Course descriptions

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COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-220/00	Algebra (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-120/15 - Linear Algebra and Geometry (1)

Course requirements:

Learning outcomes:

Class syllabus:
Semigroups and monoids. Definition and examples of groups. Subgroups and subgroups generated by a set.
Cyclic groups. Invariant subgroups and factor groups. Homomorphisms and congruence relations of groups. Theorem of Lagrange. Permutations groups. Direct product of groups.
Rings, integral domains and fields (definitions and examples). Subrings and ideals. Ideals and differential rings.
Homomorphisms and congruence relations of rings. Field of fractions of a commutative integral domain.

Recommended literature:
T. Katriňák a kol.: Algebra and theoretical arithmetics 1, Univerzita Komenského, 1999 (slovak)
G. Birkhoff, S. Mac Lane, Survey of modern algebra, Bratislava, Alfa 1979 (slovak transl.)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 265

A	B	C	D	E	FX
14,72	5,66	11,32	12,83	47,17	8,3

Lecturers: doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-260/00	Algebra (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 4.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-220/00 - Algebra (1)

Course requirements:

Learning outcomes:

Class syllabus:
Polynomial rings. Ring of functions. Polynomials in several elements. Structure of polynomial rings: greatest common divisors, factorization theory. Roots of a polynomial in a field, factorization of a polynomial using roots. Simple algebraic extension of a field. Solutions of some special algebraic equations.

Recommended literature:
T. Katriňák a kol.:Algebra and theoretical arithmetics 1, Univerzita Komenského, 1999 (Slovak)
G. Birkhoff, S. Mac Lane: Survey of modern algebra, Bratislava, Alfa 1979 (Slovak transl.)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 226

A	B	C	D	E	FX
16,81	4,87	11,06	20,8	39,38	7,08

Lecturers: doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/1-MAT-991/15	**Course title:** BSc Thesis Defense
Number of credits: 8	
Educational level: I.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: prof. RNDr. Ján Filo, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-510/00	Basics of Mathematical Statistics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-282/00 - Probability and Statistics (2)

Course requirements:

Learning outcomes:

Class syllabus:
Parametric classes of distributions, random sample, statistics, basis of theory of point and interval estimation. Rao - Cramer inequality, methods of estimation of parameters. Basis of testing statistical hypothesis, Neyman - Pearson lemma, tests of one and two sided hypothesis. Tests on parameters of normal distribution.

Recommended literature:
Anděl, J.: Matematická štatistika. SNTL, Alfa, Praha, 1985.
Lamoš, F., Potocký R.: Pravdepodobnosť a matematická štatistika, Štatistické analýzy, UK, Bratislava, 1998.
Potocký, R. a kol.: Zbierka úloh z pravdepodobnosti a matematickej štatistiky. Alfa, Bratislava 1986.
Rao, R.: Lineární metody statistické indukce a jejich aplikace. Praha, Academia 1978
Wilks, S.: Matematičeskaja statistika. Nauka, Moskva, 1967.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 248

A	B	C	D	E	FX
25,4	15,73	20,97	19,76	14,11	4,03

Lecturers: RNDr. Andrej Náther, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-510/00	Biomathematics (1)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-250/14 - Mathematical Analysis (4) or FMFI.KMANM/1-MMN-250/17 - Mathematical Analysis (4) or FMFI.KMANM/1-BMF-261/15 - Basics of Mathematics (4)

Course requirements:
Scale of assessment (preliminary/final): 40/60

Learning outcomes:

Class syllabus:
Selection dynamics and population genetics: Hardy-Weinberger law for two and more alleles, the selection equation, the mutation selection equation, the selection recombination equation.
Models of population ecology: logistic equation, Lotka-Volterra equations for predator-prey systems with and without intraspecific competition.

Recommended literature:
J. Hofbauer, K. Sigmund: The Theory of Evolution and Dynamical systems, Cambridge University Press, Cambridge 1988.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 129

A	B	C	D	E	FX
50,39	17,83	20,16	8,53	3,1	0,0

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-515/00	Biomathematics (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-510/00 - Biomathematics (1)

Course requirements:

Learning outcomes:

Class syllabus:
Models of population ecology: the equilibria and their stability, Lotka-Volterra equations for more than two populations.
Game dynamics: evolutionary stable strategies, evolution of phenotypes, equations for asymmetric games.

Recommended literature:
J. Hofbauer, K. Sigmund: The Theory of Evolution and Dynamical systems, Cambridge University Press, Cambridge 1988.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 62

A	B	C	D	E	FX
41,94	16,13	24,19	14,52	1,61	1,61

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-AIN-407/15	Brain and Mind

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 70

A	B	C	D	E	FX
58,57	28,57	11,43	1,43	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-430/00	Classical Methods of Solving Differential Equations

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-310/00 - Ordinary Differential Equations (1)

Course requirements:
Scale of assessment (preliminary/final): 50/50

Learning outcomes:

Class syllabus:
Wave equation - transport equation,d'Alembert's formula,Kirchhoff's and Poisson's formulas,Duhamel's method.
Laplace's equation - fundamental solution,mean-value theorems,properties of harmonic functions,Green's
function for a ball and a half-space.
Heat equation - fundamental solution.
Fourier's method of separation.
Nonlinear first-order PDE - method of characteristics.

Recommended literature:
L.C. Evans: Partial Differential Equations, Graduate Studies in Mathematics, Volume 19, AMS 1998.
V.J. Arsenin: Matematická fyzika (Základné rovnice a špeciálne funkcie), Alfa, Bratislava 1977.
J. Kačur: Vybrané kapitoly z matematickej fyziky I, MFF UK, 1988.
D. Ševčovič: Parciálne diferenciálne rovnice, www.iam.fmph.uniba.sk/skripta/sevcovic
J. Francu: Parciální diferenciální rovnice, VUT v Brne, Fakulta strojní 1998.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 74

A	B	C	D	E	FX
22,97	21,62	9,46	20,27	18,92	6,76

Lecturers: prof. RNDr. Ján Filo, CSc., RNDr. Kristína Rostás, PhD.

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-AIN-408/15	Cognitive Laboratory

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 10

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-490/00	Combinatorics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
Probabilistic proofs in graph theory. Extremal problems (Turán's theorem, Ramsey theorem). More advanced tools for dealing with the counting problem: generating functions, recurrences, Polya's theorem, Cayley's Formula.

Recommended literature:
R.A. Brualdi: Introductory Combinatorics, Second Ed., Prentice Hall, Englewood Cliffs, NJ 07632
F. Harary: E.M. Palmer: Graphical Enumeration, Acad. Press, New York - London, 1973 (ruský preklad Mir, Moskva, 1977)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

A	B	C	D	E	FX
52,0	24,0	12,0	8,0	4,0	0,0

Lecturers: RNDr. Jana Tomanová, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-730/00	Computer Statistics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-282/00 - Probability and Statistics (2)

Course requirements:

Learning outcomes:

Class syllabus:
Basics of data management, large data sets, statistics software reliability, algorithms for large samples, Enterprise Guide (client), SAS/IML.

Recommended literature:
Ravindra Khattree and Dayanannd N. Naik: Applied Multivariate Statistics with SAS Software, Second Edidion, 1999, SAS Publishing
Peter H. Westfall, Randall D. Tobias, Dror Rom, Dr Russell D. Wolfinger, PhD., and Yosef Hochberg: Multiple Comparisons and Multiple Tests Using the SAS System, 1999, SAS Publishing
Vanables, W.N., Ripley, B.D.: Modern Applied Statistics with S-PLUS. Third Edition, Springer, 1999.
Lamoš F, Potocký R: "Pravdepodobnosť a matematická štatistika: štatistické analýzy", MFF UK 1998
Dalgaard P: "Introductory Statistics with R", Springer 2004
Crawley, MJ: "Statistics: An Introduction Using R", Wiley 2005

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 206

A	B	C	D	E	FX
36,41	16,02	8,25	15,05	14,56	9,71

Lecturers: Mgr. Ján Somorčík, PhD.

Last change: 12.10.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-140/00	Discrete Mathematics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 50/50

Learning outcomes:

Class syllabus:
Sets, propositions, propositional functions. Propositional calculus, predicate logic. The basic set operations, relations. Finite and infinite sets, countable and uncountable sets. Cardinal numbers.

Recommended literature:
T. Šalát, J. Smítal: Teória množín, UK, Bratislava 1995
L. Bukovský: Množiny a všeličo okolo nich, Alfa, Bratislava 1985
D. Olejár, M. Škoviera: Úvod do diskrétnej matematiky I, MFF UK, Bratislava, 1992
K. Hrbacek, T. Jeck: Introduction to Set Theory, Marcel Dekker, inc., New York and Basel, 1978

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 863

A	B	C	D	E	FX
11,01	11,7	17,96	28,39	22,6	8,34

Lecturers: Mgr. Martin Niepel, PhD., Mgr. Tomáš Rusin, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-725/00	Discrete Mathematics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 2.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-140/00 - Discrete Mathematics (1)

Course requirements:

Learning outcomes:

Class syllabus:
Fundamental counting rules - recurrences, inclusion/exclusion. Binomical coefficients and their properties, combinatorial identities. The basic notions in graph theory. The minimal spanning tree problem. Walks in a graph-exclusion trail, hamiltonian cycle. Drawing of a graph on a surface, planar graphs, Euler's formula. Platonic solids. Colouring of a graph, the chromatic number and the chromatic index of a graph. The Four-Colour Theorem. Pigeonhole principle, Ramsey numbers.

Recommended literature:
Jiří Matoušek, Jaroslav Nešetřil: Kapitoly z diskrétní matematiky, Matfyzpress, Praha, 1996.
Š. Znám: Kombinatorika a teória grafov. Skriptá MFF UK , Bratislava

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 146

A	B	C	D	E	FX
43,84	6,85	18,49	14,38	10,96	5,48

Lecturers: RNDr. Jana Tomanová, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-233/13	English Conversation Course (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3., 5.

