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.KAMŠ/1-PMA-912/15	BSc Seminar

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

Number of credits: 1

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: 34

A	B	C	D	E	FX
85,29	0,0	0,0	0,0	14,71	0,0

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 21.04.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-PMA-991/15	**Course title:** BSc Thesis Defense
Number of credits: 8	
Educational level: I.	
State exam syllabus:	
Last change: 02.06.2015	
Approved by: doc. RNDr. Katarína Janková, 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: 260

A	B	C	D	E	FX
25,77	16,15	21,15	18,85	14,23	3,85

Lecturers: RNDr. Andrej Náther, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 78

A	B	C	D	E	FX
55,13	28,21	11,54	3,85	1,28	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by: doc. RNDr. Katarína Janková, 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: 13

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: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-750/00	Computer Data Analysis

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: FMFI.KAG/1-MAT-120/15 - Linear Algebra and Geometry (1) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Course requirements:

Learning outcomes:

Class syllabus:
Basic computations in the table calculator Excel. Work with the graphs. Mathematical and statistic functions. Main probability distributions, calculation of percentiles and critical values. Descriptive statistics, presentation of results. Generator of random numbers, confidence intervals and testing. Goodness of fit test. Dependence of statistical variables, regression. Basics of time series analysis. Contingency tables. Work on the individual project.

Recommended literature:
Anděl, J.: Statistické metody. Matfyzpress, Praha 1993.
Chajdiak J. a kol.: Príručka pre užívateľov systému SAS. Statis Bratislava 1994
Lamoš, F., Potocký, R.: Pravdepodobnosť a matematická štatistika. Alfa Bratislava 1989.
Šťastný Z.: Matematické a statistické výpočty v Microsoft Excelu. Computer Press Brno 1999

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 181

A	B	C	D	E	FX
28,73	24,31	23,2	12,71	8,84	2,21

Lecturers: doc. RNDr. Karol Pastor, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 232

A	B	C	D	E	FX
37,07	16,38	8,62	14,66	14,66	8,62

Lecturers: Mgr. Ján Somorčík, PhD.

Last change: 12.10.2016

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-741/00	Demography Statistics

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.KAG/1-MAT-120/15 - Linear Algebra and Geometry (1) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Course requirements:

Learning outcomes:

Class syllabus:
Demographic data and indicators. Standardization. The binomial model for the number of demographic events. Life tables, stationary population. Construction of life tables from statistical data. Force of mortality. Multiple decrement tables. Population models.

Recommended literature:
Cipra T.: Matematické modely demografie a pojištení. Praha SNTL 1990
Benjamin B., Pollard J.H.: The analysis of mortality and other actuarial statistics. Butterworth-Heinemann, Oxford 1980

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 181

A	B	C	D	E	FX
22,1	16,02	23,2	14,92	20,44	3,31

Lecturers: doc. RNDr. Karol Pastor, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/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: 878

A	B	C	D	E	FX
10,93	11,85	17,77	28,13	22,89	8,43

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/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.KAG/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: 151

A	B	C	D	E	FX
45,7	6,62	17,88	13,91	10,6	5,3

Lecturers: RNDr. Jana Tomanová, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-120/17	Economics (1)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

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: 141

A	B	C	D	E	FX
5,67	14,89	17,02	26,24	19,15	17,02

Lecturers: doc. RNDr. Ján Boďa, CSc.

Last change:

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-140/17	Economics (2)

Educational activities:
Type of activities: lecture
Number of hours:
per week: 3 **per level/semester:** 42
Form of the course: on-site learning

Number of credits: 4

Recommended semester: 2.

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: 97

A	B	C	D	E	FX
9,28	26,8	25,77	22,68	13,4	2,06

Lecturers: doc. RNDr. Ján Boďa, CSc.

Last change:

Approved by: doc. RNDr. Katarína Janková, 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: 144

A	B	C	D	E	FX
59,72	18,06	9,03	2,08	1,39	9,72

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 78

A	B	C	D	E	FX
64,1	20,51	6,41	1,28	0,0	7,69

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 4833

A	B	C	D	E	FX
29,82	23,82	19,04	12,97	7,99	6,37

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová

Last change: 22.02.2019
Approved by: doc. RNDr. Katarína Janková, 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: 1429

A	B	C	D	E	FX
19,17	21,55	25,68	16,66	10,99	5,95

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 1183

A	B	C	D	E	FX
16,91	19,19	22,74	17,58	18,34	5,24

Lecturers: PhDr. Elena Klátiková, PhDr. Alena Zemanová, Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 2426

A	B	C	D	E	FX
28,11	29,55	21,23	10,8	5,36	4,95

Lecturers: Mgr. Ing. Jana Kočvarová, Mgr. Alexandra Maďarová, PhDr. Alena Zemanová, PhDr. Elena Klátiková, Mgr. Ľubomíra Kožehubová, Mgr. Marián Mancovič, Mgr. Eva Foltánová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-210/00	Financial 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: 3.

