br>Brain and Mind |      |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                        |      |      |     |
| <b>Number of credits:</b> 3                                                                                                                                                                       |       |                                        |      |      |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                                   |       |                                        |      |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                      |       |                                        |      |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                             |       |                                        |      |      |     |
| <b>Course requirements:</b>                                                                                                                                                                       |       |                                        |      |      |     |
| <b>Learning outcomes:</b>                                                                                                                                                                         |       |                                        |      |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                            |       |                                        |      |      |     |
| <b>Recommended literature:</b>                                                                                                                                                                    |       |                                        |      |      |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |       |                                        |      |      |     |
| <b>Notes:</b>                                                                                                                                                                                     |       |                                        |      |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 78                                                                                                                          |       |                                        |      |      |     |
| A                                                                                                                                                                                                 | B     | C                                      | D    | E    | FX  |
| 55,13                                                                                                                                                                                             | 28,21 | 11,54                                  | 3,85 | 1,28 | 0,0 |
| <b>Lecturers:</b> doc. PhDr. Ján Rybár, PhD.                                                                                                                                                      |       |                                        |      |      |     |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                    |       |                                        |      |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |       |                                        |      |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |     |                                              |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |     |                                              |     |     |     |
| <b>Course ID:</b><br>FMFI.KAI/1-AIN-408/15                                                                                                                                                        |     | <b>Course title:</b><br>Cognitive Laboratory |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |     |                                              |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                       |     |                                              |     |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                   |     |                                              |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                      |     |                                              |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                             |     |                                              |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                       |     |                                              |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                         |     |                                              |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                            |     |                                              |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                    |     |                                              |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |     |                                              |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                     |     |                                              |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 13                                                                                                                          |     |                                              |     |     |     |
| A                                                                                                                                                                                                 | B   | C                                            | D   | E   | FX  |
| 100,0                                                                                                                                                                                             | 0,0 | 0,0                                          | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> doc. PhDr. Ján Rybár, PhD.                                                                                                                                                      |     |                                              |     |     |     |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                    |     |                                              |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |     |                                              |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |                                                                    |      |       |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                                    |      |       |     |
| <b>Course ID:</b><br>FMFI.KI/1-INF-167/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | <b>Course title:</b><br>Computational Complexity and Computability |      |       |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 3 / 1 <b>per level/semester:</b> 42 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                      |      |                                                                    |      |       |     |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |                                                                    |      |       |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                                    |      |       |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                                    |      |       |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                                                                    |      |       |     |
| <b>Course requirements:</b><br>homework assignments, oral exam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                                    |      |       |     |
| <b>Learning outcomes:</b><br>Student will be familiar with basic concepts and results in computational complexity and computability theory.                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |                                                                    |      |       |     |
| <b>Class syllabus:</b><br>RAM and its variants, register and Turing machines, recursive functions, computations and computability equivalence in different models. Church thesis, existence of undecidable problems. Basic complexity classes and relationships between them, existence of hard problems. NP-hardness, Cook theorem and selected important NP-complete problems, relationship between decision and optimization problems. P vs NP, different approaches to defining efficient algorithms (approximation and randomized algorithms). PSPACE-complete problems. |      |                                                                    |      |       |     |
| <b>Recommended literature:</b><br>Computational complexity : A modern approach / Sanjeev Arora, Boaz Barak. New York : Cambridge University Press, 2009                                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                                                    |      |       |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                                                                    |      |       |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                                    |      |       |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |                                                                    |      |       |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | B    | C                                                                  | D    | E     | FX  |
| 48,89                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6,67 | 20,0                                                               | 10,0 | 14,44 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Pavol Ďuriš, CSc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                                    |      |       |     |
| <b>Last change:</b> 18.09.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                                    |      |       |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |                                                                    |      |       |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                               |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                               |
| <b>Course ID:</b><br>FMFL.KI/1-INF-130/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Course title:</b><br>Computer Architecture |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 4 <b>per level/semester:</b> 56<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                               |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                               |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                               |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |
| <b>Course requirements:</b><br>Final exam: both written and oral<br>Approximate grading scale: A 90%, B 80%, C 70%, D 60%, E 50%<br>Scale of assessment (preliminary/final): 0/100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                               |
| <b>Learning outcomes:</b><br>After completing the course, the student has a mathematical and technical knowledge necessary for understanding the operation of digital computers. It also has a basic knowledge on the internal implementation of the computer and interaction of hardware devices with the operating system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                               |
| <b>Class syllabus:</b><br>Positional number systems, encoding of information in computers, fixed and floating point arithmetics, Boolean functions and operators, disjunctive normal forms (DNF), minimization of DNF, implementation of basic Boolean functions by electrical circuits. Combinational circuits. Space and time complexity of circuits. Sequential circuits. RTL language, control units, design of digital systems, multiplication and division of integers. Principles and architecture of von Neumann computer. Arithmetic and logic unit, instructions, formats of instructions, address modes, instruction set. Memory: associative, virtual (paging and segmenting), cache, stack memory. Input/output devices, the control of I/O. Processor: control and arithmetic, registers, interrupt processing, microprogramming. RISC-CISC, pipelining, parallel data processing. Architectures of selected processors. |                                               |
| <b>Recommended literature:</b><br>Tannenbaum A.: Structured computer organization, Prentice Hall, London, 1990<br>Langholz G.: Elements of computer organization, Prentice Hall, London, 1990                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |
| <b>Languages necessary to complete the course:</b><br>slovak or english                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |

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|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| <b>Past grade distribution</b>                                                             |       |       |       |       |       |
| Total number of evaluated students: 556                                                    |       |       |       |       |       |
| A                                                                                          | B     | C     | D     | E     | FX    |
| 16,37                                                                                      | 12,23 | 15,47 | 14,03 | 23,92 | 17,99 |
| <b>Lecturers:</b> doc. RNDr. Daniel Olejár, PhD., RNDr. Richard Ostertág, PhD.             |       |       |       |       |       |
| <b>Last change:</b> 18.10.2016                                                             |       |       |       |       |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |       |       |       |       |       |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                    |                                               |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                         |                                               |
| <b>Course ID:</b><br>FMFI.KI/1-INF-283/15                                                                                                                                                                                                                                                                                                                                                                               | <b>Course title:</b><br>Computer Networks (1) |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 1 <b>per level/semester:</b> 28 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                |                                               |
| <b>Number of credits:</b> 4                                                                                                                                                                                                                                                                                                                                                                                             |                                               |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                                         |                                               |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                            |                                               |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                   |                                               |
| <b>Antirequisites:</b> FMFI.KI/1-INF-260/00                                                                                                                                                                                                                                                                                                                                                                             |                                               |
| <b>Course requirements:</b><br>Exercises, tests, written and oral final exam<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                          |                                               |
| <b>Learning outcomes:</b><br>Students will be familiar with basic terminology of computer networks and principles of their operation. They will have practical experience with usage and configuration of technologies commonly used on local networks and on the internet.                                                                                                                                             |                                               |
| <b>Class syllabus:</b><br>Basic network terminology, layer models, OSI, TCP/IP<br>Physical layer - cables, wireless transmission<br>Data link layer - Ethernet, WiFi, PPP, Bluetooth.<br>Network layer – IP, routing, ICMP, ARP.<br>Transport layer – UDP, TCP, NAT.<br>Application layer – DNS, DHCP, Web, Mail, FTP, ...<br>IPv6<br>Security – firewall, VPN, SSL/TLS, security at the application layer (Web, Mail). |                                               |
| <b>Recommended literature:</b><br>Computer Networks / Andrew S. Tanenbaum, David J. Wetherall. Boston : Pearson education, 2011<br>Computer Networks / Andrew S. Tanenbaum. Upper Saddle River : Prentice-Hall, 2003<br>Data and computer communications / William Stallings. Upper Saddle River : Prentice-Hall, 2004                                                                                                  |                                               |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                   |                                               |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                           |                                               |

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|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|------|
| <b>Past grade distribution</b>                                                             |       |       |       |       |      |
| Total number of evaluated students: 1430                                                   |       |       |       |       |      |
| A                                                                                          | B     | C     | D     | E     | FX   |
| 15,59                                                                                      | 15,03 | 18,25 | 24,06 | 20,42 | 6,64 |
| <b>Lecturers:</b> RNDr. Jaroslav Janáček, PhD.                                             |       |       |       |       |      |
| <b>Last change:</b> 08.02.2018                                                             |       |       |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |       |       |       |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                      |       |                                                  |     |       |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                           |       |                                                  |     |       |     |
| <b>Course ID:</b><br>FMFL.KI+KAI/2-INF-185/15                                                                                                                                                                                                                                             |       | <b>Course title:</b><br>Data Sources Integration |     |       |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 1 / 2 <b>per level/semester:</b> 14 / 28<br><b>Form of the course:</b> on-site learning                                                                  |       |                                                  |     |       |     |
| <b>Number of credits:</b> 4                                                                                                                                                                                                                                                               |       |                                                  |     |       |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                           |       |                                                  |     |       |     |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                         |       |                                                  |     |       |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                     |       |                                                  |     |       |     |
| <b>Course requirements:</b><br>Homework assignments, project. computer-based final exam<br>Scale of assessment (preliminary/final): 50/50                                                                                                                                                 |       |                                                  |     |       |     |
| <b>Learning outcomes:</b><br>Students will be familiar with data sources in bioinformatics and basic bioinformatics tools. They will be able to process large data sets by general-purpose as well as specialized tools. They will be able to present used methods and visualize results. |       |                                                  |     |       |     |
| <b>Class syllabus:</b><br>Reproducibility of computational analyses, processing of text file with UNIX tools. basics of Perl programming language, databases and SQL, statistical system R. specialized bioinformatics tools and databases                                                |       |                                                  |     |       |     |
| <b>Recommended literature:</b><br>Building bioinformatics solutions : with Perl, R, and MySQL / Conrad Bessant, Ian Shadforth, Darren Oakley. Oxford : Oxford University Press, 2009                                                                                                      |       |                                                  |     |       |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                     |       |                                                  |     |       |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                             |       |                                                  |     |       |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 43                                                                                                                                                                                                                  |       |                                                  |     |       |     |
| A                                                                                                                                                                                                                                                                                         | B     | C                                                | D   | E     | FX  |
| 34,88                                                                                                                                                                                                                                                                                     | 32,56 | 11,63                                            | 9,3 | 11,63 | 0,0 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., doc. Mgr. Tomáš Vinař, PhD., Mgr. Vladimír Boža, PhD.                                                                                                                                                                               |       |                                                  |     |       |     |
| <b>Last change:</b> 06.01.2019                                                                                                                                                                                                                                                            |       |                                                  |     |       |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                |       |                                                  |     |       |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                                        |       |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                        |       |      |     |
| <b>Course ID:</b><br>FMFI.KI/1-INF-310/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | <b>Course title:</b><br>Design of Efficient Algorithms |       |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 3 / 1 <b>per level/semester:</b> 42 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                       |       |                                                        |       |      |     |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                        |       |      |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                        |       |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                        |       |      |     |
| <b>Prerequisites:</b> FMFI.KI/1-INF-220/00 - Algorithms and Data Structures and FMFI.KI/1-INF-160/00 - Introduction to Combinatorics and Graph Theory                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                        |       |      |     |
| <b>Course requirements:</b><br>homework, test, oral final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                        |       |      |     |
| <b>Learning outcomes:</b><br>Student will be able to apply basic methods of efficient algorithm design and to analyze time complexity of algorithms                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                        |       |      |     |
| <b>Class syllabus:</b><br>The dictionary problem (2-3 trees, hashing). Union/Find-Set problem. Algorithms for finding the shortest paths and the minimum spanning trees in graphs. The principles of efficient algorithm design (including particular applications) . Divide and conquer. Dynamic programming. Greedy algorithms, Balancedness and the choice of an appropriate data structure. The P and NP classes, polynomial reducibility (Cook's theorem) and NP-complete problems, Approximation algorithms. String matching algorithms, |       |                                                        |       |      |     |
| <b>Recommended literature:</b><br>Introduction to algorithms / Thomas H. Cormen ... [et al.]. Cambridge, Mass. : MIT Press, 2001                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                        |       |      |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                        |       |      |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                        |       |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 407                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                                        |       |      |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | B     | C                                                      | D     | E    | FX  |
| 47,17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 24,08 | 14,25                                                  | 10,07 | 4,42 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Pavol Ďuriš, CSc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                        |       |      |     |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                        |       |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                        |       |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                  |       |                                                         |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                       |       |                                                         |      |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-233/13                                                                                                                                                                                                                                                            |       | <b>Course title:</b><br>English Conversation Course (1) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                 |       |                                                         |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                           |       |                                                         |      |      |      |
| <b>Recommended semester:</b> 3., 5.                                                                                                                                                                                                                                                                   |       |                                                         |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                     |       |                                                         |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                 |       |                                                         |      |      |      |
| <b>Course requirements:</b><br>Scale of assessment (preliminary/final): 100/0                                                                                                                                                                                                                         |       |                                                         |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                             |       |                                                         |      |      |      |
| <b>Class syllabus:</b><br>The content of the course is general English.<br>The language level is B2/C1 (Upper-Intermediate/Lower Advanced).                                                                                                                                                           |       |                                                         |      |      |      |
| <b>Recommended literature:</b><br>Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals<br>Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings) |       |                                                         |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                    |       |                                                         |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                         |       |                                                         |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 144                                                                                                                                                                                                                             |       |                                                         |      |      |      |
| A                                                                                                                                                                                                                                                                                                     | B     | C                                                       | D    | E    | FX   |
| 59,72                                                                                                                                                                                                                                                                                                 | 18,06 | 9,03                                                    | 2,08 | 1,39 | 9,72 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                                                                                                                               |       |                                                         |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                        |       |                                                         |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                            |       |                                                         |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                  |       |                                                         |      |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                       |       |                                                         |      |     |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-234/13                                                                                                                                                                                                                                                            |       | <b>Course title:</b><br>English Conversation Course (2) |      |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                 |       |                                                         |      |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                           |       |                                                         |      |     |      |
| <b>Recommended semester:</b> 4., 6.                                                                                                                                                                                                                                                                   |       |                                                         |      |     |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                     |       |                                                         |      |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                 |       |                                                         |      |     |      |
| <b>Course requirements:</b><br>Scale of assessment (preliminary/final): 100/0                                                                                                                                                                                                                         |       |                                                         |      |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                             |       |                                                         |      |     |      |
| <b>Class syllabus:</b><br>The course is a follow-up to the Conversation Course in English (1). The content of the course is general English.<br>The language level is B2/C1 (Upper-Intermediate/Lower Advanced).                                                                                      |       |                                                         |      |     |      |
| <b>Recommended literature:</b><br>Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals<br>Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings) |       |                                                         |      |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                    |       |                                                         |      |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                         |       |                                                         |      |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 78                                                                                                                                                                                                                              |       |                                                         |      |     |      |
| A                                                                                                                                                                                                                                                                                                     | B     | C                                                       | D    | E   | FX   |
| 64,1                                                                                                                                                                                                                                                                                                  | 20,51 | 6,41                                                    | 1,28 | 0,0 | 7,69 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                                                                                                                               |       |                                                         |      |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                        |       |                                                         |      |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                            |       |                                                         |      |     |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |       |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-131/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | <b>Course title:</b><br>English Language (1) |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |       |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |       |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |       |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                              |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                              |       |      |      |
| <b>Class syllabus:</b><br>On entering the first semester, students' knowledge of English is tested and they are divided into groups according to the results of the placement test. In the groups of pre-intermediate and intermediate students, fundamentals of technical English are taught. Advanced students take classes of technical English for their field of study: English for mathematics, for physics, for computer science, English for management and economic and financial mathematics.                                                                                                                                                                                                                                                                                                                    |       |                                              |       |      |      |
| <b>Recommended literature:</b><br>Zemanová, A.: Anglický jazyk pre študentov FMFI UK. Kurz pre mierne pokročilých. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-2829-6<br>Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3<br>Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1<br>Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8<br>Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8. |       |                                              |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                              |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                              |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 4833                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                              |       |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                            | D     | E    | FX   |
| 29,82                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 23,82 | 19,04                                        | 12,97 | 7,99 | 6,37 |
| <b>Lecturers:</b> PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |       |      |      |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 22.02.2019                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                            |       |                                              |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                 |       |                                              |       |       |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-132/00                                                                                                                                                                                                                                                                                                      |       | <b>Course title:</b><br>English Language (2) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                           |       |                                              |       |       |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                     |       |                                              |       |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                 |       |                                              |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                    |       |                                              |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                           |       |                                              |       |       |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                     |       |                                              |       |       |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                       |       |                                              |       |       |      |
| <b>Class syllabus:</b><br>This is a continuation of the course English (1) designed for pre-intermediate students. Fundamental vocabulary is presented through selected topics in mathematics, physics and informatics. The lessons also contain revision of elementary grammar. Generally, it is a necessary preliminary to advanced programs. |       |                                              |       |       |      |
| <b>Recommended literature:</b><br>Zemanová, A.: Anglický jazyk pre študentov FMFI UK. Kurz pre mierne pokročilých. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-2829-6                                                                                                                                                  |       |                                              |       |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                              |       |                                              |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                   |       |                                              |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1429                                                                                                                                                                                                                                                                      |       |                                              |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                               | B     | C                                            | D     | E     | FX   |
| 19,17                                                                                                                                                                                                                                                                                                                                           | 21,55 | 25,68                                        | 16,66 | 10,99 | 5,95 |
| <b>Lecturers:</b> PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová                                                                                                                                                            |       |                                              |       |       |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                  |       |                                              |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                      |       |                                              |       |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |       |       |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-231/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | <b>Course title:</b><br>English Language (3) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |       |       |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |       |       |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                              |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |       |       |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |       |       |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                              |       |       |      |
| <b>Class syllabus:</b><br>The subject continues the program of English (2). Students take classes of special English for their field of study: English for mathematics, English for physics, English for computer science, English for management and economic and financial mathematics.<br>The subject requires advanced knowledge of general English.                                                                                                                                                                                                                                                                                                   |       |                                              |       |       |      |
| <b>Recommended literature:</b><br>Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3<br>Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1<br>Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8<br>Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8. |       |                                              |       |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                              |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                              |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1183                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                              |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                            | D     | E     | FX   |
| 16,91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 19,19 | 22,74                                        | 17,58 | 18,34 | 5,24 |
| <b>Lecturers:</b> PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |       |       |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                              |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                              |       |       |      |