Educational level: I., II.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
The content of the course is general English.
The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals
Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 135

A	B	C	D	E	FX
58,52	18,52	9,63	2,22	1,48	9,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-234/13	English Conversation Course (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4., 6.

Educational level: I., II.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
The course is a follow-up to the Conversation Course in English (1). The content of the course is general English.
The language level is B2/C1 (Upper-Intermediate/Lower Advanced).

Recommended literature:
Selection of materials from Inside Out Upper-Intermediate, Cutting Edge Upper-Intermediate, New English File Upper-Intermediate, British and American newspapers and journals
Recordings: authentic and semi-authentic (source: BBC, CNN, coursebook recordings)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 62

A	B	C	D	E	FX
67,74	19,35	4,84	0,0	0,0	8,06

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-131/00	English Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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 mathemathics.

Recommended literature:
Zemanová, A.: Anglický jazyk pre študentov FMFI UK. Kurz pre mierne pokročilých. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-2829-6
Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3
Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1
Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8
Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 4568

A	B	C	D	E	FX
30,12	23,82	18,83	13,05	8,08	6,11

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Ing. Eva Vartíková, Mgr. Alexandra Maďarová, Mgr. Renáta Čárska, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-132/00	English Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:
Zemanová, A.: Anglický jazyk pre študentov FMFI UK. Kurz pre mierne pokročilých. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-2829-6

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1350

A	B	C	D	E	FX
18,74	21,19	25,93	17,11	11,26	5,78

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Ing. Eva Vartíková, Mgr. Alexandra Maďarová, Mgr. Renáta Čárska, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-231/00	English Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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 mathemathics.
The subject requires advanced knowledge of general English.

Recommended literature:
Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3
Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1
Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8
Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1134

A	B	C	D	E	FX
16,67	19,4	22,75	17,55	18,52	5,11

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Ing. Eva Vartíková, Mgr. Alexandra Maďarová, Mgr. Renáta Čárska, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-232/10	English Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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 mathemathics.

Recommended literature:
Erdélyi L., Gombárik P.: Anglický jazyk pre študentov FMFI UK. Aplikovaná matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3216-3
Gombárik P.: Anglický jazyk pre študentov FMFI UK. Matematika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3207-1
Klátiková E.: Anglický jazyk pre študentov FMFI UK. Informatika. Univerzita Komenského v Bratislave, Bratislava 2012, ISBN 978-80-223-3196-8
Alena Zemanová: Anglický jazyk pre študentov FMFI UK. Fyzika. Univerzita Komenského v Bratislave, Bratislava 2014, 92 strán, ISBN: 978-80-223-3477-8.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2248

A	B	C	D	E	FX
28,43	28,51	20,95	10,9	5,83	5,38

Lecturers: Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Ing. Eva Vartíková, PhDr. Alena Zemanová, PhDr. Elena Klátiková, Mgr. Renáta Čárska, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MAT-575/00	Figure Recognition and Image Processing

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 30/70

Learning outcomes:

Class syllabus:
Image acquisition.
Properties of digital image.
Image transformations.
Methods of image pre-processing.
Segmentation.
Representation of shape and its description.
Pattern recognition.
Statistical and syntactic methods of recognition
Mathematical morfology.
Processing of textures.

Recommended literature:
Gonzalez, Woods: Digital Image processing, 1992
Hlaváč - Šonka: Počítačové vidění, 1992
Boyle - Šonka - Hlaváč: Image procesing, analysis and machine vision, 1999

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 88

A	B	C	D	E	FX
20,45	30,68	31,82	12,5	0,0	4,55

Lecturers: doc. RNDr. Milan Ftáčnik, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-141/00	French Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 374

A	B	C	D	E	FX
39,84	22,19	21,66	10,16	2,14	4,01

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-142/00	French Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of French language (1) and provides courses of essential and intermediate French language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 237

A	B	C	D	E	FX
34,18	27,85	21,52	11,39	2,53	2,53

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-241/00	French Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course of intermediate French language, covering not only general, but also technical language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 93

A	B	C	D	E	FX
33,33	30,11	23,66	7,53	1,08	4,3

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-242/00	French Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course of intermediate French covering not only general, but also technical French language.

Recommended literature:
Pravda, Pravdová: Učebnica francúzštiny pre samoukov a kurzy, SPN Bratislava 1999, ISBN 80-08-00431-2
Blažena Srncová: Učebnica francúzštiny pre študentov Matematicko-fyzikálnej fakulty , UK 1983
Kolektív Lingea, s.r.o.: Slovensko-francúzsky hovorník, Bratislava 2008
Zarha Lahmidi: Sciences-techniques.com, ISBN 209-0331186-0, CLE international, 2005

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
31,75	38,1	20,63	3,17	1,59	4,76

Lecturers: Mgr. Pavel Vilášek, Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-410/00	Functional Analysis (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-250/14 - Mathematical Analysis (4)

Recommended prerequisites:
Recommended 1-MAT-310 Obyčajné diferenciálne rovnice (1)

Course requirements:
Scale of assessment (preliminary/final): 30/70

Learning outcomes:

Class syllabus:
Linear normed spaces, linear functionals and operators, Hahn-Banach Theorem, dual operators, Banach spaces, Banach-Stienhaus Theorem, differences between finite-dimensional and infinite-dimensional spaces, weak convergence, reflexivity, Lebesgue integral, limit theorems, mesasures on product spaces, Fubini theorem, Lp-spaces, Hilbert spaces, theorem on orthogonal projections, Riesz Representation Theorem, Bessel inequality, Fourier coefficients, orthonormal bases, the space of continuous functions, Stone-Weierstrass Theorem, Arzeal-Ascoli Lemma, the dual space of C(I).

Recommended literature:
W. Rudin: Analýza v reálném a komplexním oboru, Academia, Praha, 1977.
A. N. Kolmogorov - S. V. Fomin: Základy teórie funkcí a funkcionální analýzy, 1975.
A. E. Taylor: Úvod do funkcionální analýzy, Academia, Praha, 1973.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 90

A	B	C	D	E	FX
33,33	21,11	11,11	15,56	14,44	4,44

Lecturers: prof. RNDr. Michal Fečkan, DrSc., Mgr. Július Pačuta, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-411/15	Functional Analysis (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-410/00 - Functional Analysis (1)

Antirequisites: FMFI.KMANM/1-MAT-411/12

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 8

A	B	C	D	E	FX
50,0	12,5	12,5	0,0	0,0	25,0

Lecturers: prof. RNDr. Michal Fečkan, DrSc., Mgr. Július Pačuta, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM/1-MAT-951/15	**Course title:** Fundamentals of Mathematics
Number of credits: 6	
Educational level: I.	
State exam syllabus:	
Last change: 29.10.2015	
Approved by: prof. RNDr. Ján Filo, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTFDF/1-MAT-815/00	Fundamentals of Physics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-250/14 - Mathematical Analysis (4)

Course requirements:
Scale of assessment (preliminary/final): 30/70

Learning outcomes:

Class syllabus:
Mechanics:
Procedure is largery based on the scalar quantities: kinetic energy, potential energy, virtual work and in many cases the power function. Each of these can be expressed, usually without difficulty, in any suitable coordinates. Of course the vector nature of force, velocity, acceleration etc., must be taken account of in the treatment of dynamical problems. Fortunately the basic idea involved in the derivation of Lagrange's equations are simple and easy to understand. The application of Lagrange's equations to actual problems is remarkably simple even for systemswhich may be quite complex. Except for very elementary problems, the procedure is in general much simpler and less time consuming than the than the "concise", "elegant" or special methods found in many current (physical) texts. During the lecture are presented as well as the examples, problems and suggested experiments.

Recommended literature:
M. Fecko: Introduction to theoretical physics.
Arthur Beiser: Introduction to the modern physics.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 40

A	B	C	D	E	FX
67,5	17,5	10,0	5,0	0,0	0,0

Lecturers: Mgr. Juraj Tekel, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTFDF/1-MAT-825/00	Fundamentals of Physics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KTFDF/1-MAT-815/00 - Fundamentals of Physics (1)

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
We present the concepts of "state of a system" and the "eigenstate", which then straightforwardly lead to the basic equation of motion, i.e. to the Schroedinger equation; and, by way of a number of classic, historically important observations concerning the quantization of the systems and the various radiation laws, we infer the duality of waves and particles. Quantum mechanics is then further developed with respect to the fundamental problems (uncertainty relations, quantization of classical systems, spin, etc.); applications as the harmonic oscillator, hydrogen atom, hydrogen-like atoms and a lot of examples and exercises.

Recommended literature:
R. Liboff: Introductory quantum mechanics
W. Greiner: Quantum mechanics
D. Griffith: Introduction to quantum mechanics

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 8

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Juraj Tekel, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-565/15	Geometric Objects Representation

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites:

Recommended prerequisites:
none

Antirequisites: FMFI.KAGDM/1-MAT-565/00

Course requirements:
Preliminary assessment: tests, projects
Final assessment: Exam in written and oral form
Final assessment examination 70% (A 90%; B 80%; C 70%; D 60%; E 50%)
Scale of assessment (preliminary/final): Weight of the course work / exam: 30/70

Learning outcomes:
The graduate gains basic knowledge of the cubic curve segments, spline curves, patches and spline surfaces. Spline curves and surfaces are studied with parametric or geometric continuities, the shape parameters are applied for modeling. The computational algorithms of the curve segments are presented.

Class syllabus:
1. Representation of cubic segments in Hermite and Bernstein basis, computational algorithms.
2. Geometric and parametric continuities for curve segments and creating:
a) interpolating splines (Hermite spline, cardinal spline, Catmull-Rom spline)
b) approximating splines (Bézier spline, Beta spline, B-spline).
Rational curves (Bézier, NURBS) and the weights as shape parameters.
3. Representation of surfaces defined by
a) geometric transformation (surfaces of revolution)
b) boundary curves (ruled surfaces, Coons surfaces)
c) control nets (tensor-product surfaces, Bézier, B-spline, NURBS).