Educational level: I.

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

Course requirements:

Learning outcomes:

Class syllabus:
Simple, compound and mixed interest. Effective and nominal rates of interest. Discount rates. Force of interest. Equation of value, internal rate of return. Present and accumulated values. Annuities-certain; annuity-due, immediate annuity, deferred annuity, forborne annuity, varying annuities, continuously payable annuities, perpetuities. Annuities payable morefrequent than interest. General loan schedule, capital and interest contents of payment, outstanding principal. Amortisation and sinking fund methods. Discounted cash flow, valuation of an investment project, comparison of different projects. Effects of inflation. Measurement of investment performance. Capital redemption policies.

Recommended literature:
Potocký, R.: Finančná matematika, UK Bratislava,1997, 2000
Cissel, R., Cissel, H., Flashpohler, D. S: Mathematics of finance, Boston 1982

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 238

A	B	C	D	E	FX
13,03	14,29	31,93	23,53	13,87	3,36

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 07.10.2016

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-220/00	Financial 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: 4.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-PMA-210/00 - Financial Mathematics (1) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)

Course requirements:

Learning outcomes:

Class syllabus:
Securities. Money and capital markets. Stock exchange. Short and long term instruments. Treasury bills, certificates of deposit, bankers´ acceptances. Fixed-interest securities. Bonds. Makeham´s formula, relation between price and yield. Callable bonds, optional redemption dates. Valuation between two interest dates. Ex dividend and cum dividend bonds, accrued interest. Index-linked bonds. Capital gain tax. Yield curves, discounted mean term, volatility Shares, ordinary and preference. Discounted cash flow models, one and two-period growth model. Subscription, its price. Stochastic interest rate models.

Recommended literature:
Potocký, R.: Finančná matematika, UK Bratislava,1997, 2000
McCutcheon, Scott: An introduction to the mathematics of finance, Butterworth and Heineman, Oxford 1991

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 220

A	B	C	D	E	FX
15,0	20,0	25,91	23,18	14,09	1,82

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 387

A	B	C	D	E	FX
41,09	21,96	21,19	9,82	2,07	3,88

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 247

A	B	C	D	E	FX
36,03	26,72	21,05	10,93	2,83	2,43

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 97

A	B	C	D	E	FX
36,08	28,87	22,68	7,22	1,03	4,12

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 68

A	B	C	D	E	FX
36,76	35,29	19,12	2,94	1,47	4,41

Lecturers: Mgr. Ľubomíra Kožehubová

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-530/00	General Insurance 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: 4

Recommended semester: 5.

Educational level: I.

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

Course requirements:
The interim evaluation: test during the semester
Exam: written exam
Orientation grading scale: A 90%, B 80%, C 70%, D 60%, E 50%.
Scale of assessment (preliminary/final): 34/66

Learning outcomes:
The student will be able to use basic methods of calculating insurance premiums and reserves in non-life insurance.

Class syllabus:
General principles of non-life insurance. Property and liability insurance. Estimation of the number and size of claims. Loss distributions, compound distribution of aggregate claims. Coinsurance and reinsurance; proportional and excess of loss. Retention. NCD system. Credibility theory, Bayesian approach. Empirical credibility - different models. Estimation of reserves; separation method, chain-ladder method. Introduction into risk theory.

Recommended literature:
Pacáková V.: Aplikovaná poistná štatistika, Ekonóm, Bratislava 1999.
Hossack, Pollard, Zehnwirth. Introductory statistics with applications in general insurance, Cambridge University Press,1983

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 196

A	B	C	D	E	FX
15,82	18,37	29,08	14,29	16,84	5,61

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 20.10.2016

Approved by: doc. RNDr. Katarína Janková, 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: 666

A	B	C	D	E	FX
32,28	29,13	21,17	9,91	2,85	4,65

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 423

A	B	C	D	E	FX
30,5	21,99	22,93	14,66	3,78	6,15

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 150

A	B	C	D	E	FX
38,0	28,0	22,0	6,67	2,67	2,67

Lecturers: Mgr. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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. Alexandra Maďarová, Mgr. Marián Mancovič

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-911/15	Individual Work on BSc Thesis

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
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: 56

A	B	C	D	E	FX
58,93	28,57	5,36	1,79	5,36	0,0

Lecturers: doc. RNDr. Katarína Janková, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-PMA-961/15	**Course title:** Insurance and Financial Mathematics
Number of credits: 2	
Educational level: I.	
State exam syllabus:	
Last change: 11.01.2018	
Approved by: doc. RNDr. Katarína Janková, CSc.	