## COURSE DESCRIPTION

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |      |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-232/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | <b>Course title:</b><br>English Language (4) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |      |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                              |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                              |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                              |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                              |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                              |      |      |      |
| <b>Class syllabus:</b><br>Students take classes of special English for their field of study: English for mathematics, English for physics, English for computer science, English for management and economic and financial mathematics.                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                              |      |      |      |
| <b>Recommended literature:</b><br>Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3<br>Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1<br>Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8<br>Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8. |       |                                              |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                              |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                              |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 2426                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                              |      |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                            | D    | E    | FX   |
| 28,11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 29,55 | 21,23                                        | 10,8 | 5,36 | 4,95 |
| <b>Lecturers:</b> Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, PhDr. Alena Zemanová, PhDr. Elena Klátiková, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                              |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                              |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                              |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                  |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                  |
| <b>Course ID:</b><br>FMFI-PriF.KGe+KZ<br>+KBCh/1-BIN-302/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Course title:</b><br>Evolutionary Biology (1) |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                  |
| <b>Number of credits:</b> 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                  |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                  |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                  |
| <b>Antirequisites:</b> PriF.KGe/N-bBUB-003/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |
| <b>Course requirements:</b><br>Written exam<br>Scale of assessment (preliminary/final): 0/100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |
| <b>Learning outcomes:</b><br>The students will get an overview of the hypotheses and theories of biological evolution, with emphasis on the latest knowledge and opinions in this field, and on the evidence of the process of evolution. They will be familiar with the main factors and mechanisms of the evolutionary process. They will be acquainted with details of synthetic evolutionary theory (neo-darwinism) and the fundamentals of population genetics as the basis of this theory. The course also covers the evolution of the genetic apparatus of cells, genes and genomes, the contemporary views on the question of the origin of life, on the origin and evolution of cells with emphasis on the eukaryotic cell. An overview of methods of phylogeny analysis will be also provided. |                                                  |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                  |
| <b>Recommended literature:</b><br>Flegr J.: Úvod do evoluční biologie, Academia, Praha 2007<br>Flegr J.: Evoluční biologie, Academia, Praha 2005<br>Mayr E.: Čo je to evolúcia, aktuálny pohľad na evolučnú biológiu, Kalligram, Bratislava 2004<br>Larson E.J.: Evolúcia, neobyčajná história jednej vedeckej teórie, Slovart, Bratislava 2006<br>Lane N.: Vývoj života – Deset velkých vynálezů evoluce. Kniha Zlín 2011.                                                                                                                                                                                                                                                                                                                                                                              |                                                  |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                  |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                  |

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| <b>Past grade distribution</b>                                                                                                                                        |      |      |     |      |     |
| Total number of evaluated students: 5                                                                                                                                 |      |      |     |      |     |
| A                                                                                                                                                                     | B    | C    | D   | E    | FX  |
| 0,0                                                                                                                                                                   | 20,0 | 20,0 | 0,0 | 60,0 | 0,0 |
| <b>Lecturers:</b> doc. Mgr. Peter Vďačný, PhD., Mgr. Peter Mikulíček, PhD., RNDr. Regina Sepšiová, PhD., RNDr. Marek Mentel, PhD., prof. RNDr. Ľubomír Tomáška, DrSc. |      |      |     |      |     |
| <b>Last change:</b> 09.02.2018                                                                                                                                        |      |      |     |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                            |      |      |     |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                               |     |                                                  |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                    |     |                                                  |     |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-211/15                                                                                                                                                    |     | <b>Course title:</b><br>Evolutionary Biology (2) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |     |                                                  |     |     |     |
| <b>Number of credits:</b> 3                                                                                                                                                                        |     |                                                  |     |     |     |
| <b>Recommended semester:</b> 6.                                                                                                                                                                    |     |                                                  |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                       |     |                                                  |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                              |     |                                                  |     |     |     |
| <b>Antirequisites:</b> PriF.KEk/N-bBXX-031/15                                                                                                                                                      |     |                                                  |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                        |     |                                                  |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                          |     |                                                  |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                             |     |                                                  |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                     |     |                                                  |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                 |     |                                                  |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                      |     |                                                  |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 0                                                                                                                            |     |                                                  |     |     |     |
| A                                                                                                                                                                                                  | B   | C                                                | D   | E   | FX  |
| 0,0                                                                                                                                                                                                | 0,0 | 0,0                                              | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Vladimír Kováč, CSc., doc. Mgr. Monika Okuliarová, PhD., RNDr. Ján Radvánszky, PhD., Mgr. Viktor Demko, PhD.                                                         |     |                                                  |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                     |     |                                                  |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                         |     |                                                  |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                       |     |                                                           |      |       |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                            |     |                                                           |      |       |       |
| <b>Course ID:</b><br>FMFL.KI/1-INF-215/14                                                                                                                                                                                                                                                                                                                                                                                                  |     | <b>Course title:</b><br>Formal Languages and Automata (1) |      |       |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 3 / 2 <b>per level/semester:</b> 42 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                   |     |                                                           |      |       |       |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                |     |                                                           |      |       |       |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                                                                                                                            |     |                                                           |      |       |       |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                           |      |       |       |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |     |                                                           |      |       |       |
| <b>Course requirements:</b><br>homework, test, written and oral final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                               |     |                                                           |      |       |       |
| <b>Learning outcomes:</b><br>Students will be familiar with basic models of automata and grammars, and they will be able to compare their computational power. They will understand algorithmic problem (un)decidability and a formal definition of computational complexity of a problem.                                                                                                                                                 |     |                                                           |      |       |       |
| <b>Class syllabus:</b><br>Chomsky hierarchy of formal grammars. Finite state automata and pushdown automata. Basic properties of regular and context-free languages, regular expressions. Turing machines. Undecidable problems. Introduction to computational complexity theory.                                                                                                                                                          |     |                                                           |      |       |       |
| <b>Recommended literature:</b><br>The Mathematical theory of context free languages / Seymour Ginsburg. New York : McGraw Hill, 1966<br>Formálne jazyky a automaty / John E. Hopcroft, Jeffrey D. Ullman ; preložili Branislav Rován, Peter Mikulecký. Bratislava : Alfa, 1978<br>Introduction to Automata Theory, Languages, and Computation / John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman. Boston : Pearson/Addison-Wesley, 2007 |     |                                                           |      |       |       |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                      |     |                                                           |      |       |       |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                                                           |      |       |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 469                                                                                                                                                                                                                                                                                                                                                                  |     |                                                           |      |       |       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                          | B   | C                                                         | D    | E     | FX    |
| 21,75                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4,9 | 3,41                                                      | 20,9 | 35,18 | 13,86 |
| <b>Lecturers:</b> prof. RNDr. Branislav Rován, PhD., RNDr. Peter Kostolányi, PhD., Mgr. Šimon Sádovský                                                                                                                                                                                                                                                                                                                                     |     |                                                           |      |       |       |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                  |       |                                             |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                       |       |                                             |      |      |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-141/00                                                                                                                                                                                                                            |       | <b>Course title:</b><br>French Language (1) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                 |       |                                             |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                           |       |                                             |      |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                       |       |                                             |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                     |       |                                             |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                 |       |                                             |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                           |       |                                             |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                             |       |                                             |      |      |      |
| <b>Class syllabus:</b><br>French language is taught at two levels: beginner and intermediate. Students opt for one of them depending on whether they wish to obtain the fundamentals of the language or wish to maintain and/or improve previous knowledge of French. |       |                                             |      |      |      |
| <b>Recommended literature:</b><br>Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2                                                                                                                               |       |                                             |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                    |       |                                             |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                         |       |                                             |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 387                                                                                                                                                                                             |       |                                             |      |      |      |
| A                                                                                                                                                                                                                                                                     | B     | C                                           | D    | E    | FX   |
| 41,09                                                                                                                                                                                                                                                                 | 21,96 | 21,19                                       | 9,82 | 2,07 | 3,88 |
| <b>Lecturers:</b> Mgr. Ľubomíra Kožehubová                                                                                                                                                                                                                            |       |                                             |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                        |       |                                             |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                            |       |                                             |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                |       |                                             |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                     |       |                                             |       |      |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-142/00                                                                                                                                                                                                                                                                          |       | <b>Course title:</b><br>French Language (2) |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                                                                                                      |       |                                             |       |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                         |       |                                             |       |      |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                     |       |                                             |       |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                   |       |                                             |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                               |       |                                             |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                         |       |                                             |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                           |       |                                             |       |      |      |
| <b>Class syllabus:</b><br>The subject continues the program of French language (1) and provides courses of essential and intermediate French language.                                                                                                                                                              |       |                                             |       |      |      |
| <b>Recommended literature:</b><br>Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2<br>Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983<br>Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008 |       |                                             |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                  |       |                                             |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                       |       |                                             |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 247                                                                                                                                                                                                                                           |       |                                             |       |      |      |
| A                                                                                                                                                                                                                                                                                                                   | B     | C                                           | D     | E    | FX   |
| 36,03                                                                                                                                                                                                                                                                                                               | 26,72 | 21,05                                       | 10,93 | 2,83 | 2,43 |
| <b>Lecturers:</b> Mgr. Ľubomíra Kožehubová                                                                                                                                                                                                                                                                          |       |                                             |       |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                      |       |                                             |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                          |       |                                             |       |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                |       |                                             |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                     |       |                                             |      |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-241/00                                                                                                                                                                                                                                                                          |       | <b>Course title:</b><br>French Language (3) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                               |       |                                             |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                         |       |                                             |      |      |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                     |       |                                             |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                   |       |                                             |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                               |       |                                             |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                         |       |                                             |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                           |       |                                             |      |      |      |
| <b>Class syllabus:</b><br>The subject provides a course of intermediate French language, covering not only general, but also technical language.                                                                                                                                                                    |       |                                             |      |      |      |
| <b>Recommended literature:</b><br>Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2<br>Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983<br>Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008 |       |                                             |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                  |       |                                             |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                       |       |                                             |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 97                                                                                                                                                                                                                                            |       |                                             |      |      |      |
| A                                                                                                                                                                                                                                                                                                                   | B     | C                                           | D    | E    | FX   |
| 36,08                                                                                                                                                                                                                                                                                                               | 28,87 | 22,68                                       | 7,22 | 1,03 | 4,12 |
| <b>Lecturers:</b> Mgr. Ľubomíra Kožehubová                                                                                                                                                                                                                                                                          |       |                                             |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                          |       |                                             |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                       |       |                                             |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                            |       |                                             |      |      |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-242/00                                                                                                                                                                                                                                                                                                                                                                 |       | <b>Course title:</b><br>French Language (4) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                |       |                                             |      |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                            |       |                                             |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                                                                                                          |       |                                             |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                |       |                                             |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                  |       |                                             |      |      |      |
| <b>Class syllabus:</b><br>The subject provides a course of intermediate French covering not only general, but also technical French language.                                                                                                                                                                                                                                                              |       |                                             |      |      |      |
| <b>Recommended literature:</b><br>Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2<br>Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983<br>Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008<br>Zarha Lahmidi: Sciences-techniques.com, ISBN 209-0331186-0, CLE international, 2005 |       |                                             |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                         |       |                                             |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                              |       |                                             |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 68                                                                                                                                                                                                                                                                                                                                   |       |                                             |      |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                           | D    | E    | FX   |
| 36,76                                                                                                                                                                                                                                                                                                                                                                                                      | 35,29 | 19,12                                       | 2,94 | 1,47 | 4,41 |
| <b>Lecturers:</b> Mgr. Ľubomíra Kožehubová                                                                                                                                                                                                                                                                                                                                                                 |       |                                             |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                             |       |                                             |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                 |       |                                             |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                               |       |                                         |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                    |       |                                         |     |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-113/15                                                                                                                                                    |       | <b>Course title:</b><br>General Biology |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                         |     |     |     |
| <b>Number of credits:</b> 3                                                                                                                                                                        |       |                                         |     |     |     |
| <b>Recommended semester:</b> 2.                                                                                                                                                                    |       |                                         |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                       |       |                                         |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                              |       |                                         |     |     |     |
| <b>Antirequisites:</b> PriF.KGe/N-bCXX-008/15                                                                                                                                                      |       |                                         |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                        |       |                                         |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                          |       |                                         |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                             |       |                                         |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                     |       |                                         |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                 |       |                                         |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                      |       |                                         |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 12                                                                                                                           |       |                                         |     |     |     |
| A                                                                                                                                                                                                  | B     | C                                       | D   | E   | FX  |
| 41,67                                                                                                                                                                                              | 16,67 | 41,67                                   | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Ľubomír Tomáška, DrSc.                                                                                                                                               |       |                                         |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                     |       |                                         |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                         |       |                                         |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                         |       |       |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                         |       |       |       |
| <b>Course ID:</b><br>FMFI-PriF.KAgCh/1-BIN-103/15                                                                                                                                                                                                                                                                                                                                                                                                                                           |       | <b>Course title:</b><br>General and Inorganic Chemistry |       |       |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                    |       |                                                         |       |       |       |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                         |       |       |       |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                         |       |       |       |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                         |       |       |       |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                         |       |       |       |
| <b>Antirequisites:</b> PriF.KAgCh/N-bBXX-018/15                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                         |       |       |       |
| <b>Course requirements:</b><br>Tests, final written exam<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                         |       |       |       |
| <b>Learning outcomes:</b><br>The students will be familiar with basic chemical terminology from general and inorganic chemistry. During laboratory exercises students will acquire skills in basic laboratory tasks, preparation of solutions by dilution and mixing, and in the demonstration reactions of selected ions.                                                                                                                                                                  |       |                                                         |       |       |       |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                                         |       |       |       |
| <b>Recommended literature:</b><br>Fajnor, V. a i.: Všeobecná a anorganická chémia pre biológov. 1. vyd. Bratislava : Univerzita Komenského, 2011.<br>Galamboš, M. a i.: Názvoslovie anorganických látok. 2. oprav. a rozš. vyd. Bratislava : Univerzita Komenského, 2011.<br>Tatiersky, J.: Základné chemické výpočty. 2. vyd. Bratislava : Univerzita Komenského, 2013.<br>Fajnor, V. a i.: Cvičenia z anorganickej chémie pre biológov. 2. vyd. Bratislava : Univerzita Komenského, 2003. |       |                                                         |       |       |       |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                         |       |       |       |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                         |       |       |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 28                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                         |       |       |       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | B     | C                                                       | D     | E     | FX    |
| 3,57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 10,71 | 14,29                                                   | 14,29 | 14,29 | 42,86 |
| <b>Lecturers:</b> doc. RNDr. Milan Drábik, CSc., doc. RNDr. Jozef Tatiersky, PhD., RNDr. Jana Chrappová, PhD.                                                                                                                                                                                                                                                                                                                                                                               |       |                                                         |       |       |       |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 09.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