Recommended literature:
Geometric Modeling with Splines / R. F. Riesenfeld, E. Cohen, G. Elber: A K Peters/CRC Press; 1 ed. 2001
Fundamentals of CAGD / J. Hoschek, D. Lasser: A K Peters/CRC Press; 1 ed., 1996

Geometric Concepts for Geometric Design / W. Boehm, H. Prautzsch. Publ. by A K PETERS, 1993
Bézier and B-Spline Techniques / H. Prautzsch, W. Boehm, M. Paluszny. Springer-Verlag Berlin Heidelberg, 2002
Curves and Surfaces for CAGD, Fifth Edition: A Practical Guide / Gerald Farin. Morgan-Kaufmann, 2002

Languages necessary to complete the course:
english

Notes:
none

Past grade distribution
Total number of evaluated students: 7

A	B	C	D	E	FX
14,29	14,29	14,29	28,57	14,29	14,29

Lecturers: RNDr. Soňa Kudličková, CSc., RNDr. Martina Bátorová, PhD.

Last change: 25.01.2018

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-551/10	Geometry for Graphics (1)

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 680

A	B	C	D	E	FX
18,97	15,15	17,06	20,44	18,82	9,56

Lecturers: Mgr. Ľudovít Balko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-552/10	Geometry for Graphics (2)

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 428

A	B	C	D	E	FX
21,73	11,45	16,59	18,69	27,8	3,74

Lecturers: Mgr. Ľudovít Balko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-151/00	German Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 648

A	B	C	D	E	FX
31,94	29,17	21,3	10,03	2,93	4,63

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-152/00	German Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The course continues the program of German language (1). German language is taught at three levels: beginner, intermediate, advanced.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 408

A	B	C	D	E	FX
29,17	22,06	23,77	14,95	3,68	6,37

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-251/00	German Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of German language (2). It provides a course of intermediate and advanced German language.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
Aus moderner Technik und Naturwissenschaft, 1999, Max Hueber Verlag, D-85737, ISBN 3-19-001629-1

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 148

A	B	C	D	E	FX
38,51	27,03	22,3	6,76	2,7	2,7

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-252/00	German Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of German language (3). It provides a course of intermediate and advanced German language.

Recommended literature:
Vilášek, P.: Nemčina pre študentov FMFI, Na webovej stránke autora v elektronickej podobe.
Vilma Václavíková: Nemčina pre študentov MFF UK, Vysokoškolský učebný text pre potrebu študentov KJP, č. 9793/1982 C VIII/2, 1983

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 78

A	B	C	D	E	FX
35,9	28,21	14,1	12,82	3,85	5,13

Lecturers: Mgr. Pavel Vilášek, Mgr. Alexandra Maďarová

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-460/00	Graph Theory

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Complexity of algorithms and problems. P, NP and NP- complete problems. Hamiltonian cycles in graphs, in cubic graphs, the Four-Colour Theorem, Chvátal's theorem, the Travelling Sales-man Problem. The groups of automorphisms of a graph. Vertex-transitive, edge-transitive graphs. Cayley graphs.

Recommended literature:
J. Plesník: Grafové algoritmy, Veda, Bratislava, 1983
J.A. Bandy, U.S.R. Murphy: Graph Theory with Applications, North-Holland, New York - Amsterdam - London, 1976

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 28

A	B	C	D	E	FX
64,29	7,14	17,86	7,14	3,57	0,0

Lecturers: RNDr. Jana Tomanová, CSc., doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-755/15	Graph Theory

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 3.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAGDM/1-MAT-755/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 87

A	B	C	D	E	FX
62,07	5,75	11,49	4,6	11,49	4,6

Lecturers: doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-910/15	Individual Work on Final Thesis

Educational activities:
Type of activities: independent work
Number of hours:
per week: **per level/semester:** 100s
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 38

A	B	C	D	E	FX
68,42	10,53	10,53	0,0	5,26	5,26

Lecturers: prof. RNDr. Ján Filo, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-491/15	Integrated Education of People with Disabilities

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 24

A	B	C	D	E	FX
95,83	4,17	0,0	0,0	0,0	0,0

Lecturers: PaedDr. Elena Mendelová, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-495/00	Introduction to Coding Theory

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Introduction to Coding Theory and Cryptography. Coding theory for the "ideal" communication channel (definitions and examples, concepts of encoding and decoding, construction of some simple codes, the shortest code, block codes etc.) Introduction to the theory of error-correcting codes (the minimum distance of a nontrivial code, detection and correction of transmitted errors, information symbols and parity check symbols).
Introduction to the theory of linear codes. (generator matrix and parity check matrix).

Recommended literature:
J. Adámek: Coding theory, SNTL, Praha 1989 (in Czech)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 48

A	B	C	D	E	FX
87,5	4,17	4,17	2,08	2,08	0,0

Lecturers: prof. RNDr. Tibor Katriňák, DrSc., doc. RNDr. Róbert Jajcay, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-180/00	Introduction to Computer Graphics

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Computer graphics definition and reference model. History, fundamental problems and their solutions. Transformations in the plane. Basics of functional specification of graphic systems and standards. Graphical objects creation, modification, and coding. Rasterisation. Clipping and intersections. Image processing algorithms.

Recommended literature:
Ružický, E. a kol. Počítačová grafika a spracovanie obrazu. Bratislava: Sapientia 1995.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 687

A	B	C	D	E	FX
33,04	33,04	17,03	8,3	2,91	5,68

Lecturers: doc. RNDr. Andrej Ferko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-427/00	Introduction to Philosophy of Language

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Frege's "semantic triangle"; Russell's theory of descriptions; relation between language and "world" (Wittgenstein's "Tractatus logico-philosophicus"); critics of traditional philosophy and its "pseudo-problems"; natural (ordinary) language and artificial languages; two approaches to ordinary language; Quine's critics of dogmas of empiricism; expression meaning as an object (entity) and expression meaning as its use; language games (Wittgenstein's "Philosophical Investigations"), rules and rule following; undestanding - role of community and role of form of life; Oxonian schol of linguistic analysis (P. F. Strawson, J. L. Austin, H. P. Grice)

Recommended literature:
Frege, G.: "O zmysle a denotáte.", In: Filozofia, roč. 47, 1992, č. 6.
Russell, B.: "Opisy.", In: Organon F, 1995, č. 2
Peregrin, J.: Kapitoly z analytické filosofie, Filosofia, Praha 2005.
Filozofia prirodzeného jazyka, Archa, Bratislava 1992

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 19

A	B	C	D	E	FX
84,21	10,53	5,26	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-403/00	Introduction to Psychology of Jean Piaget (1)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Piaget's theory of cognitive development
- the sensorimotor stage
- the preoperational stage
- the concrete operational stage
- the formal operational stage

Recommended literature:
J. Piaget, B. Inhelderová: Psychológia dieťaťa. Bratislava: Sofa 1997.
H. E. Gruber, J. J. Voneche, Eds.: Essential Piaget. London: 1995.
CD ROM Piaget, Piaget's videos (Geneva University)

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 0

A	B	C	D	E	FX
0,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-404/00	Introduction to Psychology of Jean Piaget (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
1. Constructivist models (Piaget).
2. Associationist models (Behaviorism).
3. Sociocognitive models (Vygotsky).
4. Nativist models (Chomsky and Fodor).

Recommended literature:
K. Richardson: Models of Cognitive Development. London: Psychology Press 2003.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-AIN-406/15	Language and Cognition

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 30

A	B	C	D	E	FX
30,0	46,67	20,0	3,33	0,0	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-735/11	Linear Algebra Classes (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 1 **per level/semester:** 14
Form of the course: on-site learning

Number of credits: 1

Recommended semester: 3.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 115

A	B	C	D	E	FX
45,22	18,26	10,43	13,91	9,57	2,61

Lecturers: doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-736/11	Linear Algebra Classes (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 1 **per level/semester:** 14
Form of the course: on-site learning

Number of credits: 1

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 93

A	B	C	D	E	FX
55,91	23,66	7,53	6,45	5,38	1,08

Lecturers: doc. RNDr. Martin Mačaj, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-120/15	Linear Algebra and Geometry (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 1.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAGDM/1-MAT-120/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 724

A	B	C	D	E	FX
13,95	10,5	17,13	25,28	26,93	6,22

Lecturers: prof. RNDr. Július Korbaš, CSc., RNDr. Martin Sleziak, PhD., doc. RNDr. Jaroslav Guričan, CSc.

Last change: 15.01.2018

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-160/15	Linear Algebra and Geometry (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 2.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-120/15 - Linear Algebra and Geometry (1)

Antirequisites: FMFI.KAGDM/1-MAT-160/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 573

A	B	C	D	E	FX
16,58	14,66	17,1	21,82	27,23	2,62

Lecturers: prof. RNDr. Július Korbaš, CSc., RNDr. Martin Sleziak, PhD., doc. RNDr. Jaroslav Guričan, CSc.