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-310/00	Insurance 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: 5.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-MAT-281/00 - Probability and Statistics (1) and FMFI.KAMŠ/1-PMA-220/00 - Financial Mathematics (2)

Recommended prerequisites:
1-PMA-220 Financial Mathematics (2)

Course requirements:
The interim evaluation: test during the semester
Exam: written and oral exam
Orientation grading scale: A 90%, B 80%, C 70%, D 60%, E 50%.
Scale of assessment (preliminary/final): 50/50

Learning outcomes:
After completing the course student receives an overview of the classical life insurance products, and netto- and gross premium calculation and methods of reserving. Student will be able to solve basic problems in life insurance mathematics.

Class syllabus:
General principles of life insurance. Deterministic approach. Probabilities of living and dying, rate of mortality. Mortality and select tables. Discrete, semicontinuous and continuouscase. Equation of value. Pure endowment, assurances (whole life, term, deferred, increasing), annuities (whole life, term, deferred, increasing), endowment. Net and gross premiums. Commutations functions. Policy values, prospective and retrospective net reserves, gross reserve, Zillmer reserve. Surrender and paid-up values. Alterations to policies. Variations of interest rates, mortality and costs assumptions.

Recommended literature:
Gerber: Life Insurance Mathematics, Springer-Verlag; 3rd edition,1997

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 204

A	B	C	D	E	FX
15,69	19,12	28,92	21,08	13,24	1,96

Lecturers: doc. RNDr. Rastislav Potocký, PhD., Mgr. Gábor Szűcs, PhD.
Last change: 20.10.2016
Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-320/00	Insurance 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: 6.

Educational level: I.

Prerequisites: FMFI.KAMŠ/1-PMA-310/00 - Insurance Mathematics (1)

Course requirements:

Learning outcomes:

Class syllabus:
Stochastic model of life contingencies. Future lifetime and curtate future lifetime for singlelife. Different methods of premium calculation. With- profit policies, bonuses. Unit-linked products. Solvency and profit testing. Profit vector and profit signature. Measures of profit:net present value, profit margin, internal rate of return. Actuarial basis, premium and valuation bases. Valuation of assets and liabilities. Sources of surplus and its distribution. Financial management of life office. Reinsurance.

Recommended literature:
Hare, McCutcheon: An introduction to profit-testing, Institute of actuaries,1991

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 190

A	B	C	D	E	FX
33,16	20,0	28,42	11,05	7,37	0,0

Lecturers: doc. RNDr. Rastislav Potocký, PhD., Mgr. Gábor Szűcs, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 33

A	B	C	D	E	FX
87,88	12,12	0,0	0,0	0,0	0,0

Lecturers: PaedDr. Elena Mendelová, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-770/00	Investments and Management 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-PMA-220/00 - Financial Mathematics (2)

Course requirements:

Learning outcomes:

Class syllabus:
Investments in securities with emphasis on shares and bonds. Management of bond portfolios. Corporate finance. Balance sheet, profit and loss account. Investment policy of insurance companies. Derivative securities. Options, forwards, financial futures. The binomial and Black-Scholes formulas. Uses of options and futures. Portfolio analysis. Mean-variance portfolio theory. Diversification. Opportunity set. Efficient portfolios; calculating efficient frontiers. Single and multi-index models, the constant correlation model. Models of equilibrium in the capital markets, the capital asset pricing model and arbitrage pricing model. Evaluation of portfolio performance, investment indices. Managing stock portfolios. Active and passive management Hedging of portfolio.

Recommended literature:
Elton, Gruber: Modern portfolio theory and investment analysis. New York, 1995

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 118

A	B	C	D	E	FX
30,51	26,27	27,12	11,02	0,85	4,24

Lecturers: doc. RNDr. Rastislav Potocký, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 58

A	B	C	D	E	FX
27,59	36,21	22,41	12,07	1,72	0,0

Lecturers: doc. PhDr. Ján Rybár, PhD.