|                                                                                                                                                                                                                                                                                                                                                                                            |     |                                                           |     |     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                       |     |                                                           |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                            |     |                                                           |     |     |     |
| <b>Course ID:</b><br>FMFL.KI/1-BIN-315/17                                                                                                                                                                                                                                                                                                                                                  |     | <b>Course title:</b><br>Generic Subject in Bioinformatics |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b><br><b>Number of hours:</b><br><b>per week: per level/semester:</b><br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                             |     |                                                           |     |     |     |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                |     |                                                           |     |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                            |     |                                                           |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                               |     |                                                           |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                      |     |                                                           |     |     |     |
| <b>Course requirements:</b><br>Course requirements are determined by the hosting university abroad.                                                                                                                                                                                                                                                                                        |     |                                                           |     |     |     |
| <b>Learning outcomes:</b><br>Students will complete a course related to bioinformatics at a university abroad. This will allow them to acquire new skills in this area, establish new professional contacts and to improve their communication skills.                                                                                                                                     |     |                                                           |     |     |     |
| <b>Class syllabus:</b><br>This course is intended only for students who participate in a study exchange program at a university abroad, and complete at least one course related to bioinformatics during their exchange stay. The choice of the course has to be approved by the guarantor of the study program. The course requirements are determined by the hosting university abroad. |     |                                                           |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                                                                                                                                             |     |                                                           |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                         |     |                                                           |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                              |     |                                                           |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 0                                                                                                                                                                                                                                                                                                                    |     |                                                           |     |     |     |
| A                                                                                                                                                                                                                                                                                                                                                                                          | B   | C                                                         | D   | E   | FX  |
| 0,0                                                                                                                                                                                                                                                                                                                                                                                        | 0,0 | 0,0                                                       | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                       |     |                                                           |     |     |     |
| <b>Last change:</b> 04.05.2017                                                                                                                                                                                                                                                                                                                                                             |     |                                                           |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                 |     |                                                           |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                    |      |                                      |      |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                         |      |                                      |      |      |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-201/15                                                                                                                                                                                                                                                                                                                                                         |      | <b>Course title:</b><br>Genetics (1) |      |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 4 / 2 <b>per level/semester:</b> 56 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                |      |                                      |      |      |     |
| <b>Number of credits:</b> 8                                                                                                                                                                                                                                                                                                                                                                             |      |                                      |      |      |     |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                                                                                         |      |                                      |      |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                            |      |                                      |      |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                   |      |                                      |      |      |     |
| <b>Antirequisites:</b> PriF.KGe/N-bBXX-038/15                                                                                                                                                                                                                                                                                                                                                           |      |                                      |      |      |     |
| <b>Course requirements:</b><br>Tests, final written exam<br>Scale of assessment (preliminary/final): 20/80                                                                                                                                                                                                                                                                                              |      |                                      |      |      |     |
| <b>Learning outcomes:</b><br>Students will be familiar with fundamentals of classical genetics, cytogenetics, molecular foundations of inheritance, mutation mechanisms, population and quantitative genetics, methods in genetics, genetic basis of cancer and ontogenesis, extranuclear inheritance, current whole-genome analyses and their implications for evolutionary biology and medicine.      |      |                                      |      |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                  |      |                                      |      |      |     |
| <b>Recommended literature:</b><br>Snustad, D.P., Simmons, M.J. (2009). Principles of Genetics<br>Hartwell, L.H., Hood, L., Goldberg, M.L., Reynolds, A.E., Silver, L.M., Veres, R.C. (2008). Genetics: From Genes to Genomes. 3rd Edition. McGraw-Hill, International Edition.<br>Russell, P.J. (2006). iGenetics: A Molecular Approach. 2nd Edition. Pearson/Benjamin Cummings. International Edition. |      |                                      |      |      |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                   |      |                                      |      |      |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                           |      |                                      |      |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 15                                                                                                                                                                                                                                                                                                                                |      |                                      |      |      |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                       | B    | C                                    | D    | E    | FX  |
| 0,0                                                                                                                                                                                                                                                                                                                                                                                                     | 6,67 | 33,33                                | 40,0 | 20,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Ľubomír Tomáška, DrSc., prof. RNDr. Jozef Nosek, DrSc., doc. RNDr. Eliška Gálová, PhD., doc. RNDr. Andrea Ševčovičová, PhD., doc. Mgr. Miroslava Slaninová, PhD., RNDr. Regina Sepšiová, PhD., Mgr. Katarína Gaplovská, PhD., Mgr. Lucia Mentelová, PhD., Mgr. Katarína Procházková, PhD.                                                                                 |      |                                      |      |      |     |

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| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------|-------|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                              |     |                                                       |       |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                   |     |                                                       |       |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-312/15                                                                                                                                                                                                                                                                   |     | <b>Course title:</b><br>Genetics (2): Model Organisms |       |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                          |     |                                                       |       |     |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                       |     |                                                       |       |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                   |     |                                                       |       |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                      |     |                                                       |       |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                             |     |                                                       |       |     |     |
| <b>Antirequisites:</b> PriF.KGe/N-bBGE-006/15                                                                                                                                                                                                                                                                     |     |                                                       |       |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                       |     |                                                       |       |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                         |     |                                                       |       |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                            |     |                                                       |       |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                                                                    |     |                                                       |       |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                |     |                                                       |       |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                     |     |                                                       |       |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1                                                                                                                                                                                                                                           |     |                                                       |       |     |     |
| A                                                                                                                                                                                                                                                                                                                 | B   | C                                                     | D     | E   | FX  |
| 0,0                                                                                                                                                                                                                                                                                                               | 0,0 | 0,0                                                   | 100,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> RNDr. Imrich Barák, DrSc., doc. RNDr. Eliška Gálová, PhD., doc. Mgr. Juraj Gregáň, PhD., doc. RNDr. Anton Horváth, CSc., doc. Mgr. Miroslava Slaninová, PhD., doc. RNDr. Miroslav Švec, CSc., doc. RNDr. Vladimíra Džugasová, PhD., RNDr. Miroslava Matúšková, PhD., Mgr. Lucia Mentelová, PhD. |     |                                                       |       |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                    |     |                                                       |       |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                        |     |                                                       |       |     |     |

## COURSE DESCRIPTION

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |     |                                                    |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |     |                                                    |     |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-313/15                                                                                                                                                                          |     | <b>Course title:</b><br>Genetics (3): Cytogenetics |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |     |                                                    |     |     |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                              |     |                                                    |     |     |     |
| <b>Recommended semester:</b> 6.                                                                                                                                                                                          |     |                                                    |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                             |     |                                                    |     |     |     |
| <b>Prerequisites:</b> FMFI-PriF.KGe/1-BIN-312/15 - Genetics (2): Model Organisms                                                                                                                                         |     |                                                    |     |     |     |
| <b>Antirequisites:</b> PriF.KGe/N-bBGE-004/15                                                                                                                                                                            |     |                                                    |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                              |     |                                                    |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |     |                                                    |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |     |                                                    |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                           |     |                                                    |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |     |                                                    |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                            |     |                                                    |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 0                                                                                                                                                  |     |                                                    |     |     |     |
| A                                                                                                                                                                                                                        | B   | C                                                  | D   | E   | FX  |
| 0,0                                                                                                                                                                                                                      | 0,0 | 0,0                                                | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> doc. RNDr. Andrea Ševčovičová, PhD., doc. Mgr. Miroslava Slaninová, PhD., doc. RNDr. Eliška Gálová, PhD., Mgr. Katarína Gaplovská, PhD.                                                                |     |                                                    |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                           |     |                                                    |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |     |                                                    |     |     |     |

## COURSE DESCRIPTION

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                 |       |                                             |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-151/00                                                                                                                                                                                                           |       | <b>Course title:</b><br>German Language (1) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                                       |       |                                             |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                          |       |                                             |      |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                    |       |                                             |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                |       |                                             |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                          |       |                                             |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                            |       |                                             |      |      |      |
| <b>Class syllabus:</b><br>German language is taught at three levels: beginner, intermediate and advanced. Students opt for one of them depending on whether they need to learn the fundamentals or maintain and/or improve their previous knowledge. |       |                                             |      |      |      |
| <b>Recommended literature:</b><br>Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.                                                                                                                         |       |                                             |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                   |       |                                             |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                        |       |                                             |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 666                                                                                                                                                                            |       |                                             |      |      |      |
| A                                                                                                                                                                                                                                                    | B     | C                                           | D    | E    | FX   |
| 32,28                                                                                                                                                                                                                                                | 29,13 | 21,17                                       | 9,91 | 2,85 | 4,65 |
| <b>Lecturers:</b> Mgr. Alexandra Maďarová, Mgr. Marián Mancovič                                                                                                                                                                                      |       |                                             |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                       |       |                                             |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                           |       |                                             |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |       |                                             |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |       |                                             |       |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-152/00                                                                                                                                                            |       | <b>Course title:</b><br>German Language (2) |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                             |       |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                           |       |                                             |       |      |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                       |       |                                             |       |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                     |       |                                             |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                 |       |                                             |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                           |       |                                             |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                             |       |                                             |       |      |      |
| <b>Class syllabus:</b><br>The course continues the program of German language (1). German language is taught at three levels: beginner, intermediate, advanced.                                       |       |                                             |       |      |      |
| <b>Recommended literature:</b><br>Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.                                                                          |       |                                             |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |       |                                             |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                         |       |                                             |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 423                                                                                                                             |       |                                             |       |      |      |
| A                                                                                                                                                                                                     | B     | C                                           | D     | E    | FX   |
| 30,5                                                                                                                                                                                                  | 21,99 | 22,93                                       | 14,66 | 3,78 | 6,15 |
| <b>Lecturers:</b> Mgr. Alexandra Maďarová, Mgr. Marián Mancovič                                                                                                                                       |       |                                             |       |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                        |       |                                             |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |       |                                             |       |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                             |      |                                             |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                  |      |                                             |      |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-251/00                                                                                                                                                                                       |      | <b>Course title:</b><br>German Language (3) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                            |      |                                             |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                      |      |                                             |      |      |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                  |      |                                             |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                |      |                                             |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                            |      |                                             |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                      |      |                                             |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                        |      |                                             |      |      |      |
| <b>Class syllabus:</b><br>The subject continues the program of German language (2). It provides a course of intermediate and advanced German language.                                                                           |      |                                             |      |      |      |
| <b>Recommended literature:</b><br>Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.<br>Aus moderner Technik und Naturwissenschaft, 1999, Max Hueber Verlag, D-85737, ISBN 3-19-001629-1 |      |                                             |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                               |      |                                             |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                    |      |                                             |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 150                                                                                                                                                        |      |                                             |      |      |      |
| A                                                                                                                                                                                                                                | B    | C                                           | D    | E    | FX   |
| 38,0                                                                                                                                                                                                                             | 28,0 | 22,0                                        | 6,67 | 2,67 | 2,67 |
| <b>Lecturers:</b> Mgr. Alexandra Maďarová, Mgr. Marián Mancovič                                                                                                                                                                  |      |                                             |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                   |      |                                             |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                       |      |                                             |      |      |      |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------------------------------|-------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                              |       |                                             |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                   |       |                                             |       |      |      |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-252/00                                                                                                                                                                                                                        |       | <b>Course title:</b><br>German Language (4) |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                             |       |                                             |       |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                       |       |                                             |       |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                   |       |                                             |       |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                 |       |                                             |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                             |       |                                             |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                       |       |                                             |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                         |       |                                             |       |      |      |
| <b>Class syllabus:</b><br>The subject continues the program of German language (3). It provides a course of intermediate and advanced German language.                                                                                                            |       |                                             |       |      |      |
| <b>Recommended literature:</b><br>Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.<br>Vilma Václavíková: Nemčina pre študentov MFF UK, Vysokoškolský učebný text pre potrebu študentov KJP, č. 9793/1982 C VIII/2, 1983 |       |                                             |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                |       |                                             |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                     |       |                                             |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 78                                                                                                                                                                                          |       |                                             |       |      |      |
| A                                                                                                                                                                                                                                                                 | B     | C                                           | D     | E    | FX   |
| 35,9                                                                                                                                                                                                                                                              | 28,21 | 14,1                                        | 12,82 | 3,85 | 5,13 |
| <b>Lecturers:</b> Mgr. Alexandra Maďarová, Mgr. Marián Mancovič                                                                                                                                                                                                   |       |                                             |       |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                    |       |                                             |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                        |       |                                             |       |      |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |       |                                                                          |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |       |                                                                          |     |     |     |
| <b>Course ID:</b><br>FMFI.KAI/1-MXX-491/15                                                                                                                                                        |       | <b>Course title:</b><br>Integrated Education of People with Disabilities |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                                                          |     |     |     |
| <b>Number of credits:</b> 3                                                                                                                                                                       |       |                                                                          |     |     |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                                   |       |                                                                          |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                      |       |                                                                          |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                             |       |                                                                          |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                       |       |                                                                          |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                         |       |                                                                          |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                            |       |                                                                          |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                    |       |                                                                          |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |       |                                                                          |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                     |       |                                                                          |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 33                                                                                                                          |       |                                                                          |     |     |     |
| A                                                                                                                                                                                                 | B     | C                                                                        | D   | E   | FX  |
| 87,88                                                                                                                                                                                             | 12,12 | 0,0                                                                      | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> PaedDr. Elena Mendelová, CSc.                                                                                                                                                   |       |                                                                          |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                    |       |                                                                          |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |       |                                                                          |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                                        |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                                        |       |       |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-160/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       | <b>Course title:</b><br>Introduction to Combinatorics and Graph Theory |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                                                        |       |       |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                                        |       |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                                        |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                                        |       |       |      |
| <b>Prerequisites:</b> FMFI.KI/1-INF-120/00 - Introduction to Discrete Structures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                                        |       |       |      |
| <b>Course requirements:</b><br>test, final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                                        |       |       |      |
| <b>Learning outcomes:</b><br>Students will be familiar with basic terminology, results, methods and algorithms from graph theory and combinatorics.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                                                        |       |       |      |
| <b>Class syllabus:</b><br>Combinatorics: basic types of combinatorial problems and basic notions. Permutations, variations, combinations. Pascal formula, binomial and polynomial theorem. Newton polynomial theorem. Combinatorial identities, estimations of combinatorial numbers. Inclusion/exclusion principle. Recurrence relations, generating functions. Summation methods, finite calculus. Graph theory: motivation problems. Definition of various types of graphs. Basic notions. Trees. Searching of graphs. Euler path, Hamiltonian cycles. Graph colouring. Planar graphs. Enumeration of trees. Algorithms for finding the shortest path, the minimum spanning tree and the maximum matching. |       |                                                                        |       |       |      |
| <b>Recommended literature:</b><br>Diskrétna matematika 1 : Úvod do teórie množín, teórie booleovských funkcií a matematickej logiky / Daniel Olejár, Škoviera Martin. Bratislava : Univerzita Komenského, 1992                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                                        |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                                        |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                                        |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 401                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                                        |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | B     | C                                                                      | D     | E     | FX   |
| 20,45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 11,47 | 25,94                                                                  | 26,43 | 15,46 | 0,25 |
| <b>Lecturers:</b> prof. RNDr. Martin Škoviera, PhD., doc. RNDr. Edita Mačajová, PhD., Mgr. Anna Kompišová                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                                        |       |       |      |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                                        |       |       |      |

**Approved by:** prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------|-------|-------|-------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                              |      |                                                          |       |       |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                   |      |                                                          |       |       |       |
| <b>Course ID:</b><br>FMFI.KI/1-INF-230/00                                                                                                                                                                                                                                                                                                                                                                         |      | <b>Course title:</b><br>Introduction to Database Systems |       |       |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                          |      |                                                          |       |       |       |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                       |      |                                                          |       |       |       |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                   |      |                                                          |       |       |       |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                      |      |                                                          |       |       |       |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                             |      |                                                          |       |       |       |
| <b>Antirequisites:</b> FMFI.KAI/1-AIN-221/15 and FMFI.KAI/1-AIN-222/15                                                                                                                                                                                                                                                                                                                                            |      |                                                          |       |       |       |
| <b>Course requirements:</b><br>homeworks, final exam<br>Scale of assessment (preliminary/final): 50/50                                                                                                                                                                                                                                                                                                            |      |                                                          |       |       |       |
| <b>Learning outcomes:</b><br>Students will be familiar with problems of database system use and implementation and techniques of solving these problems. The course will introduce the theory and practice of relational model and transaction systems. Students will be able to use the SQL relational language, Datalog and principles of relational database design.                                           |      |                                                          |       |       |       |
| <b>Class syllabus:</b><br>Data models, the architecture of DBMS and modelling of reality; relational model; relational query languages, SQL, the theory of relational databases design (functional dependences, keys and normal forms), logical and deductive databases, datalog, negation in databases, transactions and the processing of transactions, data structures for two-level memory, physical algebra. |      |                                                          |       |       |       |
| <b>Recommended literature:</b><br>Foundations of databases / Serge Abiteboul, Richard Hull, Victor Vianu. Reading : Addison-Wesley, 1995<br>Database systems : The complete book / Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom. Upper Saddle River : Prentice-Hall, 2002                                                                                                                              |      |                                                          |       |       |       |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                             |      |                                                          |       |       |       |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                                          |       |       |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 690                                                                                                                                                                                                                                                                                                                                         |      |                                                          |       |       |       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                 | B    | C                                                        | D     | E     | FX    |
| 16,52                                                                                                                                                                                                                                                                                                                                                                                                             | 9,71 | 15,22                                                    | 13,33 | 19,71 | 25,51 |
| <b>Lecturers:</b> doc. Mgr. Tomáš Plachetka, Dr., RNDr. Michal Rjaško, PhD., RNDr. Ján Mazák, PhD.                                                                                                                                                                                                                                                                                                                |      |                                                          |       |       |       |