Last change: 15.01.2018

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KMANM+KAGDM/1-MAT-191/00	**Course title:** Linear Algebra and Geometry Classes (1)
Educational activities: **Type of activities:** practicals **Number of hours:** **per week:** 2 **per level/semester:** 28 **Form of the course:** on-site learning	
Number of credits: 2	
Recommended semester: 1.	
Educational level: I.	
Prerequisites:	
Course requirements: Scale of assessment (preliminary/final): 100/0	
Learning outcomes:	
Class syllabus: Topics corresponding to the individual interests of students, within the following framework: Number systems (integers, rational numbers, real numbers, complex numbers), mappings, groups, rings, fields, vector spaces, the Gaussian elimination method for solving systems of linear equations, matrices and linear mappings, solvability of a system of linear equations and structure of the solution set, determinants and their applications, Euclidean vector spaces, orthogonal projection to a subspace.	
Recommended literature: J. Korbaš: Lineárna algebra a geometria I. Univerzita Komenského, Bratislava 2003. T. Katriňák, M. Gavalec, E. Gedeonová, J. Smítal: Algebra a teoretická aritmetika 1. Univerzita Komenského, Bratislava 1999. G. Birkhoff, S. MacLane: Prehľad modernej algebry. Alfa, Bratislava 1979. P. Kaprálik, J. Tvarožek: Zbierka riešených príkladov a úloh z lineárnej algebry a analytickej geometrie. ALFA, Bratislava 1987. A. K. Faddejev, J. S. Sominskij: Zbierka úloh z vyššej algebry. Alfa, Bratislava 1968. A. I. Kostrikin, Yu. I. Manin: Linear Algebra and Geometry. Gordon & Breach, New York 1989. I. V. Proskurjakov: Problems in Linear Algebra. Mir, Moscow 1978.	
Languages necessary to complete the course:	
Notes:	

Past grade distribution Total number of evaluated students: 467					
A	B	C	D	E	FX
22,06	21,63	20,77	19,06	12,85	3,64
Lecturers: prof. RNDr. Július Korbaš, CSc., RNDr. Martin Sleziak, PhD.					
Last change: 15.01.2018					
Approved by: prof. RNDr. Ján Filo, CSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM+KAGDM/1-MAT-192/00	Linear Algebra and Geometry Classes (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Topics corresponding to the individual interests of students, within the following framework: Affine spaces and subspaces. Orientation. Affine spaces with an inner product. Vector product and mixed product and their applications. Selected facts on polynomials. Linear transformations (eigenvalues, eigenvectors, diagonalization, Jordan normal form). Bilinear and quadratic forms. Plane curves of the second order; applications of the theory of quadratic forms. Dual vector spaces. Multilinear forms. Tensors.

Recommended literature:
M. Hejný, V. Zaťko, P. Kršňák: Geometria 1. SPN, Bratislava 1985.
T. Katriňák, M. Gavalec, E. Gedeonová, J. Smítal: Algebra a teoretická aritmetika 1. Univerzita Komenského, Bratislava 1999.
P. Kaprálik, J. Tvarožek: Zbierka riešených príkladov a úloh z lineárnej algebry a analytickej geometrie. ALFA,
Bratislava 1987.
A. I. Kostrikin, Yu.I.Manin: Linear Algebra and Geometry. Gordon & Breach, New York 1989.
G. Birkhoff, S. MacLane: Prehľad modernej algebry. Alfa, Bratislava 1979.
I. V. Proskurjakov: Problems in Linear Algebra. Mir, Moscow 1978.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 418

A	B	C	D	E	FX
23,68	20,1	18,42	18,42	15,31	4,07

Lecturers: prof. RNDr. Július Korbaš, CSc., RNDr. Martin Sleziak, PhD.
Last change: 15.01.2018
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-466/10	Linear Programming

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-160/15 - Linear Algebra and Geometry (2) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
LP formulations of some real-life problems. The geometry of LP problems (graphic solutions, polyhedra, faces and their representations). The simplex method (primal, dual and revised versions). Duality theory (basic theorems), its applications and economic interpretation. Parametric programming and its applications (multiple criteria optimization, fractional programming). Postoptimization and sensitivity analysis. Transportation problem. About non-simplex methods for LP.

Recommended literature:
J. Plesník, J. Dupačová, M. Vlach: Lineárne programovanie. Alfa, Bratislava 1990.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 52

A	B	C	D	E	FX
38,46	11,54	30,77	13,46	5,77	0,0

Lecturers: prof. RNDr. Ján Plesník, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-110/00	Mathematical Analysis (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
I. Introduction
II. The Real and Complex Number Systems
Ordered Sets, Fields, The Real Field, The Extended Real Number System, The Complex Field
III. Basic Topology
Finite, Countable, and Uncountable Sets, Compact Sets
IV. Numerical Sequences and Series
Convergent Sequences, Subsequences, Cauchy Sequences, Upper and Lower Limits, Some Special Sequences, Series, Series of Nonnegative Terms, The Number e, The Root and Ratio Test, Power Series, Absolute Convergence, Addition and Multiplication of Series, Elementary Functions
V. Continuity
Limits of Functions, Continuous Functions, Continuity and Compactness, Dicontinuities, Monotonic Functions, Infinite Limits and Limits at Infinity

Recommended literature:
Rudin, Walter: Principles of mathematical analysis, ISBN 0-07-054235-X
Hildebrandt, Stefan: Analysis I, ISBN 3-540-42838-0
Forstter, Otto: Analysis I, ISBN 3-528-57224-8
Neubrunn, Tibor a Vencko, Jozef: Mathematical Analysis I, textbook of FMFI UK
Kubáček, Valášek: Cvičenia z Matematickej analýzy 1,2

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 486

A	B	C	D	E	FX
12,35	10,08	10,49	27,16	38,68	1,23

Lecturers: doc. RNDr. Zbyněk Kubáček, CSc., Mgr. Július Pačuta, PhD.
Last change: 02.06.2015
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-150/00	Mathematical Analysis (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 2.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-110/00 - Mathematical Analysis (1)

Course requirements:
Scale of assessment (preliminary/final): 30/70

Learning outcomes:

Class syllabus:
VI. Differentiation
The Derivative of a Real Function, Mean Value Theorems, The Continuity of Derivatives, L'Hospital's Rule, Derivatives of Higher Order, Taylor's Theorem,
VII. The Riemann Integral
Definition and Existence of the Integral, Properties of the Integral, Integration and Differentiation, Rectifiable Curves
VIII. Sequences and Series of Functions
Discussion of Main Problem, Uniform Convergence, Uniform Convergence and Continuity, Uniform Convergence and Integration, Uniform Convergence and Differentiation, Power Series

Recommended literature:
Rudin, Walter: Principles of mathematical analysis, ISBN 0-07-054235-X
Hildebrandt, Stefan: Analysis I, ISBN 3-540-42838-0
Forstter, Otto: Analysis I, ISBN 3-528-57224-8
Neubrunn, Tibor a Vencko, Jozef: Mathematical Analysis I, textbook of FMFI UK
Kubáček, Valášek: Cvičenia z Matematickej analýzy 1,2

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 454

A	B	C	D	E	FX
11,89	9,69	15,42	25,77	35,24	1,98

Lecturers: doc. RNDr. Zbyněk Kubáček, CSc., Mgr. Július Pačuta, PhD.

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-210/00	Mathematical Analysis (3)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 3.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2) and FMFI.KAGDM/1-MAT-160/15 - Linear Algebra and Geometry (2)

Course requirements:
Scale of assessment (preliminary/final): 40/60

Learning outcomes:

Class syllabus:
Metric spaces. Limits and continuity of functions of several variables. Differentiability, directional and partial derivatives. Local and global extrema of functions of several variables, constrained extrema. The implicit function theorem. Parametric integrals.

Recommended literature:
M.Gera, V.Ďurikovič: Matematická analýza 1, Alfa, Bratislava 1990.
W.Fleming: Functions of Several Variables, Springer-Verlag, New York-Heidelberg-Berlin 1997.
M.Barnovská a kol.: Cvičenia z matematickej analýzy III (skriptá MFF UK), Bratislava 1993.
B.P.Demidovič: Sbornik zadač i upražnenij po matematičeskomu analyzu, Nauka, Moskva 1977.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 436

A	B	C	D	E	FX
11,01	8,72	12,16	19,95	28,44	19,72

Lecturers: prof. RNDr. Ján Filo, CSc., RNDr. Kristína Rostás, PhD., RNDr. Michal Pospíšil, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-250/14	Mathematical Analysis (4)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 4 / 2 **per level/semester:** 56 / 28
Form of the course: on-site learning

Number of credits: 8

Recommended semester: 4.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-160/15 - Linear Algebra and Geometry (2) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 41

A	B	C	D	E	FX
12,2	12,2	9,76	26,83	19,51	19,51

Lecturers: prof. RNDr. Ján Filo, CSc., RNDr. Kristína Rostás, PhD., RNDr. Michal Pospíšil, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-710/00	Mathematical Analysis Classes (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
I. Introduction: 1. Basic concept of sets and logic, function, relations. 2. Definition of real numbers, supremum of a bounded set.
II. Sequences: 1. Limit of a sequence, limes superior an inferior, limit point. 2. Relationship between convergence and boudedness, Cantor set, Bolzano-Cauchy criterion.
III. One variable functions: 1. Limit of a function, continuous functions, basic theorems of limits, Heine definition of limit, uniform continuity. 2. Differential calculus, mean value theorems, monotonic functions, local maxima and minima, convex functions, asymptotic behaviour, Taylor polynomial.

Recommended literature:
Kubáček, Valášek: Cvičenia z matematickej analýzy I

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 556

A	B	C	D	E	FX
40,29	16,19	12,59	12,23	11,33	7,37

Lecturers: RNDr. Kristína Rostás, PhD., Mgr. Július Pačuta, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-720/00	Mathematical Analysis Classes (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
I. Functional sequences and series: 1. Sequences of functions, point and uniform convergence. 2. Numbers and functions series, convergence criterions, power expansions. 3. Taylor series of the functions.
II. Integral calculus: 1. Primitive function, Newton integral, integration by parts and substitution methods, reduction to the parial fractions. 2. Riemann integral, integrability of monotonic and continuous functions, mean value theorems, Newton-Leibniz formula, applications of integral (area of planar regions, lehght of a curve, volume and surface area of solids). 3. Functions with bounded variation, Riemann-Stieltjes integral.

Recommended literature:
Kubáček, Valášek: Cvičenia z matematickej analýzy II

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 454

A	B	C	D	E	FX
44,49	14,54	17,4	9,47	11,01	3,08

Lecturers: RNDr. Kristína Rostás, PhD., Mgr. Július Pačuta, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-750/00	Mathematical Analysis Classes (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Metric spaces. Limits and continuity of functions of several variables. Differentiability, directional and partial derivatives. Local and global extrema of functions of several variables, constrained extrema. The implicit function theorem. Parametric integrals.