Last change: 22.09.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-710/15	Legislation and Accountancy of Insurance Companies

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., 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: 94

A	B	C	D	E	FX
20,21	15,96	18,09	20,21	8,51	17,02

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/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:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 88

A	B	C	D	E	FX
9,09	7,95	12,5	26,14	32,95	11,36

Lecturers: Mgr. Tibor Macko, PhD., RNDr. Martin Sleziak, PhD.

Last change: 15.01.2018

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

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

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 77

A	B	C	D	E	FX
12,99	6,49	11,69	32,47	28,57	7,79

Lecturers: RNDr. Martin Sleziak, PhD., Mgr. Tibor Macko, PhD.

Last change: 15.01.2018

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/1-MAT-191/00	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: 481

A	B	C	D	E	FX
22,45	21,62	20,58	18,92	12,89	3,53

Lecturers: prof. RNDr. Július Korbaš, CSc., RNDr. Martin Sleziak, PhD.
Last change: 15.01.2018
Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAG/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: 430

A	B	C	D	E	FX
24,42	20,47	18,14	18,14	14,88	3,95

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

Last change: 15.01.2018
Approved by: doc. RNDr. Katarína Janková, 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: 496

A	B	C	D	E	FX
12,7	9,88	10,48	27,02	38,71	1,21

Lecturers: doc. RNDr. Zbyněk Kubáček, CSc., Mgr. Július Pačuta, PhD.
Last change: 02.06.2015
Approved by: doc. RNDr. Katarína Janková, 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: 464

A	B	C	D	E	FX
12,07	9,48	15,73	25,86	34,91	1,94

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

Last change: 02.06.2015
Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-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.KAMŠ/1-EFM-110/00 - Mathematical Analysis (1) and FMFI.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2)) or (FMFI.KMANM/1-MAT-110/00 - Mathematical Analysis (1) and FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2))) and (FMFI.KAG/1-EFM-160/12 - Linear Algebra and Geometry (2) or FMFI.KAG/1-MAT-160/15 - Linear Algebra and Geometry (2))

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

Learning outcomes:
To master the basics of the differential calculus of functions of several variables with emphasis on the methods used in the economic sciences. Upon completion of the course, students will acquire key competences in the field of vector mathematical analysis and finite-optimization methods.

Class syllabus:
Class syllabus:
Topic 1: Normed vector spaces (NVS).
• Norm and its properties.
• Equivalent norms.
• Examples of norms in general NVS.
• Euclidean space. Scalar product.
• Cauchy-Schwartz inequality, Young's and Minkowski inequality.
• Linear mappings and functionalities.
Topic 2: Topological properties of NVS.
• Open and closed sets in a NVS.
• Boundary of a set.
• Convergence of sequences in NVS.
• Compact sets, criteria for compactness, Heine-Borel theorem.
• Complete normed spaces, Banach and Hilbert space.
• Completions of a normed space.
• Lebesgue space.
• Contiguous set.
• Convex set in the NVS.
Topic 3: Continuity in NVS.

• Limits of functions. The definition of continuity of a function in NVS.
• Extremal properties of continuous functions on compact and contiguous subsets.
• Contractive mapping and Banach theorem on the existence of a fixed point and its applications
Topic 4: Multivariate functions.
• Relationship between multiple limit and limits of functions of more variables.
• Graph over a function of several variables.
• Convex and concave function.
• Level sets of convex functions.
Topic 5: Differentiability of functions of several variables.
• Partial derivatives of functions of several variables and their geometric interpretation.
• Partial derivatives of higher order, interchangeability of the order of differentiation.
• The derivative of a multivariate function and its geometrical interpretation.
• Relationship between derivative of a function and its partial derivatives, Jacobi matrix.
• Derivative of a composite function. Derivatives of higher order.
Topic 6: Properties of differentiable functions.
• Taylor series for multivariate function.
• Differential of a function and its use to determine the approximate value of a function.
• Gradient of a function and directional derivatives.
• Relationship between gradient and level set of a differentiable function.
• Convexity criterion for functions of several variables.
Topic 7: Extremal properties of multivariate functions.
• Tangent plane to a graph of a functions.
• Maximum and minimum of a multivariate function, local extremes. Saddle points.
• Necessary conditions for local extremes of functions of several variables.
• Sufficient conditions for local extremes and Hessian matrix of second derivatives.
• Global extremes and methods for their determination.
• Applications that lead to finding extremes of unconstrained functions.
Topic 8: Functions given implicitly.
• Examples of importance of implicit functions.
• The existence of an implicit function.
• Derivative of implicit function.
• Existence of an inverse function.
Topic 9: Extremes of a constrained multivariate function.
• Importance and application of extremes of a constrained multivariate function.
• Geometric interpretation of the extreme of a constrained multivariate function and Lagrange multipliers.
• Lagrangian.
• Necessary conditions for the existence of an extreme of a constrained function.
• Methods for determining the extreme type, some simple sufficient conditions for finding constrained minimum/maximum.
• General sufficient condition for an extreme of a constrained function and bounded Hessian.