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| <b>Last change:</b> 09.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                     |       |                                                             |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                          |       |                                                             |       |      |      |
| <b>Course ID:</b><br>FMFL.KI/1-INF-120/00                                                                                                                                                                                                                                                                                                                                                                |       | <b>Course title:</b><br>Introduction to Discrete Structures |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                 |       |                                                             |       |      |      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                              |       |                                                             |       |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                          |       |                                                             |       |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                             |       |                                                             |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                             |       |      |      |
| <b>Course requirements:</b><br>test, written final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                |       |                                                             |       |      |      |
| <b>Learning outcomes:</b><br>Students will be familiar with logical structure of mathematics, methods of mathematical proofs and discrete structures necessary for study of mathematics and informatics.                                                                                                                                                                                                 |       |                                                             |       |      |      |
| <b>Class syllabus:</b><br>Propositional calculus. Quantified propositions. Mathematical proofs. Mathematical induction. Intuitive set theory and its paradoxes. Basic set relations and operations on sets. Sets cardinality. Finite, infinite, countable and uncountable sets.                                                                                                                          |       |                                                             |       |      |      |
| <b>Recommended literature:</b><br>Diskrétna matematika 1 : Úvod do teórie množín, teórie booleovských funkcií a matematickej logiky / Daniel Olejár, Škoviera Martin. Bratislava : Univerzita Komenského, 1992<br>Teória množín / Tibor Šalát, Jaroslav Smítal. Bratislava : Univerzita Komenského, 1995<br>Množiny a všeličo okolo nich / Lev Bukovský. Košice : Univerzita Pavla Jozefa Šafárika, 2005 |       |                                                             |       |      |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                    |       |                                                             |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                             |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 502                                                                                                                                                                                                                                                                                                                                |       |                                                             |       |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                        | B     | C                                                           | D     | E    | FX   |
| 23,9                                                                                                                                                                                                                                                                                                                                                                                                     | 12,75 | 16,33                                                       | 15,54 | 25,1 | 6,37 |
| <b>Lecturers:</b> prof. RNDr. Martin Škoviera, PhD., doc. RNDr. Edita Mačajová, PhD.                                                                                                                                                                                                                                                                                                                     |       |                                                             |       |      |      |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                                                                                                                                           |       |                                                             |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                               |       |                                                             |       |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                            |       |      |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                            |       |      |       |
| <b>Course ID:</b><br>FMFI.KI/1-INF-210/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | <b>Course title:</b><br>Introduction to Mathematical Logic |       |      |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                               |       |                                                            |       |      |       |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                            |       |      |       |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                            |       |      |       |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                                            |       |      |       |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                            |       |      |       |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                            |       |      |       |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                            |       |      |       |
| <b>Class syllabus:</b><br>Language, semantics and syntax of propositional calculus. Compactness theorems. Axioms and deductive rules. Basic theorems of propositional calculus. Post theorems. Consistency and completeness of propositional calculus. Language, axioms and deductive rules of predicate calculus. Deduction theorem. Basic theorems of predicate calculus. Compactness and consistency of predicate calculus.<br>Axioms of equality and theories with equality. Expressing mathematical statements by formulas of predicate calculus. |       |                                                            |       |      |       |
| <b>Recommended literature:</b><br>Mendelson E. Introduction to Mathematical Logic. Chapman & Hall, London, 4th edition, 1997.                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                            |       |      |       |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                            |       |      |       |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                            |       |      |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 706                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                            |       |      |       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | B     | C                                                          | D     | E    | FX    |
| 16,29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10,62 | 11,9                                                       | 12,46 | 36,4 | 12,32 |
| <b>Lecturers:</b> doc. RNDr. Eduard Toman, CSc., Mgr. Anna Kompišová, RNDr. Ján Mazák, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                            |       |      |       |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                            |       |      |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                            |       |      |       |

## COURSE DESCRIPTION

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------|-------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |       |                                                          |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |       |                                                          |       |      |      |
| <b>Course ID:</b><br>FMFI.KDMFI/1-AIN-112/15                                                                                                                                                                             |       | <b>Course title:</b><br>Introduction to Web Technologies |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |       |                                                          |       |      |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                              |       |                                                          |       |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                          |       |                                                          |       |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                             |       |                                                          |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                    |       |                                                          |       |      |      |
| <b>Antirequisites:</b> FMFI.KZVI/1-AIN-610/00                                                                                                                                                                            |       |                                                          |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                              |       |                                                          |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |       |                                                          |       |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |       |                                                          |       |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                                           |       |                                                          |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |       |                                                          |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                            |       |                                                          |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1912                                                                                                                                               |       |                                                          |       |      |      |
| A                                                                                                                                                                                                                        | B     | C                                                        | D     | E    | FX   |
| 42,94                                                                                                                                                                                                                    | 14,85 | 14,33                                                    | 11,14 | 8,32 | 8,42 |
| <b>Lecturers:</b> PaedDr. Roman Hrušecký, PhD., RNDr. Marek Nagy, PhD.                                                                                                                                                   |       |                                                          |       |      |      |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                                           |       |                                                          |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |       |                                                          |       |      |      |

## COURSE DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------|-----|-------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                               |     |                                  |     |       |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                    |     |                                  |     |       |     |
| <b>Course ID:</b><br>FMFI-PriF.KGe/1-BIN-212/15                                                                                                                                                    |     | <b>Course title:</b><br>Lab Math |     |       |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |     |                                  |     |       |     |
| <b>Number of credits:</b> 2                                                                                                                                                                        |     |                                  |     |       |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                    |     |                                  |     |       |     |
| <b>Educational level:</b> I.                                                                                                                                                                       |     |                                  |     |       |     |
| <b>Prerequisites:</b>                                                                                                                                                                              |     |                                  |     |       |     |
| <b>Antirequisites:</b> PriF.KGe/N-bBGE-003/15                                                                                                                                                      |     |                                  |     |       |     |
| <b>Course requirements:</b>                                                                                                                                                                        |     |                                  |     |       |     |
| <b>Learning outcomes:</b>                                                                                                                                                                          |     |                                  |     |       |     |
| <b>Class syllabus:</b>                                                                                                                                                                             |     |                                  |     |       |     |
| <b>Recommended literature:</b>                                                                                                                                                                     |     |                                  |     |       |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                 |     |                                  |     |       |     |
| <b>Notes:</b>                                                                                                                                                                                      |     |                                  |     |       |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1                                                                                                                            |     |                                  |     |       |     |
| A                                                                                                                                                                                                  | B   | C                                | D   | E     | FX  |
| 0,0                                                                                                                                                                                                | 0,0 | 0,0                              | 0,0 | 100,0 | 0,0 |
| <b>Lecturers:</b> doc. RNDr. Eliška Gálová, PhD., doc. RNDr. Andrea Ševčovičová, PhD., Mgr. Ľudmila Holubová                                                                                       |     |                                  |     |       |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                     |     |                                  |     |       |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                         |     |                                  |     |       |     |

## COURSE DESCRIPTION

|                                                                                                                                                                                                   |       |                                                |       |      |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------|-------|------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |       |                                                |       |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |       |                                                |       |      |     |
| <b>Course ID:</b><br>FMFI.KAI/1-AIN-406/15                                                                                                                                                        |       | <b>Course title:</b><br>Language and Cognition |       |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                                |       |      |     |
| <b>Number of credits:</b> 3                                                                                                                                                                       |       |                                                |       |      |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                   |       |                                                |       |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                      |       |                                                |       |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                             |       |                                                |       |      |     |
| <b>Course requirements:</b>                                                                                                                                                                       |       |                                                |       |      |     |
| <b>Learning outcomes:</b>                                                                                                                                                                         |       |                                                |       |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                            |       |                                                |       |      |     |
| <b>Recommended literature:</b>                                                                                                                                                                    |       |                                                |       |      |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |       |                                                |       |      |     |
| <b>Notes:</b>                                                                                                                                                                                     |       |                                                |       |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 58                                                                                                                          |       |                                                |       |      |     |
| A                                                                                                                                                                                                 | B     | C                                              | D     | E    | FX  |
| 27,59                                                                                                                                                                                             | 36,21 | 22,41                                          | 12,07 | 1,72 | 0,0 |
| <b>Lecturers:</b> doc. PhDr. Ján Rybár, PhD.                                                                                                                                                      |       |                                                |       |      |     |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                    |       |                                                |       |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |       |                                                |       |      |     |

## COURSE DESCRIPTION

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |       |                                                      |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |       |                                                      |      |      |      |
| <b>Course ID:</b><br>FMFI.KAI/1-AIN-510/15                                                                                                                                                                               |       | <b>Course title:</b><br>Linux - Principles and Means |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 1 / 1 <b>per level/semester:</b> 14 / 14<br><b>Form of the course:</b> on-site learning |       |                                                      |      |      |      |
| <b>Number of credits:</b> 3                                                                                                                                                                                              |       |                                                      |      |      |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                          |       |                                                      |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                             |       |                                                      |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                    |       |                                                      |      |      |      |
| <b>Antirequisites:</b> FMFI.KAI/1-AIN-510/00                                                                                                                                                                             |       |                                                      |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                              |       |                                                      |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |       |                                                      |      |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |       |                                                      |      |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                                           |       |                                                      |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |       |                                                      |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                            |       |                                                      |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 907                                                                                                                                                |       |                                                      |      |      |      |
| A                                                                                                                                                                                                                        | B     | C                                                    | D    | E    | FX   |
| 50,5                                                                                                                                                                                                                     | 16,87 | 12,57                                                | 7,94 | 7,39 | 4,74 |
| <b>Lecturers:</b> RNDr. Marek Nagy, PhD.                                                                                                                                                                                 |       |                                                      |      |      |      |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                                           |       |                                                      |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |       |                                                      |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                 |       |                                         |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                      |       |                                         |       |       |      |
| <b>Course ID:</b><br>FMFI.KAI/1-AIN-500/00                                                                                                                                                                                                                           |       | <b>Course title:</b><br>Linux for Users |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                    |       |                                         |       |       |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                          |       |                                         |       |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                      |       |                                         |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                         |       |                                         |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                |       |                                         |       |       |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                          |       |                                         |       |       |      |
| <b>Learning outcomes:</b><br>The aim of the course is to acquire skills to work on the command line of Linux operating system.<br>The course is designed not only for beginners.                                                                                     |       |                                         |       |       |      |
| <b>Class syllabus:</b><br>Text console<br>Directories and files<br>Users, groups, redirection and searching<br>Attributes of files and directories<br>Text editor vim<br>Sorting and selecting<br>Finding<br>Processes<br>sed - stream editor<br>awk<br>bash scripts |       |                                         |       |       |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                       |       |                                         |       |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                   |       |                                         |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                        |       |                                         |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1403                                                                                                                                                                                           |       |                                         |       |       |      |
| A                                                                                                                                                                                                                                                                    | B     | C                                       | D     | E     | FX   |
| 41,34                                                                                                                                                                                                                                                                | 16,82 | 14,26                                   | 10,91 | 12,47 | 4,21 |
| <b>Lecturers:</b> RNDr. Marek Nagy, PhD.                                                                                                                                                                                                                             |       |                                         |       |       |      |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                                                                                       |       |                                         |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                           |       |                                         |       |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                         |      |                                                   |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                   |       |       |      |
| <b>Course ID:</b><br>FMFL.KMANM/1-INF-110/00                                                                                                                                                                                                                                                                                                                                                                                                                 |      | <b>Course title:</b><br>Mathematical Analysis (1) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                     |      |                                                   |       |       |      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                   |       |       |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                   |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                   |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                   |       |       |      |
| <b>Course requirements:</b><br>4 tests, written and oral final exam<br>Scale of assessment (preliminary/final): 55/45                                                                                                                                                                                                                                                                                                                                        |      |                                                   |       |       |      |
| <b>Learning outcomes:</b><br>Students will be able to use basic tools of differential calculus of real-valued functions of a single variable to solve both practical and theoretical problems of appropriate difficulty.                                                                                                                                                                                                                                     |      |                                                   |       |       |      |
| <b>Class syllabus:</b><br>Brief historical overview. Limit of a function and a sequence, basic theorems on limits. . Continuity of a function at a point and on a set, properties of continuous functions on intervals and on compact sets. Derivatives of functions, basic theorems on differentiable functions, chain rule, derivative of an inverse function. Mean value theorem. Sketching a graph of a function. L'Hospital's rule. Taylor polynomials. |      |                                                   |       |       |      |
| <b>Recommended literature:</b><br>Matematická analýza I / Tibor Neubrunn, Jozef Vencko. Bratislava : Univerzita Komenského, 1992<br>Cvičenia z matematickej analýzy I / Zbyněk Kubáček, Ján Valášek. Bratislava : Univerzita Komenského, 2009<br>Matematická analýza 1 / Jiří Brabec, František Martan, Zdeněk Roženský. Praha : Státní nakladatelství technické literatury, 1985                                                                            |      |                                                   |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                   |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                   |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 421                                                                                                                                                                                                                                                                                                                                                                                    |      |                                                   |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                            | B    | C                                                 | D     | E     | FX   |
| 18,05                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 15,2 | 11,4                                              | 23,04 | 31,59 | 0,71 |
| <b>Lecturers:</b> doc. RNDr. Zbyněk Kubáček, CSc., Mgr. Július Pačuta, PhD., Mgr. Miriam Janíková                                                                                                                                                                                                                                                                                                                                                            |      |                                                   |       |       |      |

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| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                             |       |                                                   |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                  |       |                                                   |       |       |      |
| <b>Course ID:</b><br>FMFI.KMANM/1-INF-150/00                                                                                                                                                                                                                                                                                                                                                     |       | <b>Course title:</b><br>Mathematical Analysis (2) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                         |       |                                                   |       |       |      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                      |       |                                                   |       |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                  |       |                                                   |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                     |       |                                                   |       |       |      |
| <b>Prerequisites:</b> FMFI.KMANM/1-INF-110/00 - Mathematical Analysis (1)                                                                                                                                                                                                                                                                                                                        |       |                                                   |       |       |      |
| <b>Course requirements:</b><br>final exam<br>Scale of assessment (preliminary/final): 55/45                                                                                                                                                                                                                                                                                                      |       |                                                   |       |       |      |
| <b>Learning outcomes:</b><br>Students will be able to use the methods of integral calculus of single-variable functions and the theory of infinite series to solve both practical and theoretical problems of appropriate difficulty.                                                                                                                                                            |       |                                                   |       |       |      |
| <b>Class syllabus:</b><br>Antiderivative, basic methods of evaluation of primitives, integration of rational functions, trigonometric substitutions. Riemann integral of one variable, fundamental theorems of integral calculus. Infinite series, convergence tests. Absolutely and conditionally convergent series and their rearrangements. Power and Taylor series, interval of convergence. |       |                                                   |       |       |      |
| <b>Recommended literature:</b><br>Matematická analýza II / Tibor Neubrunn, Jozef Vencko. Bratislava : Univerzita Komenského, 1992<br>Cvičenia z matematickej analýzy II / Zbyněk Kubáček, Ján Valášek. Bratislava : Univerzita Komenského, 2010<br>Matematická analýza 1 / Jiří Brabec, František Martan, Zdeněk Roženský. Praha : Státní nakladatelství technické literatury, 1985              |       |                                                   |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                            |       |                                                   |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                   |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 367                                                                                                                                                                                                                                                                                                                        |       |                                                   |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                | B     | C                                                 | D     | E     | FX   |
| 17,71                                                                                                                                                                                                                                                                                                                                                                                            | 11,99 | 13,35                                             | 21,25 | 35,15 | 0,54 |
| <b>Lecturers:</b> doc. RNDr. Zbyněk Kubáček, CSc., PaedDr. Mária Slavíčková, PhD., Mgr. Michaela Vargová, PhD.                                                                                                                                                                                                                                                                                   |       |                                                   |       |       |      |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |      |                                                       |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |      |                                                       |      |      |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-615/10                                                                                                                                                             |      | <b>Course title:</b><br>Mathematical Propedeutics (1) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |      |                                                       |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                           |      |                                                       |      |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                       |      |                                                       |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                          |      |                                                       |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                 |      |                                                       |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                           |      |                                                       |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                             |      |                                                       |      |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                                |      |                                                       |      |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                        |      |                                                       |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |      |                                                       |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                         |      |                                                       |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 170                                                                                                                             |      |                                                       |      |      |      |
| A                                                                                                                                                                                                     | B    | C                                                     | D    | E    | FX   |
| 77,06                                                                                                                                                                                                 | 6,47 | 7,65                                                  | 0,59 | 3,53 | 4,71 |
| <b>Lecturers:</b> RNDr. Ján Mazák, PhD.                                                                                                                                                               |      |                                                       |      |      |      |
| <b>Last change:</b> 28.10.2016                                                                                                                                                                        |      |                                                       |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |      |                                                       |      |      |      |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------|-------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |      |                                                       |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |      |                                                       |       |      |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-616/14                                                                                                                                                             |      | <b>Course title:</b><br>Mathematical Propedeutics (2) |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |      |                                                       |       |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                           |      |                                                       |       |      |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                       |      |                                                       |       |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                          |      |                                                       |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                 |      |                                                       |       |      |      |
| <b>Course requirements:</b>                                                                                                                                                                           |      |                                                       |       |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                             |      |                                                       |       |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                                |      |                                                       |       |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                        |      |                                                       |       |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |      |                                                       |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                         |      |                                                       |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 72                                                                                                                              |      |                                                       |       |      |      |
| A                                                                                                                                                                                                     | B    | C                                                     | D     | E    | FX   |
| 62,5                                                                                                                                                                                                  | 8,33 | 1,39                                                  | 11,11 | 6,94 | 9,72 |
| <b>Lecturers:</b> RNDr. Ján Mazák, PhD.                                                                                                                                                               |      |                                                       |       |      |      |
| <b>Last change:</b> 28.10.2016                                                                                                                                                                        |      |                                                       |       |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |      |                                                       |       |      |      |