Recommended literature:
M.Gera, V.Ďurikovič: Matematická analýza 1, Alfa, Bratislava 1990.
M.Barnovská a kol.: Cvičenia z matematickej analýzy III (skriptá MFF UK), Bratislava 1993.
J.Eliaš-J.Horváth-J.Kajan: Zbierka úloh z vyššej matematiky 3 , Alfa, Bratislava 1967.
B.P.Demidovič: Sbornik zadač i upražnenij po matematičeskomu analyzu, Nauka, Moskva 1977.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 358

A	B	C	D	E	FX
37,99	18,44	15,08	17,32	9,22	1,96

Lecturers: RNDr. Kristína Rostás, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-775/00	Mathematical Analysis Classes (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Riemann integral in Rn. Fubini's theorem. Transformation of integrals. Integration on manifolds. Line and surface integrals. Green's and Stoke's theorem. Fourier series.

Recommended literature:
J.Eliaš-J.Horváth-J.Kajan-R.Šulka: Zbierka úloh z vyššej matematiky 4 , Alfa, Bratislava 1970.
I.Kluvánek-L.Mišík-M.Švec: Matematika 2, Alfa, Bratislava 1961.
V.Ďurikovič: Matematická analýza 4. Integrálny počet v R n (skriptá MFF UK), UK Bratislava 1997.
B.P.Demidovič: Sbornik zadač i upražnenij po matematičeskomu analyzu, Nauka, Moskva 1977.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 344

A	B	C	D	E	FX
49,71	16,86	12,79	10,76	8,72	1,16

Lecturers: RNDr. Kristína Rostás, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-550/00	Mathematical Statistics

Educational activities:
Type of activities: lecture
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-PMA-510/00 - Basics of Mathematical Statistics

Course requirements:

Learning outcomes:

Class syllabus:
Correlation analysis. Sample coefficients of correlation. Linear model and parameter estimating. Simultaneous confidence intervals. Regression analysis. Simple linear regression. Polynomical regression. Analysis of variance. Testing influence of one and more qualitative factors. Analysis of covariance.

Recommended literature:
Lamoš F., Potocký, R.: Pravdepodobnosť a matematická štatistika (Štatistické analýzy). Bratislava, Alfa 1989, UK Bratislava 1998.
Rao C.R.: Lineární metody statistické indukce a jejich aplikace. Praha, Academia 1978.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 214

A	B	C	D	E	FX
13,08	20,56	22,9	23,36	16,36	3,74

Lecturers: doc. RNDr. Rastislav Potocký, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-270/00	Matrix Calculus

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: I.

Prerequisites: FMFI.KAGDM/1-MAT-160/15 - Linear Algebra and Geometry (2)

Course requirements:
Scale of assessment (preliminary/final): 40/60

Learning outcomes:

Class syllabus:
Examples of the occurrence of matrices in practical tasks. LU-decomposition of a matrix and its modifications. Matrix norms. Projective (orthogonal and nonorthogonal) matrix. Last square problem. Generalized inverse matrix. QR-decomposition of a matrix (Gram-Schmidt orthogonalization, Householder's construction). Singular value decomposition of a matrix. Spectral properties of matrix. Gershgorin's theorem. Schur´s theorem. Several canonical forms of matrix. Hessenberg form of a matrix. Matrix functions defined over spectra of matrices. Normal matrix. Symmetric, positive definite, Hermitian matrix. The introduction to Perron-Frobenius's theory of nonnegative matrices. Practical applications for problems of numerical algebra.

Recommended literature:
Horn R.A., Johnson Ch.R.: Matrix Analysis, Camb.Univ.Press, London-N.Y., 1986
Horn R.A., Johnson Ch.R.: Topics in Matrix Analysis, Camb.Univ. Press, 1991, 1995, 1997.
Lancaster P.: Theory of Matrices.,Acad. Press. N.Y.- London, 1969
Bellman R.:I ntroduction to Matrix Analysis. N.Y.-Toronto-London.1960
Gantmacher F.R.: Teorija matric, GITTL,Moskva, 1954 (+doplnené vydania)
Householder A.S.: The Theory of Matrices in Numerical Analysis, Blaisdell. Publ. Co., N.Y.-Toronto-London,1964
FiedlerM.: Speciální matice v numerické matematice, SNTL, Praha, 1981
Golub,G.H. - Van Loan, C.F. : Matrix Computations, The John Hopkins University Press, Baltimore and London, 1996

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 332					
A	B	C	D	E	FX
12,35	12,95	16,87	23,49	31,63	2,71
Lecturers: RNDr. Tatiana Bušinská, CSc.					
Last change: 02.06.2015					
Approved by: prof. RNDr. Ján Filo, CSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-185/00	Methods for Solving Mathematical Problems (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Solving problems of the mathematical analysis, algebra and discrete mathematics from past mathematical competitions. The range of solved problems will depend on students.

Recommended literature:
Hecht, T. - Sklenáriková, Z.: Metódy riešenia matematických úloh. SPN, Bratislava 1992.
Larson, L. C.: Metódy riešenia matematických problémov. Alfa, Bratislava 1990.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 129

A	B	C	D	E	FX
50,39	6,98	7,75	9,3	15,5	10,08

Lecturers: Mgr. Peter Novotný, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-186/00	Methods for Solving Mathematical Problems (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/1

Learning outcomes:

Class syllabus:
Solving problems of the mathematical analysis, algebra and discrete mathematics from past mathematical competitions. The range of solved problems will depend on students.

Recommended literature:
Hecht, T. - Sklenáriková, Z.: Metódy riešenia matematických úloh. SPN, Bratislava 1992.
Larson, L. C.: Metódy riešenia matematických problémov. Alfa, Bratislava 1990.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
65,08	9,52	4,76	6,35	6,35	7,94

Lecturers: Mgr. Peter Novotný, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MAT-570/15	Modelling and Rendering Techniques

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 6

Recommended semester: 5.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAI/1-MAT-570/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 17

A	B	C	D	E	FX
29,41	23,53	23,53	0,0	17,65	5,88

Lecturers: prof. RNDr. Roman Ďurikovič, PhD.

Last change: 22.09.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-470/00	Number Theory

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
The divisibility in Z. Prime numbers, the prime number theorem and its applications. Elementar arithmetic functions. Perfect numbers. Congruences. The Euler's Totient Theorem. Pythagorean triangles.

Recommended literature:
M. Kolibiar a kol.: Algebra a príbuzné disciplíny, Alfa, Bratislava, 1992
T. Šalát: Vybrané kapitoly z elementárnej teórie čísel, Univerzita Komenského, Bratislava, 1983
T. Šalát: Algrebra a teoretická aritmetika (2), Alfa, Bratislava, 1986
Š. Znám: Teória čísel, Alfa, Bratislava, 1977

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 136

A	B	C	D	E	FX
72,79	11,03	8,82	2,21	2,94	2,21

Lecturers: RNDr. Martin Sleziak, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-240/00	Numerical Mathematics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 4.

Educational level: I., II.

Prerequisites: FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2) or FMFI.KMANM/1-INF-150/00 - Mathematical Analysis (2)

Course requirements:
Scale of assessment (preliminary/final): 40/60

Learning outcomes:

Class syllabus:
Position of numerical mathematics in solving of real problems. Concept of stability. Errors and computational arithmetic. The solution of nonlinear equations. Solution of system nonlinear equations. Approximation of functions. Interpolation - Lagrange's and Newton's interpolation polynomial and their errors. Optimal selection of interpolations point. Chebyshev polynomials. Linear and cubic splines. The least square method. Numerical differentiation. Numerical quadrature.
The solution of simultaneous linear equations.

Recommended literature:
Lars Eldén, Linde Wittmeyer-Koch: Numerical analysis An Introduction ACADEMIC Press, INC, San Diego, 1990.
J. Babušíková, M. Slodička, J. Weisz : Numerická matematika , UK Bratislava, 1999 (skriptá).
A. Fillová, A.Valková : Numerická matematika II ,UK Bratislava 1991 (skriptá).
S. Míka: Numerické metody algebry, SNTL Praha 1982.
P. Přikryl: Numerické metody matematické analýzy, SNTL Praha 1985.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 303

A	B	C	D	E	FX
27,39	22,44	19,47	11,55	17,82	1,32

Lecturers: Mgr. Jela Babušíková, PhD., Mgr. Peter Novotný, PhD.

Last change: 02.06.2015
Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-780/00	Numerical Mathematics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-240/00 - Numerical Mathematics (1)

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Numerical solution of systems linear algebraic solution. Matrix iterative method. The conjugate gradient method. CORDIC algorithm. The Fraser's diagram. Numerical differentiation and quadrature method - Richardson's extrapolation. Orthogonal polynomial and Gauss quadrature. The Weierstrass approximations theorem. Chebyshev theorem on minimax approximation. Chebyshev polynomials and Chebyshev expansions. Economization of power series. The least square method, multilinear regression. Gronwal's lemma.

Recommended literature:
Lars Eldén, Linde Wittmeyer-Koch: Numerical analysis An Introduction ACADEMIC Press, INC, San Diego, 1990.
J. Babušíková, M. Slodička, J. Weisz : Numerická matematika , UK Bratislava, 1999 (skriptá).
A. Fillová, A.Valková : Numerická matematika II ,UK Bratislava 1991 (skriptá).
P. Přikryl: Numerické metody matematické analýzy, SNTL Praha 1985.
A. Dávid, Ľ. Šlahor: Aproximačné a kvadratúrne metódy, UK Bratislava, 1978. (skriptá)
A. Ralston: Základy numerické matematiky, ACADÉMIA Praha, 1973.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 108

A	B	C	D	E	FX
38,89	30,56	17,59	7,41	3,7	1,85

Lecturers: Mgr. Jela Babušíková, PhD., Mgr. Patrik Mihala

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-530/15	Numerical Methods of Linear Algebra

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-270/00 - Matrix Calculus

Antirequisites: FMFI.KMANM/1-MAT-530/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 6

A	B	C	D	E	FX
33,33	0,0	33,33	16,67	16,67	0,0

Lecturers: prof. RNDr. Július Korbaš, CSc., Mgr. Peter Novotný, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KI/1-MAT-230/15	Operation Systems and Computer Networks

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KI/1-MAT-230/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 42

A	B	C	D	E	FX
57,14	23,81	9,52	4,76	0,0	4,76

Lecturers: RNDr. Jaroslav Janáček, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-310/00	Ordinary Differential Equations (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-210/00 - Mathematical Analysis (3) or FMFI.KMANM/1-MAT-250/14 - Mathematical Analysis (4)

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
Mathematical models in the form of differential equations (DE). Basic methods of solving of differential equations. Systems of differential equations with continuous right-hand sides: The existence and uniqueness. The Peano existence theorem. Linear systems of differential equations and linear n-th order differential equations. The stability of solutions of linear differential equations.