Recommended literature:

Online zbierka príkladov a úloh a základov teórie:
Martin Kollár, Ľubica Kossaczká, Daniel Ševčovič: Diferenciálny a integrálny počet funkcií viac premenných v príkladoch
Knižničné a edičné centrum FMFI UK, 192 pp. (in Slovak). ISBN: 978-80-89186-54-9
http://www.iam.fmph.uniba.sk/institute/sevcovic/knihy/
BARNOVSKÁ M., SMÍTALOVÁ K.: (1991) Matematická analýza III, Skriptá UK, Bratislava.
BARNOVSKÁ M., SMÍTALOVÁ K.: (1984) Matematická analýza IV, Skriptá UK, Bratislava.

KLUVÁNEK, I., MIšÍK, L., ŠVEC M.: (1961) Matematika I, II, SVTL Bratislava.
DEMIDOVIČ, B.P.: (1977) Sbornik zadač i upražnenij po matematičeskomu analizu, Moskva Nauka (v ruštine).

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 609

A	B	C	D	E	FX
30,05	28,74	27,09	8,87	4,6	0,66

Lecturers: prof. RNDr. Daniel Ševčovič, DrSc., RNDr. Ľubica Kossaczká, CSc., Mgr. Martin Kollár, PhD.

Last change: 09.10.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-250/00	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.KAMŠ/1-EFM-130/00 - Mathematical Analysis (2) or FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2)) and FMFI.KAMŠ/1-EFM-210/00 - Mathematical Analysis (3)

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

Learning outcomes:
To master the basics of the integral calculus of functions of multiple variables, with emphasis on the methods used in financial mathematics. Upon completion of the course students will acquire key competences in the field of vector mathematical analysis.

Class syllabus:
Class syllabus:
Topic 1: Fourier series.
• Decomposition of a function into Fourier series.
• Formulas for the Fourier coefficients
• Complex form of trigonometric series.
• Periodic extension of a functions.
• Pointwise convergence of Fourier series. Fejer kernel.
• Bessel inequality and Parseval equality.
• Odd and even extentions of functions and their decomposition into Fourier series.
• Applications of the Fourier series.
• Solution to the boundary value problem for ordinary differential equations using Fourier series.
Topic 2: Parametric integrals.
• Definition of a parametric integral.
• Examples of parametric integrals.
• Continuity and differentiability of parametric integrals.
• Parametric integrals of unbounded functions.
• Parametric integrals on unbounded intervals.
• Method of calculation for parametric integrals.
• Gamma, Beta functions and their properties.
Topic 3: Riemann integral of multivariate function.
• Riemann integral on a bounded area.

• Properties of the integral of a multivariate function.
• Fubini theorem.
Topic 4: Substitution method for integrating functions of several variables.
• Linear and non-linear coordinate transformation.
• Jacobi matrix of a transformation and the geometric interpretation of its determinant.
• Substitution theorem for integrals of multivariate functions.
• Polar and spherical coordinates.
• Method of calculation of multidimensional integrals by transformation of variables.
Topic 5: Curve and surface integrals.
• Integrating functions defined on curves.
• Curve integral: kind I. and II..
• Integrating functions defined on surfaces.
• Surface integrals.
• Relationship between, curve, surface and volume integrals.
• Green's formula of integration by parts.
• Ostrogradskij-Gauss theorem and Stokes formula.

Recommended literature:

M. Barnovská, K. Smítalová, Matematická analýza IV, Skriptum UK v Bratislave, 1984.
V. Ďurikovič, Mat. Analýza 4, Integrálny počet v R^n, UK, 1997.
Online zbierka príkladov a úloh a základov teórie:
Martin Kollár, Ľubica Kossaczká, Daniel Ševčovič: Diferenciálny a integrálny počet funkcií viac premenných v príkladoch
Knižničné a edičné centrum FMFI UK, 192 pp. (in Slovak). ISBN: 978-80-89186-54-9
http://www.iam.fmph.uniba.sk/institute/sevcovic/knihy/
BARNOVSKÁ M., SMÍTALOVÁ K.: (1991) Matematická analýza III, Skriptá UK, Bratislava.
BARNOVSKÁ M., SMÍTALOVÁ K.: (1984) Matematická analýza IV, Skriptá UK, Bratislava.
KLUVÁNEK, I., MIšÍK, L., ŠVEC M.: (1961) Matematika I, II, SVTL Bratislava.
DEMIDOVIČ, B.P.: (1977) Sbornik zadač i upražnenij po matematičeskomu analizu, Moskva Nauka (v ruštine).