## COURSE DESCRIPTION

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------|------|------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                  |     |                                                    |      |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                       |     |                                                    |      |      |     |
| <b>Course ID:</b><br>FMFI.KAMŠ/1-BIN-210/15                                                                                                                                                                           |     | <b>Course title:</b><br>Mathematics for Biologists |      |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |     |                                                    |      |      |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                           |     |                                                    |      |      |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                       |     |                                                    |      |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                                          |     |                                                    |      |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                 |     |                                                    |      |      |     |
| <b>Antirequisites:</b> PriF-FMFI.KAMŠ/N-bBXX-082/15                                                                                                                                                                   |     |                                                    |      |      |     |
| <b>Course requirements:</b>                                                                                                                                                                                           |     |                                                    |      |      |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                             |     |                                                    |      |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                |     |                                                    |      |      |     |
| <b>Recommended literature:</b>                                                                                                                                                                                        |     |                                                    |      |      |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                    |     |                                                    |      |      |     |
| <b>Notes:</b>                                                                                                                                                                                                         |     |                                                    |      |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 5                                                                                                                                               |     |                                                    |      |      |     |
| A                                                                                                                                                                                                                     | B   | C                                                  | D    | E    | FX  |
| 20,0                                                                                                                                                                                                                  | 0,0 | 20,0                                               | 40,0 | 20,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Marek Fila, DrSc., doc. Mgr. Richard Kollár, PhD.                                                                                                                                       |     |                                                    |      |      |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                        |     |                                                    |      |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                            |     |                                                    |      |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                   |       |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                   |       |      |      |
| <b>Course ID:</b><br>FMFI.KAI+KI/1-BIN-301/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       | <b>Course title:</b><br>Methods in Bioinformatics |       |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                   |       |      |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                   |       |      |      |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                   |       |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                   |       |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                   |       |      |      |
| <b>Course requirements:</b><br>Homework assignments, group project, written exam<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                   |       |      |      |
| <b>Learning outcomes:</b><br>Students will be familiar with basic problems and methods in bioinformatics; they will be able to choose an appropriate method for a given biological problem and to interpret its results.                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                   |       |      |      |
| <b>Class syllabus:</b><br>Basic concepts from molecular biology, algorithms and machine learning. Sequencing and assembling genomes. Gene finding. Sequence alignment. Evolutionary models and phylogenetic trees. Comparative genomics. RNA structure. Motif finding and gene expression analysis. Protein structure and function. Selected current topics.<br>Students of computer science programs will focus on computer science methods and mathematical modeling of the covered problems. Life science students will focus on understanding and correct application of these methods on real data. |       |                                                   |       |      |      |
| <b>Recommended literature:</b><br>Biological sequence analysis : Probabilistic models of proteins and nucleic acids / Richard Durbin ... [et al.]. Cambridge : Cambridge University Press, 1998<br>Understanding bioinformatics / Marketa Zvelebil, Jeremy O. Baum. New York : Garland Science, 2008                                                                                                                                                                                                                                                                                                     |       |                                                   |       |      |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                   |       |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                   |       |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                   |       |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | B     | C                                                 | D     | E    | FX   |
| 28,41                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 18,18 | 25,0                                              | 20,45 | 4,55 | 3,41 |

|                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., doc. Mgr. Tomáš Vinař, PhD., Mgr. Vladimír Boža, PhD. |
| <b>Last change:</b> 08.02.2018                                                                              |
| <b>Approved by:</b> prof. RNDr. Lubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                  |

## COURSE DESCRIPTION

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                  |       |                                                                   |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                       |       |                                                                   |     |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KBCh/1-BIN-314/15                                                                                                                                                                      |       | <b>Course title:</b><br>Methods in Molecular and Cellular Biology |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |       |                                                                   |     |     |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                           |       |                                                                   |     |     |     |
| <b>Recommended semester:</b> 6.                                                                                                                                                                                       |       |                                                                   |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                          |       |                                                                   |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                 |       |                                                                   |     |     |     |
| <b>Antirequisites:</b> PriF.KBCh/N-bCBI-018/15                                                                                                                                                                        |       |                                                                   |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                           |       |                                                                   |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                             |       |                                                                   |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                |       |                                                                   |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                        |       |                                                                   |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                    |       |                                                                   |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                         |       |                                                                   |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1                                                                                                                                               |       |                                                                   |     |     |     |
| A                                                                                                                                                                                                                     | B     | C                                                                 | D   | E   | FX  |
| 0,0                                                                                                                                                                                                                   | 100,0 | 0,0                                                               | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Jozef Nosek, DrSc., doc. Mgr. Peter Polčic, PhD., Ing. Martina Neboháčová, PhD., Mgr. Katarína Procházková, PhD., Mgr. Lucia Mentelová, PhD.                                            |       |                                                                   |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                        |       |                                                                   |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                            |       |                                                                   |     |     |     |

## COURSE DESCRIPTION

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------|-------|-------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |       |                                           |       |       |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |       |                                           |       |       |     |
| <b>Course ID:</b><br>FMFI.KI/1-INF-171/15                                                                                                                                                                                |       | <b>Course title:</b><br>Operating Systems |       |       |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 3 / 1 <b>per level/semester:</b> 42 / 14<br><b>Form of the course:</b> on-site learning |       |                                           |       |       |     |
| <b>Number of credits:</b> 6                                                                                                                                                                                              |       |                                           |       |       |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                          |       |                                           |       |       |     |
| <b>Educational level:</b> I.                                                                                                                                                                                             |       |                                           |       |       |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                    |       |                                           |       |       |     |
| <b>Antirequisites:</b> FMFI.KI/1-INF-171/10                                                                                                                                                                              |       |                                           |       |       |     |
| <b>Course requirements:</b>                                                                                                                                                                                              |       |                                           |       |       |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |       |                                           |       |       |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |       |                                           |       |       |     |
| <b>Recommended literature:</b>                                                                                                                                                                                           |       |                                           |       |       |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |       |                                           |       |       |     |
| <b>Notes:</b>                                                                                                                                                                                                            |       |                                           |       |       |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 261                                                                                                                                                |       |                                           |       |       |     |
| A                                                                                                                                                                                                                        | B     | C                                         | D     | E     | FX  |
| 21,07                                                                                                                                                                                                                    | 15,71 | 26,44                                     | 12,64 | 14,94 | 9,2 |
| <b>Lecturers:</b> RNDr. Richard Ostertág, PhD., RNDr. Ján Mazák, PhD.                                                                                                                                                    |       |                                           |       |       |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                           |       |                                           |       |       |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |       |                                           |       |       |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                           |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           |
| <b>Course ID:</b><br>FMFI-PriF.KOrCh/1-BIN-102/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Course title:</b><br>Organic Chemistry |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                           |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                           |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                           |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |
| <b>Antirequisites:</b> PriF.KOrCh/N-bBXX-022/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                           |
| <b>Course requirements:</b><br>tests, laboratory exercises, essay, oral exam<br>Scale of assessment (preliminary/final): 95/5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |
| <b>Learning outcomes:</b><br>Students will acquire basic theoretical knowledge about the variability of structures and reactions of carbon compounds. They will understand molecular interactions, acid-base properties, isomerism, electron effects. The course also covers functional groups, nomenclature, transformation, mechanism of selected reactions. fundamentals of chemistry of biomacromolecules, especially proteins and nucleic acids. They are familiar with current trends in organic chemistry. Laboratory exercises provide experience in basic methods of purification and separation of organic compounds - crystallisation, distillation, extraction, chromatography. Students can handle simple synthetic procedures and evidence of characteristic groups of organic compounds as well as isolation of organic compounds from natural materials. |                                           |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                           |
| <b>Recommended literature:</b><br>J. McMurry, Organic Chemistry, Cengage Learning, 2009.<br>J. Clayden, N. Greeves, S. Warren, Organic Chemistry, Oxford University Press, 2012<br>P. Záhradník, M. Kollárová, Prehľad chémie 2 (Organická chémia a biochémia), SPN Bratislava 1997<br>Selected websites and databases of organic compounds and reactions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                           |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                           |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                           |

|                                                                                            |       |      |       |       |       |
|--------------------------------------------------------------------------------------------|-------|------|-------|-------|-------|
| <b>Past grade distribution</b>                                                             |       |      |       |       |       |
| Total number of evaluated students: 26                                                     |       |      |       |       |       |
| A                                                                                          | B     | C    | D     | E     | FX    |
| 15,38                                                                                      | 19,23 | 7,69 | 15,38 | 11,54 | 30,77 |
| <b>Lecturers:</b> doc. RNDr. Andrej Boháč, CSc., RNDr. Viera Poláčková, PhD.               |       |      |       |       |       |
| <b>Last change:</b> 09.02.2018                                                             |       |      |       |       |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |       |      |       |       |       |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------------------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |     |                                                                    |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |     |                                                                    |     |     |     |
| <b>Course ID:</b><br>FMFL.KI+KAI/1-BIN-105/15                                                                                                                                                         |     | <b>Course title:</b><br>Perspectives of the Current Bioinformatics |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning    |     |                                                                    |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                           |     |                                                                    |     |     |     |
| <b>Recommended semester:</b> 2.                                                                                                                                                                       |     |                                                                    |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                          |     |                                                                    |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                 |     |                                                                    |     |     |     |
| <b>Course requirements:</b><br>Active participation, essay<br>Scale of assessment (preliminary/final): 100/0                                                                                          |     |                                                                    |     |     |     |
| <b>Learning outcomes:</b><br>Students will be familiar with the areas of biomedical research in which bioinformatics plays a key role, particularly in the context of the research groups in Slovakia |     |                                                                    |     |     |     |
| <b>Class syllabus:</b><br>Presentations of research groups of Comenius University, Slovak Academy of Sciences and other institutions with emphasis on the role of bioinformatics in research          |     |                                                                    |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                        |     |                                                                    |     |     |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                 |     |                                                                    |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                         |     |                                                                    |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 16                                                                                                                              |     |                                                                    |     |     |     |
| A                                                                                                                                                                                                     | B   | C                                                                  | D   | E   | FX  |
| 100,0                                                                                                                                                                                                 | 0,0 | 0,0                                                                | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., doc. Mgr. Tomáš Vinař, PhD.                                                                                                                     |     |                                                                    |     |     |     |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                        |     |                                                                    |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |     |                                                                    |     |     |     |