Recommended literature:
M. Greguš, M. Švec, V. Šeda: Obyčajné diferenciálne rovnice, Alfa
J. Bock, L. Marko: Diferenciálne rovnice, skriptá, FE STU
B. P. Demidovič: Lekcii po matematičeskoj teorii ustojčivosti, Nauka
J. Nagy: Diferenciálen rovnice, SNTL Praha
M. Medveď: Dynamické systémy, UK Bratislava 2000.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 248

A	B	C	D	E	FX
36,29	18,15	20,56	12,9	11,69	0,4

Lecturers: prof. RNDr. Milan Medveď, DrSc., prof. RNDr. Ján Filo, CSc., RNDr. František Jaroš, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-425/00	Ordinary Differential Equations (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-310/00 - Ordinary Differential Equations (1)

Course requirements:
Scale of assessment (preliminary/final): 20/80

Learning outcomes:

Class syllabus:
1. Continuation of the theory of systems of differential equations.
2. Existence, uniqueness and dependence of solutions on initial conditions and parameters.
3. Qualitative theory of differential equations.
4. Autonomous systems and their properties. Method of linearization.
5. Differential inequalities.
6. Asymptotic properties and stability of solutions.
7. Boundary value problems, eigenfunctions and eigenvalues.
8. Comparison theorems.

Recommended literature:
Greguš, M. - Švec, M. - Šeda, V.: Obyčajné diferenciálne rovnice, Alfa, Bratislava 1985.
Brikhoff, G. - Rota, G. C.: Ordinary Differential Equations, Ginn and Co., 1962.
Kurzweil, J.: Obyčejné diferenciální rovnice, SNTL, Praha 1978.
Redheffer, R.: Differential Equations. Theory and Applications, Jones & Bartlett Publish., Boston 1991.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 65

A	B	C	D	E	FX
53,85	15,38	13,85	9,23	7,69	0,0

Lecturers: prof. RNDr. Jaroslav Jaroš, CSc., RNDr. František Jaroš, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-425/00	Philosophical Conceptions of Meaning (1)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
G. Frege on sense reference (denotation) of language expressions;
Russell's theory of descriptions; solving of problems - identity sentences, existential sentences and semantic function of expression without reference;
critics of theory of descriptions - P. F. Strawson and K. Donnellan.
semantics of Tractatus logico-philosophicus - names and objects, sentences as pictures of facts;
Alfred Tarski - semantic conception and definition of truth;
R. Carnap - method of extension and intension, internal and external questions

Recommended literature:
Frege, G.: "O zmysle a denotáte.", In: Filozofia, roč. 47, 1992, č. 6.
Russell, B.: "Opisy.", In: Organon F, 1995, č. 2.
Carnap, R.: Meaning and Necessity, Chicago, IL: University of Chicago Press, 1947.
Peregrin, J.: Význam a struktura. Oikúmené, Praha 1999.
Organon F: preklady článkov Russella, Tarskeho, Donnellana a i.
Denotácia, referencia a význam. Organon F, Príloha, Bratislava 2000.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-426/00	Philosophical Conceptions of Meaning (2)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
names as rigid designators in "possible worlds"; causal-historical theory of reference; semantic reductionism versus semantic holism; W. v. O. Quine - indeterminateness of translation; inscrutability of reference and ontological relativity; Quine's pragmatism; D. Davidson - radical interpretation and principle of charity; H. Putnam - meaning of "meaning", internal and external realism.

Recommended literature:
Kripke, Saul A.: Pomenovanie a nevyhnutnosť. Kalligram, Bratislava 2002
Davidson, D.: Čin, myseľ, jazyk. Archa, Bratislava 1997.
Quine, W. V. O.: Od stimulu k vědě, Academia, Filosofia, Praha 2002
Quine, W. v. O.: Hledání pravdy. Herrmann a synové, Praha 1994.
Peregrin, J. (edit): Obrat k jazyku: Druhé kolo. Filosofia, Praha 1998.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-423/00	Philosophy of L. Wittgenstein (1)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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; sencente 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"

Recommended literature:
Wittgenstein, L.: Tractatus logico - philosophicus, Kalligram, Bratislava 2003.
Wittgenstein, L.: Modrá a Hnedá kniha, Kalligram, Bratislava 2002.
Wittgenstein, L.: Filosofická zkoumání, Filosofia, Praha 1998.
Malcolm, N.: Ludwig Wittgenstein v spomienkach. Archa, Bratislava 1993.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 36

A	B	C	D	E	FX
88,89	2,78	5,56	0,0	2,78	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-424/00	Philosophy of L. Wittgenstein (2)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
philosophical problem solving by arranging what we have always known (by looking into the workings of our language) - its possibility
meanings of "meaning" in ordinary language; expression meaning as its use (usage, way of use); reading and interpretation of The Blue and Brown Books and of Philosophical Investigations

Recommended literature:
Wittgenstein, L.: Tractatus logico - philosophicus, Praha 1993.
Wittgenstein, L.: Modrá a Hnedá kniha, Kalligram, Bratislava 2002.
Wittgenstein, L.: Filosofická zkoumání, Filosofia, Praha 1998.
Malcolm, N.: Ludwig Wittgenstein v spomienkach. Archa, Bratislava 1993.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

A	B	C	D	E	FX
96,0	4,0	0,0	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-110/00	Physical Education and Sport (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 0

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 4433

A	B	C	D	E	FX
97,23	1,78	0,05	0,0	0,02	0,92

Lecturers: Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, PaedDr. Dana Mašlejová, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 25.05.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-120/00	Physical Education and Sport (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 0

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 3794

A	B	C	D	E	FX
97,65	1,95	0,03	0,0	0,0	0,37

Lecturers: Mgr. Tomáš Kuchár, PhD., Mgr. Ondrej Podkonický, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Jana Leginusová, doc. PhDr. Vojtech Potočný, CSc., PaedDr. Mikuláš Ortutay, Mgr. Viktor Sládok, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-210/00	Physical Education and Sport (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
To practise game combinations, tactical - mechanical elements in basketball, volleyball, soccer, floorball, ice hockey, badminton, competition rules in the sports specialization.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2338

A	B	C	D	E	FX
99,19	0,43	0,0	0,0	0,0	0,38

Lecturers: Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, PaedDr. Mikuláš Ortutay, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-220/00	Physical Education and Sport (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 2080

A	B	C	D	E	FX
99,66	0,19	0,0	0,0	0,0	0,14

Lecturers: Mgr. Tomáš Kuchár, PhD., Mgr. Ladislav Mókus, Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-310/00	Physical Education and Sport (5)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Preparation and participation of individuals and teams in the system of university sport competitions and sport events.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1535

A	B	C	D	E	FX
99,35	0,39	0,0	0,0	0,0	0,26

Lecturers: Mgr. Tomáš Kuchár, PhD., doc. PhDr. Vojtech Potočný, CSc., Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-320/00	Physical Education and Sport (6)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1335

A	B	C	D	E	FX
99,55	0,22	0,07	0,0	0,0	0,15

Lecturers: PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický, doc. PhDr. Vojtech Potočný, CSc., Mgr. Jana Leginusová, Mgr. Tomáš Kuchár, PhD., PaedDr. Mikuláš Ortutay, Mgr. Martin Dovičák, Mgr. Júlia Raábová, PhD., Mgr. Branislav Nedbálek

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-551/14	Probability Distributions

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-281/00 - Probability and Statistics (1) or FMFI.KAMŠ/1-INF-435/13 - Probability and Statistics or FMFI.KAMŠ/1-UMA-302/15 - Probability Measure and Mathematical Statistics (1)

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 25

A	B	C	D	E	FX
44,0	24,0	24,0	0,0	4,0	4,0

Lecturers: doc. Mgr. Ján Mačutek, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-520/00	Probability Theory (1)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-282/00 - Probability and Statistics (2)

Course requirements:

Learning outcomes:

Class syllabus:
Measure, measurable space, probability space; measurable function, random variable. Lebesgue integral - mean value; integral transformation theorem, mean value calculation. Random vector, independence, product of measures; random vector transformation, convolution; weak and strong laws of large numbers, Kolmogorov theorems, Borel - Cantelli lemma, 0-1 law; characteristic function, Helly-Bray and Helly-Montel theorem, Levy theorem; central limit theorems.

Recommended literature:
Lamoš, F., Potocký, R.: Pravdepodobnosť a matematická štatistika,Alfa,1989,UK,Bratislava,1998
Neubrunn, T., Riečan, B: Miera a integrál
Renyi, A.: Teórie pravdepodobnosti
Hušková, M., Dupač, V.: Teória pravdepodobnosti a matematickej štatistiky

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 244

A	B	C	D	E	FX
14,34	14,75	17,21	20,08	27,05	6,56

Lecturers: RNDr. Andrej Náther, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-MAT-281/00	Probability and Statistics (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 3.

Educational level: I.

Prerequisites: (FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2) or FMFI.KMANM/1-MMN-150/15 - Mathematical Analysis (2) or FMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2)) and (FMFI.KAGDM/1-MAT-120/15 - Linear Algebra and Geometry (1) or FMFI.KAGDM/1-MMN-120/00 - Linear Algebra and Geometry (1) or FMFI.KAGDM/1-EFM-121/15 - Linear Algebra and Geometry (1))

Course requirements:
Preliminary semester evaluation: a test
Examination: written examination
Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 70/30

Learning outcomes:
After completing the course the student will be able to use classical probability models, axiomatic approach to the definition of probability. He will master one dimensional discrete and continuous random variables. He will be given an introduction to selected statistical procedures: point and interval estimates of parameters sampling normal distribution.