Languages necessary to complete the course:

Notes:

Past grade distribution

Total number of evaluated students: 606

A	B	C	D	E	FX
37,46	31,52	16,67	9,41	4,13	0,83

Lecturers: prof. RNDr. Daniel Ševčovič, DrSc., Mgr. Martin Kollár, PhD., RNDr. Ľubica Kossaczká, CSc.

Last change: 09.10.2017

Approved by: doc. RNDr. Katarína Janková, 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: 566

A	B	C	D	E	FX
40,28	16,25	12,54	12,54	11,13	7,24

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 460

A	B	C	D	E	FX
43,91	14,57	17,83	9,78	10,87	3,04

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-530/00	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:

Learning outcomes:

Class syllabus:
Metric spaces. Limit and continuity of a multivariable function. Differentiation of _ mappings, total differential and total derivative. Partial derivative, Taylor formula. Local and global extrema of multivariable function. Implicit functions.

Recommended literature:
M. Barnovská, K. Smítalová, Matematická analýza III, Skriptum UK v Bratislave, 1983

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 605

A	B	C	D	E	FX
45,45	22,48	18,02	7,44	6,45	0,17

Lecturers: Mgr. Martin Kollár, PhD., RNDr. Ľubica Kossaczká, CSc., Mgr. Michal Hojčka, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-EFM-540/00	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:

Learning outcomes:

Class syllabus:
Multiple integrals. Line and surface integrals, Green's formula, Ostrogradskij and Stokes theorem. Parametric integrals. Fourier series.

Recommended literature:
M. Barnovská, K. Smítalová, Matematická analýza IV, Skriptum UK v Bratislave, 1984.
Eliaš J., Horváth J., Kajan J., Zbierka úloh z vyššej matematiky, 4. časť, Bratislava, Alfa, 1972.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 597

A	B	C	D	E	FX
53,43	20,44	13,07	8,54	4,36	0,17

Lecturers: Mgr. Martin Kollár, PhD., RNDr. Ľubica Kossaczká, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 237

A	B	C	D	E	FX
13,5	20,25	23,63	21,52	16,88	4,22

Lecturers: doc. RNDr. Rastislav Potocký, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-215/15	Matrix Algebra for Statisticians

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:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 48

A	B	C	D	E	FX
14,58	25,0	29,17	14,58	14,58	2,08

Lecturers: doc. Mgr. Radoslav Harman, PhD., Mgr. Samuel Rosa, PhD.

Last change: 08.05.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-720/15	Microeconomic Models

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: FMFI.KMANM/1-MAT-150/00 - Mathematical Analysis (2) and FMFI.KAG/1-MAT-120/15 - Linear Algebra and Geometry (1)

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

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. RNDr. Karol Pastor, CSc.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-540/00	Models in Health Insurance

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: 5.

Educational level: I.

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

Course requirements:
Preliminary semester evaluation: homeworks and a test
Examination: written examination
Approximate grade thresholds: A 90%, B 80%, C 70%, D 60%, E 50%
Scale of assessment (preliminary/final): 40/60

Learning outcomes:
Upon the succesful completion of the course the student will be able to use the multiple state Markov model to calculate probabilities and actuarial values used in health insurance or critical illness insurance. A similar approach may be used in other models (unemployment, etc.)

Class syllabus:
Discrete time Markov chain, transition probabilities, forces of transition. Chapman-Kolmogorov equation, differential equations for occupation probabilities and transition probabilities in multidecrement models and in the three state model active-ill-dead. Maximal likelihood estimates of forces o transition and their properties.
Multiple decrement tables, central rates of decrement. Single decrement tables, independent and dependent rates of decrement.
Semimarkov approach to the three state model, splitting of states. Application of models to health insurance: benefits, premiums, and reserves. Critical illness and dread disease insurance models.