## COURSE DESCRIPTION

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------|-----|------|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |                                                           |     |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                           |     |      |     |
| <b>Course ID:</b><br>FMFL.KAI/1-MXX-423/00                                                                                                                                                                                                                                                                                                                                                                                                                                             |      | <b>Course title:</b><br>Philosophy of L. Wittgenstein (1) |     |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / seminar<br><b>Number of hours:</b><br><b>per week:</b> 1 / 1 <b>per level/semester:</b> 14 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                  |      |                                                           |     |      |     |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                                                           |     |      |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                           |     |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |                                                           |     |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                           |     |      |     |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                                                           |     |      |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                           |     |      |     |
| <b>Class syllabus:</b><br>analysis selected sections of Wittgenstein's main writings; influence of Frege's and of Russell's works; interpretation of Wittgenstein's Tractatus; "picture theory" of meaning - fact and Picture of fact; name and meaning of name; sentence and sentence meaning; criterium of sentence meaningfulness - tautology and contradiction, empirical sentences; boundaries of language from the standpoint of theory of meaning; "what we cannot speak about" |      |                                                           |     |      |     |
| <b>Recommended literature:</b><br>Wittgenstein, L.: Tractatus logico - philosophicus, Kalligram, Bratislava 2003.<br>Wittgenstein, L.: Modrá a Hnedá kniha, Kalligram, Bratislava 2002.<br>Wittgenstein, L.: Filosofická zkoumání, Filosofia, Praha 1998.<br>Malcolm, N.: Ludwig Wittgenstein v spomienkach. Archa, Bratislava 1993.                                                                                                                                                   |      |                                                           |     |      |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                                           |     |      |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |                                                           |     |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 36                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                           |     |      |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | B    | C                                                         | D   | E    | FX  |
| 88,89                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2,78 | 5,56                                                      | 0,0 | 2,78 | 0,0 |
| <b>Lecturers:</b> PhDr. Dezider Kamhal, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |                                                           |     |      |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |                                                           |     |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                             |      |                                                           |     |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                            |     |                                                           |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                 |     |                                                           |     |     |     |
| <b>Course ID:</b><br>FMFI.KAI/1-MXX-424/00                                                                                                                                                                                                                                                                                                                      |     | <b>Course title:</b><br>Philosophy of L. Wittgenstein (2) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / seminar<br><b>Number of hours:</b><br><b>per week:</b> 1 / 1 <b>per level/semester:</b> 14 / 14<br><b>Form of the course:</b> on-site learning                                                                                                                                           |     |                                                           |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                     |     |                                                           |     |     |     |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                 |     |                                                           |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                    |     |                                                           |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                           |     |                                                           |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                     |     |                                                           |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                       |     |                                                           |     |     |     |
| <b>Class syllabus:</b><br>philosophical problem solving by arranging what we have always known (by looking into the workings of our language) - its possibility<br>meanings of "meaning" in ordinary language; expression meaning as its use (usage, way of use);<br>reading and interpretation of The Blue and Brown Books and of Philosophical Investigations |     |                                                           |     |     |     |
| <b>Recommended literature:</b><br>Wittgenstein, L.: Tractatus logico - philosophicus, Praha 1993.<br>Wittgenstein, L.: Modrá a Hnedá kniha, Kalligram, Bratislava 2002.<br>Wittgenstein, L.: Filosofická zkoumání, Filosofia, Praha 1998.<br>Malcolm, N.: Ludwig Wittgenstein v spomienkach. Archa, Bratislava 1993.                                            |     |                                                           |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                              |     |                                                           |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                   |     |                                                           |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 25                                                                                                                                                                                                                                                                                        |     |                                                           |     |     |     |
| A                                                                                                                                                                                                                                                                                                                                                               | B   | C                                                         | D   | E   | FX  |
| 96,0                                                                                                                                                                                                                                                                                                                                                            | 4,0 | 0,0                                                       | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> PhDr. Dezider Kamhal, PhD.                                                                                                                                                                                                                                                                                                                    |     |                                                           |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                  |     |                                                           |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                      |     |                                                           |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                               |      |                                                          |     |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                    |      |                                                          |     |      |      |
| <b>Course ID:</b><br>FMFL.KTV/1-MXX-110/00                                                                                                                                                                                                                                                                                                                                                                                         |      | <b>Course title:</b><br>Physical Education and Sport (1) |     |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                     |      |                                                          |     |      |      |
| <b>Number of credits:</b> 0                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                          |     |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                    |      |                                                          |     |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                       |      |                                                          |     |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                          |     |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                          |     |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                          |      |                                                          |     |      |      |
| <b>Class syllabus:</b><br>According to the particular sport: practicing of individual game skills in sports like basketball, volleyball, soccer, floorball. Training in the individual sports like swimming, trampoline jumping, rowing and canoeing, aerobic, bodybuiding, command of fundamental technique of sports discipline. To arrange development of coordination abilities, articular mobility and cardiovascular system. |      |                                                          |     |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                                          |     |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                          |     |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |      |                                                          |     |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 4681                                                                                                                                                                                                                                                                                                                                                         |      |                                                          |     |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                  | B    | C                                                        | D   | E    | FX   |
| 97,29                                                                                                                                                                                                                                                                                                                                                                                                                              | 1,77 | 0,04                                                     | 0,0 | 0,02 | 0,88 |
| <b>Lecturers:</b> Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, PaedDr. Dana Mašlejová, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek                                                                                                                                                                                        |      |                                                          |     |      |      |
| <b>Last change:</b> 25.05.2016                                                                                                                                                                                                                                                                                                                                                                                                     |      |                                                          |     |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                         |      |                                                          |     |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                         |      |                                                          |     |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Course ID:</b><br>FMFI.KTV/1-MXX-120/00                                                                                                                                                                                                                                                                                                                                                                                   |      | <b>Course title:</b><br>Physical Education and Sport (2) |     |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                        |      |                                                          |     |     |      |
| <b>Number of credits:</b> 0                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                          |     |     |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                          |     |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                          |     |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                    |      |                                                          |     |     |      |
| <b>Class syllabus:</b><br>Practising offensive and defensive combinations and game at modified rules in collective games such as basketball, volleyball, soccer, floorball. Command of elements of higher difficulty in terms of the level of the activity abilities (crawl stroke, breast stroke, butterfly stroke, trampoline jump, aerobic compositions with steps, fitball, elastic gums, paddling on the running water. |      |                                                          |     |     |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                          |     |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                           |      |                                                          |     |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                          |     |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 3997                                                                                                                                                                                                                                                                                                                                                   |      |                                                          |     |     |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                            | B    | C                                                        | D   | E   | FX   |
| 97,72                                                                                                                                                                                                                                                                                                                                                                                                                        | 1,88 | 0,05                                                     | 0,0 | 0,0 | 0,35 |
| <b>Lecturers:</b> Mgr. Tomáš Kuchár, PhD., Mgr. Ondrej Podkonický, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek                                                                                                                                                                                  |      |                                                          |     |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                          |     |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                   |      |                                                          |     |     |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                        |      |                                                          |     |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Course ID:</b><br>FMFL.KTV/1-MXX-210/00                                                                                                                                                                                                  |      | <b>Course title:</b><br>Physical Education and Sport (3) |     |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                              |      |                                                          |     |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                |      |                                                          |     |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                       |      |                                                          |     |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                   |      |                                                          |     |     |      |
| <b>Class syllabus:</b><br>To practise game combinations, tactical - mechanical elements in basketball, volleyball, soccer, floorball, ice hockey, badminton, competition rules in the sports specialization.                                |      |                                                          |     |     |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                          |      |                                                          |     |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                               |      |                                                          |     |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 2454                                                                                                                                                                  |      |                                                          |     |     |      |
| A                                                                                                                                                                                                                                           | B    | C                                                        | D   | E   | FX   |
| 99,1                                                                                                                                                                                                                                        | 0,53 | 0,0                                                      | 0,0 | 0,0 | 0,37 |
| <b>Lecturers:</b> Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mokus, PaedDr. Mikuláš Ortutay, Mgr. Ondrej Podkonický, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek |      |                                                          |     |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                  |      |                                                          |     |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------|------|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                        |      |                                                          |      |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                             |      |                                                          |      |     |      |
| <b>Course ID:</b><br>FMFL.KTV/1-MXX-220/00                                                                                                                                                                                                  |      | <b>Course title:</b><br>Physical Education and Sport (4) |      |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                              |      |                                                          |      |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                 |      |                                                          |      |     |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                             |      |                                                          |      |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                |      |                                                          |      |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                       |      |                                                          |      |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                 |      |                                                          |      |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                   |      |                                                          |      |     |      |
| <b>Class syllabus:</b><br>Preparation for sport championships of the Faculty in the chosen sport at modified rules. The selection of talented students into the teams of the University and Faculty leagues and other faculty sport events. |      |                                                          |      |     |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                              |      |                                                          |      |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                          |      |                                                          |      |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                               |      |                                                          |      |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 2210                                                                                                                                                                  |      |                                                          |      |     |      |
| A                                                                                                                                                                                                                                           | B    | C                                                        | D    | E   | FX   |
| 99,64                                                                                                                                                                                                                                       | 0,18 | 0,0                                                      | 0,05 | 0,0 | 0,14 |
| <b>Lecturers:</b> Mgr. Tomáš Kuchár, PhD., Mgr. Ladislav Mókus, Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ondrej Podkonický, PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek |      |                                                          |      |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                              |      |                                                          |      |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                  |      |                                                          |      |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------|-----|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                        |      |                                                          |     |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Course ID:</b><br>FMFL.KTV/1-MXX-310/00                                                                                                                                                                                                  |      | <b>Course title:</b><br>Physical Education and Sport (5) |     |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week: 2 per level/semester: 28</b><br><b>Form of the course:</b> on-site learning                                              |      |                                                          |     |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                |      |                                                          |     |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                       |      |                                                          |     |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                   |      |                                                          |     |     |      |
| <b>Class syllabus:</b><br>Preparation and participation of individuals and teams in the system of university sport competitions and sport events.                                                                                           |      |                                                          |     |     |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                          |      |                                                          |     |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                               |      |                                                          |     |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1654                                                                                                                                                                  |      |                                                          |     |     |      |
| A                                                                                                                                                                                                                                           | B    | C                                                        | D   | E   | FX   |
| 99,4                                                                                                                                                                                                                                        | 0,36 | 0,0                                                      | 0,0 | 0,0 | 0,24 |
| <b>Lecturers:</b> Mgr. Tomáš Kuchár, PhD., Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek |      |                                                          |     |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                  |      |                                                          |     |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------|-----|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                        |      |                                                          |     |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Course ID:</b><br>FMFL.KTV/1-MXX-320/00                                                                                                                                                                                                  |      | <b>Course title:</b><br>Physical Education and Sport (6) |     |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                       |      |                                                          |     |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Recommended semester:</b> 6.                                                                                                                                                                                                             |      |                                                          |     |     |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                |      |                                                          |     |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                       |      |                                                          |     |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                                                 |      |                                                          |     |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                   |      |                                                          |     |     |      |
| <b>Class syllabus:</b><br>Using the communication in the physical education and sport and organizing the sport championships to achieve expressive motion of the sport and health in a valuable orientation the students.                   |      |                                                          |     |     |      |
| <b>Recommended literature:</b>                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                          |      |                                                          |     |     |      |
| <b>Notes:</b>                                                                                                                                                                                                                               |      |                                                          |     |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1447                                                                                                                                                                  |      |                                                          |     |     |      |
| A                                                                                                                                                                                                                                           | B    | C                                                        | D   | E   | FX   |
| 99,52                                                                                                                                                                                                                                       | 0,28 | 0,07                                                     | 0,0 | 0,0 | 0,14 |
| <b>Lecturers:</b> PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, PhD., Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek |      |                                                          |     |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                              |      |                                                          |     |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                  |      |                                                          |     |     |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |       |                                                |       |      |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |       |                                                |       |      |       |
| <b>Course ID:</b><br>FMFI.KI/1-INF-270/15                                                                                                                                                         |       | <b>Course title:</b><br>Practicum in Databases |       |      |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                                |       |      |       |
| <b>Number of credits:</b> 2                                                                                                                                                                       |       |                                                |       |      |       |
| <b>Recommended semester:</b> 5.                                                                                                                                                                   |       |                                                |       |      |       |
| <b>Educational level:</b> I.                                                                                                                                                                      |       |                                                |       |      |       |
| <b>Prerequisites:</b>                                                                                                                                                                             |       |                                                |       |      |       |
| <b>Course requirements:</b>                                                                                                                                                                       |       |                                                |       |      |       |
| <b>Learning outcomes:</b>                                                                                                                                                                         |       |                                                |       |      |       |
| <b>Class syllabus:</b>                                                                                                                                                                            |       |                                                |       |      |       |
| <b>Recommended literature:</b>                                                                                                                                                                    |       |                                                |       |      |       |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |       |                                                |       |      |       |
| <b>Notes:</b>                                                                                                                                                                                     |       |                                                |       |      |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 84                                                                                                                          |       |                                                |       |      |       |
| A                                                                                                                                                                                                 | B     | C                                              | D     | E    | FX    |
| 48,81                                                                                                                                                                                             | 14,29 | 7,14                                           | 10,71 | 4,76 | 14,29 |
| <b>Lecturers:</b> RNDr. Ján Mazák, PhD., RNDr. Michal Rjaško, PhD.                                                                                                                                |       |                                                |       |      |       |
| <b>Last change:</b> 06.10.2016                                                                                                                                                                    |       |                                                |       |      |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |       |                                                |       |      |       |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                    |       |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                    |       |     |     |
| <b>Course ID:</b><br>FMFI-PriF.KBCh/1-BIN-303/15                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       | <b>Course title:</b><br>Principles of Cell Biology |       |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                      |       |                                                    |       |     |     |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                                    |       |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                    |       |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                                    |       |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                                    |       |     |     |
| <b>Antirequisites:</b> PriF.KBCh/N-bCBI-020/16                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    |       |     |     |
| <b>Course requirements:</b><br>tests, final oral exam<br>Scale of assessment (preliminary/final): 0/100                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                    |       |     |     |
| <b>Learning outcomes:</b><br>Students will be familiar with of the internal organization of prokaryotic and eukaryotic cells and the basic biological processes that take place in individual cell compartments. Emphasis is placed on the importance of biological membranes and intracellular compartmentalization for key molecular processes occurring in cells.                                                                                                                                       |       |                                                    |       |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                                    |       |     |     |
| <b>Recommended literature:</b><br>Alberts B., Johnson A., Lewis J., Raff M., Roberts K., Walter P. (2008) Molecular Biology of the Cell, 5th edition, Garland Science<br>Lodish, H., Berk, A., Kaiser, C. A., Krieger, M., Bretscher, A., Ploegh, H., Amon, A., Scott, M. P. (2013). Molecular Cell Biology. 7th Edition, W. H. Freeman and Company.<br>Alberts B., Bray D. Hopkin K., Johnson A. D., Lewis J., Raff M., Roberts K., Walter P. (2014) Essential Cell Biology, 4th edition, Garland Science |       |                                                    |       |     |     |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |                                                    |       |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                    |       |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 6                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                                                    |       |     |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | B     | C                                                  | D     | E   | FX  |
| 16,67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 16,67 | 33,33                                              | 33,33 | 0,0 | 0,0 |
| <b>Lecturers:</b> prof. RNDr. Jozef Nosek, DrSc., doc. Mgr. Peter Polčic, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                             |       |                                                    |       |     |     |

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| <b>Last change:</b> 09.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |       |                                                       |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |       |                                                       |      |      |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-516/15                                                                                                                                                         |       | <b>Course title:</b><br>Principles of Software Design |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 4 <b>per level/semester:</b> 56<br><b>Form of the course:</b> on-site learning |       |                                                       |      |      |      |
| <b>Number of credits:</b> 6                                                                                                                                                                       |       |                                                       |      |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                   |       |                                                       |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                      |       |                                                       |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                             |       |                                                       |      |      |      |
| <b>Antirequisites:</b> FMFI.KI/1-INF-516/10                                                                                                                                                       |       |                                                       |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                       |       |                                                       |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                         |       |                                                       |      |      |      |
| <b>Class syllabus:</b>                                                                                                                                                                            |       |                                                       |      |      |      |
| <b>Recommended literature:</b>                                                                                                                                                                    |       |                                                       |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |       |                                                       |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                     |       |                                                       |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 173                                                                                                                         |       |                                                       |      |      |      |
| A                                                                                                                                                                                                 | B     | C                                                     | D    | E    | FX   |
| 49,71                                                                                                                                                                                             | 17,92 | 15,03                                                 | 9,25 | 6,36 | 1,73 |
| <b>Lecturers:</b> doc. RNDr. Robert Lukořka, PhD.                                                                                                                                                 |       |                                                       |      |      |      |
| <b>Last change:</b> 04.10.2016                                                                                                                                                                    |       |                                                       |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomřr Tomáška, DrSc., doc. Mgr. Bronislava Brejovř, PhD.                                                                                                        |       |                                                       |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                    |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                      |      |                                                    |       |       |      |
| <b>Course ID:</b><br>FMFI.KAMŠ/2-INF-175/18                                                                                                                                                                                                                                                                                                                                                                                          |      | <b>Course title:</b><br>Probability and Statistics |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                             |      |                                                    |       |       |      |
| <b>Number of credits:</b> 5                                                                                                                                                                                                                                                                                                                                                                                                          |      |                                                    |       |       |      |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                      |      |                                                    |       |       |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                                                                                                                                    |      |                                                    |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                    |       |       |      |
| <b>Antirequisites:</b> FMFI.KAMŠ/2-INF-175/15                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                    |       |       |      |
| <b>Course requirements:</b><br>written tests, final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                                           |      |                                                    |       |       |      |
| <b>Learning outcomes:</b><br>Students will be familiar with mathematical foundations of probability and statistics. They will be able to solve common types of problems involving probability and conduct simple statistical analyses.                                                                                                                                                                                               |      |                                                    |       |       |      |
| <b>Class syllabus:</b><br>Definition of probabilistic model and basic properties of probability, conditional probability, Bayes theorems, random variables, random vectors and their characteristics, limit theorems, introduction to Markov chain theory, probabilistic theory of information, regression model with normally distributed errors, introduction to theory of parameter estimation and statistical hypothesis testing |      |                                                    |       |       |      |
| <b>Recommended literature:</b><br>Pravdepodobnosť a matematická štatistika : Štatistické analýzy / František Lamoš, Rastislav Potocký. Bratislava : Univerzita Komenského, 1998<br>Zbierka úloh zo základov teórie pravdepodobnosti / Radoslav Harman, Erika Hönschová, Ján Somorčík. Bratislava : PACI, 2009<br>Electronic course notes published on the course web site                                                            |      |                                                    |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                |      |                                                    |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                    |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 82                                                                                                                                                                                                                                                                                                                                                             |      |                                                    |       |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                    | B    | C                                                  | D     | E     | FX   |
| 30,49                                                                                                                                                                                                                                                                                                                                                                                                                                | 9,76 | 19,51                                              | 17,07 | 19,51 | 3,66 |
| <b>Lecturers:</b> Mgr. Lenka Filová, PhD., Mgr. Lívia Leššová                                                                                                                                                                                                                                                                                                                                                                        |      |                                                    |       |       |      |

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| <b>Last change:</b> 13.05.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                                  |       |      |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                  |       |      |       |
| <b>Course ID:</b><br>FMFI.KI/1-INF-127/15                                                                                                                                                                                                                                                                                                                                                                                                                                                              |       | <b>Course title:</b><br>Programming (1) in C/C++ |       |      |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 4 / 4 <b>per level/semester:</b> 56 / 56<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                               |       |                                                  |       |      |       |
| <b>Number of credits:</b> 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                  |       |      |       |
| <b>Recommended semester:</b> 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                                  |       |      |       |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                                  |       |      |       |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                  |       |      |       |
| <b>Antirequisites:</b> FMFI.KI/1-INF-127/11                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                                  |       |      |       |
| <b>Course requirements:</b><br>Homework, tests, final practical exam<br>Scale of assessment (preliminary/final): 70/30                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                  |       |      |       |
| <b>Learning outcomes:</b><br>Students will be able to write short programs in C/C++ language, debug them and understand existing code. They will be familiar with basic control and data structure constructs of the language, as well as simple dynamic data types and algorithms operating on them.                                                                                                                                                                                                  |       |                                                  |       |      |       |
| <b>Class syllabus:</b><br>Basic control and data structure constructs of the language (loops, conditionals, variables and their types, functions and their parameters, arrays, pointers, strings, files). Basic algorithms and data structures (sorting, linked lists, hash tables, trees, arithmetic expressions, stack and queue, recursion, filling connected areas).                                                                                                                               |       |                                                  |       |      |       |
| <b>Recommended literature:</b><br>Algorithms in C : Parts 1-4 : Fundamentals, data structures, sorting, searching / Robert Sedgewick. Boston : Addison-Wesley, 1998<br>Programming in C / Stephen G. Kochan. Indianapolis : SAMS Publishing, 2005<br>Algoritmy v jazyku C a C++ : Praktický průvodce / Jiří Prokop. Praha : Grada, 2009<br>Custom electronic materials published at the course website <a href="http://compbio.fmph.uniba.sk/vyuka/prog/">http://compbio.fmph.uniba.sk/vyuka/prog/</a> |       |                                                  |       |      |       |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                  |       |                                                  |       |      |       |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                                                  |       |      |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 298                                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                  |       |      |       |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | B     | C                                                | D     | E    | FX    |
| 36,24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 14,77 | 12,42                                            | 17,11 | 7,72 | 11,74 |

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| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., RNDr. Peter Kostolányi, PhD., Mgr. Michal Anderle |
| <b>Last change:</b> 08.02.2018                                                                          |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.              |