Class syllabus:
Probability space. Classical probability models. Random variable and distribution function. Elementary discrete and continuous distributions, expectation and variance. Independence and correlation. Normal distribution and the central limit theorem. Random sample, sample mean, sample variance. Sampling normal distribution. Estimation of parameters, maximal likelihood, confidence intervals for the mean of a normal distribution.

Recommended literature:
Janková, K., Pázman, A.: Pravdepodobnosť a štatistika, Vydavateľstvo UK 2011
Harman, R., Honschová, E., Somorčík, J.: Zbierka úloh zo základov teórie pravdepodobnosti, Paci Bratislava 2009
G.R.Grimmett, D. Stirzaker: Probability and Random Processes. Oxford University Press 2001

Languages necessary to complete the course:

Notes:

Past grade distribution Total number of evaluated students: 1069					
A	B	C	D	E	FX
16,93	12,44	17,59	21,8	26,1	5,14
Lecturers: doc. RNDr. Katarína Janková, CSc., Mgr. Lívia Leššová, Mgr. Jozef Kováč					
Last change: 28.04.2017					
Approved by: prof. RNDr. Ján Filo, CSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-MAT-282/00	Probability and Statistics (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 1 **per level/semester:** 28 / 14
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 4.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-281/00 - Probability and Statistics (1)

Course requirements:
Preliminary assessment: test
Examination: written examination
Approximate final assessment: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 30/70

Learning outcomes:
After completing the course the student will master multivariate discrete and continuous distributions. He will be able to calculate distributions of sums, products and ratios of independent random variables. He will know the technique of characteristic functions and will be able to apply it to the multidimensional normal distribution. The knowledge of probability methods will be applied to selected statistical problems of parameter estimation and hypotheses testing.

Class syllabus:
Multiple random variables, their distribution and characteristics. Elementary introduction to Lebesgue integral. Marginal and conditional distributions and densities. Independence, sums of independent random variables. Characteristic functions and their applications. Convergence of sequences of random variables, central limit theorems and weak law of large numbers. Statistical inference: estimation of parameters, maximal likelihood estimates, hypothesis testing. Neyman Pearson lemma. Regression models: least squares and maximal likelihood estimation of parameters. Goodness of fit tests.

Recommended literature:
Janková, K., Pázman, A.: Pravdepodobnosť a štatistika, Vydavateľstvo UK 2011
K. Zvára, J. Štěpán: Pravděpodobnost a matematická statistika, Matfzypress 1997
Harman, R., Honschová, E., Somorčík, J.: Zbierka úloh zo základov teórie pravdepodobnosti, Paci Bratislava 2009
G.R.Grimmett, D. Stirzaker: Probability and Random Processes. Oxford University Press 2001

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 970

A	B	C	D	E	FX
19,07	11,13	14,95	19,18	28,87	6,8

Lecturers: doc. RNDr. Katarína Janková, CSc., Mgr. Lívia Leššová, Mgr. Jozef Kováč, Mgr. Samuel Rosa

Last change: 28.04.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-421/00	Problems of Analytical Philosophy (1)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
beginnings - G. Frege, B. Russell and G. E. Moore; goals and methods of the philosophical analysis; relation between language and "world" (Tractatus logico-philosophicus); search for criteria of meaningfulness of sentences; critics of traditional philosophy and of its "pseudoproblems"; Vienna circle - the principle of verifiability and its variants; logical positivism and its limits

Recommended literature:
Frege, G.: "O zmysle a denotáte.", In: Filozofia, roč. 47, 1992, č. 6.
Russell, B.: "Opisy.", In: Organon F, 1995, č. 2
Kamhal, D.(ed.): Z analytickej filozofie I., UK Bratislava 1993, textbook
Peregrin, J.: Kapitoly z analytické filosofie, Filosofia, Praha 2005.
Valenta, L.: Problémy analytické filozofie. Nakladatelství Olomouc 2003.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 35

A	B	C	D	E	FX
91,43	5,71	2,86	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-422/00	Problems of Analytical Philosophy (2)

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Natural (ordinary) language and artificial language; two approaches to the analysis of ordinary language; late Wittgenstein - meaning of expression and use of expression, language games; Oxonian "linguistic philosophy" (P. F. Strawson, J. L. Austin, H. P. Grice); J. Searle and elaboration of theory of speech acts; Quine's pragmatism and his critics of dogmas of empiricism; inscrutability of reference and ontological relativity; D. Davidson and his pragmatism

Recommended literature:
Filozofia prirodzeného jazyka, (ed. M. Oravcová) Bratislava, Archa 1992.
Strawson, P. F.: Analýza a metafyzika. Kalligram, Bratislava 2001.
Quine, W. V. O.: Od stimulu k vědě, Academia, Filosofia, Praha 2002
Davidson, D.: Subjektivita, intersubjektivita, objektivita, Praha 2004

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 9

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-760/15	Professional Graphical Software (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAGDM/1-MAT-760/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 58

A	B	C	D	E	FX
24,14	31,03	18,97	3,45	15,52	6,9

Lecturers: RNDr. Róbert Bohdal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-830/15	Professional Graphical Software (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 6.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAGDM/1-MAT-830/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 19

A	B	C	D	E	FX
15,79	5,26	26,32	31,58	10,53	10,53

Lecturers: RNDr. Róbert Bohdal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KZVI/1-MAT-130/14	Programming (1)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 1.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:
Students are able to solve problems algorithmically, to process large number of data and to communicate with the user using basic constructions and data types of programming language C #.

Class syllabus:
Graphic commands,
Expressions and variables,
Loops,
Program branching,
Solving mathematical problems,
Subroutines,
Array,
Mouse input,
Two-dimensional array,
Functions

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1730

A	B	C	D	E	FX
32,89	10,69	10,58	13,99	23,93	7,92

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KZVI/1-MAT-170/00	Programming (2)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 2.

Educational level: I.

Prerequisites: FMFI.KZVI/1-MAT-130/14 - Programming (1)

Course requirements:

Learning outcomes:
Using object-oriented programming in the C # programming language, students are able to solve problems algorithmically, process structured data and interact with the user.

Class syllabus:
Strings,
Objects,
Timer,
Many objects,
Turtle graphics,
Recursion,
Bitmaps,
Text files,
Keyboard input

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 1500

A	B	C	D	E	FX
31,4	16,53	12,2	14,07	20,47	5,33

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KZVI/1-MAT-756/00	Programming (3)

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 3.

Educational level: I.

Prerequisites: FMFI.KZVI/1-MAT-170/00 - Programming (2)

Course requirements:
Scale of assessment (preliminary/final): 65/35

Learning outcomes:

Class syllabus:
Polymorphism
Data structures: hash table, queue, stack, linked list, tree, graph
Algorithms: concerning data structures, searching, sorting, backtracking
Thinking about complexity

Recommended literature:
Andrew Koenig, Barbara E. Moo: Rozumíme C++; Computer Press 2003
Miroslav Virius: Pasti a propasti jazyka C++; Grada 1997
Lectures are published on the internet: www.salanci.sk/c

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
57,14	14,29	9,52	4,76	9,52	4,76

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-UXX-340/00	Recreation Sports in Dialy Routine of Pupils and Students

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.
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.

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 44

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: doc. PhDr. Vojtech Potočný, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-161/00	Russian Language (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject provides a course in Russian language for beginners.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 642

A	B	C	D	E	FX
60,9	16,2	9,66	4,83	1,71	6,7

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-162/00	Russian Language (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
The subject continues the program of Russian language (1) and provides a course of Russian for beginners.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 389

A	B	C	D	E	FX
65,81	16,2	9,0	3,34	1,03	4,63

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-261/00	Russian Language (3)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 191

A	B	C	D	E	FX
70,68	17,28	8,38	2,62	0,0	1,05

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-262/00	Russian Language (4)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
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.

Recommended literature:
The textbook has not been published. It is at students' disposal in an electronic format.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 130

A	B	C	D	E	FX
73,85	13,85	7,69	3,08	0,77	0,77

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-760/00	Sampling Theory

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-282/00 - Probability and Statistics (2)

Course requirements:
Preliminary semester evaluation: test
Final examination: written examination
Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%

Learning outcomes:
The student will master basic sampling schemes used in sampling from a finite population. He will be able to find interval estimates for unknown population parameters.

Class syllabus:
Simple random sampling, sampling without and with replacement. Estimate of population mean and proportion. Stratified random sampling. Stratification with proportional allocation. Optimum allocation, Neyman allocation. Systematic sampling. Elements of probabilistic random sampling. Inclusion probabilities, Horwitz-Thompson estimate and its properties. Bernoulli sampling, Poisson sampling.

Recommended literature:
Kalas, J.: Vybrané kapitoly z teórie náhodného výberu, skriptá MFF UK Bratislava 1996.
Cochran, W.G. Sampling techniques, Wiley and Sons, New York,1977.
Särndal, C. E., Swensson, B., Wretman, J.: Model Assisted Survey Sampling, Springer 1992.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 90

A	B	C	D	E	FX
28,89	18,89	17,78	14,44	13,33	6,67

Lecturers: doc. RNDr. Katarína Janková, CSc.

Last change: 28.04.2017

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-715/15	Seminar in MS-Office

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KMANM/1-MAT-715/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 93

A	B	C	D	E	FX
53,76	13,98	7,53	8,6	3,23	12,9

Lecturers: RNDr. Peter Švaňa, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-810/00	Seminar in Real Analysis

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
Historical background: The ancient Greeks, Fermat, Newton, Euler. The tweentieth century - different approaches: Robinson, Nelson, Vopěnka, Péraire. The natural geometrical universum and the classical one. Vopěnka's nonstandard analysis: sequences, functions, limits, continuity, derivatives. Alternative proofs of some classical theorems of mathematical analysis.