Recommended literature:
Habermann, Pitacco: Actuarial models in disability insurance, Chapmann and Hall 1999
Health insurance, modul F , materials of Institute of Actuaries,Oxford,1995

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 199

A	B	C	D	E	FX
18,09	10,55	18,09	22,61	25,13	5,53

Lecturers: doc. RNDr. Katarína Janková, CSc.
Last change: 28.04.2017
Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-PMA-790/13	**Course title:** Multiple Life Insurance
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-PMA-310/00 - Insurance Mathematics (1)	
Course requirements:	
Learning outcomes:	
Class syllabus:	
Recommended literature:	
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:
Last change:
Approved by: doc. RNDr. Katarína Janková, 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., 6.

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: 324

A	B	C	D	E	FX
26,85	21,3	19,75	12,04	17,9	2,16

Lecturers: Mgr. Jela Babušíková, PhD., Dr. Hana Mizerová

Last change: 02.06.2015
Approved by: doc. RNDr. Katarína Janková, 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: doc. RNDr. Katarína Janková, 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: doc. RNDr. Katarína Janková, 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: 4681

A	B	C	D	E	FX
97,29	1,77	0,04	0,0	0,02	0,88

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

Last change: 25.05.2016

Approved by: doc. RNDr. Katarína Janková, 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: 3997

A	B	C	D	E	FX
97,72	1,88	0,05	0,0	0,0	0,35

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 2454

A	B	C	D	E	FX
99,1	0,53	0,0	0,0	0,0	0,37

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 2210

A	B	C	D	E	FX
99,64	0,18	0,0	0,05	0,0	0,14

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 1654

A	B	C	D	E	FX
99,4	0,36	0,0	0,0	0,0	0,24

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 1447

A	B	C	D	E	FX
99,52	0,28	0,07	0,0	0,0	0,14

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

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 32

A	B	C	D	E	FX
50,0	21,88	21,88	0,0	3,13	3,13

Lecturers: doc. Mgr. Ján Mačutek, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 257

A	B	C	D	E	FX
14,79	14,79	16,73	19,84	27,63	6,23

Lecturers: RNDr. Andrej Náther, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, CSc.

STATE EXAM DESCRIPTION

University: Comenius University in Bratislava	
Faculty: Faculty of Mathematics, Physics and Informatics	
Course ID: FMFI.KAMŠ/1-PMA-951/15	**Course title:** Probability and Statistics
Number of credits: 2	
Educational level: I.	
State exam syllabus:	
Last change: 11.01.2018	
Approved by: doc. RNDr. Katarína Janková, 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.KAG/1-MAT-120/15 - Linear Algebra and Geometry (1) or FMFI.KAG/1-MMN-120/00 - Linear Algebra and Geometry (1) or FMFI.KAG/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: 1132

A	B	C	D	E	FX
16,7	12,19	17,76	22,44	25,71	5,21

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

Last change: 28.04.2017

Approved by: doc. RNDr. Katarína Janková, 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: 1095					
A	B	C	D	E	FX
18,72	10,68	15,43	19,45	28,22	7,49
Lecturers: doc. RNDr. Katarína Janková, CSc., Mgr. Jozef Kováč, Mgr. Samuel Rosa, PhD.					
Last change: 28.04.2017					
Approved by: doc. RNDr. Katarína Janková, CSc.					

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-754/16	Probability and Statistics 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: 93

A	B	C	D	E	FX
59,14	6,45	10,75	9,68	4,3	9,68

Lecturers: Mgr. Jozef Kováč, Mgr. Samuel Rosa, PhD., Mgr. Lívia Leššová

Last change: 25.04.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-753/15	Probability and Statistics 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: 165

A	B	C	D	E	FX
69,7	11,52	6,67	7,88	2,42	1,82

Lecturers: Mgr. Lívia Leššová, Mgr. Jozef Kováč, Mgr. Samuel Rosa, PhD.

Last change: 24.04.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KDMFI/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: 432

A	B	C	D	E	FX
47,45	9,26	6,94	7,64	10,42	18,29

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KDMFI/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.KDMFI/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: 1571

A	B	C	D	E	FX
31,7	16,8	12,35	13,49	19,92	5,73

Lecturers: doc. RNDr. Ľubomír Salanci, PhD.

Last change: 25.10.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-751/13	Programming in R

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: 4.

Educational level: I.

Prerequisites:

Course requirements:

Learning outcomes:
Using the R environment, writing simple functions and scripts, working with data files.

Class syllabus:
Working with envoronment and R workspaces, basic operations.
Manipulating variables, vectors, matrices and data frames.
Conditional statements and flow control. Writing scripts and functions. Elementary statistical operations. Using graphical procedures for data visualization.

Recommended literature:
The art of R programming : A tour of statistical software design / Norman Matloff. San Francisco : No Starch Press, 2011

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 79

A	B	C	D	E	FX
26,58	16,46	12,66	20,25	22,78	1,27

Lecturers: Mgr. Lenka Filová, PhD.