## COURSE DESCRIPTION

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                 |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                 |
| <b>Course ID:</b><br>FMFI.KI/1-INF-166/11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Course title:</b><br>Programming (2) in Java |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                           |                                                 |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                 |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                 |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                 |
| <b>Prerequisites:</b> FMFI.KI/1-INF-127/15 - Programming (1) in C/C++                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                 |
| <b>Antirequisites:</b> FMFI.KAI/1-AIN-170/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                 |
| <b>Course requirements:</b><br>homework, tests, final practical exam<br>Scale of assessment (preliminary/final): 70/30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                 |
| <b>Learning outcomes:</b><br>Students will be able to write programs in the Java programming language using the object-oriented paradigm. They will be able to implement graphical user interfaces; They will know basic algorithms and data structures for working with graphs.                                                                                                                                                                                                                                                                                                                                                   |                                                 |
| <b>Class syllabus:</b><br>Control structures and data types of Java language. Object-oriented programming, inheritance, polymorphism, exceptions, generics, Java Collections, testing, implementation of graphical user interfaces, graph representation, breath-first search and depth-first search.                                                                                                                                                                                                                                                                                                                              |                                                 |
| <b>Recommended literature:</b><br>Algorithms in Java : Part 5 : Graph algorithms / Robert Sedgewick ; consulting by Michael Schidlowsky. Boston : Addison-Wesley, 2004<br>Java 6 : Výukový kurz / Sharon Zakhour ... [et al.] ; překlad Jakub Mikulaščík. Brno : Computer Press, 2007<br>Data structures and algorithm in Java / Michael T. Goodrich, Roberto Tamassia. Hoboken : John Wiley & Sons, 2006<br>Thinking in Java / Bruce Eckel. Upper Saddle River : Prentice-Hall, 2006<br>Custom course notes at the course website <a href="http://compbio.fmph.uniba.sk/vyuka/prog/">http://compbio.fmph.uniba.sk/vyuka/prog/</a> |                                                 |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                 |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                 |

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|--------------------------------------------------------------------------------------------|-------|-------|-------|-------|------|
| <b>Past grade distribution</b>                                                             |       |       |       |       |      |
| Total number of evaluated students: 436                                                    |       |       |       |       |      |
| A                                                                                          | B     | C     | D     | E     | FX   |
| 51,83                                                                                      | 10,55 | 10,32 | 11,93 | 11,24 | 4,13 |
| <b>Lecturers:</b> doc. Mgr. Bronislava Brejová, PhD., RNDr. Peter Kostolányi, PhD.         |       |       |       |       |      |
| <b>Last change:</b> 09.02.2018                                                             |       |       |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |       |       |       |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                            |       |                                         |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                 |       |                                         |       |       |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-225/15                                                                                                                                                                                                                                                                                       |       | <b>Course title:</b><br>Programming (3) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                        |       |                                         |       |       |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                     |       |                                         |       |       |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                                                                                                                                                 |       |                                         |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                    |       |                                         |       |       |      |
| <b>Prerequisites:</b> FMFI.KI/1-INF-127/15 - Programming (1) in C/C++ and FMFI.KI/1-INF-166/11 - Programming (2) in Java                                                                                                                                                                                                        |       |                                         |       |       |      |
| <b>Antirequisites:</b> FMFI.KI/1-INF-225/00                                                                                                                                                                                                                                                                                     |       |                                         |       |       |      |
| <b>Course requirements:</b><br>tests, final practical exam<br>Scale of assessment (preliminary/final): 50/50                                                                                                                                                                                                                    |       |                                         |       |       |      |
| <b>Learning outcomes:</b><br>Students will be able to use advanced constructs of Java programming language, design appropriate implementation of common situations in class and interface design, improve existing object-oriented code                                                                                         |       |                                         |       |       |      |
| <b>Class syllabus:</b><br>Advanced constructs of Java programming language (generics and bounded quantification, inner classes, lambda expressions,garbage collection, threads and their life cycle, thread synchronisation). Design patterns (Singleton, Composite, Strategy, Decorator, Iterator, Visitor, ...); Refactoring. |       |                                         |       |       |      |
| <b>Recommended literature:</b><br>Design patterns : Elements of reusable object-oriented software / Erich Gamma ... [et al.]. Boston : Addison-Wesley, 1995<br>Refactoring : Improving the design of existing code / Martin Fowler. Boston : Addison-Wesley, 1999                                                               |       |                                         |       |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                           |       |                                         |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                   |       |                                         |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 368                                                                                                                                                                                                                                                       |       |                                         |       |       |      |
| A                                                                                                                                                                                                                                                                                                                               | B     | C                                       | D     | E     | FX   |
| 37,23                                                                                                                                                                                                                                                                                                                           | 13,86 | 20,92                                   | 11,96 | 14,95 | 1,09 |
| <b>Lecturers:</b> RNDr. Richard Ostertág, PhD., Mgr. Šimon Sádovský, Mgr. Askar Gafurov                                                                                                                                                                                                                                         |       |                                         |       |       |      |

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| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |                                                                                    |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |                                                                                    |     |     |     |
| <b>Course ID:</b><br>FMFL.KTV/1-UXX-340/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     | <b>Course title:</b><br>Recreation Sports in Dially Routine of Pupils and Students |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |                                                                                    |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |                                                                                    |     |     |     |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |                                                                                    |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |                                                                                    |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |                                                                                    |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |                                                                                    |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |                                                                                    |     |     |     |
| <b>Class syllabus:</b><br>To optimize the daily working programme of the students, the programmes of the sport recreational activities and time-off the students. The sport and health in a value orientation of the students. Using developed elemens in an education physical activity and sport preparation.<br>The programmes of the sport recreational activities as a basic precondition of health strengthening, acquirement of physical capability, fitness, regaining of working energy and readiness of body to confront stress situations and dangerous factors as a basic precondition of health strengthening, acquirement of physical capability, fitness, regaining of working energy and readiness of body to confront stress situations and dangerous factors. |     |                                                                                    |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |                                                                                    |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |                                                                                    |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |                                                                                    |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |                                                                                    |     |     |     |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | B   | C                                                                                  | D   | E   | FX  |
| 100,0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0,0 | 0,0                                                                                | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Tomáš Kuchár, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |                                                                                    |     |     |     |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |                                                                                    |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |                                                                                    |     |     |     |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------|------|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |      |                                              |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |      |                                              |      |      |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-161/00                                                                                                                                                            |      | <b>Course title:</b><br>Russian Language (1) |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |      |                                              |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                           |      |                                              |      |      |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                       |      |                                              |      |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                     |      |                                              |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                 |      |                                              |      |      |      |
| <b>Course requirements:</b>                                                                                                                                                                           |      |                                              |      |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                             |      |                                              |      |      |      |
| <b>Class syllabus:</b><br>The subject provides a course in Russian language for beginners.                                                                                                            |      |                                              |      |      |      |
| <b>Recommended literature:</b><br>The textbook has not been published. It is at students' disposal in an electronic format.                                                                           |      |                                              |      |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |      |                                              |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                         |      |                                              |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 654                                                                                                                             |      |                                              |      |      |      |
| A                                                                                                                                                                                                     | B    | C                                            | D    | E    | FX   |
| 60,4                                                                                                                                                                                                  | 15,9 | 10,09                                        | 4,74 | 1,83 | 7,03 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                               |      |                                              |      |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                        |      |                                              |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |      |                                              |      |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |       |                                              |      |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |       |                                              |      |     |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-162/00                                                                                                                                                            |       | <b>Course title:</b><br>Russian Language (2) |      |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                              |      |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                           |       |                                              |      |     |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                       |       |                                              |      |     |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                     |       |                                              |      |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                 |       |                                              |      |     |      |
| <b>Course requirements:</b>                                                                                                                                                                           |       |                                              |      |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                             |       |                                              |      |     |      |
| <b>Class syllabus:</b><br>The subject continues the program of Russian language (1) and provides a course of Russian for beginners.                                                                   |       |                                              |      |     |      |
| <b>Recommended literature:</b><br>The textbook has not been published. It is at students' disposal in an electronic format.                                                                           |       |                                              |      |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |       |                                              |      |     |      |
| <b>Notes:</b>                                                                                                                                                                                         |       |                                              |      |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 399                                                                                                                             |       |                                              |      |     |      |
| A                                                                                                                                                                                                     | B     | C                                            | D    | E   | FX   |
| 65,66                                                                                                                                                                                                 | 15,79 | 9,02                                         | 4,01 | 1,0 | 4,51 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                               |       |                                              |      |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                        |       |                                              |      |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |       |                                              |      |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------|------|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                          |       |                                              |      |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                               |       |                                              |      |     |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-261/00                                                                                                                                                                    |       | <b>Course title:</b><br>Russian Language (3) |      |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning         |       |                                              |      |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                   |       |                                              |      |     |      |
| <b>Recommended semester:</b> 3.                                                                                                                                                                               |       |                                              |      |     |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                             |       |                                              |      |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                                         |       |                                              |      |     |      |
| <b>Course requirements:</b>                                                                                                                                                                                   |       |                                              |      |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                     |       |                                              |      |     |      |
| <b>Class syllabus:</b><br>The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level. |       |                                              |      |     |      |
| <b>Recommended literature:</b><br>The textbook has not been published. It is at students' disposal in an electronic format.                                                                                   |       |                                              |      |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                            |       |                                              |      |     |      |
| <b>Notes:</b>                                                                                                                                                                                                 |       |                                              |      |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 196                                                                                                                                     |       |                                              |      |     |      |
| A                                                                                                                                                                                                             | B     | C                                            | D    | E   | FX   |
| 70,41                                                                                                                                                                                                         | 17,35 | 8,67                                         | 2,55 | 0,0 | 1,02 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                                       |       |                                              |      |     |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                |       |                                              |      |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                    |       |                                              |      |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------|-----|------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                          |       |                                              |     |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                               |       |                                              |     |      |      |
| <b>Course ID:</b><br>FMFL.KJP/1-MXX-262/00                                                                                                                                                                    |       | <b>Course title:</b><br>Russian Language (4) |     |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning         |       |                                              |     |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                   |       |                                              |     |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                               |       |                                              |     |      |      |
| <b>Educational level:</b> I., II.                                                                                                                                                                             |       |                                              |     |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                         |       |                                              |     |      |      |
| <b>Course requirements:</b>                                                                                                                                                                                   |       |                                              |     |      |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                     |       |                                              |     |      |      |
| <b>Class syllabus:</b><br>The course "Russian for Intermediate Students" is a follow-up to "Russian for Beginners". The subject of the course is general Russian in the range appropriate to the given level. |       |                                              |     |      |      |
| <b>Recommended literature:</b><br>The textbook has not been published. It is at students' disposal in an electronic format.                                                                                   |       |                                              |     |      |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                            |       |                                              |     |      |      |
| <b>Notes:</b>                                                                                                                                                                                                 |       |                                              |     |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 138                                                                                                                                     |       |                                              |     |      |      |
| A                                                                                                                                                                                                             | B     | C                                            | D   | E    | FX   |
| 75,36                                                                                                                                                                                                         | 13,04 | 7,25                                         | 2,9 | 0,72 | 0,72 |
| <b>Lecturers:</b> PhDr. Elena Klátiková                                                                                                                                                                       |       |                                              |     |      |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                                |       |                                              |     |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                    |       |                                              |     |      |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                               |       |                                                      |      |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                    |       |                                                      |      |       |      |
| <b>Course ID:</b><br>FMFI-PriF.KOrCh/1-BIN-111/15                                                                                                                                                  |       | <b>Course title:</b><br>Seminar in Organic Chemistry |      |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> seminar<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                                      |      |       |      |
| <b>Number of credits:</b> 2                                                                                                                                                                        |       |                                                      |      |       |      |
| <b>Recommended semester:</b> 1.                                                                                                                                                                    |       |                                                      |      |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                       |       |                                                      |      |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                              |       |                                                      |      |       |      |
| <b>Antirequisites:</b> PriF.KOrCh/N-bBXX-021/15                                                                                                                                                    |       |                                                      |      |       |      |
| <b>Course requirements:</b>                                                                                                                                                                        |       |                                                      |      |       |      |
| <b>Learning outcomes:</b>                                                                                                                                                                          |       |                                                      |      |       |      |
| <b>Class syllabus:</b>                                                                                                                                                                             |       |                                                      |      |       |      |
| <b>Recommended literature:</b>                                                                                                                                                                     |       |                                                      |      |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                 |       |                                                      |      |       |      |
| <b>Notes:</b>                                                                                                                                                                                      |       |                                                      |      |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 28                                                                                                                           |       |                                                      |      |       |      |
| A                                                                                                                                                                                                  | B     | C                                                    | D    | E     | FX   |
| 14,29                                                                                                                                                                                              | 32,14 | 10,71                                                | 25,0 | 10,71 | 7,14 |
| <b>Lecturers:</b> doc. RNDr. Andrej Boháč, CSc., PharmDr. Ivica Sigmundová, PhD., RNDr. Viera Poláčková, PhD.                                                                                      |       |                                                      |      |       |      |
| <b>Last change:</b> 02.06.2015                                                                                                                                                                     |       |                                                      |      |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                         |       |                                                      |      |       |      |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                         |      |                                                       |      |      |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                              |      |                                                       |      |      |      |
| <b>Course ID:</b><br>FMFI.KDMFI/1-INF-175/00                                                                                                                                                                                                                                                                                                                                                                                                 |      | <b>Course title:</b><br>Social Aspects of Informatics |      |      |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                            |      |                                                       |      |      |      |
| <b>Number of credits:</b> 2                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                                                       |      |      |      |
| <b>Recommended semester:</b> 4.                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                       |      |      |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                       |      |      |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                       |      |      |      |
| <b>Antirequisites:</b> FMFI.KDMFI/1-UXX-332/10 and FMFI.KZVI/1-UXX-333/10                                                                                                                                                                                                                                                                                                                                                                    |      |                                                       |      |      |      |
| <b>Course requirements:</b><br>homeworks<br>Scale of assessment (preliminary/final): 100/0                                                                                                                                                                                                                                                                                                                                                   |      |                                                       |      |      |      |
| <b>Learning outcomes:</b><br>Students will be motivated to think about the impact of information and communication technologies on our lives. Students will be familiar with historical perspective of this impact.                                                                                                                                                                                                                          |      |                                                       |      |      |      |
| <b>Class syllabus:</b><br>New ICT are developed and improved very rapidly. They are becoming an invisible part of our everyday life. We try to look at changes introduced by ICT, what positive they are introducing and what the risks are too. We try to analyse different areas of society: education system, medical care, arts, business, finance, manufacturing, etc. Especially we deal with Slovak copyright law and computer crime. |      |                                                       |      |      |      |
| <b>Recommended literature:</b><br>Abelson, Ledeen, Lewis, Blown To Bits, Addison Wesley 2008, <a href="http://www.bitsbook.com">www.bitsbook.com</a><br>Materials shared at the course website                                                                                                                                                                                                                                               |      |                                                       |      |      |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                        |      |                                                       |      |      |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |      |                                                       |      |      |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1504                                                                                                                                                                                                                                                                                                                                                                   |      |                                                       |      |      |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                            | B    | C                                                     | D    | E    | FX   |
| 67,55                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9,71 | 4,59                                                  | 11,9 | 2,73 | 3,52 |
| <b>Lecturers:</b> RNDr. Michal Winczer, PhD.                                                                                                                                                                                                                                                                                                                                                                                                 |      |                                                       |      |      |      |
| <b>Last change:</b> 08.02.2018                                                                                                                                                                                                                                                                                                                                                                                                               |      |                                                       |      |      |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                                                                                                                                                                                                                                                   |      |                                                       |      |      |      |

## COURSE DESCRIPTION

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                     |     |                                              |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                          |     |                                              |     |     |     |
| <b>Course ID:</b><br>FMFI.KTV/1-MXX-115/15                                                                                                                                               |     | <b>Course title:</b><br>Sports in Nature (1) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b><br><b>Number of hours:</b><br><b>per week:</b> <b>per level/semester:</b><br><b>Form of the course:</b> on-site learning    |     |                                              |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                              |     |                                              |     |     |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                          |     |                                              |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                             |     |                                              |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                    |     |                                              |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                              |     |                                              |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                |     |                                              |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                   |     |                                              |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                           |     |                                              |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                       |     |                                              |     |     |     |
| <b>Notes:</b>                                                                                                                                                                            |     |                                              |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 208                                                                                                                |     |                                              |     |     |     |
| A                                                                                                                                                                                        | B   | C                                            | D   | E   | FX  |
| 99,52                                                                                                                                                                                    | 0,0 | 0,48                                         | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, Mgr. Branislav Nedbálek |     |                                              |     |     |     |
| <b>Last change:</b> 25.05.2016                                                                                                                                                           |     |                                              |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                               |     |                                              |     |     |     |