Recommended literature:
Vopěnka P: Calculus Infinitesimalis pars prima, Prague, Práh 1996.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 35

A	B	C	D	E	FX
85,71	11,43	0,0	0,0	2,86	0,0

Lecturers: doc. RNDr. Ivan Kupka, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-770/15	Seminar in TEX

Educational activities:
Type of activities: seminar
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KMANM/1-MAT-770/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 415

A	B	C	D	E	FX
84,34	5,3	3,61	1,69	1,2	3,86

Lecturers: Mgr. Peter Novotný, PhD., RNDr. Michal Pospíšil, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-455/00	Set Theory and Mathematical Logic (1)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Propositional calculus, propositional forms, provability, interpretations, tautologies, the completeness theorem.
Boolean algebras and filters and their relation to propositional calculus.
First order languages and structures. Terms, formulas and first order theories. Satisfaction of formulas, models of theories. Provability and the deduction theorem. Consistent, complete and Henkin theories. Gödel's completeness theorem. The compactness theorem and its consequencies. Examples of theories.

Recommended literature:
J. Shoenfield: Mathematical Logic, Adison-Wesley, Reading, 1967.
P. Štěpánek: Matematická logika, SPN, Prague, 1982.
A. Sochor: Klasická matematická logika, Karolinum, Prague, 2001.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
63,49	23,81	11,11	1,59	0,0	0,0

Lecturers: prof. RNDr. Pavol Zlatoš, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM/1-MAT-480/00	Set Theory and Mathematical Logic (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 6.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
Substructures, homomorphisms and chains of structures. Elementary equivalence, elementary substructures and elementary chains. Tarski's criterion. Diagrams. Axiomatic and finitely axiomatizable classes. Universal, existential, universal-existential and positive formulas. Preservation of theories under algebraic constructions.
Filtered product, ultraproduct and ultrapower. Los' theorem. The compactnes theorem in the language of ultraproducts. Characterization of elementary equivalence and (finitely) axiomatizable classes.
The axiom of choice, the well-ordering priciple and maximality principles. Transfinite induction.

Recommended literature:
H. J. Keisler, C.C. Chang: Model Theory, North-Holland, Amsterdam, 1973.
P. Štěpánek: Matematická logika, SPN, Prague, 1982
B. Balcar, P. Štěpánek: Teorie množín, Academia, Prague, 1986.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 28

A	B	C	D	E	FX
71,43	17,86	10,71	0,0	0,0	0,0

Lecturers: prof. RNDr. Pavol Zlatoš, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-731/00	Software MATLAB (1)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
- introduction to working environment
- using Matlab as a numerical calculator, basic arithmetic operations, number format
- entering vectors and matrices, doing matrix products, sums etc
- using Matlab to solve linear equations
- plotting basic graphs in 2D an 3D
- basic programming techniques, writing scripts and functions

Recommended literature:
Kozák Š., Kajan S., Matlab - Simulink, 1. Slovenská Technická, Univerzita v Bratislave, 1999. ISBN
Dušek F., MatLab a Simulink, Univerzita Pardubice, 2000
www.mathworks.com/matlabcentral
www.humusoft.cz

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 302

A	B	C	D	E	FX
40,4	10,93	21,19	14,57	10,6	2,32

Lecturers: Mgr. Peter Novotný, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-732/00	Software MATLAB (2)

Educational activities:
Type of activities: practicals
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-731/00 - Software MATLAB (1)

Course requirements:
Scale of assessment (preliminary/final): 100/0

Learning outcomes:

Class syllabus:
- m.files programming techniques - scripts and functions
- pictures, audio and animation
- system Handle Graphics, hierarchy of the graphic objects
- data types - cell arrays and structures, etc
- GUIDE
- Switch board programming method
- optimizing the performance of matlab code

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 74

A	B	C	D	E	FX
55,41	8,11	5,41	18,92	8,11	4,05

Lecturers: Mgr. Peter Novotný, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-115/15	Sports in Nature (1)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-115/15	Sports in Nature (1)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 1.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 171

A	B	C	D	E	FX
99,42	0,0	0,58	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-215/15	Sports in Nature (2)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 4.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-215/15	Sports in Nature (2)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 3.

Educational level: I., II.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 94

A	B	C	D	E	FX
100,0	0,0	0,0	0,0	0,0	0,0

Lecturers: Mgr. Martin Dovičák, Mgr. Tomáš Kuchár, PhD., Mgr. Jana Leginusová, PaedDr. Dana Mašlejová, Mgr. Ladislav Mókus, Mgr. Ondrej Podkonický

Last change: 25.05.2016

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-MXX-501/15	Statistics for Non-statisticians

Educational activities:
Type of activities: course
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 2

Recommended semester:

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KAMŠ/1-MXX-501/14

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 15

A	B	C	D	E	FX
93,33	0,0	0,0	0,0	0,0	6,67

Lecturers: doc. Mgr. Ján Mačutek, PhD.

Last change:

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-416/15	Theory of Complex Variable Functions

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 4.

Educational level: I.

Prerequisites:

Antirequisites: FMFI.KMANM/1-MAT-416/11

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 121

A	B	C	D	E	FX
19,83	15,7	22,31	14,05	21,49	6,61

Lecturers: Mgr. Július Pačuta, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-785/15	Theory of Measure and Integral

Educational activities:
Type of activities: lecture / practicals
Number of hours:
per week: 2 / 2 **per level/semester:** 28 / 28
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Antirequisites: FMFI.KMANM/1-MAT-785/00

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 16

A	B	C	D	E	FX
25,0	12,5	12,5	12,5	25,0	12,5

Lecturers: doc. RNDr. Eugen Viszus, CSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAI/1-MXX-428/00	Theory of Speach Acts

Educational activities:
Type of activities: lecture / seminar
Number of hours:
per week: 1 / 1 **per level/semester:** 14 / 14
Form of the course: on-site learning

Number of credits: 2

Recommended semester: 2.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:
semantics versus pragmatics; logical analysis and the analysis of language practice; speech act as a basic unit of communication; performative and constative utterances, speech acts - taxonomy and criteria; locutionary, illocutionary and perlocutionary aspects of speech acts; meaning of an expression as a way of its use and as its use (convention versus intention); meaning of expression, sentence meaning and utterer's meaning; referring as a speech act; applications of the theory of speech acts; conversational "implicatures" and maxims of conversation (H. P. Grice)

Recommended literature:
Austin, J. L.: How to do things with words, Oxford UP, 1975 (in Slovak Ako niečo robiť slovami, Kalligram, Bratislava 2004 Jak udělat něco slovy)
Grice, H. P.: Studies in the way of words, Harvard UP, 1991
Searle, J. R.: Speech acts, Cambridge University Press, var. editions
Wittgenstein, L.: Filozofické skúmania, Pravda, Bratislava 1979

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 42

A	B	C	D	E	FX
73,81	11,9	2,38	4,76	7,14	0,0

Lecturers: PhDr. Dezider Kamhal, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KMANM/1-MAT-801/15	Topology

Educational activities:
Type of activities: lecture
Number of hours:
per week: 2 **per level/semester:** 28
Form of the course: on-site learning

Number of credits: 3

Recommended semester: 4.

Educational level: I.

Prerequisites: FMFI.KMANM/1-MAT-110/00 - Mathematical Analysis (1)

Antirequisites: FMFI.KMANM/1-MAT-801/10

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 63

A	B	C	D	E	FX
52,38	9,52	9,52	12,7	6,35	9,52

Lecturers: prof. RNDr. Milan Medveď, DrSc.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAGDM+KAI/1-MAT-560/00	Web Graphics

Educational activities:
Type of activities: course
Number of hours:
per week: 4 **per level/semester:** 56
Form of the course: on-site learning

Number of credits: 5

Recommended semester: 5.

Educational level: I.

Prerequisites:

Course requirements:
Scale of assessment (preliminary/final): 30/70

Learning outcomes:

Class syllabus:
1. Basic definitions. Historic survey, state-of-the art and the future of WWW. Semantic Web a Digital Libraries. Mobile communication. Security, legal and social aspects. Webby awards.
2. Client-server architecture. Dominant web services and technologies. SGML, HTML, VRML, UML. Java, php, ASP.NET and others. Examples of proper use. MIME formats and RFC standards. WWW Consortium.
3. Text creation, digital typography and DTP. On-line publishing authoring legal aspects.
4. Creation and use of pictorial data for WWW.
5. WWW sound processing and applications.
6. Internet animations and video.
7. WWW virtual interaction. Face demo by Ken Perlin. WWW as a procedural sketch book.
8. Web design styles and rules after A. Glassner.
9. 3D web graphics, VRML a X3D.
10. Virtual galleries, gardens, thematic parks and chat rooms.
11. Social and philosophic aspects of virtual environments. Netiquette. Third wave by A. Toffler. History of virtual reality (Gibson, Krueger, Lanier, CAVE...). Cult movie Matrix and implications of its message.
12. Interakcia, navigácia a kooperácia vo virtuálnych prostrediach. Distribuovaná VR. Hry a simulátory.
13. Spájanie obrazu s textom. Vizuálna kritika web stránok.
14. Virtuálne mestá. Akvizícia, konštrukcia, prezentácia, aplikácie.
15. Groupware. Skupinová komunikácia. Avatari a on-line komunity. MPEG-7 a MPEG-21.

Recommended literature:
CGEMS (web stránka ACM SIGGRAPH, www.siggraph.org),
pg.netgraphics.sk,
TOFFLER, A. Third Wave.

BERNERS-LEE, T. Semantic Web, Scientific American, May 2001.
SIGGRAPH course notes by od A. Glassner and K. Perlin.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 856

A	B	C	D	E	FX
21,26	27,69	24,3	12,73	5,14	8,88

Lecturers: doc. RNDr. Andrej Ferko, PhD.

Last change: 02.06.2015

Approved by: prof. RNDr. Ján Filo, CSc.