Last change: 04.04.2017

Approved by: doc. RNDr. Katarína Janková, 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: Mgr. Tomáš Kuchár, PhD.

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 654

A	B	C	D	E	FX
60,4	15,9	10,09	4,74	1,83	7,03

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 399

A	B	C	D	E	FX
65,66	15,79	9,02	4,01	1,0	4,51

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 196

A	B	C	D	E	FX
70,41	17,35	8,67	2,55	0,0	1,02

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 138

A	B	C	D	E	FX
75,36	13,04	7,25	2,9	0,72	0,72

Lecturers: PhDr. Elena Klátiková

Last change: 02.06.2015

Approved by: doc. RNDr. Katarína Janková, 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: 95

A	B	C	D	E	FX
30,53	17,89	17,89	14,74	12,63	6,32

Lecturers: doc. RNDr. Katarína Janková, CSc.

Last change: 28.04.2017

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-752/14	Solution methods in probability and statistics

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

Course requirements:
Assessment during the term: homework, test
Scale of assessment (preliminary/final): 100/0

Learning outcomes:
Student gains skills in applying the knowledge from probability and statistics to solve problems, including real life applications.

Class syllabus:
Combinatorial probability, conditional probabilities and Bayes theorem, discrete and continuous random vectors and their applications.

Recommended literature:

Languages necessary to complete the course:
Slovak, English

Notes:

Past grade distribution
Total number of evaluated students: 31

A	B	C	D	E	FX
80,65	12,9	3,23	0,0	3,23	0,0

Lecturers: doc. RNDr. Mgr. Beáta Stehlíková, PhD.

Last change: 17.05.2018

Approved by: doc. RNDr. Katarína Janková, 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.

Prerequisites:

Course requirements:

Learning outcomes:

Class syllabus:

Recommended literature:

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 208

A	B	C	D	E	FX
99,52	0,0	0,48	0,0	0,0	0,0

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

Last change: 25.05.2016

Approved by: doc. RNDr. Katarína Janková, 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: 2.

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: 128

A	B	C	D	E	FX
99,22	0,0	0,0	0,0	0,0	0,78

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

Last change: 25.05.2016

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-216/18	Sports in Nature (3)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
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: 13

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

Lecturers: Mgr. Branislav Nedbálek

Last change:

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KTV/1-MXX-217/18	Sports in Nature (4)

Educational activities:
Type of activities:
Number of hours:
per week: **per level/semester:**
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: 1

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

Lecturers: Mgr. Branislav Nedbálek

Last change:

Approved by: doc. RNDr. Katarína Janková, 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: 27

A	B	C	D	E	FX
85,19	0,0	0,0	3,7	0,0	11,11

Lecturers: doc. Mgr. Ján Mačutek, PhD.

Last change:

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KAMŠ/1-PMA-570/00	Stochastic Models in Insurance

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

Course requirements:

Learning outcomes:

Class syllabus:
Collective risk models for a single and extended period. Distribution of aggregate claims, approximations. Individual risk model. Stochastic processes in risk theory. Claims processes. Discrete time models. The maximum aggregate loss. Introduction to the ruin theory. Effect of reinsurance on the probability of ruin.

Recommended literature:
Pacáková V.: Aplikovaná poistná štatistika, Ekonóm, Bratislava, 1999.
Straub E.: Non-life Insurance Mathematics. Springer, Zurich, 1988.

Languages necessary to complete the course:

Notes:

Past grade distribution
Total number of evaluated students: 161

A	B	C	D	E	FX
19,88	16,77	26,09	21,12	15,53	0,62

Lecturers: Mgr. Gábor Szűcs, PhD.

Last change: 15.11.2018

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-133/18	Supplementary English 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: 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: 3

A	B	C	D	E	FX
66,67	33,33	0,0	0,0	0,0	0,0

Lecturers: Mgr. Ing. Jana Kočvarová

Last change:

Approved by: doc. RNDr. Katarína Janková, CSc.

COURSE DESCRIPTION

University: Comenius University in Bratislava

Faculty: Faculty of Mathematics, Physics and Informatics

Course ID:	**Course title:**
FMFI.KJP/1-MXX-134/18	Supplementary English 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: 2.

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
70,0	0,0	0,0	20,0	10,0	0,0

Lecturers: Mgr. Ing. Jana Kočvarová

Last change:

Approved by: doc. RNDr. Katarína Janková, CSc.