## COURSE DESCRIPTION

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------|-----|-----|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                     |     |                                              |     |     |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                          |     |                                              |     |     |      |
| <b>Course ID:</b><br>FMFI.KTV/1-MXX-215/15                                                                                                                                               |     | <b>Course title:</b><br>Sports in Nature (2) |     |     |      |
| <b>Educational activities:</b><br><b>Type of activities:</b><br><b>Number of hours:</b><br><b>per week:</b> <b>per level/semester:</b><br><b>Form of the course:</b> on-site learning    |     |                                              |     |     |      |
| <b>Number of credits:</b> 2                                                                                                                                                              |     |                                              |     |     |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                          |     |                                              |     |     |      |
| <b>Educational level:</b> I.                                                                                                                                                             |     |                                              |     |     |      |
| <b>Prerequisites:</b>                                                                                                                                                                    |     |                                              |     |     |      |
| <b>Course requirements:</b>                                                                                                                                                              |     |                                              |     |     |      |
| <b>Learning outcomes:</b>                                                                                                                                                                |     |                                              |     |     |      |
| <b>Class syllabus:</b>                                                                                                                                                                   |     |                                              |     |     |      |
| <b>Recommended literature:</b>                                                                                                                                                           |     |                                              |     |     |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                       |     |                                              |     |     |      |
| <b>Notes:</b>                                                                                                                                                                            |     |                                              |     |     |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 128                                                                                                                |     |                                              |     |     |      |
| A                                                                                                                                                                                        | B   | C                                            | D   | E   | FX   |
| 99,22                                                                                                                                                                                    | 0,0 | 0,0                                          | 0,0 | 0,0 | 0,78 |
| <b>Lecturers:</b> Mgr. Martin Dovičák, PhD., Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, Mgr. Branislav Nedbálek |     |                                              |     |     |      |
| <b>Last change:</b> 25.05.2016                                                                                                                                                           |     |                                              |     |     |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                               |     |                                              |     |     |      |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                  |     |                                              |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                       |     |                                              |     |     |     |
| <b>Course ID:</b><br>FMFI.KTV/1-MXX-216/18                                                                                                                                            |     | <b>Course title:</b><br>Sports in Nature (3) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b><br><b>Number of hours:</b><br><b>per week:</b> <b>per level/semester:</b><br><b>Form of the course:</b> on-site learning |     |                                              |     |     |     |
| <b>Number of credits:</b> 1                                                                                                                                                           |     |                                              |     |     |     |
| <b>Recommended semester:</b> 3.                                                                                                                                                       |     |                                              |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                          |     |                                              |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                 |     |                                              |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                           |     |                                              |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                             |     |                                              |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                |     |                                              |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                        |     |                                              |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                    |     |                                              |     |     |     |
| <b>Notes:</b>                                                                                                                                                                         |     |                                              |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 13                                                                                                              |     |                                              |     |     |     |
| A                                                                                                                                                                                     | B   | C                                            | D   | E   | FX  |
| 100,0                                                                                                                                                                                 | 0,0 | 0,0                                          | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Branislav Nedbálek                                                                                                                                             |     |                                              |     |     |     |
| <b>Last change:</b>                                                                                                                                                                   |     |                                              |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                            |     |                                              |     |     |     |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                  |     |                                              |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                       |     |                                              |     |     |     |
| <b>Course ID:</b><br>FMFI.KTV/1-MXX-217/18                                                                                                                                            |     | <b>Course title:</b><br>Sports in Nature (4) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b><br><b>Number of hours:</b><br><b>per week:</b> <b>per level/semester:</b><br><b>Form of the course:</b> on-site learning |     |                                              |     |     |     |
| <b>Number of credits:</b> 1                                                                                                                                                           |     |                                              |     |     |     |
| <b>Recommended semester:</b> 4.                                                                                                                                                       |     |                                              |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                          |     |                                              |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                 |     |                                              |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                           |     |                                              |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                             |     |                                              |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                |     |                                              |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                        |     |                                              |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                    |     |                                              |     |     |     |
| <b>Notes:</b>                                                                                                                                                                         |     |                                              |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1                                                                                                               |     |                                              |     |     |     |
| A                                                                                                                                                                                     | B   | C                                            | D   | E   | FX  |
| 100,0                                                                                                                                                                                 | 0,0 | 0,0                                          | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Branislav Nedbálek                                                                                                                                             |     |                                              |     |     |     |
| <b>Last change:</b>                                                                                                                                                                   |     |                                              |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                            |     |                                              |     |     |     |

## COURSE DESCRIPTION

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------|-----|-----|-------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                              |     |                                                          |     |     |       |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                   |     |                                                          |     |     |       |
| <b>Course ID:</b><br>FMFI.KAMŠ/1-MXX-501/15                                                                                                                                                       |     | <b>Course title:</b><br>Statistics for Non-statisticians |     |     |       |
| <b>Educational activities:</b><br><b>Type of activities:</b> course<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |     |                                                          |     |     |       |
| <b>Number of credits:</b> 2                                                                                                                                                                       |     |                                                          |     |     |       |
| <b>Recommended semester:</b>                                                                                                                                                                      |     |                                                          |     |     |       |
| <b>Educational level:</b> I.                                                                                                                                                                      |     |                                                          |     |     |       |
| <b>Prerequisites:</b>                                                                                                                                                                             |     |                                                          |     |     |       |
| <b>Antirequisites:</b> FMFI.KAMŠ/1-MXX-501/14                                                                                                                                                     |     |                                                          |     |     |       |
| <b>Course requirements:</b>                                                                                                                                                                       |     |                                                          |     |     |       |
| <b>Learning outcomes:</b>                                                                                                                                                                         |     |                                                          |     |     |       |
| <b>Class syllabus:</b>                                                                                                                                                                            |     |                                                          |     |     |       |
| <b>Recommended literature:</b>                                                                                                                                                                    |     |                                                          |     |     |       |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                |     |                                                          |     |     |       |
| <b>Notes:</b>                                                                                                                                                                                     |     |                                                          |     |     |       |
| <b>Past grade distribution</b><br>Total number of evaluated students: 27                                                                                                                          |     |                                                          |     |     |       |
| A                                                                                                                                                                                                 | B   | C                                                        | D   | E   | FX    |
| 85,19                                                                                                                                                                                             | 0,0 | 0,0                                                      | 3,7 | 0,0 | 11,11 |
| <b>Lecturers:</b> doc. Mgr. Ján Mačutek, PhD.                                                                                                                                                     |     |                                                          |     |     |       |
| <b>Last change:</b>                                                                                                                                                                               |     |                                                          |     |     |       |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                        |     |                                                          |     |     |       |

## COURSE DESCRIPTION

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------|-----|-----|-----|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |       |                                                          |     |     |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |       |                                                          |     |     |     |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-133/18                                                                                                                                                            |       | <b>Course title:</b><br>Supplementary English Course (1) |     |     |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |       |                                                          |     |     |     |
| <b>Number of credits:</b> 2                                                                                                                                                                           |       |                                                          |     |     |     |
| <b>Recommended semester:</b> 1.                                                                                                                                                                       |       |                                                          |     |     |     |
| <b>Educational level:</b> I.                                                                                                                                                                          |       |                                                          |     |     |     |
| <b>Prerequisites:</b>                                                                                                                                                                                 |       |                                                          |     |     |     |
| <b>Course requirements:</b>                                                                                                                                                                           |       |                                                          |     |     |     |
| <b>Learning outcomes:</b>                                                                                                                                                                             |       |                                                          |     |     |     |
| <b>Class syllabus:</b>                                                                                                                                                                                |       |                                                          |     |     |     |
| <b>Recommended literature:</b>                                                                                                                                                                        |       |                                                          |     |     |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |       |                                                          |     |     |     |
| <b>Notes:</b>                                                                                                                                                                                         |       |                                                          |     |     |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 3                                                                                                                               |       |                                                          |     |     |     |
| A                                                                                                                                                                                                     | B     | C                                                        | D   | E   | FX  |
| 66,67                                                                                                                                                                                                 | 33,33 | 0,0                                                      | 0,0 | 0,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Ing. Jana Kočvarová                                                                                                                                                            |       |                                                          |     |     |     |
| <b>Last change:</b>                                                                                                                                                                                   |       |                                                          |     |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |       |                                                          |     |     |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                  |     |                                                          |      |      |     |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                       |     |                                                          |      |      |     |
| <b>Course ID:</b><br>FMFI.KJP/1-MXX-134/18                                                                                                                                                            |     | <b>Course title:</b><br>Supplementary English Course (2) |      |      |     |
| <b>Educational activities:</b><br><b>Type of activities:</b> practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 <b>per level/semester:</b> 28<br><b>Form of the course:</b> on-site learning |     |                                                          |      |      |     |
| <b>Number of credits:</b> 2                                                                                                                                                                           |     |                                                          |      |      |     |
| <b>Recommended semester:</b> 2.                                                                                                                                                                       |     |                                                          |      |      |     |
| <b>Educational level:</b> I.                                                                                                                                                                          |     |                                                          |      |      |     |
| <b>Prerequisites:</b>                                                                                                                                                                                 |     |                                                          |      |      |     |
| <b>Course requirements:</b>                                                                                                                                                                           |     |                                                          |      |      |     |
| <b>Learning outcomes:</b>                                                                                                                                                                             |     |                                                          |      |      |     |
| <b>Class syllabus:</b>                                                                                                                                                                                |     |                                                          |      |      |     |
| <b>Recommended literature:</b>                                                                                                                                                                        |     |                                                          |      |      |     |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                    |     |                                                          |      |      |     |
| <b>Notes:</b>                                                                                                                                                                                         |     |                                                          |      |      |     |
| <b>Past grade distribution</b><br>Total number of evaluated students: 10                                                                                                                              |     |                                                          |      |      |     |
| A                                                                                                                                                                                                     | B   | C                                                        | D    | E    | FX  |
| 70,0                                                                                                                                                                                                  | 0,0 | 0,0                                                      | 20,0 | 10,0 | 0,0 |
| <b>Lecturers:</b> Mgr. Ing. Jana Kočvarová                                                                                                                                                            |     |                                                          |      |      |     |
| <b>Last change:</b>                                                                                                                                                                                   |     |                                                          |      |      |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                            |     |                                                          |      |      |     |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       |                                            |      |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                            |      |       |      |
| <b>Course ID:</b><br>FMFI.KI/1-INF-526/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       | <b>Course title:</b><br>System Programming |      |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                            |       |                                            |      |       |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                            |      |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                            |      |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                            |      |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                            |      |       |      |
| <b>Antirequisites:</b> FMFI.KI/1-INF-526/10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                            |      |       |      |
| <b>Course requirements:</b><br>Project, written and oral final exam<br>Scale of assessment (preliminary/final): 30/70                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                            |      |       |      |
| <b>Learning outcomes:</b><br>Students will be familiar with principles and methods of system programming and will have a practical experience with their use.                                                                                                                                                                                                                                                                                                                                                                       |       |                                            |      |       |      |
| <b>Class syllabus:</b><br>(1) Fundamentals of system programming<br>data representation, assembler, instruction types, address modes, program structure in GNU as, linking programs, calling conventions, stack manipulation, libraries, loading and executing programs<br>(2) IA-32 architecture<br>basic architecture, registers, selected instructions, memory models, virtual memory<br>(3).Selected system calls of UNIX systems<br>Starting and terminating processes, input/output, network communication, terminal, signals |       |                                            |      |       |      |
| <b>Recommended literature:</b><br>Custom course notes published on the course website. Publicly available web resources.                                                                                                                                                                                                                                                                                                                                                                                                            |       |                                            |      |       |      |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                            |      |       |      |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                            |      |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 274                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                            |      |       |      |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | B     | C                                          | D    | E     | FX   |
| 18,25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 10,95 | 18,98                                      | 14,6 | 28,47 | 8,76 |
| <b>Lecturers:</b> RNDr. Jaroslav Janáček, PhD., doc. RNDr. Robert Lukočka, PhD.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                                            |      |       |      |

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|--------------------------------------------------------------------------------------------|
| <b>Last change:</b> 08.02.2018                                                             |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |

## COURSE DESCRIPTION

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| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                        |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                        |
| <b>Course ID:</b><br>FMFL.KI/2-INF-176/15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Course title:</b><br>Unix for System Administrators |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                        |
| <b>Number of credits:</b> 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                        |
| <b>Recommended semester:</b> 5.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                        |
| <b>Educational level:</b> I., II.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                        |
| <b>Prerequisites:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                        |
| <b>Course requirements:</b><br>Practical assignments (both during the semester and on final exam)<br>Scale of assessment (preliminary/final): 40/60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                        |
| <b>Learning outcomes:</b><br>After completing the course the students will know the principles of UNIX system administration and they will be able to practically carry out the basic duties of a system administrator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                        |
| <b>Class syllabus:</b><br>users, groups, passwords<br>access permissions for files and directories<br>filesystem structure<br>character and block devices<br>special filesystem objects (symlink, pipe)<br>mounting and unmounting of filesystems to the directory hierarchy (mount, umount, /etc/fstab)<br>creating filesystems<br>system startup and shutdown - /etc/inittab, runlevels<br>job scheduling (cron, at, batch)<br>TCP/IP configuration (ifconfig, route)<br>network services (/etc/services, /etc/inetd.conf, /etc/protocols, /etc/hosts, ...)<br>DNS – client (/etc/resolv.conf)<br>DNS – server<br>NFS<br>Assumptions:<br>good user-level knowledge of UNIX systems, directory hierarchy navigation, creating and editing files (vi, joe), shell programming (sh/bash), commands find, grep, cat, cut, ls, awk. |                                                        |
| <b>Recommended literature:</b><br>Course notes provided on the course website, freely available electronic materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                        |
| <b>Languages necessary to complete the course:</b><br>Slovak, English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                        |
| <b>Notes:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                        |

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|--------------------------------------------------------------------------------------------|------|------|------|-----|-----|
| <b>Past grade distribution</b>                                                             |      |      |      |     |     |
| Total number of evaluated students: 100                                                    |      |      |      |     |     |
| A                                                                                          | B    | C    | D    | E   | FX  |
| 15,0                                                                                       | 31,0 | 31,0 | 14,0 | 9,0 | 0,0 |
| <b>Lecturers:</b> RNDr. Jaroslav Janáček, PhD.                                             |      |      |      |     |     |
| <b>Last change:</b> 09.02.2017                                                             |      |      |      |     |     |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD. |      |      |      |     |     |

## COURSE DESCRIPTION

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------|-------|-------|------|
| <b>University:</b> Comenius University in Bratislava                                                                                                                                                                     |       |                                              |       |       |      |
| <b>Faculty:</b> Faculty of Mathematics, Physics and Informatics                                                                                                                                                          |       |                                              |       |       |      |
| <b>Course ID:</b><br>FMFI.KDMFI/1-AIN-189/15                                                                                                                                                                             |       | <b>Course title:</b><br>Web Applications (1) |       |       |      |
| <b>Educational activities:</b><br><b>Type of activities:</b> lecture / practicals<br><b>Number of hours:</b><br><b>per week:</b> 2 / 2 <b>per level/semester:</b> 28 / 28<br><b>Form of the course:</b> on-site learning |       |                                              |       |       |      |
| <b>Number of credits:</b> 6                                                                                                                                                                                              |       |                                              |       |       |      |
| <b>Recommended semester:</b> 2.                                                                                                                                                                                          |       |                                              |       |       |      |
| <b>Educational level:</b> I.                                                                                                                                                                                             |       |                                              |       |       |      |
| <b>Prerequisites:</b>                                                                                                                                                                                                    |       |                                              |       |       |      |
| <b>Antirequisites:</b> FMFI.KZVI/1-AIN-615/00                                                                                                                                                                            |       |                                              |       |       |      |
| <b>Course requirements:</b>                                                                                                                                                                                              |       |                                              |       |       |      |
| <b>Learning outcomes:</b>                                                                                                                                                                                                |       |                                              |       |       |      |
| <b>Class syllabus:</b>                                                                                                                                                                                                   |       |                                              |       |       |      |
| <b>Recommended literature:</b>                                                                                                                                                                                           |       |                                              |       |       |      |
| <b>Languages necessary to complete the course:</b>                                                                                                                                                                       |       |                                              |       |       |      |
| <b>Notes:</b>                                                                                                                                                                                                            |       |                                              |       |       |      |
| <b>Past grade distribution</b><br>Total number of evaluated students: 1559                                                                                                                                               |       |                                              |       |       |      |
| A                                                                                                                                                                                                                        | B     | C                                            | D     | E     | FX   |
| 35,02                                                                                                                                                                                                                    | 11,29 | 12,76                                        | 12,57 | 13,86 | 14,5 |
| <b>Lecturers:</b> PaedDr. Roman Hrušecký, PhD., RNDr. Marek Nagy, PhD.                                                                                                                                                   |       |                                              |       |       |      |
| <b>Last change:</b> 22.09.2017                                                                                                                                                                                           |       |                                              |       |       |      |
| <b>Approved by:</b> prof. RNDr. Ľubomír Tomáška, DrSc., doc. Mgr. Bronislava Brejová, PhD.                                                                                                                               |       |                                              |       |       |      |